NEW DIRECTIONS IN CREATIVITY   **MARK 1**

The *NEW DIRECTIONS IN CREATIVITY* program,
under the direction of Joseph S. Renzulli,
includes the following manuals:
MARK A
MARK B
MARK 1
MARK 2
MARK 3

NEW DIRECTIONS IN CREATIVITY

MARK 1

JOSEPH S. RENZULLI

CONTENTS

In children creativity is a universal. Among adults it is almost nonexistent. The great question is: What has happened to this enormous and universal human resource? This is the question of the age and the quest of our research.

—from Harold H. Anderson, ed., *Creativity and Its Cultivation* (New York: Harper & Brothers, 1959), p. xii.

"The main thing is not to take it personal."

"What I liked best about school this year was the teachers' strike."

A PERSONAL NOTE TO TEACHERS

Whenever teachers ask me how I became interested in creativity and why I developed a creativity training program for children, I often answer by referring to the quotation and the two cartoons on page vi. The quotation from Harold Anderson's book points out the great loss in human potential for creative development that takes place between childhood and adulthood. Although this loss no doubt takes its toll by limiting the number of people who make creative contributions to our society, a much more serious and far-reaching consequence is that many adults never have the opportunity to experience the satisfaction and enjoyment that results from the act of creating. Somehow the joys that were associated with childhood fantasy and imaginary excursions into the world of the improbable seem to disappear as we engage in the business of growing up. Although growing up is indeed a serious business, I often wonder if the emphasis that our culture places on the practical and the utilitarian causes most people to arrive at adulthood without the creative ability that they possessed as children.

The first cartoon illustrates the emphasis that our educational system places on the process of conformity. Most learning experiences are designed in a way that causes all youngsters to arrive at the same solutions to problems; thus it is not surprising to see a very homogenized group emerging from "the system." A quick glance at most workbooks or exercises in textbooks reveals that only rarely do these materials purposefully encourage youngsters to be as original as possible in their answers to given problems and questions.

The second cartoon presents a sad but essentially valid picture of most children's perception of school. Our preoccupation with order, control, routine, and conformity has made schools into dreary and often oppressive places for many children. The supposedly exciting act of learning has frequently been a coercive and sometimes even punitive process.

Many writers have summarized problems that have made schools such unfriendly places and have pointed out some of the ways that these problems can be overcome. One suggestion common to many writers is that classrooms need to be more engaging, creative, and interactive places and that youngsters need to be given greater opportunities to imagine, create, and express themselves.

The creativity training program described in this manual represents one attempt to provide both teachers and students with a set of materials that will help them learn a variety of ways for expressing their creative potential. Creativity is a dynamic process that involves "a way of looking at things"; therefore the activities included in this program are designed to broaden the way that youngsters look at their world. The program is not an end in itself, but rather a series of first steps that will provide teachers and students with the basic skills involved in creative production. Over the past few years, I have worked with hundreds of teachers in courses and workshops dealing with creativity. These experiences have shown me that a minimum amount of instruction and a maximum amount of actual involvement with the materials have effected the biggest changes in teachers' understanding and application of creativity training activities. The old saying "The best way to learn how to do it is to do it" is a guiding principle in my approach to teaching teachers the skills of creative production. Once these skills have been assimilated, they can be applied to all areas of the curriculum and to most of the learning experiences that take place in the classroom.

Joseph S. Renzulli
Storrs, Connecticut

1

PART I

I hear, and I forget;
I see, and I remember;
I do, and I understand.
Chinese Proverb

PURPOSE AND DESCRIPTION OF THE PROGRAM

The *New Directions in Creativity* program consists of five volumes: *Mark A*, *Mark B*, *Mark 1*, *Mark 2*, and *Mark 3*. The program is designed to help teachers develop the creative thinking abilities of primary and middle-grade youngsters. Research has shown that almost all children have the potential to think creatively and that creative production can be improved by providing systematic learning experiences that foster use of imagination.

Purpose of the Program

The general purpose of this creativity training program can best be explained by contrasting the creative or *divergent* production abilities with the *convergent* production abilities emphasized in most elementary school classrooms. In most traditional teaching-learning situations, major emphasis is placed on locating or converging upon correct answers. Teachers raise questions and present problems with a predetermined response in mind, and student performance is usually evaluated in terms of the correctness of a particular answer and the speed and accuracy with which youngsters respond to verbal or written exercises. Thus the types of problems raised by the teacher or textbook and the system of rewards used to evaluate student progress cause most youngsters to develop a learning style that is oriented toward zeroing in on the "right" answer as quickly and as efficiently as possible. Although this ability has its place in the overall development of the learner, most teachers would agree that impressionable young minds also need opportunities to develop their rare and precious creative thinking abilities.

Divergent production is a kind of thinking that is characterized by breaking away from conventional restrictions on thinking and letting one's mind flow across a broad range of ideas and possible solutions to a problem. The real problems humanity confronts do not have the kinds of predetermined or "pat" answers that a great deal of instruction focuses on in

the convergent-oriented classrooms. Yet we give our children very few opportunities to practice letting their minds range far and wide over a broad spectrum of solutions. The philosopher Alan Watts (1964) has talked about these two kinds of thinking in terms of what he calls the "spotlight mind" and the "floodlight mind." The spotlight mind focuses on a clearly defined area and cannot see the many alternative possibilities or solutions to a problem that may exist outside that area. Floodlight thinking, on the other hand, reaches upward and outward without clearly defined borders or limitations. The floodlight thinker is free to let his or her imagination wander without the confinements or limitations that usually lead to conformity. Both types of thinking are valuable, and to pursue one at the expense of the other is clearly a disservice to the children for whose development we are responsible.

This description of divergent thinking should not lead teachers to believe it is undisciplined or disorderly. Mary Nicol Meeker (1969) has pointed out that "divergent generation does not proceed willy-nilly; the divergent thinker is not a scatterbrain; the worthwhile generation of information requires discipline and guidance." Following Meeker's suggestion, the *New Directions in Creativity* program has attempted to provide youngsters with an opportunity to break away from conventional restrictions on their thinking. Yet an effort has been made to generate responses that are relevant to particular kinds of problems and that fall within reasonable bounds.

Specific Abilities Developed by the Program

The *New Directions in Creativity* program is designed to develop each of the following creative thinking abilities:

1. *Fluency*—the ability to generate a ready flow of ideas, possibilities, consequences, and objects

2. *Flexibility*—the ability to use many different approaches or strategies in solving a problem; the

3

willingness to change direction and modify given information

3. *Originality*—the ability to produce clever, unique, and unusual responses

4. *Elaboration*—the ability to expand, develop, particularize, and embellish one's ideas, stories, and illustrations

Each activity in the program is designed to promote one or more of these four general abilities. The activities are also classified according to (1) the types of information involved in each exercise (semantic, symbolic, figural) and (2) the ways that information is organized in each exercise (units, classes, relations, systems, transformations, implications, elaborations). These two dimensions are described in detail in Part III of this manual. The activity-by-activity lesson guides presented in Part IV include the specific objectives for each activity and suggestions for follow-up activities designed to develop further the specific abilities toward which the respective exercises are directed. Although many of the objectives and suggestions for follow-up activity are directed toward the development of traditional skills in language arts, these skills are always "piggybacked" on the four major creative thinking skills. Field testing has shown that students are more motivated to pursue traditional language arts skills when such skills are based upon activities that make use of their own creative products.

Although the purpose of each manual in this program is to provide teachers with a systematic set of activities aimed at promoting creativity in children, a second and equally important objective is to help teachers unlock their own potential for more creative teaching. In almost every school where these activities were field tested, participating teachers began to develop their own materials and activities for creativity training. In many cases, the teacher-made activities were highly original and skillfully integrated with various aspects of the regular curriculum. Once teachers understood the general nature of the creative process, they were quickly able to apply the same basic strategies to other areas of the curriculum. Therefore, teachers should view this creativity training program as a starting point that will eventually lead to the development of a "creativity orientation" on the part of teachers. This orientation will assist teachers in finding numerous opportunities for creativity training in a wide variety of learning situations.

Description of the Program

Each manual in the *New Directions in Creativity* program consists of twenty-four types of creativity training activities. Two activity sheets, both containing one or more exercises, are provided for each type of activity, and each type is classified according to the kinds of information involved in the exercises and the ways that information is organized. Each activity is further classified according to the level of response required. This classification scheme is based on Guilford's model of the structure of human abilities. Teachers who wish to know more about this model should refer to Part III of this manual. (An overview of the activities in this manual, listing the types of activities according to Guilford's classification scheme appears on page 22.)

Mark A and *Mark B* : Most of the activities in the primary volumes have been designed so that children can respond with either words or pictures. This approach allows children who cannot yet express themselves in writing to communicate their creative ideas through pictures. Suggestions for alternative modes of expression, such as dictating responses to a teacher's aid or to a tape recorder are also included. The primary volumes are also designed to develop the psychomotor abilities of younger children through manipulative and dramatic activities, and the teaching suggestions present ideas for using primary teaching aids such as flannel boards, chart paper, scissors, and paste.

The format of the primary activities attempts to take account of the developmental level of the young child. Illustrations on the exercise sheets are generally larger and less complicated than the drawings in the middle-grade books, and fewer responses are required to allow for the gross motor coordination of the primary-aged youngster. Page directions are simpler, and greater reliance is placed on illustrations than on written directions. The lesson guides for the primary volumes contain more detailed suggestions for introducing activities and emphasize using concrete examples to get children started on exercises that are more easily demonstrated than described.

Mark 1, Mark 2, and Mark 3 : Most of the activities in the middle-grade volumes deal with semantic information. Some symbolic activities that involve the use of words have been included, and a few figural activities have also been included to help students understand that creativity skills can be applied to both verbal and nonverbal information.

Activities dealing with information that is organized into units, classes, or relations generally require students to (1) fill in blanks with unspecified words, (2) manipulate given words and figures, or (3) complete short statements. These activities are considered warm- ups for higher level activities, and they are generally directed toward giving students practice in the basic creativity skill of brainstorming. Brainstorming activities help students free their thinking processes from the restraints that usually hinder creativity and provide an effective means for promoting a free and open classroom atmosphere.

The higher level activities deal with information that is organized into systems, transformations, implications, or elaborations. The major difference between the two levels of activities is that fewer specifications are given for the kinds of responses required in the higher level activities. These responses are generally more open-ended, and fewer restrictions are placed on the nature of the products developed by students. Although all activities provide youngsters with opportunities to express themselves in a relatively free and unrestricted manner, the program will be most effective if students pursue a balanced combination of the various types of activities. Each type is designed to develop and give practice in the use of certain creativity skills, and the skills developed by the warm-up activities are necessary for maximum development of the more advanced kinds of creative thinking necessary for the higher level activities. Suggestions for the most effective sequencing of activities are included in Part II of this manual.

Grade and Ability Levels

Although no specific grade level has been assigned to the respective volumes, field tests have shown that *Mark A* is most successful with children in kindergarten and first grade and that *Mark B* works best with second- and third-grade youngsters. An attempt was made to separate activities in the primary volumes so that the first book would contain exercises for children who have not yet developed reading and writing abilities or who are in the beginning stages of development in these areas. The exercises in *Mark B* were designed in accordance with the level of communication skills that typically are taught in second and third grades.

Field tests have shown that *Mark 1*, *Mark 2*, and *Mark 3* are most successful with students in grades four through eight. The open-ended nature of creativity training activities has provided an opportunity to develop a truly nongraded program, and many of the exercises have been used successfully with students at several grade levels. When there are no "right" or "wrong" answers, each student sets his or her own level of response. The responses of bright youngsters are often characterized by higher degrees of fluency, flexibility, originality, and elaboration, but even the slowest child is able to respond in a way that is appropriate to his or her own developmental level. It may be necessary for teachers to read some of the directions to students and to supervise their work more closely until they catch on to the nature of the various tasks. To help both younger and slower students grasp the main idea, most of the introductory exercises include illustrative examples. These examples are useful in helping students who have some trouble reading the directions or getting started on some of the more difficult exercises. Most of the exercises are not too difficult for younger or slower students, but because of the open-ended nature of the exercises, teachers must carefully explain directions, and they may have to provide a few examples of their own in order to start students off on the right track.

An important feature of this creativity training program is that a youngster can respond to each activity in terms of his or her own background and experience. Because the program is not based on the student's ability to recall factual information, each student can express his or her creativity by drawing on his or her own knowledge and experiences. Many writers have pointed out that the child's own experiences and activities are the principal agents of his or her development and that no matter how "primitive" a child's level of development, he or she can extend his or her mental abilities by probing, manipulating, and applying his or her own experiences to new kinds of materials and situations. This idea is one of the fundamental principles on which the constructivist learning is based, and field tests with the *New Directions in Creativity* program have shown that students from so-called disadvantaged backgrounds are able to use their own experiences to complete most of the activities in the program.

Insofar as individualized programming is concerned, it is important for teachers to carefully consider each child's preferences. Some students may show a preference for semantic activities, whereas others may prefer to respond figurally or symbolically. Similarly, certain children may like exercises with a less complicated response format (units, classes, relations), whereas others may show a preference for more complicated modes of expression such as poetry or story writing. The classification system which underlies the *New Direction in Creativity* program provides a unique opportunity for teachers to study children's learning

style preferences and to adapt accordingly. The program will be most successful if teachers respect children's preferences and avoid forcing every child to complete every activity.

PART II

GENERAL STRATEGIES FOR USING THE PROGRAM

Although a great deal has been written about fostering creativity in the classroom, relatively few basic teaching strategies have been effective in encouraging creative development. This section of the manual will describe the basic strategies that teachers have found most helpful in using the *New Directions in Creativity* program. Although the materials have been designed to require minimum preparation time, the importance of the teacher's role cannot be overemphasized. In describing the role of teachers in this regard, Starko (1995) emphasized the distinction between teaching for the development of creativity versus creative teaching. She concluded that effective teachers who develop students' creative thinking know how to teach techniques that "facilitate creative thinking across disciplines and provide a classroom atmosphere that is supportive of creativity" (p. 17). Other studies, including a meta-analysis study by Rose & Lin (1984) and a research synthesis by Torrance (1987), indicate that creativity training is associated with increased creativity, involvement in creative activities, and positive feelings toward school.

Brainstorming and the Fluency Principle

In most cases, the first thought that comes to mind in seeking the solution to a difficult problem is seldom the most original idea. Therefore, *fluency,* defined as the ability to produce several ideas or possible solutions to a problem situation, is an important condition for creative production. The fluency principle, which underlies the development of this creativity training program, maintains that fluency is a necessary, though not sufficient, condition for originality. Although there are some cases on record of highly creative products that have resulted from sudden inspirations, research on creativity in both children and adults strongly supports the fluency principle. Studies by Archambault (1970), Paulus (1970), and Baer (1993) have shown that initial responses to a given problem tend to be the more common ones and that the greater the number of answers generated, the higher the probability of producing an original response (*original* in the sense that fewer students come up with that response). Therefore, a hypothetical curve of creativity for a given task or activity (see Figure 1) would show a gently sloping gradient with an increase in originality being related to an increase in the number of responses. For example, if we asked a group of students to list all of the utensils that people *might* use to eat with, their initial responses would no doubt include common utensils such as forks, spoons, and knives. But if we encouraged them to increase their lists by using their imaginations ("Suppose you didn't have any forks or spoons. What *could* you use?"), students would begin to explore some possible alternatives. They might suggest such items as sharpened sticks, shells, and bottle caps. If we compared the lists of several youngsters, we would find that most of the initial answers are quite common—that most of the students have given the same responses. As the lists grow longer, we would find more divergence occurring, and the probability of a youngster's producing an original response increases. In other words, quantity
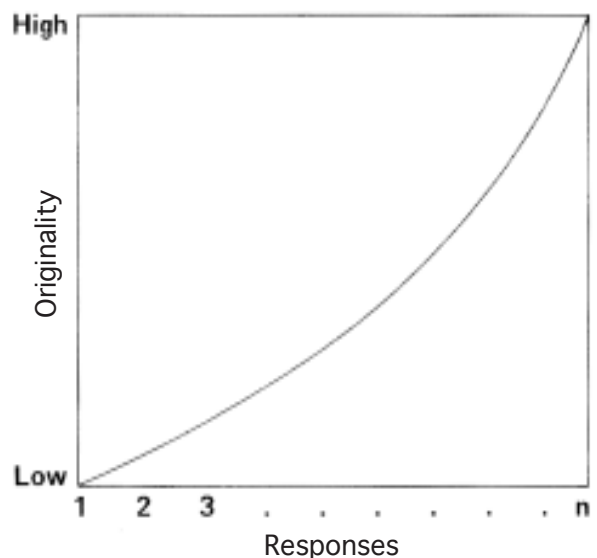

Figure 1. Hypothetical curve of creativity.

breeds quality, and research has shown that individuals who produce a large number of ideas are more likely to produce ideas that are more original.

Each manual in this program attempts to capitalize on the fluency principle by including a number of exercises that generate a large number of responses. In opposition to the techniques of convergent production discussed earlier, these exercises have no right answers. Rather, they are designed to encourage the student to produce a large quantity of responses, and, hopefully, practice in this mode of thinking will help free the learner from previously acquired habits which predispose him or her to rely mainly upon recall and convergent thinking.

The basic technique for increasing fluency of expression is called *brainstorming*. The first step in this process is to provide students with a problem that has many possible alternative solutions. Brainstorming can be carried out individually or in group sessions. During the early stages of a brainstorming activity, students should write or verbalize *all* thoughts and ideas that come to mind, no matter how silly, way-out, or wild the ideas may be. The best way to promote free-wheeling and offbeat thinking is to value quantity and withhold criticism and evaluation until students have exhausted their total supply of ideas related to a given problem. This principle, known as the principle of unevaluated practice, is further discussed in the section dealing with evaluation (pp. 10-12).

The following is a list of general questions (adapted from Arnold (1962)) that can be used to spur students' thinking during brainstorming sessions:

Other Uses

> Can it be put to other uses as is?
> Can it be put to other uses if it is modified?

Adaptation

> What else is like it?
> What other ideas does it suggest?
> What could you copy?
> Whom could you imitate?

Modification

> What new twist can you make?
> Can you change the color, size, shape, motion, sound, form, odor?

Magnification

> What could you add?
> Can you add more time, strength, height, length, thickness, value?
> Can you duplicate or exaggerate it?

Minification

> Can you make it smaller, shorter, lighter, lower?
> Can you divide it up or omit certain parts?

Substitution

> Who else can do it?
> What can be used instead?
> Can you use other ingredients or materials?
> Can you use another source of power, another place, another process?
> Can you use another tone of voice?

Rearrangement

> Can you interchange parts?
> Can you use a different plan, pattern, or sequence?
> Can you change the schedule or rearrange cause and effect?

Reversibility

> Can you turn it backward or upside down?
> Can you reverse roles or do the opposite?

Combination

> Can you combine parts or ideas?
> Can you blend things together?
> Can you combine purposes?

These are only some of the questions that teachers and students can use to stimulate creative thinking during the brainstorming activities included in the program. Once students have learned the basic brainstorming technique, you should encourage students to approach each activity with an idea-finding frame of reference. The section "Introducing the Primary Activities" (pages 12-14) is especially designed to teach the brainstorming process through active involvement in both group and individual brainstorming activities. As a general rule, you should always encourage students to go as far as they can in completing the exercises on the activity

sheets and the follow-up activities. Students may need to go beyond the spaces provided or you may need to extend time limits when youngsters are engaged in a highly productive activity. Keep in mind that brainstorming is a skill that grows through practice, and students will develop this skill if they know you place major value on the quantity rather than the quality of their responses.

The Principle of Mild Competition

Although a great deal has been written about the dangers of high-pressure competition in the classroom, research with various curricular materials has shown that *mild* competition is a positive nutrient in motivating students to become involved in learning activities. The use of simulation and learning games to promote learning is based on the finding that gamelike activity is one of the child's preferred ways of learning. Several researchers have investigated the relationship between children's play and creativity. For example, Li (1985) found significant gains in preschool children's creativity after being exposed to play training. Mellou (1995) examined the literature on the relationship between dramatic play and creativity and concluded that most of the research supports a positive relationship between them, noting the alternative symbolic constructions and flexibility common to both. In a research synthesis on creativity processes in children that are predictive of adult creativity, Russ (1996) also concluded that the relationship between children's play and creativity is strong.

We have made an attempt to capitalize on the motivational benefits of gamelike activity by suggesting that certain exercises be carried out under mildly competitive conditions. This approach will introduce an element of excitement into the program and give youngsters an opportunity to pursue classroom activities in their preferred manner of learning.

To avoid the dangers associated with high-pressure competition, you should use caution when employing the mildly competitive mode. You should observe the following general rules whenever you introduce competition into creativity training activities.

1. Group competition should be used rather than individual competition.

2. Grades or other material rewards should never be associated with competitive activities. Students will derive satisfaction from the competitiveness itself and the excitement of winning or trying to win.

3. Teams should continually be rearranged in a way that allows all youngsters an opportunity to be on a winning team.

There are several ways of arranging teams for competitive classroom activities—row against row, boys against girls, or everybody wearing a certain color on one team, to name a few. If some youngsters find it difficult to perform under competitive conditions or if some put undue pressure on others who slow the team down, it may be wise to ask these students to serve as moderators or scorekeepers because "you need their help." A good way to help build up enthusiasm is to get involved in competitive activities on an equal basis with students. When you join a given team, the students will no doubt look to you for leadership, but you should try to be just another member of the team and avoid contributing more than a proportionate share of the responses. You will, of course, have to experiment to determine the best ways for operating in the mildly competitive mode. A good deal of the art of teaching is involved in knowing your students and in using classroom management procedures that are especially applicable to a given group.

A general strategy that you can use in follow-up discussions of the exercises is intergroup competition. Prior to assigning a particular exercise or after an exercise has been completed, divide the class into several small groups which can then compete with each other on the basis of (1) the greatest number of team responses and (2) the most original responses (i.e., responses that other teams did not think of). A team's score would consist of one point for the total number of responses generated by all team members (including duplications) minus a given number of points for each response that appears on another team's list. Slowly increasing the number of points deducted for responses that are common among teams will encourage the students to strive for originality, as well as quantity, of responses. Students might like to keep a score card on the bulletin board to record team progress. Competitive follow-up activity of this type is probably most appropriate for exercises that emphasize the quantity of responses rather than the production of a story or single product.

The Principle of Cooperation

Researchers have found that activities involving team collaboration help youngsters increase their creative productivity. You should allow students to work on some activities in pairs or in small groups,

and students should direct their efforts toward the production of group responses, as well as individual responses. Group activities provide an opportunity for youngsters to learn cooperation and the benefits of bringing several minds to bear on a particular problem. They also provide opportunities for you to develop leadership skills and help less creative youngsters experience success by working cooperatively with more highly creative individuals. Since you can use many of the activities for both individual and group work, it is important for you to review each activity sheet before using it with students. Field tests have shown that the classroom teacher is the best judge of the conditions under which the class works best, and therefore the activities have not been classified as individual or group activities.

The best way to maximize the effectiveness of the *New Directions in Creativity* program is to vary continually the strategies for using the activities in the classroom. You should use competitive and cooperative modes as alternatives to the individual mode and use students as a guide in selecting the approach for a given activity. Part IV of this manual includes activity-by-activity lesson guides and suggestions for alternative ways of using the activities and follow-up activities. You should, of course, employ your own creative teaching strategies and develop new strategies by combining, modifying, and adapting suggested approaches.

Evaluation: The All-lmportant Classroom Atmosphere

The success of any creativity training program depends on the amount of freedom and flexibility that exists in the classroom. The very nature of creativity requires that students be allowed to express their thoughts and ideas in a warm and open atmosphere. Teachers should encourage their students to play with ideas, laugh, and have fun without worrying about being graded and evaluated when they are engaged in creativity training activities. Rogers (1969) emphasized the importance of freedom from the threat of evaluation and asserted that creativity can be fostered by establishing psychological safety through the unconditional acceptance of each individual's worth. When you encourage youngsters to express themselves in an uninhibited manner, it is extremely important that you also provide them with a climate that is free from external evaluation and the critical judgments so often associated with schoolwork. The importance of providing this free climate is supported by the research of Amabile (1996) and Lepper, Greene, and Nisbet

(1973) who found that extrinsic motivation undermines students' creativity, and Amabile identified factors of intrinsic motivation that impact students' performance on creative tasks. Since no right answers are prescribed for this creativity training program, students have the opportunity to work in an open atmosphere without the constant threat of failure hanging over their heads.

The most effective way to open up the classroom atmosphere is to minimize formal evaluation and lead students in the direction of self-evaluation. In the real world, people often judge things in terms of self-satisfaction and the degree to which they, as individuals, like or dislike the things they do or the products they produce. The only way that we can teach students to become self-evaluators is to give them numerous opportunities to judge their own work and to modify their work when they are not satisfied with it. Thus, this program does not include a formal grading system, and the suggestions that follow are designed to help develop strategies for (1) valuing students' original products and (2) teaching youngsters the techniques of self-assessment.

The principle of unevaluated practice simply means that judgment is deferred until the individual has had an opportunity to explore several possible answers or solutions to a given problem. The principle of deferred adjustment, first espoused by Osborn (1963), has consistently been shown to be an essential ingredient for creative thinking. Several researchers, such as Amabile (1985) and Baer (1993), have found evidence to support this claim. The main purpose of unevaluated practice is to free children from the fear of making mistakes.

Creating such an atmosphere in the classroom is far easier said than done, but there are some specific strategies that teachers can use to help promote an environment that is more supportive of creativity. The most important strategy is to be tolerant and respectful of children's ideas, questions, and products. You should show interest, acceptance, and excitement toward student responses and avoid expressions of shock, surprise, annoyance, or disinterest. Above all, never laugh at or make light of a youngster's responses and try to discourage teasing and laughter from other students. Healthy amusement and friendly competition will help promote a supportive atmosphere, but ridicule and scowls will have a negative effect. Each student must come to believe that his or her ideas are as valuable as the ideas of others.

One of the hardest things to control in the classroom is the spontaneous laughter that may arise when a student says something that is somewhat unusual. A good way to overcome this problem is to legitimatize

laughter by showing students that you also have some way-out ideas and that you do not mind if the students laugh when you express them. You will note that in the section "Introducing the Primary Activities" the teacher is asked to demonstrate use of a pogo stick. This activity has been found to be an extremely effective way to legitimatize laughter and show students that you are not afraid to express unusual ideas or actions. Whenever possible, participate in written and oral activities and set the pace by contributing your own unusual responses. Your contributions will help students realize that you are a human being and that you are not afraid to express yourself freely. Remember, you set the limits on student behavior. If you actually participate in creative activities, students will learn that you value creative behavior, and they will quickly begin to display their own creative thoughts.

Another strategy aimed at promoting an environment that encourages students to be creative involves the principle of rewarding desired types of responses. If you show generous praise for quantity and unusualness of responses, students will quickly recognize the types of behavior that you value and they will strive to achieve these types of behaviors.

You can increase creative production by combining the fluency principle with the reward principle and the principle of unevaluated practice. In follow-up discussions to the activities, you should praise individual responses and give generous praise to the sheer quantity of response. Remember that an increase in fluency will almost always result in a corresponding increase in originality. Consequently, you should develop a repertoire of fluency-producing, enthusiastic comments, such as "That's really good. Can you think of a few more?" and "Let's see who can come up with five more possible titles for Bill's picture." Don't be afraid to make up a few new words (for example, "fantabulous," "super-great") to show your enthusiasm. Gently probing youngsters for more and more responses will help them develop a fluency set; and, hopefully, practice in this mode of thinking will carry over to other areas of learning and experience.

You should make every effort to avoid using phrases or expressions that are natural killers of creativity. Examples of such phrases include:

Don't be silly.
Let's be serious.
That's ridiculous.
Quiet down.
The principal won't like it.
Let's be practical.

You should know better.
What's the matter with you?
That's not our problem.
We've tried that before.
That's not part of your assignment.
That's childish.
A good idea but . . .
It won't work.
Don't be so sloppy.

One of the underlying purposes of the *New Directions in Creativity* program is to help youngsters learn how to evaluate their own creative products. One of the great tragedies of traditional school instruction is that students almost always look to the teacher for evaluation and approval. By so doing, they fail to develop a system of internal self-evaluation. And yet, psychological studies have revealed that each person has a need to be his or her own primary evaluator. The nature of creativity is such that the individual produces something that is new, unique, or novel for him or her at a particular time. To break away from social pressure toward ordinary and common production, a person must place his or her own opinions and feelings above those of others. He or she must be satisfied with his or her products and feel that they express a part of his or her feeling, thoughts, and ideas.

One of the primary tasks for teachers using this program is to help youngsters learn how to make judgments about their own work. This task is undoubtedly one of the most difficult of teaching, but there are a few simple guides that you can use to help students evaluate their own work. When students look to you for judgment, you might ask:

What do *you* think about it?
Do you feel good about it?
Would you like to work on it some more?
Why do you like (or dislike) it?
What things (criteria) are important to you?
How would you compare it to the work you did last time?

Encourage students to compare their own products by ranking them and selecting the ones they like best. Students should learn that you respect their judgment and will not overrule that judgment by placing your evaluation above their own. This behavior does not mean that you should not comment and make suggestions, but students should understand that you are stating your opinion and there is no reason to assume that it is more important than theirs. Since there

are no right answers to creativity exercises, and since students will not be graded on their creativity or creative products, the program provides a real opportunity for students to develop self-evaluation techniques. The key word in this process is *trust*. If students think that you will consider their creative activities in their final grades, they will constantly look to you as the ultimate source of judgment.

Peer evaluation can also provide students with a source of feedback. This feedback should always be informal, and it should be related to the type of product involved. For example, in writing a humorous ending for an unfinished story activity, if a student elicits laughter from the class, he or she will know that his or her efforts have been effective. You should encourage students to add their own praise to other children's responses, and their spontaneous reactions should be a regular part of all follow-up discussions.

A final consideration in the creation of a free and open classroom atmosphere is the acceptance of humor and playfulness. When you purposefully ask youngsters to strive for clever and unusual responses, a good deal of healthy noise and whimsical behavior is likely to result. The creative adult has the same uninhibited expressiveness and spontaneity found in happy and secure children. Creativity time should be a fun time, and playfulness, impulsiveness, humor, and spontaneity are all part of having fun.

How to Use the Primary Activities

Although many of the primary activities are most effective when used with groups, they can also serve as independent studies or as supplementary classroom activities. Field tests have shown that the program can be used continuously for a given period of time or on a one- or two-day-a-week basis throughout the school year. The suggested follow-up activities are an important part of the program. Together with the activity sheets, they provide a year-long supply of creativity training exercises. As indicated in Part I, the program is not intended to be an end in itself. Rather, it is designed to assist teachers in learning the nature of creative problem solving and in developing their own creativity activities. The program will yield maximum benefits if you follow a plan that uses a balanced combination of activity sheets and suggested follow-up activities.

Because of variations in the needs of various age and ability groups and because of differences in individual and group preferences, the "Suggested Sequence for *Mark A* Activities" (p. 21) should not be considered a rigid lesson-by-lesson sequence. It is intended to serve as a broad guide, and you should feel free to modify the sequence to serve the individual interests and learning preferences of particular groups.

After students have become familiar with the various types of activities, you should give them opportunities to decide which activities they would like to pursue. Student interests should also guide you in determining which type of follow-up activities to use in future training sessions.

As students progress, you should encourage them to use the skills they have developed in previous activities. For example, you might introduce an unfinished story activity by suggesting the first sentence of a possible ending to the story and asking students to suggest synonyms for specific words that would make the sentence more precise, colorful, and imaginative. When students are working on advertising or promotion activities, you should make them aware of the use of homonyms and rhyming words in slogans and jingles and remind them of the rhyming exercises they completed earlier.

The general plan for sequencing primary activities takes account of (1) a balance between semantic, symbolic, and figural material, (2) a balance between units, classes, relations, systems, transformations, and implications and elaborations, and (3) the level of difficulty and logical relationships between certain activities. Since there are two activity sheets for each type of activity, you can work through the suggested sequence twice. In each set of exercises, comprehensive directions and sample responses (when applicable) are always included on the first activity sheet. Therefore, for any given exercise, you should always use the activity sheet lettered "a" before the activity sheet lettered "b." By the time students get to the second activity sheet, they will have caught on to the nature of the exercise, and you can refresh their memory by referring to the first activity sheet. Occasionally, examples have been included on the second activity sheet to help provoke new ideas.

Each exercise should take approximately one class period, although some of the exercises that involve creative writing may require more time. You may want to assign for homework exercises that cannot be completed in class. However, it is necessary to have group discussions of all material that is completed outside of class as an important part of the creative process involves sharing creative products with others.

You can use the suggested follow-up activities included in the lesson guides any time after the students have completed the first activity sheet for each activity.

Whenever students show a preference for a particular type of activity, capitalize on their enthusiasm by developing similar activities of the type suggested in the follow-up sections of the lesson guides.

Introducing the Primary Activities

The basic strategy for introducing primary activities consists of freeing the classroom atmosphere from the usual constraints often associated with convergent production. Allow approximately one class period for the introductory session. It is extremely important for students to learn to appreciate questions and activities for which there are no right answers. You can introduce this concept by contrasting a convergent type of question with a divergent one. Before distributing the first activity sheet, you might say something like the following (but do not read it verbatim or sound too rehearsed):

> Today we are going to begin practicing a new kind of thinking. This kind of thinking will help us learn how to explore many different kinds of solutions to a given problem. Some problems and questions have only one right answer, but there are also many problems and questions that have hundreds of possible answers.

> Suppose I asked you, "In what year did Columbus discover America?" (Wait for an answer and write it on the chalkboard.)

> Are there any other possible answers to this question? (General conclusion should be negative.)

> Now suppose I were to ask you, "What are *all* of the possible ways that you *might* have come to school this morning?" (Call on youngsters and list responses on the chalkboard.)

Students will probably give some fairly common responses ("walk," "bus," "car," "bicycle"). At this point, you might say:

> Remember, I said all of the possible ways that you might have come. Use your imagination. Let your mind wander, even if you think the method for coming to school is silly or way-out. How about by donkey or pogo stick? (Add these to the list on the chalkboard.)

This point is extremely crucial to introducing the creativity training program. By suggesting the donkey and the pogo stick, you have accomplished three very important objectives. First, you have conveyed the idea that answers need not be feasible, practical, or realistic. Second, you have let youngsters know that you will accept these kinds of answers. Third and perhaps most important, you have let the youngsters know that you are capable of some way-out ideas. You can be emphasize this point by grabbing a yardstick (conveniently placed nearby beforehand) and improvising with a few hops to demonstrate a pogo stick. Students will no doubt become a little noisy, but it is very important to tolerate this reaction. If you hush them, the whole atmosphere of freedom will be lost, and they will subjectively think that this new kind of thinking is the same old game—the teacher questions and students answer.

After your examples, students may give a wide variety of answers. Let them call out their answers (rather than raising hands) as you write them on the chalkboard. Prompt students if necessary:

> Any other animals that you might come to school on? How about an airplane or a rocket? Or being dropped from a plane with a parachute?

A second crucial factor at this point is the generous use of praise on your part. Enthusiastic comments such as "good," "great," and "fantastic" will help youngsters open up. Do not call on students who are not taking part. It takes some youngsters longer than others to trust the teacher and his or her classmates in this type of situation. The main idea is to let students know that you like what is going on and that you are having fun. When the flow of responses begins to slow down, say:

> Let's go one step farther. Suppose you could change your size or shape. Can you think of some other ways that you might possibly come to school?

If no one responds, say:

> Could you make yourself very tiny and come in your brother's lunch box? Or, could you change to a drop of water and come in through the drinking fountain?

Continue to fill the chalkboard as long as the youngsters are generating responses. When you finally call a halt, say:

I guess there really are many questions and problems that have several possible answers. Do you think this kind of thinking is fun?

From time to time, we are going to be working on some activities like the one we just did. The main purpose of these activities will be to practice answering questions and solving problems that have many possible answers. We will be using our imaginations to come up with some clever new ideas.

At this point, distribute the first activity sheet for "Thinking about Things" and read the directions in the manual to the students. If you have any doubts about youngsters' understanding the directions, ask if there are any questions. Then ask the students to complete the first exercise.

After they have finished, allow some students to discuss their responses. Ask, "How many had that idea?" and after a few students have shared their entire lists, ask if anyone has any responses that have not yet been mentioned. Praise unusual responses from individuals, and praise the entire group for catching on.

Follow the same procedure for the second exercise. It is especially important to be tolerant of unusual responses, increased noise levels, and occasional bursts of laughter. A comment such as "Let's be serious" could destroy the entire atmosphere of freedom to express oneself. If time permits, you may wish to pursue one of the follow-up activities suggested in the lesson guide.

PART III

RATIONALE UNDERLYING THE PROGRAM

The Need for Creativity Training Programs

Although interest in the identification and development of creativity has become one of the vital concerns of teachers, curriculum developers, and leaders in education, the actual effectiveness of schools in helping children realize their creative potential can be judged, at very best, as questionable. More than forty years of intensive research into the nature of creativity has yielded enough understanding about this dynamic process to enable educators to begin translating some of the research findings into classroom practice. The sad fact remains that in spite of dozens of books about creativity, hundreds of research studies, and thousands of training programs and workshops, the development of creative potential is still a largely ignored aspect of a child's total repertoire of acquired behaviors. At least three major problems seem to account for the failure to translate existing knowledge and understanding about the creative process into meaningful classroom practice.

The first problem is a lack of agreement among educators about the definition of creativity and its distinctiveness from other cognitive behaviors. A great deal of research devoted to this issue has led to conflicting conceptions of creativity, such that Davis (1999) concluded, "There are about as many definitions, theories, and ideas about creativity as there are people who have set their opinions on paper" (p. 40). Despite different views, however, most theorists agree with at least two generalizations about creativity. First, several research studies have supported the threshold concept of creativity, namely, a low to moderate relationship between creativity and intelligence (Getzels & Jackson, 1962; Simonton, 1988; Walberg & Zeiser, 1997; Wallach & Kogan, 1965). Highly creative individuals have generally been found to be above average in intelligence, but high intelligence does not necessarily insure high creativity. In addition, a number of studies (Jaben (1980), for example) have found that children of *all* ability levels, including students with special needs, are capable of creative thinking. In summarizing

this issue, Davis (1999) said, "It is absolutely true that despite genetic differences in our cognitive and affective gifts, everyone can become a more flexible, imaginative, and productive thinker" (p. ix). Thus, we can conclude that *all* children can benefit from systematic programming in this area.

The second generalization relating to defining creativity is that, rather than being an independent process, creativity consists of multidimensional processes involving interactions between the individual and his or her environment. These processes may differ from one another to such a degree that we must consider verbal creativity, creativity in problem solving, and creativity in the nonverbal arts as essentially different psychological phenomena. In other words, scientific creativity and creative problem solving may require different explanations than creativity in areas such as painting, music, and writing. And because of differences between individuals and their respective environments, what is a routine task for one person may very well be a creative experience for another. Since one of the basic assumptions underlying the development of the *New Directions in Creativity* program is that all people possess the ability to think creatively in varying degrees, the main purpose of the program is to assist youngsters in generating responses that are creative for the individual student at his or her present level of mental functioning. It is of course hoped that such experiences in creative thinking will help students develop a characteristic way of looking at things that will ultimately result in the creation of ideas and products that are truly original and useful for the culture at large. A good deal of research evidence that shows that people who have engaged in systematic creativity training exercises can increase their capacity for creative thinking in a variety of fields (Baer, 1996; Rose & Lin, 1984; Torrance, 1987).

Although this approach to the definition of creativity is relativistic rather than absolute, it is in

keeping with Guilford's (1967) conception of divergent thinking (discussed on pages 16-19) and Torrance's (1965) analytic description of the process which places creativity in the realm of daily living experiences rather than reserving it for the rarely achieved heights of creation:

> I have tried to describe creative thinking as taking place in the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing these guesses and possibly revising and retesting them; and finally in communicating the results. I like this definition because it describes such a natural process. Strong human needs appear to be at the basis of each of its stages. If we sense any incompleteness, something missing or out of place, tension is aroused. We are uncomfortable and want to do something to relieve the tension. As a result, we begin investigating, asking questions, manipulating things, making guesses, and the like. Until the guesses or hypotheses have been tested, modified, and retested, we are still uncomfortable. Then, even when this has been accomplished, the tension is usually unrelieved until we tell somebody what we have discovered. Throughout the process there is an element of responding constructively to existing or new situations, rather than merely adapting to them. (Torrance, 1965)

For the purposes of this program, creativity is defined as follows

> Creativity is the production of an idea or product that is new, original, and satisfying to the creator or to someone else at a particular point in time, even if the idea or product has been previously discovered by someone else or if the idea or product will not be considered new, original, and satisfying at a later time or under different circumstances.

The second problem that has hampered efforts to promote creative thinking in the classroom has been the shortage of validated curriculum materials in this area. This shortage was the basis for one of the research challenges that emerged from the Sixth Utah Creativity Research Conference (Taylor and Williams, 1966), and was reemphasized in a study by Feldhusen, Bahlke, and Treffinger (1969). Among the many suggestions offered by theorists and researchers who have devoted attention to this problem has been a call

for instructional materials that give youngsters practice in opening up their minds and using modes of thought that are not characteristically developed in traditional curricular materials. An overwhelming proportion of existing curricular material places major emphasis on the acquisition of factual information and a kind of thinking that focuses on locating the one right solution to a problem. Although these activities are valuable in the total development of the learner, they often dominate the curriculum and are usually pursued at the expense of other aspects of development. Thus the development of higher level thought processes such as creativity simply does not take place or is an accidental by-product of instruction.

The third major inhibitor to the development of creativity in children has been a lack of understanding about the nature of creativity on the part of many classroom teachers (Williams, 1964; Eberle, 1966; Guilford, 1967). In some cases, this lack of understanding has resulted in the severe inhibition of creative thinking in the classroom and even discrimination against students who display creative behavior.

Although the development of an effective program of teacher training is beyond the scope of this manual, Part II presents a number of practical suggestions for teaching strategies. These suggestions are not intended to serve as a substitute for a course or workshop in creativity, nor will they provide the teacher with the breadth of information that they could gained through intensive reading in this area. Rather, the main purpose is to call attention to the characteristics of creative teachers and to point out a number of widely accepted principles for rewarding creative behavior.

Each manual in the *New Directions in Creativity* program provides a set of experiences that are systematically and purposefully directed toward developing certain creative thinking abilities. The program is not offered as the only approach to this problem, nor is it maintained that the program will develop all of the many dimensions of creativity that seem to exist. Rather, it is one possible approach to creativity training that has been developed within a specified framework. This framework is described in the following section.

The Structure of the Intellect Model

The *New Directions in Creativity* program represents an attempt to translate one aspect of Guilford's Structure of the Intellect Model (1967) of human abilities into classroom practice. This model, developed through factor-analytic methods at the University of Southern

California Psychological Laboratory, has been viewed by many educators as a potentially powerful tool for bringing about needed changes in the curriculum. Although the program focuses on only one dimension of the model, a brief overview of the entire system will provide teachers with the necessary frame of reference for understanding the approach used in this curriculum package.

The Structure of the Intellect Model (see Figure 2) is a three-dimensional classification system that is designed to encompass and organize 120 possible abilities according to (1) the types of mental *operations* employed in the act of thinking, (2) the types of *contents* involved in the thinking process, and (3) the types of *products* that result from the act of thinking.

(1) Operations

The operation dimension of Guilford's model consists of five major types of intellectual activities or processes of mind—the things that the organism does with the raw materials of information. These five categories represent the mental operations that we as human beings can learn to use in processing the information with which we come into contact as we go about living and learning.

Cognition is the mental process involving immediate discovery, awareness, rediscovery, or recognition of information in various forms. *Understanding* and *comprehension* are terms that are commonly used to describe the act of cognition.

Memory is the process that deals with the retention or storage of information. It is accompanied by an ability to bring the information out of storage in response to cues or stimuli that bear some relationship to the stimuli presented when the information was originally stored.

Convergent production is the process of generating information from given information, where the emphasis is on achieving the conventionally accepted outcome. It is quite likely that the given information (cue) fully determines the response. Convergent

Figure 2. Guilford's Structure of the Intellect Model.

production involves finding the correct solution to a problem by manipulating given information rather than merely retrieving information from memory; however, both memory and cognition are involved in convergent production.

Evaluation is the mental operation that refers to reaching decisions or making judgments concerning the criterion satisfaction (correctness, suitability, adequacy, desirability, etc.) of information. This operation implies a sensitivity to error and a judgment of the relative nearness of things to points on a continuum or set of standards.

Divergent production, the operation upon which this creativity training program focuses, involves the generation of information from given information, but here the emphasis is on variety and quantity of output from the same source. This operation is most clearly involved in aptitudes of creative potential and will be discussed in greater detail later in this section.

(2) Contents

The content dimension consists of the following four broad classes of information that are discriminable by the organism:

Figural content consists of information in concrete form, as perceived or recalled in the form of images. The term *figural* implies some degree of organization or structuring. Different sense modalities may be involved, such as seeing, touching, hearing, and smelling. Content information does not represent anything but itself—that which is sensed and discriminated.

Symbolic content involves information in the form of signs that have no significance in and of themselves. Letters, numbers, musical notations, and other code elements are examples of symbolic content. Objects, figures, and shapes are also examples of this type of content.

Semantic content is information in the form of meanings to which words commonly become attached. Semantic material is the major element in verbal thinking and in verbal communication (writing and speaking).

Behavioral content consists of essentially nonverbal information that is involved in human interactions, such as the awareness of attitudes, needs, desires, moods, intentions, perceptions, and thoughts of other persons and of ourselves. The identification of abilities involving this type of content has not been as precisely defined as those abilities involved in figural, symbolic, and semantic content.

(3) Products

The product dimension of the Structure of the Intellect Model consists of the organization or form that information takes when it is processed by the human mind. The following six products, as defined by Guilford, are the result of interaction between our senses and the world around us:

Units are relatively segregated or circumscribed items of information that have singular character. For example, one chair would constitute a unit.

Classes are recognized sets of items of information grouped together by virtue of their common properties. Thus several chairs would form a class.

Relations are recognized connections between units of information based on variables or points of contact that apply to them. For example, a chair and a desk would constitute a relation.

Systems are organized or structured aggregates of items of information that are grouped together because of the interrelatedness or interaction of their respective parts. Systems are combinations of units, classes, and relations that have some total function. An example of this category is a "school system."

Transformations are changes of various kinds of existing or known information. Transformations involve the redefinition or modification of existing ideas, products, or materials.

Implications and *elaborations* consist of extrapolations of information in the form of expectancies, predictions, known or suspected antecedents, commitments, or consequences. Asking questions, the answers to which should help people see a particular problem more clearly, suggests implications from known information.

The *New Directions in Creativity* program deals primarily with the divergent production operation of the Structure of the Intellect Model. Within this "slab" of the model, eight of the twenty-four factors have not yet been completely identified by Guilford (see Figure 3); thus only a few experimental activities have been

developed in these areas. The program does, however, include activities that sample all of the divergent production factors that involve semantics, as well as some selected activities that use symbolic and figural information. None of the exercises in the program are offered as "pure" exercises in the development of a given factor. For example, Guilford (1967) has stated that "memory storage" underlies all problem solving and creative production, and other researchers (Pollert et al., 1969) have found that memory abilities play an important role in divergent production. Guilford's factor-analytic data also have shown that certain activities are related in varying degrees to more than one factor. Thus abilities from other areas such as cognition and memory are brought to bear on the operation of divergent production; and within the area of divergent production, certain abilities seem to act as contributory factors to the development of other abilities. For this reason, the classification of activities according to the Guilford structure is intended to point out the major focus of the respective activities in the program, but these classifications should not be interpreted to mean that other abilities are not involved in a given exercise.

The main purpose of this brief overview of Guilford's Structure of the Intellect Model is to underscore the relationship between the focus on divergent production presented by the *New Directions in Creativity* program and the overall dimensions of the Guilford model. Teachers who are interested in delving further into the various dimensions of the model should refer to Guilford's major work in this area, *The Nature of Human Intelligence* (1967). Another excellent interpretation of the model is presented in Meeker's book entitled *The Structure of Intellect: Its Interpretation and Uses* (1969).
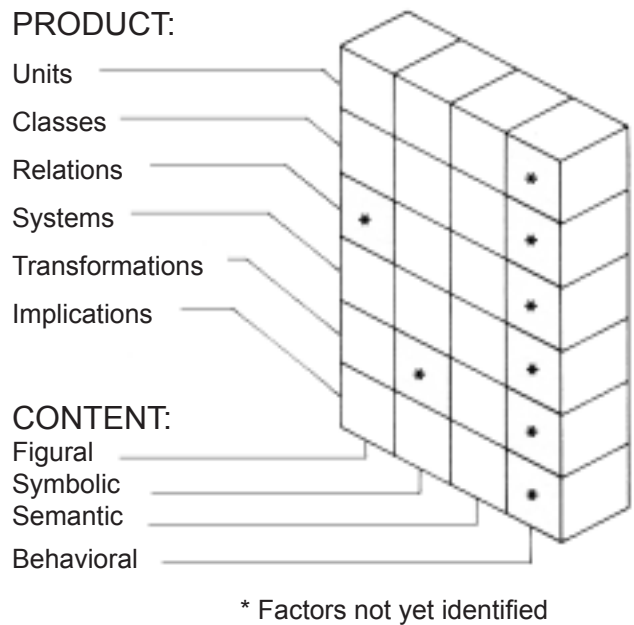
PRODUCT:
Units
Classes
Relations
Systems
Transformations
Implications

CONTENT:
Figural
Symbolic
Semantic
Behavioral

* Factors not yet identified

Figure 3. Factors in divergent production.

PART IV

No printed word nor spoken plea
Can teach young minds what men should be,
Nor all the books on all the shelves
But what the teachers are themselves.
Anonymous

LESSON GUIDES FOR *MARK 1*

The activities in this book are presented in the order indicated below. As noted earlier, this sequence is offered only as a suggestion, and you should feel free to alter this sequence to serve the interests and preferences of a particular class. The activity number has been printed in the upper left-hand margin of each activity sheet to help you keep the sheets in order after each use.

A schematic overview of these activities, based on Guilford's classification system, is presented in Figure 4. For a description of this system, see pages 16-19.

As you use these activities in your class, you may find it helpful to keep a record to which you can refer when you use the activities with other classes. For your convenience, a chart for this purpose is provided on the first four duplicating masters at the back of this manual. This chart contains spaces for you to record the date a particular activity sheet was used and to make notes on the class reaction and on how you used the follow-up activities.

Suggested Sequence for *Mark 1* Activities

Activity	Type of Activity	Activity	Type of Activity
1 Thinking about Things	Semantic Units	12 Figure Completion	Figural Elaborations
2 Fun with Words	Symbolic Units	13 Changing Things	Semantic Transformations
3 Consequences	Semantic Transformations	14 Sentence Skeletons	Semantic Systems
4 Fun with Figures	Figural Units	15 Comparisons	Semantic Relations
5 Time to Rhyme	Symbolic Units	16 Word Boxes	Semantic Relations
6 Let's Write a Slogan	Semantic Systems	17 Let's Write a News Story	Semantic Implications
7 The Advertising Game	Symbolic Transformations	18 Make-a-Sentence	Semantic Systems
8 Figure Arrangement	Figural Systems	19 Cartoon Captions	Figural Implications
9 Making Words with Prefixes and Suffixes	Symbolic Unites	20 Visitors from Another Planet	Semantic Elaborations
10 Sames and Opposites	Semantic Relations	21 Word Tree	Semantic Relations
11 Alternate Uses	Semantic Units	22 Planning	Semantic Elaborations
		23 Can You Design It?	Figural Elaborations
		24 Unfinished Stories	Semantic Systems

Figure 4. Mark 1 Activities

	SEMANTIC	SYMBOLIC	FIGURAL
UNITS	Thinking about Things Alternate Uses	Fun with Words Time to Rhyme Making Words	Fun with Figures
CLASSES			
RELATIONS	Sames and Opposites Comparisons Word Trees	Word Boxes	Figure Arrangement
SYSTEMS	Let's Write a Slogan Sentence Skeletons Make-a-Sentence Unfinihed Stories		
TRANSFORMATIONS	Consequences The Advertising Game Changing Things		
IMPLICATIONS AND ELABORATIONS	Let's Write a News Story Visitors from Another Planet Planning		Figure Completion Cartoon Captions Can You Design It?

1 Thinking about Things

Type of Activity

Semantic Units

Objectives

To develop ideational fluency.
To develop the ability to group things according to a common attribute (disjunctive classes).
To be able to distinguish between conjunctive and disjunctive classes.

Teaching Suggestions

This activity works well when carried out under mildly competitive conditions. Once students have acquired a knack for listing things (usually after one or two exercises), increase competition by setting a time limit for each exercise and giving additional points for responses that are only on one list. Time limits should vary according to the age and ability levels of the group.

Be sure to allow students to read some of their responses aloud in class. If they are scoring their responses under competitive conditions, a good deal of excitement and debate will probably ensue. Some of the more creative youngsters will no doubt produce debatable responses (for example, when listing things that people might wear, students may include "a smile" or "a frown;" when listing things they might find in a kitchen, they may include "delicious smells" or "a mother"). Encourage the children to explain why they think their responses are legitimate, as it will help them develop logical organization and give you an opportunity to call attention to idiomatic language (e.g., "*wearing* a smile").

Follow-up Activities

- Most of the exercises in the "Thinking about Things" activities are based on disjunctive classes—that is, only one attribute or common characteristic has been specified. In one exercise, students are asked to list things that are long and thin. Since this exercise requires responses that possess a combination of attributes, it is based on a conjunctive class. After students have completed all of the "Thinking about Things" exercises, you might ask if they can tell how one exercise differs from all of the others. Lead them to see the difference between single- and multiple-attribute classes.

- Conjunctive classes can be based on two or more attributes (students may be asked to list things that are long *and* thin *and* made of metal), and you can easily raise the level of challenge by increasing the number of common attributes required. You can develop many exercises using the "Thinking about Things" format, including forming classes around people (famous generals in American history or in world history) or places (cities that are located on rivers, cities or countries that begin with the letter *C*). Consider letting students specify attributes to try out on their classmates.

2 Fun with Words

Type of Activity

Symbolic Units

Objective

To develop verbal fluency by producing words that conform to simple specifications.

Teaching Suggestions

This activity is designed to give students practice with brainstorming. The exercises begin with simple specifications (only the first letter is specified) and proceed to more complicated versions (first and last letters are specified). You can use the activity with or without time limits, and children can work individually or in pairs. The activity works well under conditions of mild competition, and you may wish to use a scoreboard to record team scores. If students have a tendency to use only one-syllable words, encourage them to think of bigger words. Also encourage them to think of words that no one else will have on his or her list. You can give extra points for words that do not appear on the lists of opposing teams or for words that consist of three or four syllables.

Students should look up the spellings and meanings of words on their lists that they may not be certain about. When you find an unusual word on a student's list, you might ask the class, "How many know the meaning of that word?" or "Can someone use that word in a sentence?" Students seem to take greater interest in vocabulary when they or their peers generate the words.

The "Fun with Words" activity provides good practice for higher level creative activities. Because it can be pursued for very short periods of time and under competitive circumstances, it can help create a free classroom atmosphere for other activities.

Follow-up Activities

- In addition to specifying beginning and ending letters of words, you can apply other restrictions to the activity, such as using only nouns, verbs, or adjectives. The activity can be carried out as a relay race at the chalkboard or on individually prepared activity sheets.

3 Consequences

Type of Activity

Semantic Transformations

Objectives

To develop ideational fluency and originality.
To develop the ability to speculate and to imagine.

Teaching Suggestions

Since most of the situations in this activity are improbable, it allows students to exercise a playful imagination. You can encourage this playfulness by adding your own unusual suggestions to the discussion. Humor is a very important part of creativity, and students will make an extra effort to be clever and humorous if they feel that the teacher values these traits. Humor also has its own built-in feedback mechanism. If students' ideas result in spontaneous laughter or comments, they will be getting an immediate peer evaluation of their work.

Follow-up Activities

- Encourage students to devise their own improbable situations and allow them to ask their classmates to think of possible consequences. Newspapers and magazines occasionally print articles and pictures that record unusual happenings. You might post some on the bulletin board and suggest that students write a possible consequence beneath a picture or article whenever they have a good idea.

- Pose hypothetical questions based on history. Allow students to speculate what would happen if the South had won the Civil War or the Louisiana Purchase had never taken place. Additional speculative activities might involve descriptions of what certain aspects of our culture might be like one hundred years from now (clothing, transportation, national boundaries, and so on).

4 Fun with Figures

Type of Activity

Figural Units

Objectives

To develop nonverbal flexibility and originality.
To construct a variety of nonmeaningful figures based on the manipulation of given elements.
To demonstrate nonverbal applications of creativity skills.

Teaching Suggestions

This activity will help students understand that creative thinking skills can be applied to nonverbal, as well as verbal, information. The examples have been purposefully constructed to show students the various possibilities that exist in combining the given elements. You should point out the nonmeaningful nature of these examples—that is, the figures do not convey a meaning such as that which might be conveyed in a drawing of a face or house. Before students begin work on this exercise, call their attention to the way that the C has been rotated in the examples and remind that the T can also be turned in any direction they wish. Encourage students to combine the figures in ways that no one else will think of.

After students have completed the exercise, ask some of them to put their most original figure on the chalkboard. Ask the class, "How many had that one?" and praise responses that are unique. Suggest that students rotate their papers in different directions to see if they can come up with any more ideas for combining the two figures.

Follow-up Activities

- Ask students to select some figures they made to use in other activities of this kind. For variation, you might ask students to use shading or color in completing their figures or to cut geometric figures out of paper and combine them in various ways. Students can make attractive bulletin board displays by cutting out the given shapes in various colors and pasting them on sheets of paper to form geometric collages. They can make other interesting collages by cutting out objects in a given category from magazines (faces, automobiles, airplanes, and so on) and combining them in interesting and unusual ways.

5 Time to Rhyme

Type of Activity

Symbolic Units

Objective

To develop verbal fluency and brainstorming skills.
To develop the ability to produce symbolic relationships.
To learn how to distinguish between symbolic and semantic relationships.

Teaching Suggestions

One of the general purposes of word-fluency activities is to encourage youngsters to think about words in a variety of ways and to see relationships between families of words, as well as between the words themselves. This activity provides students with an opportunity to group words according to sound relationships rather than relationships in meaning. "Time to Rhyme" is a good warm-up activity, and it is particularly effective when carried out under gamelike conditions. Competition might be heightened by setting a time limit or by giving more points for words that no one else (or no other team) has on his or her list.

Students have a tendency to give only one-syllable responses to this activity. If this is the case with your students, point out or provide a few examples of two-syllable words after they have completed their lists. Invite them to lengthen their lists by adding some tow-syllable words.

This activity provides a good opportunity to point out the difference between a semantic relationship and a symbolic one. Ask students how the words in the first column are related (they sound alike, or rhyme). Then ask how the words *put*, *pin*, and *peace* are related (all begin with *p*, all have a vowel as a second letter). Now ask how the words *big* and *small* are related (antonyms), and finally, how *big* and *large* are related (synonyms). Next ask if students can see the difference between rhyming and letter-position relationships, on one hand, and the latter two types of relationships (antonyms and ‚synonyms), on the other. See if they can distinguish between the first two types of relationships (symbolic because of the way the letters or symbols are placed) and the last two (semantic because the relationship is carried in the meaning of the words). This distinction is difficult to grasp, and you may find that some of the less able youngsters will not comprehend it. The principle pointed out again in other exercises.

Follow-up Activities

- Verbal-fluency activities can be based on any common feature around which words can be classified. You can prepare similar activities by using other rhyming sounds or by asking students to list words that begin or end with similar sounds or syllables (for example, *con-*, *com-*, *pre-*, *-ment*, *-ation*, *-ous*). Some of the more able students might enjoy creating their own crossword puzzles using only rhyming words or words that fall within a given specification (parts of an automobile, for example). After students have practiced various rhyming activities, encourage them to write limericks and other types of poetry that make use of rhymes. In addition to pointing out the limerick on each activity sheet, you may want to provide more examples of limericks. Below are two that you could put on the chalkboard:

> There once was a very young coot,
> Whose mother was rather astute.
>   When he just wouldn't fly
>   She insisted he try
> To navigate with a small parachute.
>
> Have you heard of the nearsighted frog
> Who lived fifty years on a log;
>   For he would never spend
>   A night out with a friend
> As he feared he'd get lost in the bog.[1]

6 Let's Write a Slogan

Type of Activity

Semantic Systems

Objectives

To develop verbal flexibility and originality.
To construct original statements that convey a specified message.

Teaching Suggestions

This activity provides a good opportunity for students to play with language. You might introduce the activity by asking students to think of some slogans they have heard on television or have seen in newspapers or magazines. Point out the basic ingredients for a good

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1 Reprinted from *The Limerick Book* compiled by Miriam Troop. Copyright 1964 by Grosset & Dunlap, Inc., New York. Reprinted by permission.

slogan (short, catchy, rhythmic). After students have read the instructions, call attention to the spelling in the third example ("Kool kats shop at Kaplan's"). Ask why they think the first two words are spelled with a *k* and point out the phonetic and rhythmic structure of the slogan. Ask what kind of customers they think Kaplan's caters to. Remind students that they can make up a name for various businesses or use the name of an actual business in the community.

Allow students to read their slogans aloud in class. There will no doubt be some humorous responses; this activity is fun for students, and many colorful uses of language will emerge from the not-so-serious slogans. If some students develop only humorous slogans, you might praise their work and then suggest they try to write a few serious ones.

Follow-up Activities

• In addition to writing slogans for other businesses (magazine advertisements and the yellow pages of the telephone directory will provide a long list of businesses), students can write slogans or proverbs for various types of safety (auto, bicycle, fire, boating, hunting, swimming) and for such things as morals ("Honesty is the best policy"), spirit ("A quitter never wins and a winner never quits"), and human relations ("No man is an island."). You could hold a contest for the best slogan in a particular category. Younger students might like to illustrate their slogans or proverbs by making posters. If these are done in relation to local businesses, ask merchants to display the posters in their store windows. This activity provides a good lead-in for "The Advertising Game" activity.

7 The Advertising Game

Type of Activity

Semantic Transformations

Objective

To develop verbal originality and elaboration.
To produce a clever and convincing communication that is directed toward a given purpose.

Teaching Suggestions

Before introducing this activity, bring in a variety of advertisements from newspapers and magazines. Ask students what they think the writers of the advertisements did to attract the attention of readers (e.g., appealing to particular age groups or using well-known individuals or attractive models). In a similar fashion, analyze a few radio or television commercials and encourage youngsters to talk about their favorite commercials as well as those they dislike. Point out that commercial writers excite potential buyers by using clever language ("Pepsi Generation[2]") and appealing to values that people consider important (this cereal contains bodybuilding vitamins; this shampoo will make your hair beautiful). Call attention to how humor is used in many television commercials, but also remind students that humor is only one device to attract people's attention.

Follow-up Activities

• In addition to writing advertisements and commercials for an almost unlimited variety of products, students can develop artistic and graphic skills by preparing advertisements for magazines and billboards. Allow them to judge each other's work and to compare their work to professional advertisements. Lead them to discover the importance of balanced layouts, bold colors, and dynamic words.

• Dramatizing written scripts is, of course, a natural follow-up to this activity. If students show an interest and appear to be having fun, allow them to elaborate on their commercials by incorporating elements such as musical background, makeup, costumes, and puppets. Students should use tape recorders (and video recorders, if available) for rehearsals and recording the final production.

• A somewhat more advanced version of "The Advertising Game" involves efforts that are directed toward popularizing certain noncommercial behaviors (i.e., public service announcements). Encouraging people to get health checkups, stop smoking, drive carefully, and avoid polluting the environment are examples of such efforts. Again, encourage students to use a variety of media to help them produce effective communications. Students might use some of the noncommercial presentations they devise for school campaigns.

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2 *Pepsi Generation* is a registered trademark of PepsiCo, Inc., Purchase. New York. Reprinted by permission.

8 Figure Arrangement

Type of Activity

Figural Systems

Objectives

To develop nonverbal flexibility and elaboration.
To construct a variety of meaningful drawings based on the organization and manipulation of given elements.
To demonstrate nonverbal application of creativity skills.
To show a relationship between figural and verbal information.

Teaching Suggestions

After students have read the directions and looked at the examples in activity "a" ask how this activity differs from "Fun with Figures." (In "Figure Arrangement" students produce meaningful products, and in "Fun with Figures" students create nonmeaningful products.) Point out that in this activity students should add their own material to the figures presented in the exercise. Encourage them to use shading and color and to elaborate on their drawings as much as they like, but remind them that the two given figures should be discernable within the picture.

An important part of this activity is showing a relationship between the pictures and the titles. Ask students if they can think of any other possible titles for the two examples. Point out the somewhat colorful nature of the title "Blast Off!" by contrasting it with a more direct title, such as "Rocket."

After students have completed each exercise, allow them to display their work on a bulletin board. Invite them to think of interesting titles for each other's drawings and provide space for recording their titles on the bulletin board.

Follow-up Activities

• Ask students to think up their own figures to use as a basis for additional "Figure Arrangement" activities. Students can use larger pieces of paper and display them around the classroom. An interesting variation of this activity is to have students cut out geometric figures from colored paper and paste them onto a large piece of drawing paper. They should then draw around and/or within the figures to form their pictures. Youngsters can also design three-dimensional drawings; however, the objects or figures should be of such a nature

that they are open to a variety of interpretations. Paper boxes and cups, bottle caps, cut-up plastic jugs, toothpicks, and so on, are useful objects for this activity. You should always encourage students to choose their own materials.

9 Making Words with Prefixes and Suffixes

Type of Activity

Symbolic Units

Objectives

To develop verbal fluency.
To give practice in using prefixes and suffixes.
To develop classification skills.

Teaching Suggestions

Students should begin work on this activity without a dictionary, but they should check their responses in dictionaries after they have completed the exercises. If students have had previous work with prefixes and suffixes, you can use this activity to review some of the general principles of affixation. You might want to use the exercises in conjunction with traditional affixation exercises found in reading and language arts workbooks. Adding a prefix or a suffix to a word usually results in a change in both meaning (semantic) and pronunciation (phonetic). Most prefixes denote a particular meaning, and many prefixes fall into meaning categories (for example, *un-*, *dis-*, and *de-* usually convey the idea of reversal, as in *uncover*, *dislocate*, and *decentralize*). Suffixes can often be classified by the part of speech they form when added to a word (for example, *-hood*, *-ship*, and *-ism* make nouns).

Follow-up Activities

• Once students have learned the meanings of certain prefixes and suffixes, it will be fun to see if they can invent some new words. Ask them to list and define stem words and add a prefix or suffix, or both, to make a new word. After they have given their new word a meaning, they should check their dictionaries to see (l) if their new word already exists and (2) if they can think of any existing words that convey the meaning of the word they invented. Although this type of activity is not likely to result in the actual invention of new words, it gives students a chance to play with language and look at words and their meanings in a different way.

- You can develop activities around the categories into which various prefixes and suffixes fall. Ask students to think of several prefixes and suffixes and write each one on a card. On the back of each card, have them write the meaning of the prefix or suffix and, if applicable, the part of speech it forms when added to a word. Have students mix the cards together and then ask them to regroup the cards according to common characteristics. After they have regrouped the cards according to meaning and part of speech, ask if they can think of any other ways in which the cards can be grouped (e.g., number of letters, position of certain letters).

10 Sames and Opposites

Type of Activity

Semantic Relations

Objectives

To develop verbal fluency and flexibility.
To develop the ability to construct synonyms and antonyms that are related in meaning to a given idea.

Teaching Suggestions

You can use the "Sames and Opposites" activities to lay the groundwork for higher level activities designed to develop verbal originality and the use of imagery. Explain to students that writers make their work come alive by using variations in terminology and that feelings and moods can often be developed by selecting the best word from a number of possible alternatives. You might illustrate this point by writing the following sentence on the chalkboard: *The _____ that we stayed in was not far from the river.* Words inserted in the blank can help create a certain mood. Thus, *motel* or *hotel* would suggest travelers, *cave* or *cabin* would suggest wilderness, and *pad* might suggest young people (perhaps hippies). Another example might be *I _____ that you sit down*. Call attention to the difference in tone created by using the word *suggest*, as opposed to using the word *demand*.

The number of possible responses to words in these activities varies, and students will probably be able to create long lists for some words and give only a few responses for others. After students have completed as many blanks as they can, introduce the thesaurus and point out its value to writers.

This activity has been found to be successful when carried out under conditions of mild competition (either individual or team). Allow sufficient time for students to

discuss whether or not a given word or phrase is really the same as, or opposite of, one of the words specified in the exercises. Encourage them to use the dictionary as an arbitrator whenever opinions differ.

Follow-up Activities

- Antonyms are much more difficult to construct than synonyms. More able students might enjoy working on additional exercises asking them to think of opposites.

- Ask students to write sentences that convey various moods by substituting one word or phrase for another. This activity will help them appreciate word power, and you can use it as a lead-in to writing entire paragraphs that create a certain mood. You might want to read aloud Edgar Allen Poe's poem "The Bells" and point out the different tones Poe creates in each stanza by using particular words.

11 Alternate Uses

Type of Activity

Semantic Units

Objectives

To develop ideational flexibility and originality.
To develop the abilities to modify, adapt, redefine, and improvise.

Teaching Suggestions

This activity allows students to develop both practical and creative products. After students have read the directions and examples in the first exercise, invite them to point out the difference between the two examples. Using familiar stories as examples of fanciful writing (e.g., *Alice in Wonderland*, *The Wizard of Oz*, television cartoons), point out that children and adults both receive endless hours of enjoyment from fanciful material such as fairy tales, science fiction, tall tales, and cartoons. In other words, help youngsters see that all writing need not be realistic or serious. Also point out that many useful devices can be made from objects that were meant to serve some other purpose (e.g., book cases can be made from bricks, bumpers on boat docks from rubber tires). Ask students if they or their parents have ever used an object in ways other than the way it was meant to be used. Encourage them to develop both practical and fanciful ideas in completing the exercises

and allow them a good deal freedom in changing the objects to suit their purposes.

If students are a little slow to get started, you might suggest some of the following strategies for modifying objects: taking them apart or breaking them up into smaller parts; putting several of them together or combining them with other types of objects; turning them upside down or inside out; stretching them and adding color, motion, sound, or odor. Suggest a few examples of how objects can be modified to form different products. For instance, a story and music can be combined to make an opera and apples can be used in a variety ways to make different dishes. Ask students if they can think of other ingredients that can be modified to form different products.

The class discussions related to this activity will no doubt produce some laughter and some way-out suggestions, but you and the class should make every effort to value even the most ridiculous response. It is in activities such as this that students can practice freeing their minds from the usual constraints that limit creativity.

Follow-up Activities

• Ask students to make a list of all the things they and their families discard from their homes and use these lists as the bases for additional "Alternate Uses" exercises. Follow-up exercises can be restricted to practical or fanciful uses, and you might have an occasional contest to see who can come up with the best response within a particular specification. Whenever possible, let students judge which is the best idea.

12 Figure Completion

Type of Activity

Figural Elaborations

Objectives

To develop nonverbal flexibility and elaboration.
To construct a variety of meaningful drawings by elaborating on a given element.
To demonstrate nonverbal applications of creativity skills.
To show a relationship between figural and verbal material.

Teaching Suggestions

After students have read the directions and looked at the example in activity "a," ask how this exercise differs from "Figure Arrangement." Remind students that they can add whatever they want to the specified figures and observe them as they work on their drawings. If some students consistently work within the ellipse on the first exercise, praise them for the drawings they have completed, but suggest that they try making the figure a part of a bigger figure once in a while. Encourage students to think of some unusual titles for their drawings and suggest that they think of more than one title if they wish. After students have completed each exercise, allow them to work in pairs and to suggest titles for each other's drawings. You may want to display individual drawing or the entire activity sheet on the bulletin board. Students may wish to make enlarged drawings so that the class can see them better.

Follow-up Activities

• Ask students to create their own figures to use in "Figure Completion" activities. Suggest that large figures placed on poster paper are a possibility and that several youngsters may contribute their elaboration ideas to produce a group picture.

• Various groups can place unnamed pictures on the bulletin board, and the class can have a contest to see which student in another group can come up with the most interesting title. The students who created the pictures should serve as judges in deciding the best title.

13 Changing Things

Type of Activity

Semantic Transformations

Objectives

To develop ideational fluency.
To give practice in brainstorming.

Teaching Suggestions

Before students begin this activity, remind them that "things" do not necessarily have to be concrete objects. Ideas, feelings, and events can also be modified by making them larger or smaller. This activity may generate a number of humorous responses, but it also may stimulate some highly analytic thinking. Try to be equally tolerant of both serious and not-so-serious responses, and, if possible, try not to show disapproval if you hear responses such as "Making homework assignments smaller" and "Making lunch hours bigger."

After students have completed the exercises, ask some students to read their lists aloud in class. Ask students to explain some of the more creative responses, telling the class why they would make these things bigger or smaller.

Follow-up Activities

• You can develop similar activities around other possible modifications. For example, things can be made longer, softer, more flexible, faster, or slower. Ask students to set the specifications and try them out on their classmates. You can also invite students to suggest changes in other common things or products, such as schools, food containers, books, libraries, and boats.

14 Sentence Skeletons

Type of Activity

Semantic Systems

Objectives

To develop expressional fluency and flexibility.

Teaching Suggestions

The "Sentence Skeletons" exercise begins with simple specifications and proceeds to more complicated versions. Students might tend to develop a fixed pattern of responding to each set of items (i.e., beginning each sentence in the first set with "Lazy people are . . ."). Therefore you should encourage students to strive for originality in each sentence. Some sentences will no doubt be humorous and somewhat illogical, but you should accept these responses, especially in the early stages of this activity. By asking students to read some of their sentences aloud in class and by heavily praising those sentences that flow smoothly, you will help channel future responses in the desired direction. You should encourage, but not pressure, hesitant students to reveal responses.

This activity is very popular among middle-grade youngsters, and you might use it to develop language skills among learners who are not especially motivated by traditional approaches. Sentences in our language are modeled on relatively few distinctive patterns; thus lessons relating to the basic structures of sentences (such as adjective-noun-verb-noun, noun-verb-adverb) can be built around "Sentence Skeletons" activities. You can use these activities as a basis for lessons dealing with noun determiners (*a, an, the, each, some, one,* etc.), verb

helpers (*shall, will, should have,* etc.), phrase and clause markers (*to, in, by, which,* etc.), question markers (*who, what, when,* etc.), and connectors (*and, but, or,* etc.).

Follow-up Activities

• In addition to varying the number of blanks and letter specifications, you can do any of the following: insert various punctuation marks in the skeletons, make certain letters within the skeleton upper case (thereby requiring a proper noun), allow youngsters one or two free words that they can insert anywhere. (This last suggestion is especially helpful for getting slower students started on this activity.)

15 Comparisons

Type of Activity

Semantic Relations

Objectives

To develop verbal originality.
To develop the use of imagery.
To express ideational relationships and colorful comparisons.

Teaching Suggestions

Before students start this activity, ask them for some of the common comparisons with which they are familiar ("as slow as a turtle," "as fast as lightning," "as strong as an ox"). Write the stems of these well-known comparisons on the chalkboard and ask students to give several possible analogies for each stem. Encourage them to be as original and as colorful as possible in completing the exercises on the activity sheets.

Explain to students that comparisons can be direct and realistic or they can be fanciful and unrealistic. For example, a realistic comparison might be "Tim can run as fast as his brother;" a more fanciful and less realistic comparison might be "Tim is as fast as a streak of lightning." Sometimes people use extreme or even ridiculous comparisons to emphasize a relationship or lack of relationship between two persons, objects, or situations. Thus someone might call attention to a book's lack of interest by saying, "The plot of this book is about as interesting the plot of a telephone book," or emphasize a person's lack of speed by saying, "Jimmy is as fast as a turtle."

Remind students that there are no right answers to these exercises. Direct them to write any comparison

they think of, regardless of how silly or ridiculous it may seem. Point out that truly great writers often gained fame by thinking of comparisons that no one else had used.

After students have completed the exercises, invite some of them to read their responses aloud and ask the class to comment on those they feel are particularly colorful. Call attention to varying degrees of relationship (direct and realistic, magnified and fanciful) and ask students to explain comparisons that are not readily apparent to their classmates.

Follow-up Activities

• Invite students who are interested in writing to watch for comparisons in their reading and to record them in a notebook. After they have accumulated several examples, ask students to group them into various categories such as comparisons of physical characteristics ("as big as. . . ," "as pretty as. . . ," "as blue as . . . "), emotional characteristics ("as happy as. . . ," "as angry as. . ."), and temporal characteristics ("as old as . . . ," "as recent as . . ."). Encourage them to add their own comparisons to the list whenever they think of them.

16 Word Boxes

Type of Activity

Symbolic Relations

Objectives

To develop verbal fluency and flexibility.
To produce connections between words that are based on symbolic (letter) relationships rather than semantic (meaning) relationships.
To learn how to distinguish between symbolic and semantic relationships.

Teaching Suggestions

Before students begin work on this activity, put the following example on the chalkboard:
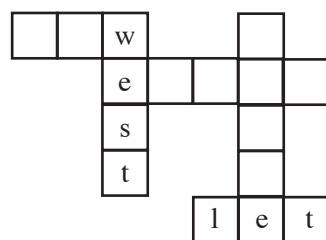
Ask students if they can think of a three-letter word that ends with *w* (e.g., *saw*, *few*). Encourage them to give several possible responses so that they will understand that they can use many different words to complete the Word Boxes. Now ask if they can think of a five-letter word that begins with *s*. After several suggestions write in the word *stare*. Then ask students to think of a five-letter word that ends with *e* and has *r* as the second letter (*crime*, *broke*, *prune*, and so on). Again, allow all students to contribute their suggestions and reemphasize that there are many words that can be used in these exercises.

This activity is very exciting when you carry it out under mildly competitive conditions. Ask students to see how quickly they can complete the Word Boxes and encourage them to use words that no one else will think of. After they have completed the boxes, suggest that students develop a set of clues for each of their words (as in a regular crossword puzzle), exchange lists of clues with a partner, and see if they can solve each other's puzzles.

Follow-up Activities

• In addition to asking students to construct their own Word Boxes and exchange them with their classmates, you can use this activity as the basis for developing some of the skills involved in writing crossword puzzles. Have students study some crossword puzzles and call attention to the types of relationships that are used to specify words (synonyms, antonyms, abbreviations, rhymes, colloquialisms, and so on). Ask students to use as many of these types of relationships as possible in creating their own crossword puzzles. Be sure to provide students with graph paper so that they can draw out their puzzles.

17 Let's Write a News Story

Type of Activity

Semantic Implications

Objectives

To develop imagination and verbal originality.
To produce an original communication that is extended beyond the limits of the given information.

Teaching Suggestions

This activity invites youngsters to use their imaginations. They will, in effect, have to invent a

new toy and a strange creature. Encourage them to be original in creating their toy and creature and suggest that they illustrate their story with a picture that might appear with the newspaper article. Before students begin this activity, review with them the five *Ws* of a news story (*Who*, *What*, *When*, *Where*, and *Why*). Point out that a good news story attempts to answer these questions for the reader.

Ask students to read their articles aloud in class and display their drawings on the bulletin board. A good deal of humor, and perhaps even some silliness, is likely to result from this activity, but it is important to be supportive of students' responses. Creativity will flourish when students feel that you value some of their highly imaginative and not-too-serious ideas.

Follow-up Activities

• Ask students to invent headlines that might provoke imaginative stories and also suggest that they watch the newspapers for actual headlines that are open to a wide variety of implications. Use these two sources of headlines for additional writing exercises.

18 Make-a-Sentence

Type of Activity

Semantic Systems

Objectives

To develop expressional fluency and flexibility.
To develop the ability to organize words into meaningful, complex ideas.

Teaching Suggestions

Words for the "Make-a-Sentence" activities have been purposefully selected because of their limited logical relationship to each other. This limited relationship is essential in achieving the objectives listed above. Since students sometimes have difficulty starting this activity, encourage them to persevere by being very receptive to their early responses. These early responses may be somewhat awkward and often humorous, but the students will quickly realize that by using clauses and compound sentences, they can construct meaningful thoughts. After students have caught on to the activity, increase the level of difficulty by asking them to construct sentences with a minimal number of words. This slight modification, perhaps carried out under mildly competitive conditions, will require a reorientation in their thinking.

Follow-up Activities

• Many variations can be introduced into the "Make-a-Sentence" activity: the number of specified words can be increased; the number of connecting words (that is, nonspecified words) can be limited: and the specified words can be "loaded" with various parts of speech, words from spelling lists, or words from social studies units. When selecting words, choose ones that do not logically go together. Students will write very ordinary sentences if you select words such as *little*, *lost*, *dog*, and *boy*.

• Students can develop dictionary and vocabulary skills by working in teams to prepare sets of words for a "Make-a-Sentence" competition. They will undoubtedly seek out unusual words, thus inspiring their classmates to look up words in the dictionary.

• You can also use this activity to develop vocabulary and syntax skills in a foreign language if students have already begun study in this area.

19 Cartoon Captions

Type of Activity

Figural Implications

Objectives

To develop the ability to produce varied implications based on given figural material.
To show relationships between figural and semantic material.

Teaching Suggestions

A good way to introduce this activity is to show students a cartoon that conveys a humorous situation without a caption. Then show them a captioned cartoon with the caption removed or covered and ask if the cartoon brings out the humor in the situation. Ask the class what words might be written below the cartoon to make it humorous. Try to elicit several responses from students and allow them to decide which caption they like the best. It is important to emphasize that there are many possible captions. After several students have had an opportunity to suggest captions, you might reveal the caption that was written by the cartoonist.

After students have completed each activity sheet, ask them to read their captions aloud or display their activity sheets on the bulletin board. Exposure to each

other's responses may provoke additional ideas; therefore give students an opportunity to add new responses.

This activity provides an opportunity for helping students appreciate peer evaluation. The class will exhibit varying amounts of laughter in relation to the degree of humor that a caption brings out. Students may choose to submit their best cartoons to the school newspaper for possible publication.

Follow-up Activities

- Ask students to cut out and bring to class cartoons that they think will be good for this activity. They can mount cartoons on poster paper and display them on a bulletin board with space for students to add their own captions.

- You can introduce youngsters to political cartoons and the special types of messages that they attempt to convey. Be sure to point out the symbolic nature of political cartoon characters (Uncle Sam, donkey, elephant, and so on). Famous political cartoons such as those by Thomas Nast allow students to see the way that editorial opinions of historical events may be communicated. Invite students to draw political or editorial cartoons of past or current events.

- One game-type activity might involve matching cartoons with appropriate captions. Break the class into workable groups, giving half of each group some cartoons and the other half the corresponding captions. Have students try to find the right caption for each cartoon.

- An exciting variation of the "Cartoon Captions" activity is to ask youngsters to draw their own cartoons and exchange them with their classmates so that the classmate can add the caption. Or, you might give students a caption and ask them to produce a sketch that brings out the humor implicit in the caption. As a final exercise, you can synthesize figural and semantic activity by asking children to draw cartoons and then write captions for their own cartoons.

20 Visitors from Another Planet

Type of Activity

Semantic Elaborations

Objectives

To develop the ability to elaborate on a given topic.
To produce an original communication in which the writer attempts to convey an idea based on a limited amount of given information.

Teaching Suggestions

You can use the exercises in this activity to develop both logical thinking skills and skills in creative writing. Encourage students to write logical explanations or suggest that they develop fanciful ways of completing some of the exercises. To promote highly imaginative explanations, call students' attention to some of the tall tales in American folklore and discuss how tall tales are often used to explain certain phenomena (for example, how Pecos Bill dug the Rio Grande with a stick). Encourage students to devise some unusual explanations for each of the situations presented. Ask them to read their explanations aloud in class and take the lead in praising fanciful explanations. Once students realize that you value this type of thinking, they will strive to produce original explanations in subsequent exercises.

Follow-up Activities

- Ask students to work in small groups and develop lists of certain items that are relatively unique to our culture and society. Use these lists as the bases for similar exercises. When the students have collected a number of these activities, you can develop a lesson on the printing and binding books around the theme "Guide to the Earth for Visitors from Another Planet." Each student should edit his or her collection and construct a guide, or the whole class could make the guide together. You can encourage artistic creativity by suggesting that some students may want to illustrate the guides and design covers.

- For a good on-your-feet thinking activity, ask students to present their explanations of phenomena verbally in an impromptu manner. This variation might prove difficult for some youngsters, but those who are more verbally fluent should enjoy this activity.

21 Word Trees

Type of Activity

Semantic Relations

Objectives

To develop verbal flexibility.
To develop the ability to construct relationships between groups of words.

33

The object of Word Trees is to fill each empty box with a word that is related to the box or boxes above it. Introduce the concept behind Word Trees by going through the following exercise at the chalkboard. Start by drawing the diagram below on the chalkboard. Explain to the class:

The word *house* in the following Word Tree might make you think of such words as *door* and *home*. Think of another word that is related to house and write it in the empty box next to *home*. The words *door* and *home* might make you think of the word enter. Can you think of a word that is related to home and the word you wrote in the empty box? Write the word in the other empty box.
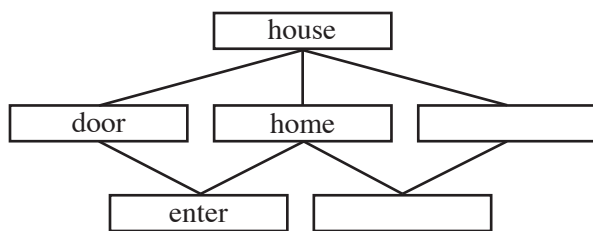
A Word Tree can also begin with two words. For example, what comes to mind when you think of the words *water* and *wind*? One word might be *sail*. Can you think of another word related to *water* and *wind*? Write the word in the empty box.
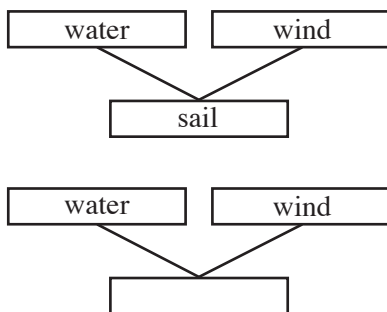
Once students have caught on to the principle underlying Word Trees, encourage them to think of words that no one else will use. If the activity is carried out under competitive conditions, you may want to give more points for words that are unique in the group. This activity provides a good opportunity to call attention to the types and degrees of relationships between words. If most students attempt to complete the Word Trees by using direct or concrete relations, point out the possibility of using some less direct relations. For example, in the first sample Word Tree, the words

door and home illustrate direct relations. You might also suggest some words that are indirectly related to house, such as protection and mortgage. Explain how these words are related and encourage students to think of words that express direct and indirect relationships. `You might suggest that they fill in each box with two words—one showing a direct relationship and the other showing an indirect relationship.

Follow-up Activities

• In addition to creating new word trees to give students, offer them an opportunity to construct their own Word Trees and share them with their classmates.

• You can help students develop their language skills by specifying that the Word Trees be completed with particular parts of speech or with synonyms or antonyms. More complex variations of this activity might include specifications involving part-whole relationships, action-agent relationships, or verb-object relationships.

22 Planning

Type of Activity

Semantic Elaborations

Objectives

To develop ideational fluency and flexibility.
To produce an original plan of operation that is based on minimal specifications.

Teaching Suggestions

This activity allows youngsters to practice brainstorming skills and develop an organized plan based on one or more of the ideas produced in brainstorming. Although planning and organizing are extremely important abilities, most of the work that students do in school is planned for them by adults. Therefore, some students will find this activity difficult, and they may look to you for more guidance and direction than you should give. If students are to developed these abilities to the fullest, you should give some general suggestions, but the main responsibility rests with the students. General suggestions might be built around questions such as the following:

What are the objectives of the project?
What skills will be required?

What jobs have to be done?
Should some job be done before others?
What materials and resources will be needed?

Encourage students to develop flow charts and time lines that depict responsibilities, persons assigned to various jobs, and sequences of events.

After students have worked on their individual plans, you might divide them into small groups and suggest that they pool their ideas to produce a group plan. Let the class decide which plan would be the most effective.

Follow-up Activities

- In addition to developing other hypothetical planning situations, encourage students to apply their planning skills to both their individual work and any group projects that the class may undertake. Sometimes it is difficult for teachers to refrain from structuring activities, but if students are to develop planning abilities, they should be allowed to plan their own work whenever possible. The business sector and government have developed a number of planning and project management systems, and students who have an interest in, and aptitude for, this activity should be given an opportunity to study the area further. Unfortunately, most of the material in this area is too complicated for elementary-age youngsters. Nonetheless, you might help them interpret some of the material in a book such as *Program Evaluation and Review Technique* (PERT) by Desmond L. Cook (University Press of American, 1978).

23 Con You Design It?

Type of Activity

Semantic Elaborations

Objectives

To develop nonverbal elaboration and originality.
To produce an organized plan that includes anticipated elements arranged in unique ways.
To write a description that translates figural information into verbal information.

Teaching Suggestions

Before students begin this activity, ask them to make a list of the things they will want to include in their plan. If they have had some experience in scale drawing, suggest that they devise a scale for their drawings and use rulers to convert objects to a given scale.

After students have completed each exercise, develop a comprehensive list on the chalkboard of all the things that are included in everyone's drawings. Use tally marks each time an object is repeated and call attention to objects that are unique within the group.

Display students' plana on a bulletin board and compare them with plans for space stations and campers that they might find in encyclopedias, science magazines, or advertisements. (Outdoor life magazines or automobile dealers that sell mobile camping equipment are good sources for ads and plans). Invite youngsters who have stayed in a camping van to draw or describe the layout and find out from them if the design presents any inconveniences.

Follow-up Activities

- You can correlate language arts activities with this activity by asking students to write advertisements and specifications for campers. Encourage students to be imaginative by reminding them that ad copy (writing that is directed toward the sale of a product) must be clear, concise, and skillfully designed to evoke the reader's desire for the product being advertised. You can use this follow-up activity with students who are especially interested in writing or with students who like to draw but are somewhat reluctant to write. For this latter group, emphasize the drawing, but use the figural work as a basis for getting them to write about their drawings. This activity can serve as a lead-in or follow-up to "The Advertising Game."

- Other design activities can be based on a variety of objects, including schools, rocket ships, playgrounds, houses, traffic systems, and classrooms. For those who express an extreme interest in this area, you might want to obtain some blueprints and some books on design and drafting, or perhaps you can arrange for these students to talk with an architect or draftsman.

24 Unfinished Stories

Type of Activity

Semantic Systems

Objectives

To develop verbal originality and imagination.

To create various moods by producing original endings to stories.

Teaching Suggestions

You should discuss the following directions with students. You may want to assign one story ending at a time, allow students to select the type of ending they would like to write first, or ask different groups of students to write certain types of endings.

Have you ever read a story that had an unexpected, or surprise, ending? The writers of successful mystery stories are especially good at ending their stories in ways that keep the reader in suspense. In this activity, you will have a chance to practice writing different kinds of endings for short stories. Try to make your endings as unusual and as unexpected as possible. It will be fun to read your endings to other members of the class and see if your endings are completely different from theirs.

Write three separate endings for each story. The *first* ending to the story should be a very happy one. Try to write it in a way that will make the reader feel cheerful or joyful after he or she has read your ending.

The *second* ending should be a very sad ending. Try to make the reader feel unhappy, brokenhearted, or sorrowful as a result of reading your second ending.

The *third* ending should be ridiculous. This ending can be very funny or completely improbable, or it can make absolutely no sense whatever. As a result of reading this ending, the reader should be confused and puzzled about the purpose and meaning of the story.

After you have completed each ending, give your story a title. Remember, the endings should be as interesting and as unusual as you can possibly make them, regardless of whether they are happy, sad, or ridiculous. It might be fun to try to include some of the comparisons that you developed in previous exercises. Write each story ending on a separate piece of paper.

"Unfinished Stories" provides an excellent opportunity for youngsters to use their imaginations in a relatively unstructured manner, and yet they are required to create three specific moods for each exercise. When introducing this activity, point out the power of the written word in conveying a certain mood, feeling, or emotion. Ask students if they have ever read a story (or watched a movie or television program) that made them feel happy or sad. Ask what they think a writer does in order to elicit these feelings.

Students should be allowed to read their stories in class so that the class can judge whether or not the desired mood was created. For example, after a student has read a story with a happy ending, you might ask, "Did the story make you feel happy?" "What did the writer do to make you feel this way?" Point out various writing techniques such as the use of imagery, emotionally toned words, and identification with the characters in the story.

The "Unfinished Stories" activity also allows you to work with youngsters on basic language skills such as grammar, punctuation, and spelling. Encourage students to revise and improve the grammatical quality of their stories by suggesting that certain stories be typed and illustrated for bulletin board presentation. *You must, however, exercise a great deal of caution when you use creative products as the bases for developing basic skills. Youngsters must want to improve their own work, and the entire atmosphere for a free and creative learning environment can quickly be lost if skills become the predominant objective.*

Follow-up Activities

• Students can write or rewrite stories in dialogue form and use them as scripts for classroom dramatizations.

• Invite students to write the beginnings of stories, circulate them among their classmates, and write endings for each other's stories. You might want to have youngsters work in small groups and produce a cooperative ending for a story. This approach provides practice in brainstorming skills as well as skills involved in the process of joint writing. Try to create a "writers' club" spirit by pointing out that many accomplished authors began writing at an early age.

Resources

Unfinished Stories for Facilitating Decision Making in the Elementary Classroom by the National Education Association. 1980. Published by the National Education Association: Washington, DC.

BIBLIOGRAPHY

Amabile, T. M. (1985). Motivation and creativity: Effects or motivational orientation on creative writing. *Journal of Personality and Social Psychology, 48,* 393-399.

Amabile, T. M. (1996). *Creativity in context.* Boulder, CO: Westview Press.

Anderson, H. H. (Ed.). (1959). *Creativity and its cultivation.* New York: Harper & Brothers.

Archambault, F. X. (1970, March). *A computerized approach to scoring the Torrance tests of creative thinking.* Paper presented at the annual meeting or the American Educational Research Association. Minneapolis, MN.

Arnold, J. E. (1962). Useful creative techniques. In S. J. Parnes & H. F. Harding (Eds.), *A source book for creative thinking.* New York: Charles Scribner's Sons.

Baer, J. (1993). *Creativity and divergent thinking.* Hillsdale, NJ: Erlbaum.

Baer, J. (1996). The effects of task-specific divergent thinking training. *Journal of Creative Behavior, 18*(1), 11-22.

Davis, G. A. (1999). *Creativity is forever* (4th ed.). Dubuque. IA: Kendall/Hunt Publishing.

Eberle, R. F. (1966). *Teaching for creative productive thinking through subject matter content.* Unpublished. State of Illinois Bulletin to Edwardsville, Illinois, Community Schools, Community District 7.

Feldhusen, J. F., Bahlke, S. J., & Treffinger, D. J. (1969). Teaching creative thinking. *Elementary School Journal, 70,* 48-53.

Gretzels, J. W., & Jackson, P. W. (1962). *Creativity and intelligence.* New York: John Wiley & Sons.

Guilford, J. P. (1967). *The nature of human intelligence.* New York: McGraw-Hill.

Jaben, T. H. (1980). *The impact of creativity training on learning disabled students' creative thinking abilities and problem solving skills.* Paper presented at the Annual International Convention of the Council for Exceptional Children. (ERIC Reproduction No. ED192481).

Lepper, M., Greene, D., & Nisbet, R. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "Overjustification" hypothesis. *Journal of Personality and Social Psychology, 28,* 129-137.

Li, A. K. F. (1985). Correlates and effects of training in make-believe play in preschool children. Alberta *Journal of Educational Research, 31*(1), 70-79.

Meeker, M. N. (1969). *The structure of intellect: Its interpretation and uses.* Columbus, OH: Charles E. Merrill.

Mellou, E. (1995). Review of the relationship between dramatic play and creativity in young children. *Early Child Development and Care, 112,* 85-107.

Osborn, A. F. (1963). *Applied imagination* (3rd ed.). New York: Charles Scribner's Sons.

Paulus, D. H. (1970, March). *Are sub-tests of the Torrance test independent?* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Pollert, L. H., Feldhusen, J. F., Von Mondfrans, A. P., & Treffinger, D. J. (1969). Role of memory in divergent thinking. *Psychological Reports, 25,* 151-56.

Rogers, C. (1969). *Freedom to learn.* Columbus, OH: Charles E. Merrill.

Rose, L. H., & Lin, H. T. (1984). A meta-analysis or long-term creativity training programs. *Journal of Creative Behavior, 18*(1), 11-22.

Russ, S. W. (1996). Development or creative processes in children. *New Directions in Child Development, 72,* 31-42.

Simonton, D. K. (1988). Creativity, leadership, and choice. In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 386-426). New York: Cambridge University Press.

Starko, A. J. (1995). *Creativity in the classroom: Schools curious delight.* While Plains, NY: Longman Publishers.

Taylor, C. W., & Williams, F. E., (Eds.). (1966). *Instructional media and creativity.* New York: John Wiley & Sons.

Torrance, E. P. (1965). *Rewarding creative behavior: Experiments in classroom creativity.* Englewood Cliffs, NJ: PrenticeHall.

Torrance, E. P. (1987). Teaching creative and girted learnings. In S. G. Isaksen (Ed.). *Frontiers of creativity research: Beyond the basics* (pp. 189-215). Buffalo, NY: Bearly Limited.

Walberg, H. J., & Zeiser, S. (1997). Productivity, accomplishment, and eminence. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed., pp. 328-334). Boston: Allyn & Bacon.

Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children.* New York: Holt.

Watts, A. (1964). A psychedelic experience: Factor fantasy. In D. Soloman (Ed.), *LSD: The consciousness expanding drug.* New York: G. P. Putnam's Sons.

Williams, F. E. (1964). *Reinforcement in classroom learning.* Washington, DC: U.S. Office of Education (Department of Health, Education, and Welfare).

1   Thinking about Things (a)

When you visit a library, have you ever noticed that all books of a certain type are grouped together? You will find all the books about sports in one place and all the books with mystery stories in another place. For some reason, people like to group together things that have certain characteristics in common. In this activity, see how many things you can think of that have the same characteristics.

List all the things you can think of that are made of metal. A few examples are given to help you get started. If you need more space, continue your list on the back of this page.

paper clips _____   _____   _____
cars _____   _____   _____
keys _____   _____   _____
scissors _____   _____   _____
spoons _____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

List all the things you can think of that people might wear. Use the back of this page if you need more space.

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

1   Thinking about Things (b)

List all the things you can think of that are long and thin.
Use the back of this page if you need more space.

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____
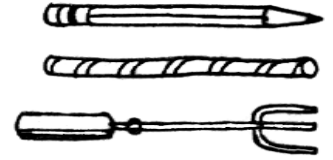
List all the things you can think of that you might find in a
kitchen. Use the back of this page if you need more space.

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Name _____ Date _____

2   Fun with Words (a)

The "Fun with words" exercises will help you get into the habit of making several responses rather than just one or two. Fill in as many of the blanks as you can. Keep in mind that there are no correct answers. When you have finished, compare your lists with those of your classmates to see who thought of the most words and to see if your list included some words that no one else listed.

Write as many words as you can think of that begin or end with the letters indicated on each line below. A few examples are given to help you get started. If you need more space, continue your lists on the back of this page.

s	k	g	e
school	kitchen	twig	decide
stumble	knock	frog	while
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e
s_____	k_____	_____g	_____e

Name _____   Date _____

2   Fun with Words (b)

Write as many words as you can think of that begin or end with the letters indicated on each line below. If you need more space, continue your lists on the back of this page.

w_____ _____m	g_____l	l_____t
w_____ _____m	g_____l	l_____t
w_____ _____m	g_____l	l_____t
w_____ _____m	g_____l	l_____t
w_____ _____m	g_____l	l_____t
w_____ _____m	g_____l	l_____t
w_____ _____m	h_____e	b_____t
w_____ _____m	h_____e	b_____t
w_____ _____m	h_____e	b_____t
w_____ _____m	h_____e	b_____t
w_____ _____m	h_____e	b_____t
w_____ _____m	h_____e	b_____t
w_____ _____m	a_____m	t_____e
w_____ _____m	a_____m	t_____e
w_____ _____m	a_____m	t_____e
w_____ _____m	a_____m	t_____e
w_____ _____m	a_____m	t_____e
w_____ _____m	a_____m	t_____e
w_____ _____m	r_____n	s_____r
w_____ _____m	r_____n	s_____r
w_____ _____m	r_____n	s_____r
w_____ _____m	r_____n	s_____r
w_____ _____m	r_____n	s_____r
w_____ _____m	r_____n	s_____r

Name _____ Date _____

3   Consequences (a)

Sometimes it is fun to let your mind wander and imagine all
the things that would happen if an unusual situation were to
occur. For each of the following situations, list as many possible
consequences as you can.

What would happen if there were no such thing as darkness or
night? Two examples are given.

Cars would not need headlights.

People who stayed up late would not be called "night owls."

_____

_____

_____

_____

_____

_____

_____

_____

_____

What would happen if automobiles were completely banned tomorrow because of pollution?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name _____ Date _____

3 Consequences (b)

For each of the following situations, list as many possible consequences as you can.

What would happen if everyone in the world suddenly became twelve inches tall?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

What would happen if there were no such thing as a mirror?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

4   Fun with Figures (a)
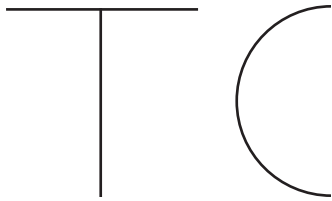
See how many different ways you can combine the above two figures to produce a new figure. The three examples should help you think of other combinations. Use the back of the page if you need more space.
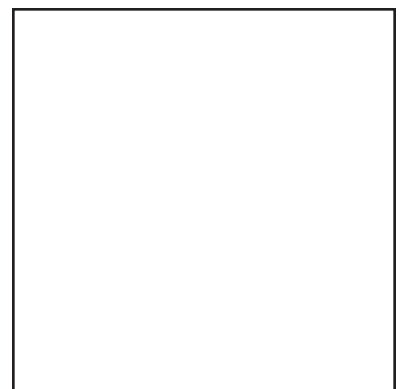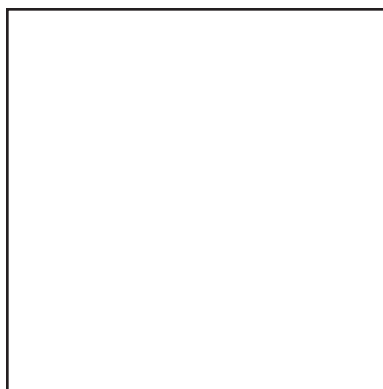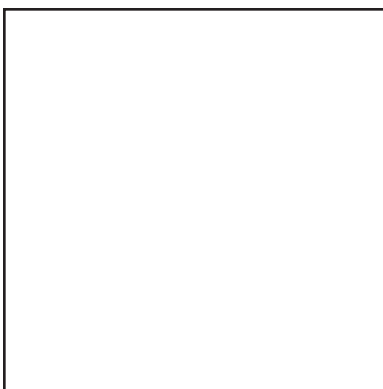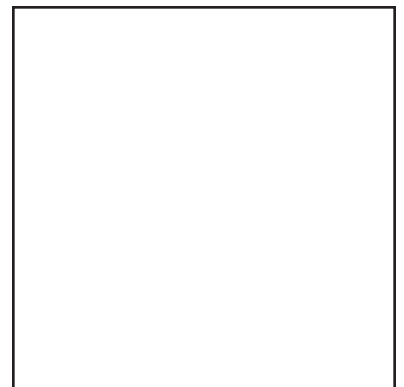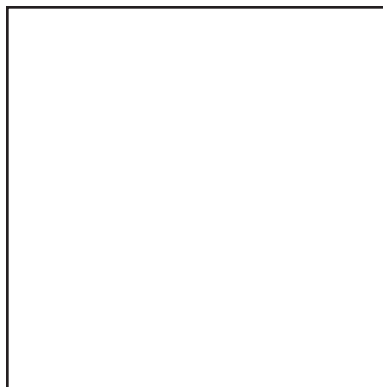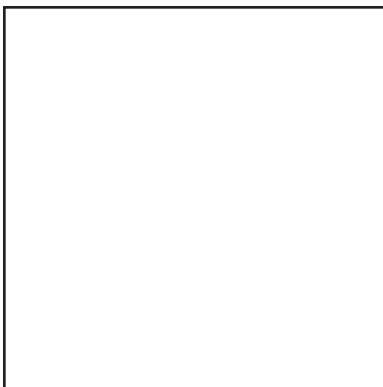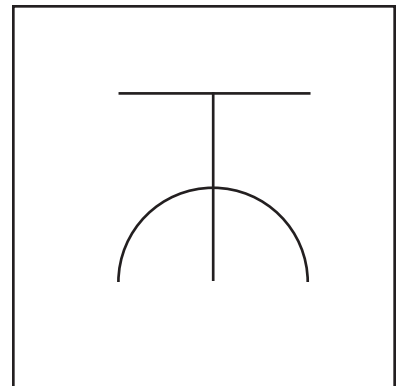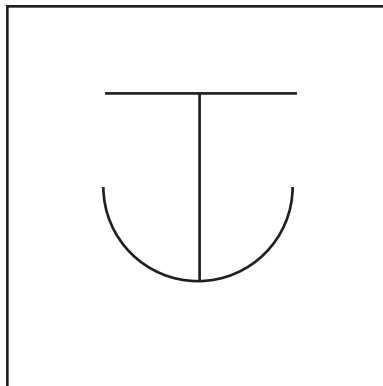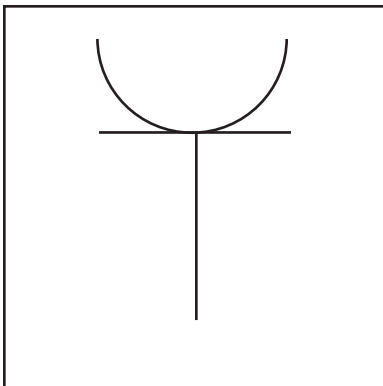
4 Fun with Figures (b)
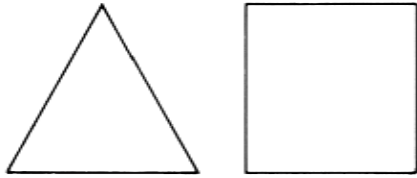
See how many ways you can arrange the above two figures so that one side of the triangle forms one side of the square. Use the back of this page if you need more space.
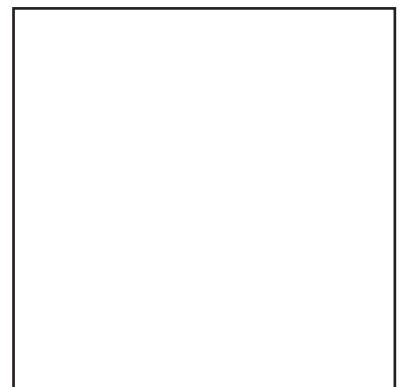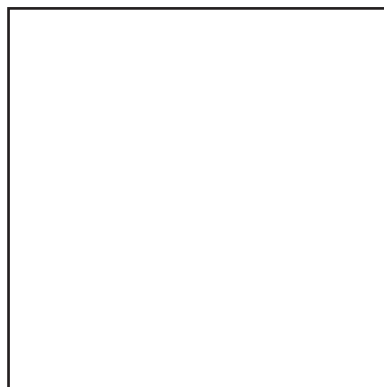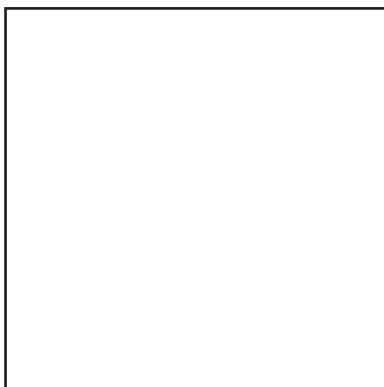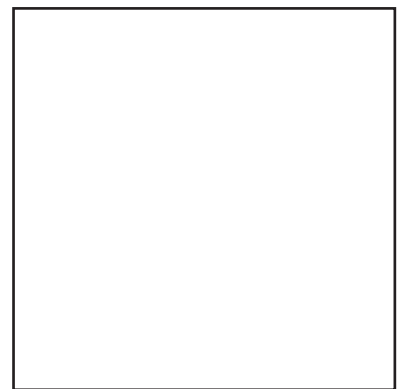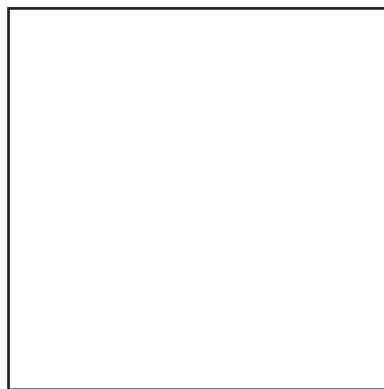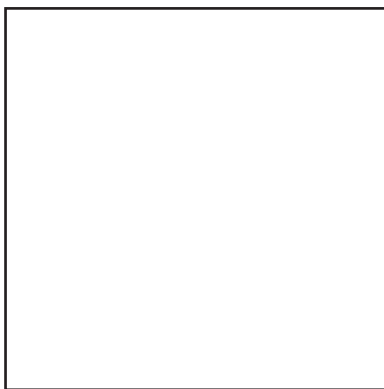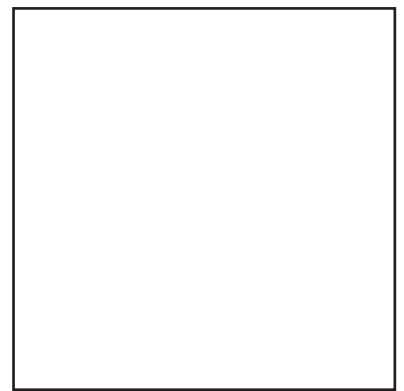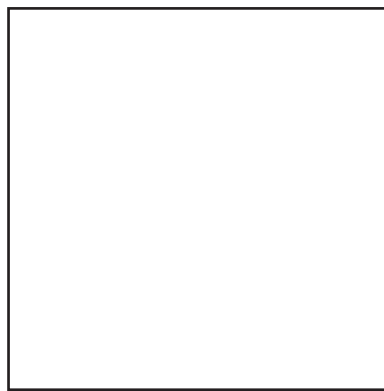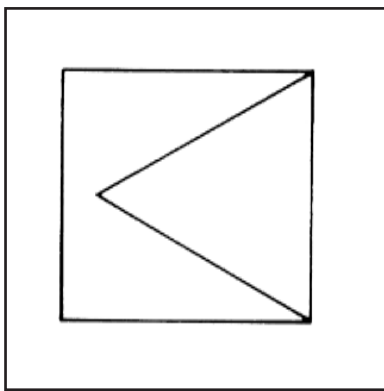
5   Time to Rhyme (a)

In this activity, see how many words you can think of that have the same ending sound as the word at the top of each column below. If you are not sure that a certain word exists, look it up in a dictionary. Compare your lists with those of your classmates to see who thought of the most rhyming words and to see if you listed any words that no one else listed. If you need more space, use the back of this page.

red	tree	book	blue
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

A leopard once shed a great tear,
And sighed, "My life is quite drear,
    I'm covered with lots
    Of these big ugly spots,
And stripes are the fashion this year!"

The limerick is reprinted from *The Limerick Book* compiled by Miriam Troop. Copyright c. 1964 by Gosset & Dunlap, Inc., New York. Reprinted by permission.
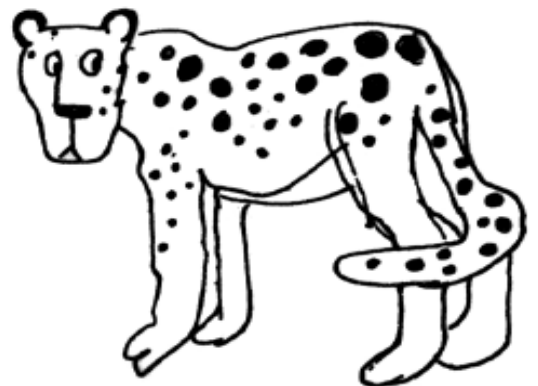
5   Time to Rhyme (b)

List as many words as you can think of that rhyme with word at the top of each column below. If you need more space, use the back of this page.

pin	stop	slap	bell
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

There once was an ambitious newt
Who yearned to sing with a lute;
    But rarely do lizards
    Become musical wizards,
So this little newt remained mute!

6   Let's Write a Slogan (a)

Very often, large companies develop slogans that help people
remember the names of the companies and the products they
make. These slogans help promote business for the company, and
therefore a great deal of thought goes into creating a catchy phrase
that customers will always associate with a particular business
or company. You have probably heard some of these slogans on
television.

See if you can create three clever slogans for each of the
following types of businesses. Try to make your slogans short and
interesting so that people can remember them easily. You can
make up names for the businesses or use the names of businesses
in your community.

A clothing store

_____

_____

_____

_____

_____

An airline

_____

_____

_____

_____

_____

A grocery store

_____

_____

_____

_____

_____

6   Let's Write a Slogan (b)

See if you can create three slogans for each of the types of businesses listed below. Try to make the slogans short, interesting, and memorable. You can make up names for the businesses or use the names of businesses in your community.

A hotdog stand

_____
_____
_____
_____

A toy manufacturing company

_____
_____
_____
_____

A gasoline service station

_____
_____
_____
_____

A newspaper

_____
_____
_____
_____

"All the News That's Fit to Print"

The New York Times

7   The Advertising Game (a)

People who work in the field of advertising are always trying to think of clever ways of selling products or getting more people to use their products. For example, they might try to get children to eat their brand of breakfast cereal by saying that famous baseball or football stars eat this cereal. Or they might tell how tasty the cereal is and how much fun it is to eat.

Pretend that you are responsible for writing a short television commercial for an ice cream company. What would you say to encourage people to buy this brand of ice cream? Write the script for the commercial in the space below.
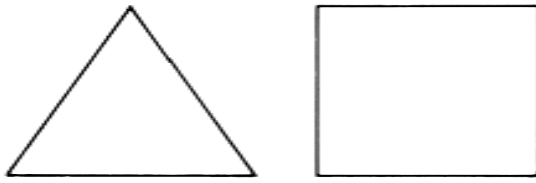
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

7   The Advertising Game (b)

Pretend that you are responsible for writing a short television
commercial for a bicycle company. What would you say to
encourage people to buy bicycles made by this company? Write
the script for the commercial in the space below.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name _____   Date _____

8   Figure Arrangement (a)

Use the two figures above to make a drawing in each of the boxes below. Give each of your drawings a title. Try to make your drawings and titles as interesting and as unusual as possible. You can place the figures canywhere in the box and turn them in any direction. You may make the figures as big or as small as you like.
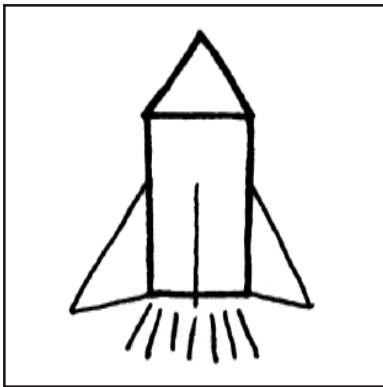
Title _Blast off!_____
_____
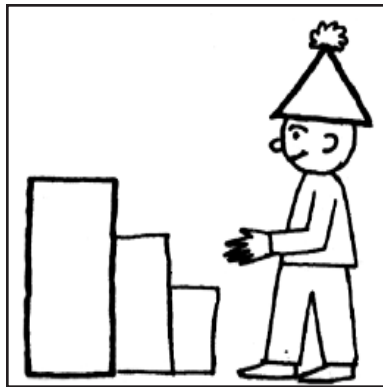
Title _The clown_____
  _climbs the stairs._____

Title_____
_____

Title_____
_____

Title_____
_____

Title_____
_____

8   Figure Arrangement (b)

Use the two figures above to make a drawing in each of the boxes below. Give each of your drawings a title.

Title_____

_____
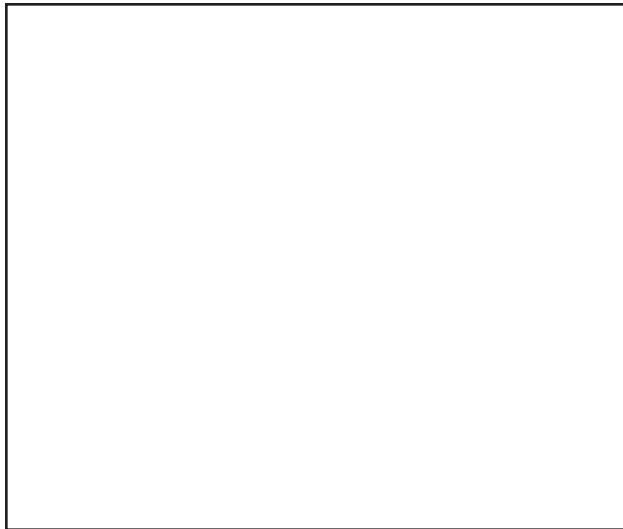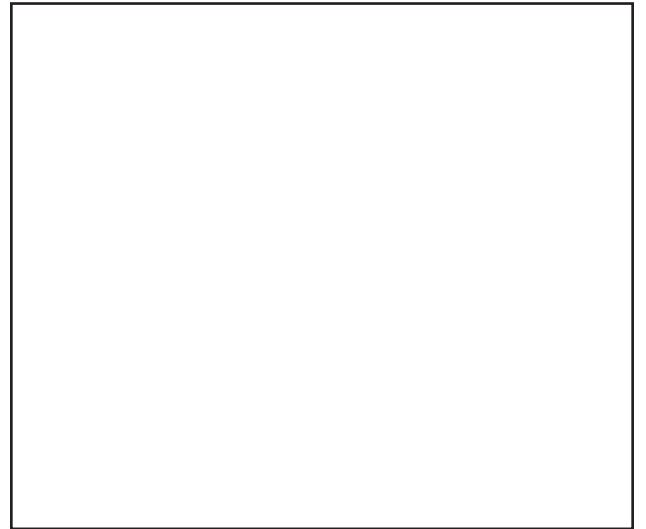
Title_____

_____

Title_____

_____

Title_____

_____

9   Making Words with Prefixes and Suffixes (a)

A prefix is a letter or group of letters that is put in front of a word to change the meaning of that word. For example, if the prefix *un-* is put in front of *clear,* the word becomes *unclear,* which means the opposite of *clear.* We can increase our vocabulary and make our language more interesting by learning how to use prefixes.

See how many words you can make using the following prefixes. Use the back of this page if you need more space.

un-	re-	dis-
un *happy*	re *copy*	dis *obey*
un *clear*	re *build*	dis *like*
un_____	re_____	dis_____
un_____	re_____	dis_____
un_____	re_____	dis_____
un_____	re_____	dis_____

A suffix is a letter or group of letters that is placed at the end of a word to alter the meaning of that word. For example, if the suffix *-en* is added to *dark*, the word becomes *darken*, and its meaning is different from but related to the word *dark*.

See how many words you can make by adding the following suffixes to words you already know. Use the back of this page if you need more space.

-ship	-ism	-ness
kin ship	*American* ism	*happi* ness
penman ship	*human* ism	*soft* ness
_____ ship	_____ ism	_____ ness
_____ ship	_____ ism	_____ ness
_____ ship	_____ ism	_____ ness
_____ ship	_____ ism	_____ ness

Name _____ Date _____

9   Making Words with Prefixes and Suffixes (b)

See how many words you can make, using the following prefixes. Use the back of this page if you need more space.

non-   inter-   mis-

non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____
non_____	inter_____	mis_____

See how many words you can make, using the following suffixes. Use the back of this page if you need more space.

-ful   -ly   -able

_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able
_____ful	_____ly	_____able

10   Sames and Opposites (a)

We can make our language more colorful by using a variety of
words to convey a certain meaning. When you have finished
the following exercises, compare your list with those of your
classmates to see who thought of the most words and phrases and
who thought of some that no one else did.

See how many words or phrases you can think of that mean the
same or almost the same as the word at the top of each column.
Use the back of this page if you need more space.

house	said	look	strange
home			
dwelling			
a place to live			

stop	group	hurry	have

See how many words or phrases you can think of that mean the opposite of the word at the
top of each column.

below	hold	come	lengthen
above			
on top of			
over			

present	small	fix	whisper

10   Sames and Opposites (b)

See how many words or phrases you can think of that mean the same of almost the same as the word at the top of each column.

big	disagree	return	disappear
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

help	increase	move	many
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See how many words or phrases you can think of that mean the opposite of the word at the top of each column.

straight	strong	together	connect
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

end	sad	morning	ugly
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

often	honest	kind	smart
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Name _____ Date _____

11   Alternate Uses (a)

We can often find uses for things that were originally intended for some other purpose. For example, children sometimes use old boxes for doll houses or as a place to keep their toys. For each of the following objects, list as many interesting and unusual uses as you can. Let your mind wander and try to think of some uses that no one else has ever thought of. List all the ideas that come to mind, even if they seem silly or impractical. You may change the objects to suit your purposes. Use the back of this page if you need more space.

Old automobile tires

_____
_____

_____
_____

_____
_____

Old newspapers

_____
_____

_____
_____

_____
_____

_____
_____

11   Alternate Uses (b)

See how many interesting and unusual uses you can think of for the following things. Use the back of this page if you need more space.

Last year's calendar

_____
_____
_____
_____
_____
_____
_____
_____
_____

Ballpoint pens that no longer have any ink in them

_____
_____
_____
_____
_____
_____
_____
_____

12   Figure Completion (a)

Using the figure in the boxes below, make drawings of as many real things as you can. Give each drawing a title. Try to make your drawings and titles as interesting and as unusual as possible.
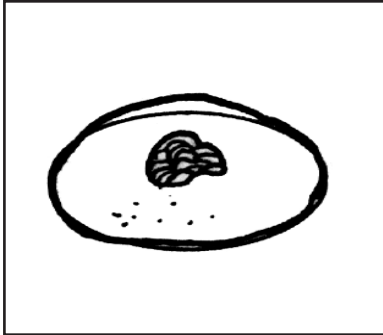
Title Almond cookie _____
_____
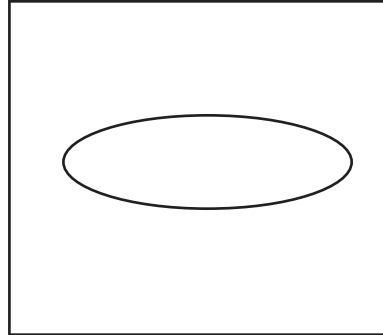
Title_____
_____
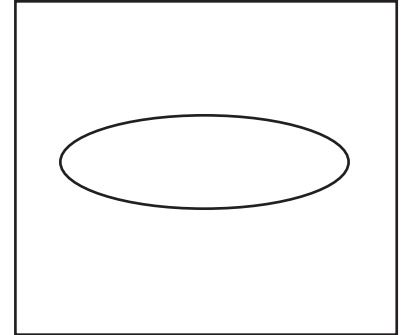
Title_____
_____
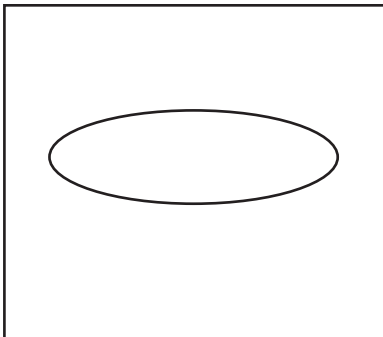
Title_____
_____
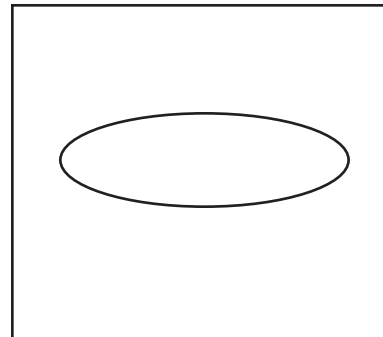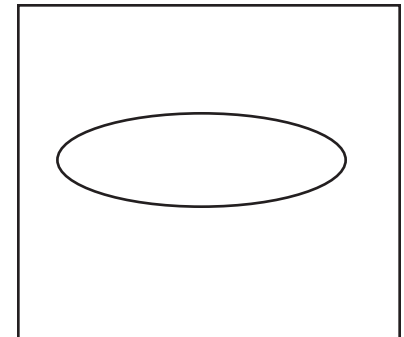
Title_____
_____
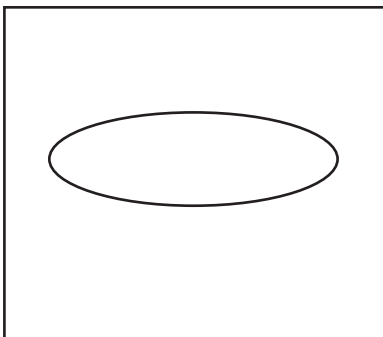
Title_____
_____
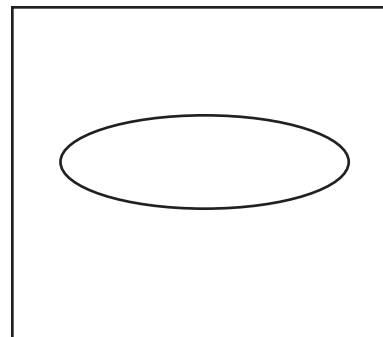
Title_____
_____
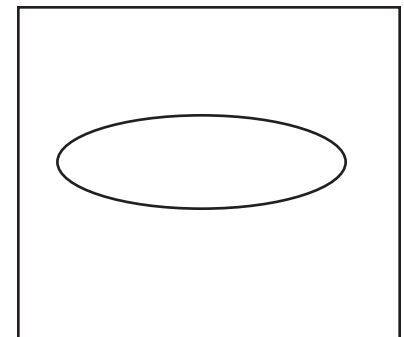
Title_____
_____

Title_____
_____

Name _____ Date _____

12   Figure Completion (b)

Using the figure in the boxes below, make drawings of as many real things as you can.
Give each drawing a title. Try to make your drawings and titles as interesting and unusual
as possible.

Title _Mushrooms_____   Title_____   Title_____
_____   _____   _____

Title_____   Title_____   Title_____
_____   _____   _____

Title_____   Title_____   Title_____
_____   _____   _____

Name _____ Date _____
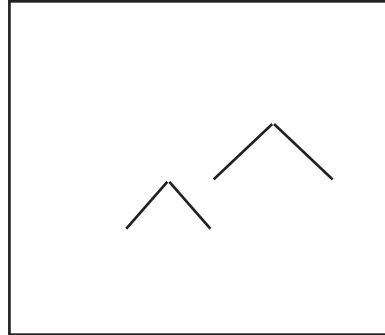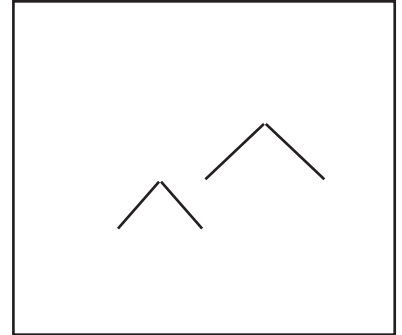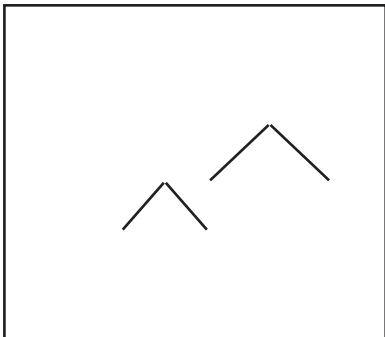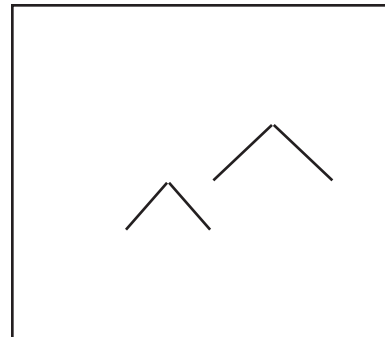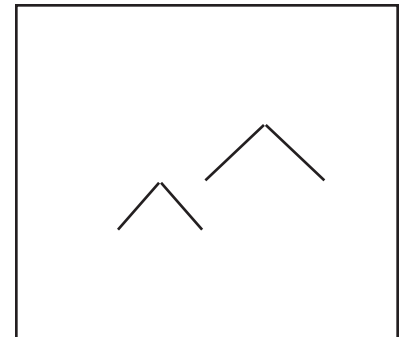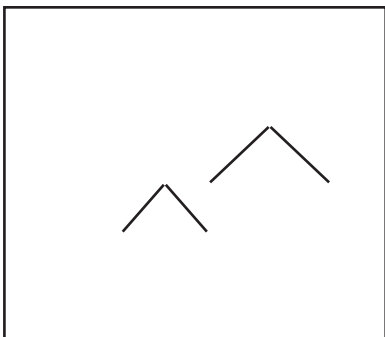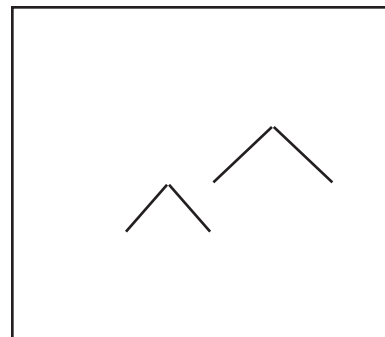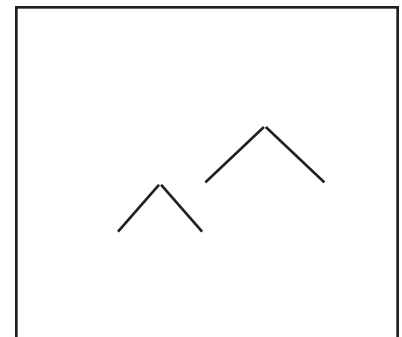
13   Changing Things (a)

Many things are more useful to us because they have been made
smaller. For example, when clocks were first invented, they were very
large, but inventors have made them small enough to wear on a wrist
or carry in a pocket. In the spaces below, list all the things you can think
of that would be more useful if they were made smaller. Try to think of
unusual things.
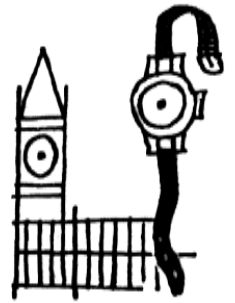
radios _____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

Many things would be more useful to us if they were made
larger. For example, airplanes and buses can carry more people
because they have been made larger. In the spaces below, list
all the things you can think of that would be more useful if they
were made larger.

parking lots _____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

Name _____   Date _____

13   Changing Things (b)

People are always trying to improve the things they build and manufacture. If you could make any changes you wanted in your home, what changes would you make? List your ideas in the spaces below.

_____
_____
_____
_____
_____
_____
_____
_____

Pretend that an automobile manufacturing company has asked you to make whatever changes you wanted in cars so that they would be safer and more comfortable. List the changes you would make in the spaces below.

_____
_____
_____
_____
_____
_____
_____
_____

14   Sentence Skeletons (a)

A sentence skeleton is a sentence in which only the first letters of some of the words have been provided. In this activity, you are going to construct four- and five-word sentences in which the first letters of some of the words have been specified. For example, the first word of the first sentence skeleton below must begin with *L*, and the third word must begin with *a*. The other two words can begin with any letters you choose.

L_____ _____ a_____ _____.
L_____ _____ a_____ _____.

See how many sentences you can think of that will complete each of the following sentence skeletons. Try to make your sentences as different and as original as possible.

L_____ _____ a_____ _____.
L_____ _____ a_____ _____.
L_____ _____ a_____ _____.
L_____ _____ a_____ _____.
L_____ _____ a_____ _____.

W_____ r_____ _____ _____.
W_____ r_____ _____ _____.
W_____ r_____ _____ _____.
W_____ r_____ _____ _____.
W_____ r_____ _____ _____.

L_____ _____ o_____ _____ m_____.
L_____ _____ o_____ _____ m_____.
L_____ _____ o_____ _____ m_____.
L_____ _____ o_____ _____ m_____.
L_____ _____ o_____ _____ m_____.

14   Sentence Skeletons (b)

See how many sentences you can think of that will complete each of the following sentence skeletons. Try to make your sentences as different as possible.

B_____   _____   _____   t_____.
B_____   _____   _____   t_____.
B_____   _____   _____   t_____.
B_____   _____   _____   t_____.
B_____   _____   _____   t_____.

V_____   n_____   _____   _____   p_____.
V_____   n_____   _____   _____   p_____.
V_____   n_____   _____   _____   p_____.
V_____   n_____   _____   _____   p_____.
V_____   n_____   _____   _____   p_____.

K_____   _____   e_____   _____.
K_____   _____   e_____   _____.
K_____   _____   e_____   _____.
K_____   _____   e_____   _____.
K_____   _____   e_____   _____.

H_____   o_____   r_____   t_____   s_____.
H_____   o_____   r_____   t_____   s_____.
H_____   o_____   r_____   t_____   s_____.
H_____   o_____   r_____   t_____   s_____.
H_____   o_____   r_____   t_____   s_____.

Name _____   Date _____

15   Comparisons (a)

Comparisons help us make our written and spoken language more interesting and colorful. By trying to create several comparisons for a particular situation, we will be stretching our imaginations and developing new ways to look at the world around us.

In this activity, make your comparisons as different and as colorful as you can. After you have completed these sentences, see how many comparisons you have thought of that are completely different from the ones developed by your classmates.

The basket of kittens was as pretty as _____.

The green-eyed monster was as ugly as _____.

The birthday cake was as pretty as _____.

The old house on the hill was as ugly as _____.

When the principal entered, the auditorium grew as quiet as _____

_____.

The voice came over the telephone as loud as _____

_____.

After the speech, the crowd was as quiet as _____

_____.

The baby's screams were as loud as _____.

She entered the room as quietly as _____.

The jet plane was as loud as _____.

The group went about its work as quietly as _____

_____.

The ticking of the clock seemed as loud as _____

_____.

The canoe glided through the water as quietly as _____

_____.

Name _____ Date _____

15   Comparisons (b)

Complete the following sentences by writing interesting and colorful comparisons.

On Christmas morning, the children were as happy as _____
_____.

When her pet dog died, Keesha was as sad as _____
_____.

When she got her report card, she was as happy as _____
_____.

When they saw the dent in their car, they were as sad as _____
_____.

Helping children made the old police officer as happy as _____
_____.

On the day they had to move, the family was as sad as _____
_____.

My mother's new electric lawn mower is as modern as _____
_____.

The rusty bicycle looked as old as _____
_____.

The new school was as modern as _____
_____.

The things in Mitsu's attic were as old as _____
_____.

The painting drawn by the artist is as modern as _____
_____.

The clown's makeup made her look as old as _____
_____.

16 Word Boxes (a)

People who write crossword puzzles must think of words that will fit into a certain number of spaces and that will have certain letters in common with other words. In this activity, try to complete the Word Boxes below by thinking of words that fit in the spaces provided.
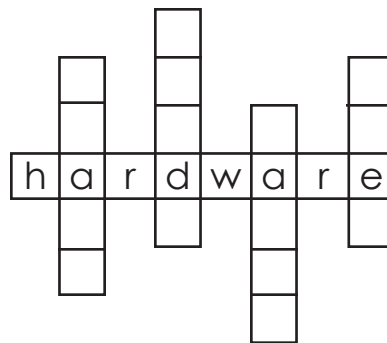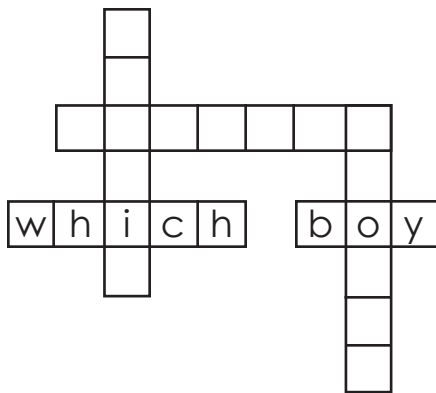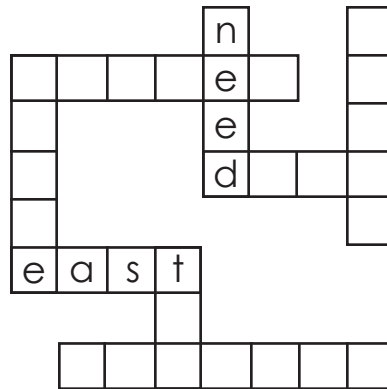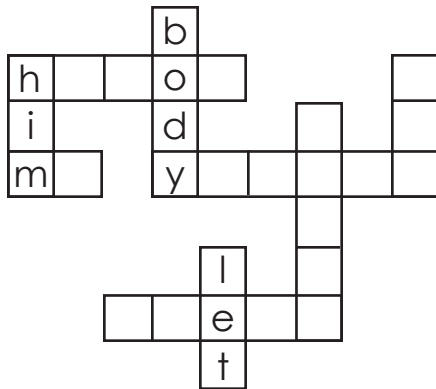
16   Word Boxes

Complete the Word Boxes below by thinking of words that fit in the spaces provided.
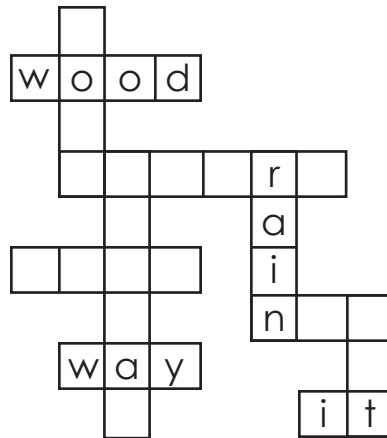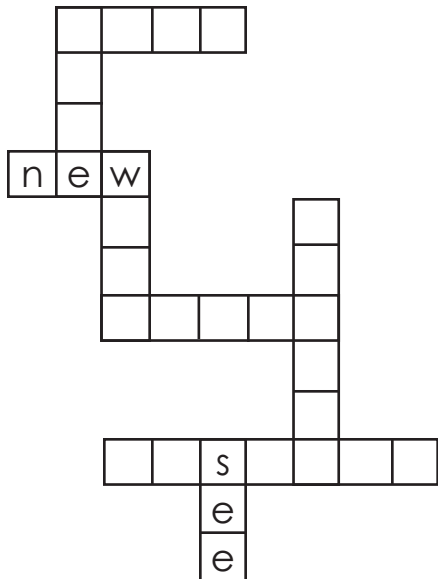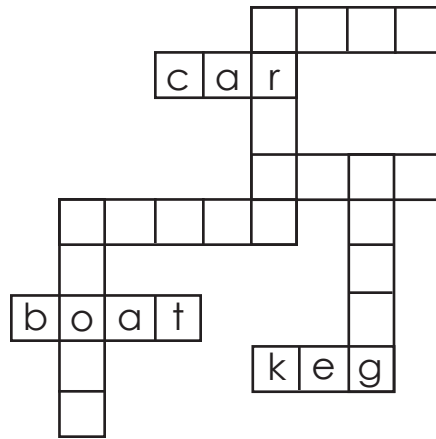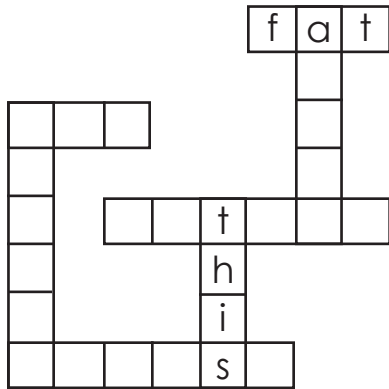
17   Let's Write a News Story (a)

In this activity, you will write a newspaper story about an imaginary event. In the space provided, write a brief news story about the event suggested by the following headline. Try to make your story as original and as interesting as possible. Use the back of this page if you need more space.

NEW TOY INVENTED BY LOCAL COMPANY

———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
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———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————
———————————————————————————————

17   Let's Write a News Story (b)

Suppose that the following headline appeared in your local newspaper. Write a news story about the event suggested by the headline. Use the back of this page if you need more space.

Strange Creature Seen by Two Scuba Divers

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
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_____
_____
_____
_____
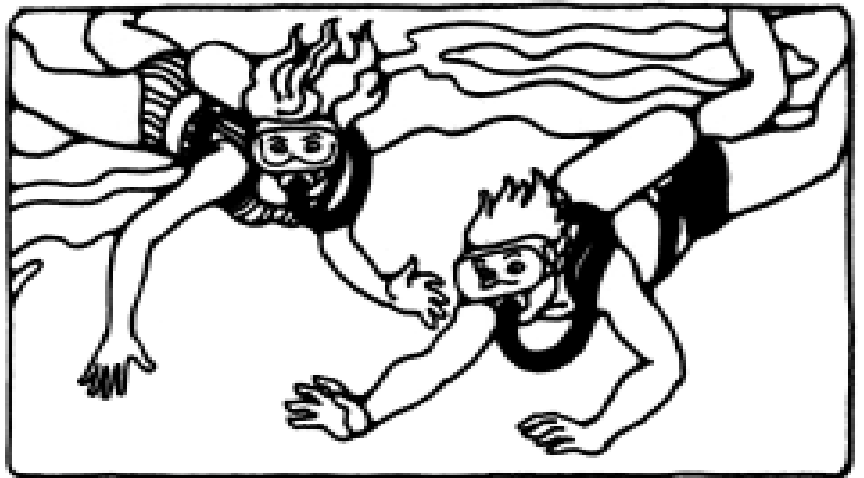
18   Make-a-Sentence (a)

See how many sentences you can write using the four words listed below in each sentence. You may change the nouns by making them plural and the verbs by changing their tense. You may also change some words by adding suffixes such as *-er*, *-est*, or *-ness*. Use the back of this page if you need more space.

happy   tree   winter   always

_____
_____

_____
_____

_____
_____

_____
_____

baby   dog   floating   drink

_____
_____

_____
_____

_____
_____

_____
_____

18   Make-a-Sentence (b)

See how many sentences you can write using the four words listed below in each sentence.
You may change the nouns by making them plural and the verbs by changing their tense.
You may also change some words by adding suffixes such as *-er, -est*, or *-ness.*

telephone   cold   dark   laugh

_____
_____

_____
_____

_____
_____

arrow   ring   silver   wasted

_____
_____

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19   Cartoon Captions (a)

For each cartoon on this page, write two captions to help make the cartoon humorous.

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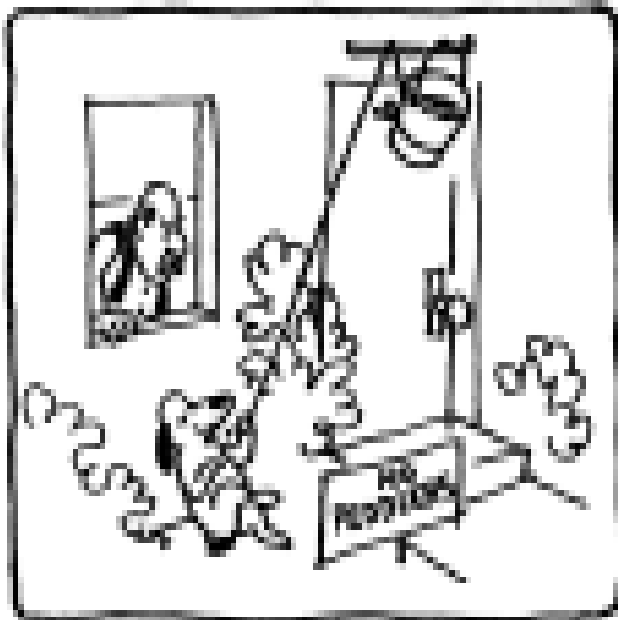
19   Cartoon Captions (b)

For each cartoon on this page, write two captions to help make the cartoon humorous.

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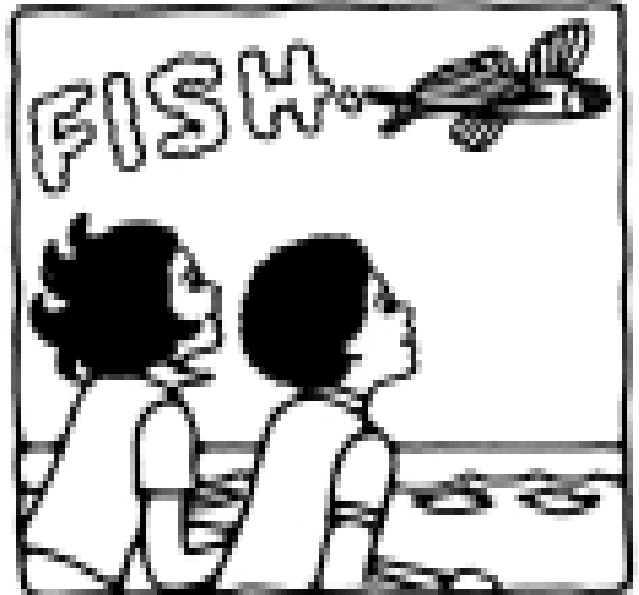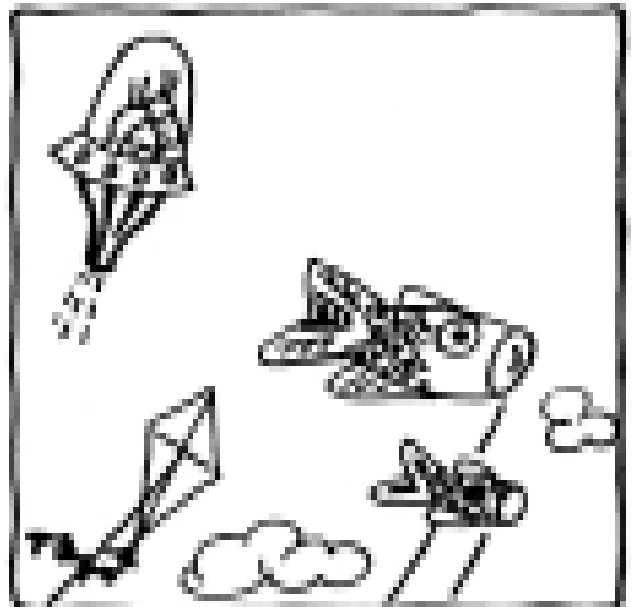
20   Visitors from Another Planet (a)

Suppose that visitors from another planet arrived on Earth
and you were asked to explain to them certain things about
the American way of life. Your first job is to tell them about a
competitive sport. The only difficulty is that the visitors come
from a planet where there are no competitive sports. Their first
reaction to a competitive game such as football might be one
of horror because they think that the two teams are engaged in
a real war. How would you explain the game of football, or any
other competitive sport, to them. You may choose to explain any
competitive sport such as tennis, baseball, soccer, golf, etc.

Keep in mind that they will probably be interested in why the game is played, as well as
how it is played and what the rules are. Use the space below and continue on the back of
this page if you need more space.

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Suppose that our friendly guests from another planet never eat food but take vitamin
supplements instead. How would you explain the reasons why so many people like to eat?

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Name _____ Date _____

20   Visitors from Another Planet (b)

Pretend that the outer space visitors come from a planet where there are no newspapers. They are curious because they notice that many people in the United States buy a newspaper almost every day. How would you explain to them the role that newspapers play in our daily lives? The aliens will be interested in why people read newspapers as well as the kind of information in them.

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Pretend that the outer space visitors come from a planet on which there is no such thing as a calendar. They simply do not keep track of the years, the months, or the days of the week. How would you go about telling them about calendars? Remember that they are probably interested in knowing why we keep such a precise record of days, months, and years, as well as what a calendar is and what it is used for.

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Name _____ Date _____

21   Word Trees (a)

What words can you think of to add to the following Word Trees? If you need more space, use the back of this paper.
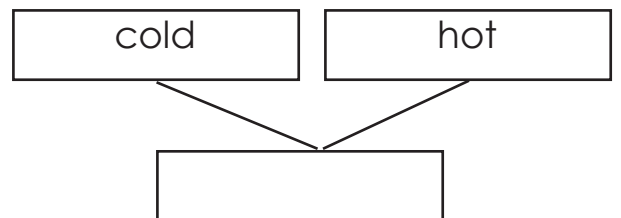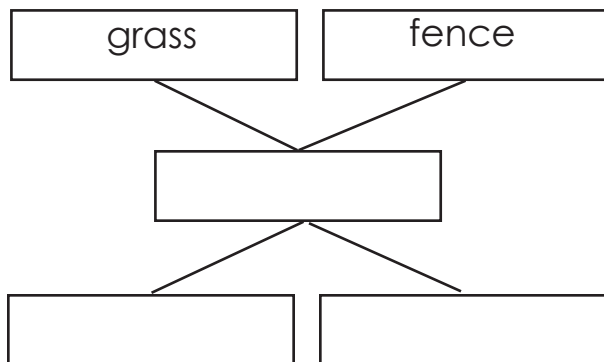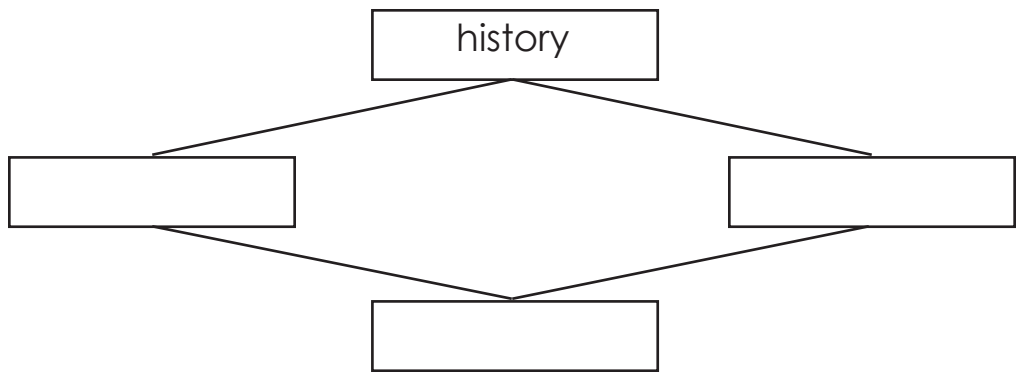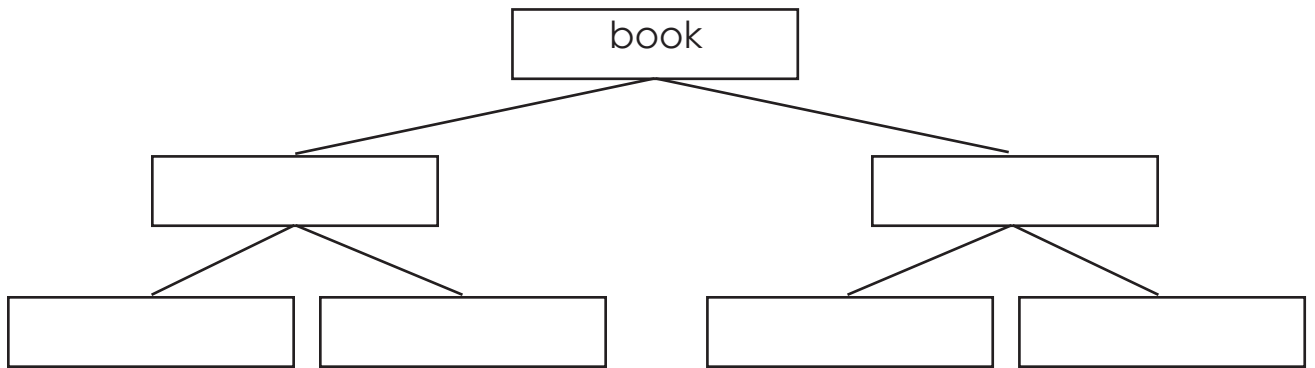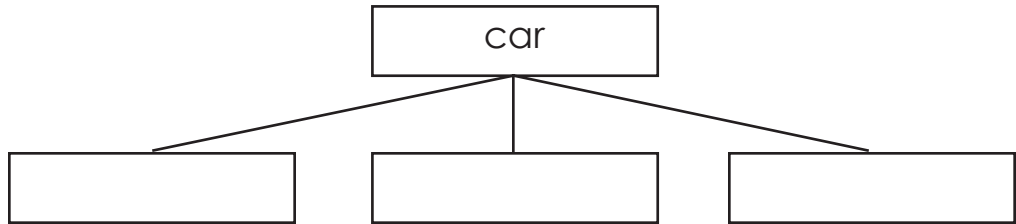
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                        │     book     │
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21   Word Trees (b)

What words can you think of to complete the following Word Trees?

lamp

	church	

music

Name _____ Date _____
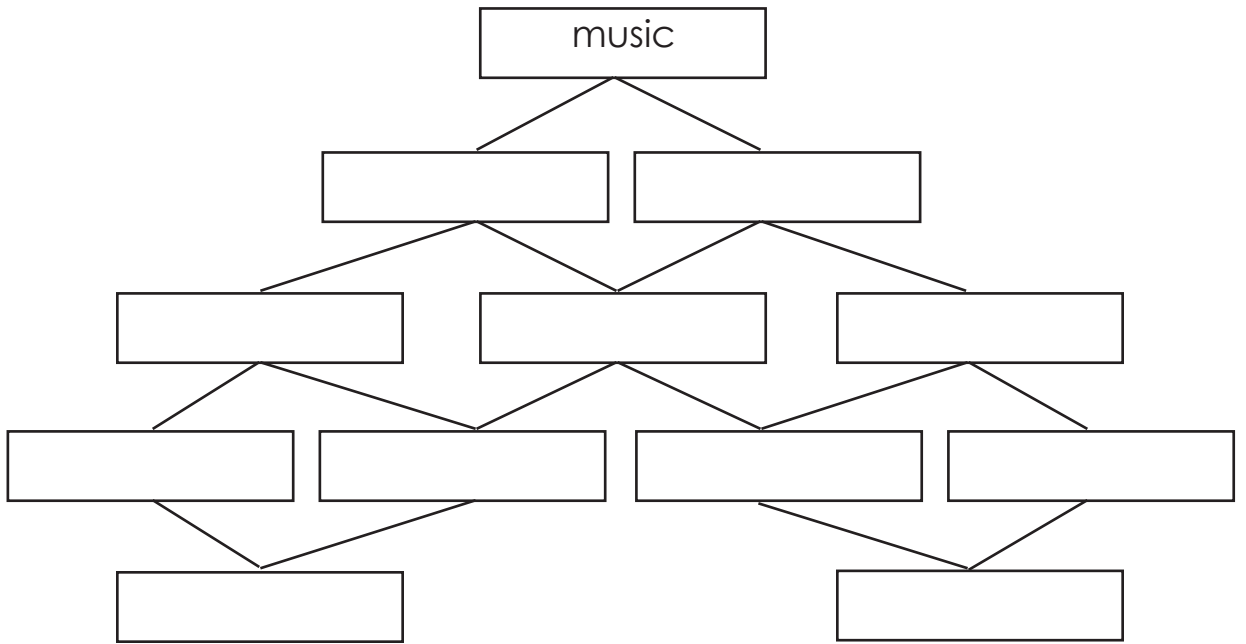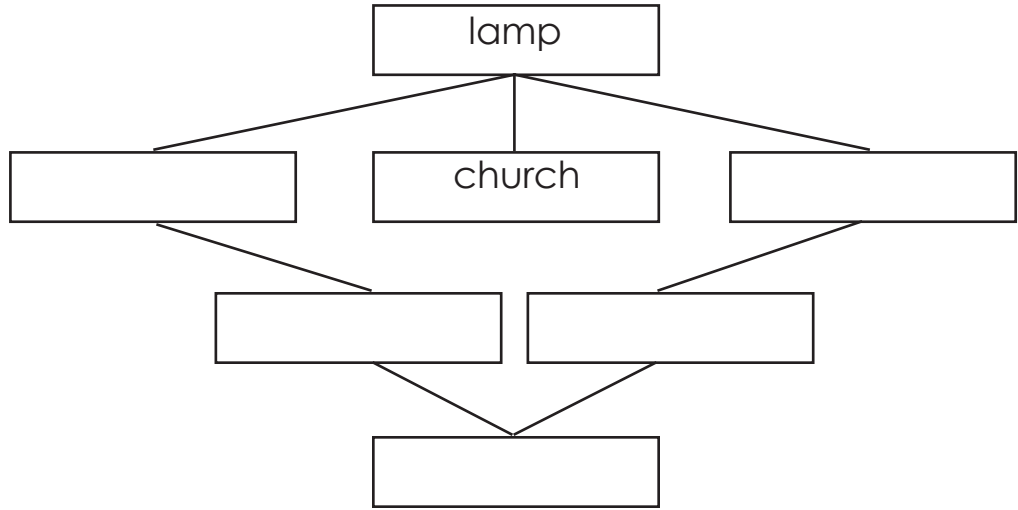
22   Planning (a)

Pretend that your class is planning to take a class trip, but you must first find a way to pay the expenses of the trip. In the space below, list all the possible ways you can think of for raising money for the trip.

Sell candy _____
Wash cars _____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Suppose that you are responsible for carrying out the campaign of raising money for the class trip. Select one of the ways for raising money listed above and develop an organized plan for the money-raising campaign. What would you do first? What jobs would you give to your classmates? Write all the details of your plan in the space below. Use the back of this page if you need more space.

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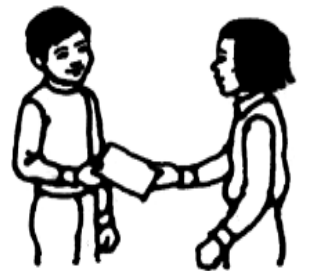
22   Planning (b)

Does your school have a service club? Do the students ever try to do things to help people in your community or in our country who are poor, hungry, or in need of support? How many ways can you think of to get students in your school to join a service club? Write your ideas in the space below.

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Pretend that you are the chairperson of a service group whose objective is to develop a plan for improving life in your school or community. Select one of the ideas listed above for getting students involved in service clubs and develop an organized plan for carrying out your idea. What would you do first? Whom would you call upon to help you? Write all the details of your plan in the space below. Use the back of this page if you need more space.

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23   Can You Design It? (a)

Camping has become a very popular pastime among American families, and as you travel down the highways in the summer you can see all kinds of camping vans and trailers on the road. A major problem in designing camping vans is fitting all the necessary equipment into a small amount of space. Below is an outline of a camping van. See if you can design a floor plan that will make the best use of the space available if it is used by a family of four. Don't forget to include doors, windows, and a place for the passengers to ride when they are traveling.

steering
wheel

front seat

16 feet

8 feet

Name ———————————————————————— Date ————————————————
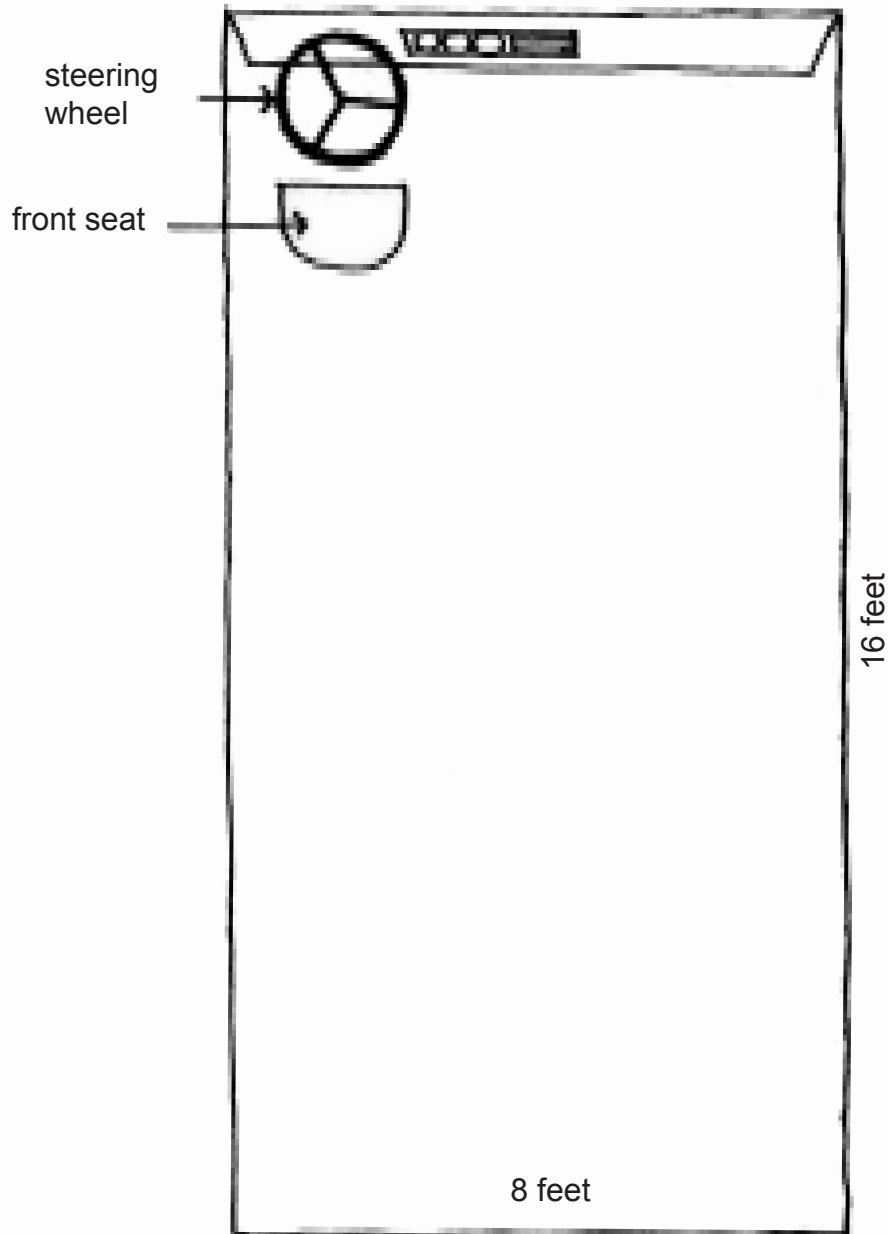
23   Can You Design It? (b)

Scientists and engineers in the aerospace industry have been working on the design
of a space station that will orbit the earth. One of the problems they must overcome is
making the best use of the small amount of space that available. How would you go about
designing a space station that will support a crew for long periods of time? Use the outline
below for your design of an orbiting space station. Remember, the station must have
research laboratories, storage spaces, a control room, and docking areas. Include in your
design all the things you think the astronauts will need. Try to think of ways that space can
be used to serve as many purposes as possible.

The distance between the inner and outer walls is 20 feet.
The space station is 188 1/2 feet around.

10 feet

20 feet
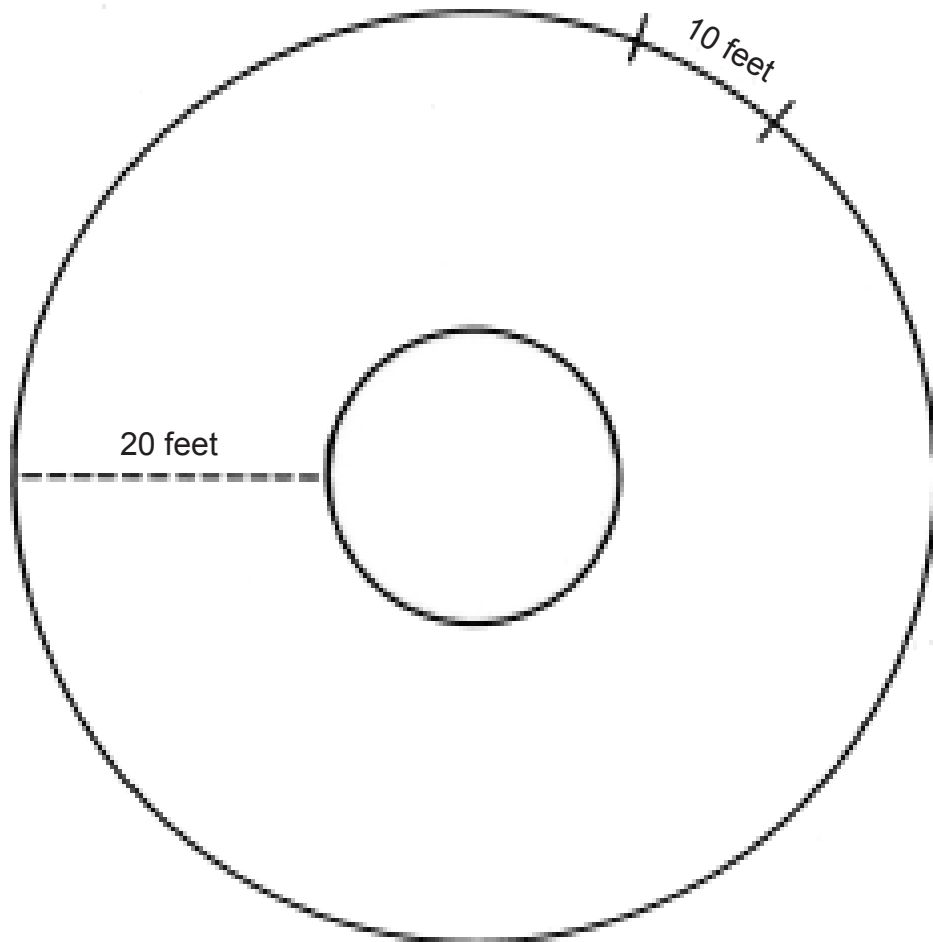
24 Unfinished Stories (a)

Write three separate endings for the story below. The first ending should be a happy ending. The second ending should be a sad ending. The third ending should be a ridiculous ending. Write each ending on a separate piece of paper. Don't forget to give an interesting title for each of your three stories.

   A long, low whistle flowed gently over the grass to reach ears that suddenly pricked up in eager anticipation. Neighing in answer, Dutch Brandy tossed its head and broke into a slow canter. Across the paddock the horse moved in graceful, rhythmic strides toward the boy named Miguel. Dutch Brandy was three years old. It was the color of buckskin and had a dark, flowing mane and black-stockinged feet. Its coat glistened with good health and the care that only Miguel could give. They understood each other as well as any two creatures on earth. How could anyone think of parting them?
   "I run a business, not a sanctuary," Mr. Martinez had stated irritably. "I make a living selling the livestock I raise. I can't afford to keep every horse or dog or stray animal you take a fancy to. Grow up, Miguel. Don't you want to go to school?"
   "No!" thought Miguel as he stroked Dutch Brandy's face. "I don't want to go anywhere. That's just an excuse for selling you. If there were more time, I'd go to work. I'd do all sorts of odd jobs. I'd do anything to keep you."
   But there was no more time. Ms. Luella Moses, the rich owner of a paper factory in New Hampshire, was coming that afternoon to see Dutch Brandy. What could Miguel do?

24   Unfinished Stories (b)

Write three separate endings for the story below. The first ending should be a happy ending. The second ending should be a sad ending. The third ending should be a ridiculous ending. Write each ending on a separate piece of paper. Don't forget to give an interesting title for each of your three stories.

Once there was a dragon named Horatio. He was just an ordinary-looking dragon.

_____

_____

(Write a description of Horatio)

There was only one thing peculiar about Horatio. He liked to swim. Other dragons disliked the water intensely. It went up their noses and into their lungs and extinguished heartburn. But Horatio had learned to hold his breath for long periods of time—nearly two hours. He also plugged his nostrils with ginkgo leaves. All the other dragons rattled their scales at Horatio's eccentricity. But he didn't care. He continued living by the seashore, romping in the surf and feeling happy.

One day Horatio awoke to find the skies wracked by a violent storm. There were thunder, lightning, and hailstones as big as gromble eggs. The weather was too terrible even for Horatio. He remained in his cave overlooking the beach and marveled at the turbulent sea.

Horatio snorted suddenly, emitting a spray of charred leaves. There in the distance, about twenty miles off shore, was something or someone in trouble. Wallowing drunkenly, it disappeared from view for alarmingly long periods of time. Horatio could not tell for sure, but from this distance he though he could discern the profile of a fellow dragon. Quickly, Horatio decided.....
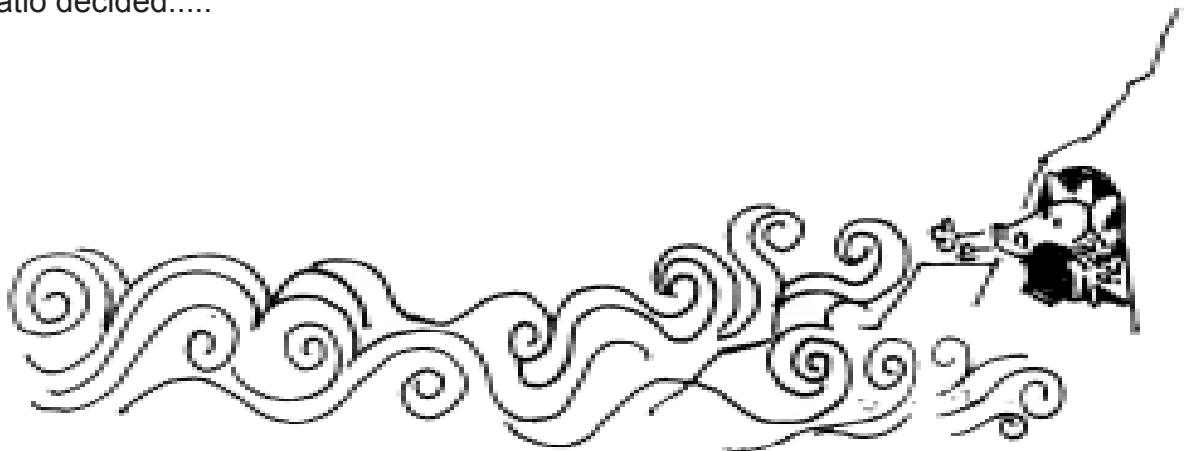
MARK 1: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
1 Thinking about Things	(a)			
Thinking about Things	(b)			
2 Fun with Words	(a)			
Fun with Words	(b)			
3 Consequences	(a)			
Consequences	(b)			
4 Fun with Figures	(a)			
Fun with Figures	(b)			
5 Time to Rhyme	(a)			
Time to Rhyme	(b)			
6 Let's Write a Slogan	(a)			
Let's Write a Slogan	(b)			

MARK 1: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
7 The Advertising Game	(a)			
The Advertising Game	(b)			
8 Figure Arrangement	(a)			
Figure Arrangement	(b)			
9 Making Words	(a)			
Making Words	(b)			
10 Sames and Opposites	(a)			
Sames and Opposites	(b)			
11 Alternate Uses	(a)			
Alternate Uses	(b)			
12 Figure Completion	(a)			
Figure Completion	(b)			

MARK 1: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
13 Changing Things	(a)			
Changing Things	(b)			
14 Sentence Skeletons	(a)			
Sentence Skeletons	(b)			
15 Comparisons	(a)			
Comparisons	(b)			
16 Word Boxes	(a)			
Word Boxes	(b)			
17 Let's Write a News Story	(a)			
Let's Write a News Story	(b)			
18 Make-a-Sentence	(a)			
Make-a-Sentence	(b)			

MARK 1: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
19 Cartoon Captions	(a)			
Cartoon Captions	(b)			
20 Visit from Another Planet	(a)			
Visit from Another Planet	(b)			
21 Word Trees	(a)			
Word Trees	(b)			
22 Planning	(a)			
Planning	(b)			
23 Can You Design It?	(a)			
Can You Design It?	(b)			
24 Unfinished Stories	(a)			
Unfinished Stories	(b)			

NEW DIRECTIONS IN CREATIVITY **MARK 2**

The *NEW DIRECTIONS IN CREATIVITY* program,
under the direction of Joseph S. Renzulli,
includes the following manuals:
MARK A
MARK B
MARK 1
MARK 2
MARK 3

Editorial:
Betty L. Comer, Project Director
Herta S. Breiter, Editor

Design:
Barbara Wasserman
Kristin Nelson

Illustrations by John Faulkner

Revised edition

Rachel A. Knox, Editor
Lori D. Frazier, Associate Editor

Cover Illustration by David J. Jernigan

NEW DIRECTIONS IN CREATIVITY

MARK 2

JOSEPH S. RENZULLI

CONTENTS

In children creativity is a universal. Among adults it is almost nonexistent. The great question is: What has happened to this enormous and universal human resource? This is the question of the age and the quest of our research.

—from Harold H. Anderson, ed., *Creativity and Its Cultivation* (New York: Harper & Brothers, 1959), p. xii.

"The main thing is not to take it personal."

"What I liked best about school this year was the teachers' strike."

A PERSONAL NOTE TO TEACHERS

Whenever teachers ask me how I became interested in creativity and why I developed a creativity training program for children, I often answer by referring to the quotation and the two cartoons on page vi. The quotation from Harold Anderson's book points out the great loss in human potential for creative development that takes place between childhood and adulthood. Although this loss no doubt takes its toll by limiting the number of people who make creative contributions to our society, a much more serious and far-reaching consequence is that many adults never have the opportunity to experience the satisfaction and enjoyment that results from the act of creating. Somehow the joys that were associated with childhood fantasy and imaginary excursions into the world of the improbable seem to disappear as we engage in the business of growing up. Although growing up is indeed a serious business, I often wonder if the emphasis that our culture places on the practical and the utilitarian causes most people to arrive at adulthood without the creative ability that they possessed as children.

The first cartoon illustrates the emphasis that our educational system places on the process of conformity. Most learning experiences are designed in a way that causes all youngsters to arrive at the same solutions to problems; thus it is not surprising to see a very homogenized group emerging from "the system." A quick glance at most workbooks or exercises in textbooks reveals that only rarely do these materials purposefully encourage youngsters to be as original as possible in their answers to given problems and questions.

The second cartoon presents a sad but essentially valid picture of most children's perception of school. Our preoccupation with order, control, routine, and conformity has made schools into dreary and often oppressive places for many children. The supposedly exciting act of learning has frequently been a coercive and sometimes even punitive process.

Many writers have summarized problems that have made schools such unfriendly places and have pointed out some of the ways that these problems can be overcome. One suggestion common to many writers is that classrooms need to be more engaging, creative, and interactive places and that youngsters need to be given greater opportunities to imagine, create, and express themselves.

The creativity training program described in this manual represents one attempt to provide both teachers and students with a set of materials that will help them learn a variety of ways for expressing their creative potential. Creativity is a dynamic process that involves "a way of looking at things"; therefore the activities included in this program are designed to broaden the way that youngsters look at their world. The program is not an end in itself, but rather a series of first steps that will provide teachers and students with the basic skills involved in creative production. Over the past few years, I have worked with hundreds of teachers in courses and workshops dealing with creativity. These experiences have shown me that a minimum amount of instruction and a maximum amount of actual involvement with the materials have effected the biggest changes in teachers' understanding and application of creativity training activities. The old saying "The best way to learn how to do it is to do it" is a guiding principle in my approach to teaching teachers the skills of creative production. Once these skills have been assimilated, they can be applied to all areas of the curriculum and to most of the learning experiences that take place in the classroom.

Joseph S. Renzulli
Storrs, Connecticut

1

PART I

I hear, and I forget;
I see, and I remember;
I do, and I understand.
Chinese Proverb

PURPOSE AND DESCRIPTION OF THE PROGRAM

The *New Directions in Creativity* program consists of five volumes: *Mark A*, *Mark B*, *Mark 1*, *Mark 2*, and *Mark 3*. The program is designed to help teachers develop the creative thinking abilities of primary and middle-grade youngsters. Research has shown that almost all children have the potential to think creatively and that creative production can be improved by providing systematic learning experiences that foster use of imagination.

Purpose of the Program

The general purpose of this creativity training program can best be explained by contrasting the creative or *divergent* production abilities with the *convergent* production abilities emphasized in most elementary school classrooms. In most traditional teaching-learning situations, major emphasis is placed on locating or converging upon correct answers. Teachers raise questions and present problems with a predetermined response in mind, and student performance is usually evaluated in terms of the correctness of a particular answer and the speed and accuracy with which youngsters respond to verbal or written exercises. Thus the types of problems raised by the teacher or textbook and the system of rewards used to evaluate student progress cause most youngsters to develop a learning style that is oriented toward zeroing in on the "right" answer as quickly and as efficiently as possible. Although this ability has its place in the overall development of the learner, most teachers would agree that impressionable young minds also need opportunities to develop their rare and precious creative thinking abilities.

Divergent production is a kind of thinking that is characterized by breaking away from conventional restrictions on thinking and letting one's mind flow across a broad range of ideas and possible solutions to a problem. The real problems humanity confronts do not have the kinds of predetermined or "pat" answers that a great deal of instruction focuses on in the convergent-oriented classrooms. Yet we give our children very few opportunities to practice letting their minds range far and wide over a broad spectrum of solutions. The philosopher Alan Watts (1964) has talked about these two kinds of thinking in terms of what he calls the "spotlight mind" and the "floodlight mind." The spotlight mind focuses on a clearly defined area and cannot see the many alternative possibilities or solutions to a problem that may exist outside that area. Floodlight thinking, on the other hand, reaches upward and outward without clearly defined borders or limitations. The floodlight thinker is free to let his or her imagination wander without the confinements or limitations that usually lead to conformity. Both types of thinking are valuable, and to pursue one at the expense of the other is clearly a disservice to the children for whose development we are responsible.

This description of divergent thinking should not lead teachers to believe it is undisciplined or disorderly. Mary Nicol Meeker (1969) has pointed out that "divergent generation does not proceed willy-nilly; the divergent thinker is not a scatterbrain; the worthwhile generation of information requires discipline and guidance." Following Meeker's suggestion, the *New Directions in Creativity* program has attempted to provide youngsters with an opportunity to break away from conventional restrictions on their thinking. Yet an effort has been made to generate responses that are relevant to particular kinds of problems and that fall within reasonable bounds.

Specific Abilities Developed by the Program

The *New Directions in Creativity* program is designed to develop each of the following creative thinking abilities:

1. *Fluency*—the ability to generate a ready flow of ideas, possibilities, consequences, and objects

2. *Flexibility*—the ability to use many different approaches or strategies in solving a problem; the

willingness to change direction and modify given information

3. *Originality*—the ability to produce clever, unique, and unusual responses

4. *Elaboration*—the ability to expand, develop, particularize, and embellish one's ideas, stories, and illustrations

Each activity in the program is designed to promote one or more of these four general abilities. The activities are also classified according to (1) the types of information involved in each exercise (semantic, symbolic, figural) and (2) the ways that information is organized in each exercise (units, classes, relations, systems, transformations, implications, elaborations). These two dimensions are described in detail in Part III of this manual. The activity-by-activity lesson guides presented in Part IV include the specific objectives for each activity and suggestions for follow-up activities designed to develop further the specific abilities toward which the respective exercises are directed. Although many of the objectives and suggestions for follow-up activity are directed toward the development of traditional skills in language arts, these skills are always "piggybacked" on the four major creative thinking skills. Field testing has shown that students are more motivated to pursue traditional language arts skills when such skills are based upon activities that make use of their own creative products.

Although the purpose of each manual in this program is to provide teachers with a systematic set of activities aimed at promoting creativity in children, a second and equally important objective is to help teachers unlock their own potential for more creative teaching. In almost every school where these activities were field tested, participating teachers began to develop their own materials and activities for creativity training. In many cases, the teacher-made activities were highly original and skillfully integrated with various aspects of the regular curriculum. Once teachers understood the general nature of the creative process, they were quickly able to apply the same basic strategies to other areas of the curriculum. Therefore, teachers should view this creativity training program as a starting point that will eventually lead to the development of a "creativity orientation" on the part of teachers. This orientation will assist teachers in finding numerous opportunities for creativity training in a wide variety of learning situations.

Description of the Program

Each manual in the *New Directions in Creativity* program consists of twenty-four types of creativity training activities. Two activity sheets, both containing one or more exercises, are provided for each type of activity, and each type is classified according to the kinds of information involved in the exercises and the ways that information is organized. Each activity is further classified according to the level of response required. This classification scheme is based on Guilford's model of the structure of human abilities. Teachers who wish to know more about this model should refer to Part III of this manual. (An overview of the activities in this manual, listing the types of activities according to Guilford's classification scheme appears on page 22.)

Mark A and *Mark B* : Most of the activities in the primary volumes have been designed so that children can respond with either words or pictures. This approach allows children who cannot yet express themselves in writing to communicate their creative ideas through pictures. Suggestions for alternative modes of expression, such as dictating responses to a teacher's aid or to a tape recorder are also included. The primary volumes are also designed to develop the psychomotor abilities of younger children through manipulative and dramatic activities, and the teaching suggestions present ideas for using primary teaching aids such as flannel boards, chart paper, scissors, and paste.

The format of the primary activities attempts to take account of the developmental level of the young child. Illustrations on the exercise sheets are generally larger and less complicated than the drawings in the middle-grade books, and fewer responses are required to allow for the gross motor coordination of the primary-aged youngster. Page directions are simpler, and greater reliance is placed on illustrations than on written directions. The lesson guides for the primary volumes contain more detailed suggestions for introducing activities and emphasize using concrete examples to get children started on exercises that are more easily demonstrated than described.

Mark 1, Mark 2, and Mark 3 : Most of the activities in the middle-grade volumes deal with semantic information. Some symbolic activities that involve the use of words have been included, and a few figural activities have also been included to help students understand that creativity skills can be applied to both verbal and nonverbal information.

Activities dealing with information that is organized into units, classes, or relations generally require

students to (1) fill in blanks with unspecified words, (2) manipulate given words and figures, or (3) complete short statements. These activities are considered warm-ups for higher level activities, and they are generally directed toward giving students practice in the basic creativity skill of brainstorming. Brainstorming activities help students free their thinking processes from the restraints that usually hinder creativity and provide an effective means for promoting a free and open classroom atmosphere.

The higher level activities deal with information that is organized into systems, transformations, implications, or elaborations. The major difference between the two levels of activities is that fewer specifications are given for the kinds of responses required in the higher level activities. These responses are generally more open-ended, and fewer restrictions are placed on the nature of the products developed by students. Although all activities provide youngsters with opportunities to express themselves in a relatively free and unrestricted manner, the program will be most effective if students pursue a balanced combination of the various types of activities. Each type is designed to develop and give practice in the use of certain creativity skills, and the skills developed by the warm-up activities are necessary for maximum development of the more advanced kinds of creative thinking necessary for the higher level activities. Suggestions for the most effective sequencing of activities are included in Part II of this manual.

Grade and Ability Levels

Although no specific grade level has been assigned to the respective volumes, field tests have shown that *Mark A* is most successful with children in kindergarten and first grade and that *Mark B* works best with second- and third-grade youngsters. An attempt was made to separate activities in the primary volumes so that the first book would contain exercises for children who have not yet developed reading and writing abilities or who are in the beginning stages of development in these areas. The exercises in *Mark B* were designed in accordance with the level of communication skills that typically are taught in second and third grades.

Field tests have shown that *Mark 1*, *Mark 2*, and *Mark 3* are most successful with students in grades four through eight. The open-ended nature of creativity training activities has provided an opportunity to develop a truly nongraded program, and many of the exercises have been used successfully with students at several grade levels. When there are no "right" or "wrong" answers, each student sets his or her own level of response. The responses of bright youngsters are often characterized by higher degrees of fluency, flexibility, originality, and elaboration, but even the slowest child is able to respond in a way that is appropriate to his or her own developmental level. It may be necessary for teachers to read some of the directions to students and to supervise their work more closely until they catch on to the nature of the various tasks. To help both younger and slower students grasp the main idea, most of the introductory exercises include illustrative examples. These examples are useful in helping students who have some trouble reading the directions or getting started on some of the more difficult exercises. Most of the exercises are not too difficult for younger or slower students, but because of the open-ended nature of the exercises, teachers must carefully explain directions, and they may have to provide a few examples of their own in order to start students off on the right track.

An important feature of this creativity training program is that a youngster can respond to each activity in terms of his or her own background and experience. Because the program is not based on the student's ability to recall factual information, each student can express his or her creativity by drawing on his or her own knowledge and experiences. Many writers have pointed out that the child's own experiences and activities are the principal agents of his or her development and that no matter how "primitive" a child's level of development, he or she can extend his or her mental abilities by probing, manipulating, and applying his or her own experiences to new kinds of materials and situations. This idea is one of the fundamental principles on which the constructivist learning is based, and field tests with the *New Directions in Creativity* program have shown that students from so-called disadvantaged backgrounds are able to use their own experiences to complete most of the activities in the program.

Insofar as individualized programming is concerned, it is important for teachers to carefully consider each child's preferences. Some students may show a preference for semantic activities, whereas others may prefer to respond figurally or symbolically. Similarly, certain children may like exercises with a less complicated response format (units, classes, relations), whereas others may show a preference for more complicated modes of expression such as poetry or story writing. The classification system which underlies the *New Direction in Creativity* program provides a unique opportunity for teachers to study children's learning style preferences and to adapt accordingly. The program will be most successful if teachers respect children's preferences and avoid forcing every child to complete every activity.

"Imagination grows by exercise."
W. Somerset Maugham

GENERAL STRATEGIES FOR USING THE PROGRAM

Although a great deal has been written about fostering creativity in the classroom, relatively few basic teaching strategies have been effective in encouraging creative development. This section of the manual will describe the basic strategies that teachers have found most helpful in using the *New Directions in Creativity* program. Although the materials have been designed to require minimum preparation time, the importance of the teacher's role cannot be overemphasized. In describing the role of teachers in this regard, Starko (1995) emphasized the distinction between teaching for the development of creativity versus creative teaching. She concluded that effective teachers who develop students' creative thinking know how to teach techniques that "facilitate creative thinking across disciplines and provide a classroom atmosphere that is supportive of creativity" (p. 17). Other studies, including a meta-analysis study by Rose & Lin (1984) and a research synthesis by Torrance (1987), indicate that creativity training is associated with increased creativity, involvement in creative activities, and positive feelings toward school.

Brainstorming and the Fluency Principle

In most cases, the first thought that comes to mind in seeking the solution to a difficult problem is seldom the most original idea. Therefore, *fluency,* defined as the ability to produce several ideas or possible solutions to a problem situation, is an important condition for creative production. The fluency principle, which underlies the development of this creativity training program, maintains that fluency is a necessary, though not sufficient, condition for originality. Although there are some cases on record of highly creative products that have resulted from sudden inspirations, research on creativity in both children and adults strongly supports the fluency principle. Studies by Archambault (1970), Paulus (1970), and Baer (1993) have shown that initial responses to a given problem tend to be the more common ones and that the greater the number of answers generated, the higher the probability of producing an original response (*original* in the sense that fewer students come up with that response). Therefore, a hypothetical curve of creativity for a given task or activity (see Figure 1) would show a gently sloping gradient with an increase in originality being related to an increase in the number of responses. For example, if we asked a group of students to list all of the utensils that people *might* use to eat with, their initial responses would no doubt include common utensils such as forks, spoons, and knives. But if we encouraged them to increase their lists by using their imaginations ("Suppose you didn't have any forks or spoons. What *could* you use?"), students would begin to explore some possible alternatives. They might suggest such items as sharpened sticks, shells, and bottle caps. If we compared the lists of several youngsters, we would find that most of the initial answers are quite common—that most of the students have given the same responses. As the lists grow longer, we would find more divergence occurring, and the probability of a youngster's producing an original response increases. In other words, quantity

Figure 1. Hypothetical curve of creativity.

breeds quality, and research has shown that individuals who produce a large number of ideas are more likely to produce ideas that are more original.

Each manual in this program attempts to capitalize on the fluency principle by including a number of exercises that generate a large number of responses. In opposition to the techniques of convergent production discussed earlier, these exercises have no right answers. Rather, they are designed to encourage the student to produce a large quantity of responses, and, hopefully, practice in this mode of thinking will help free the learner from previously acquired habits which predispose him or her to rely mainly upon recall and convergent thinking.

The basic technique for increasing fluency of expression is called *brainstorming*. The first step in this process is to provide students with a problem that has many possible alternative solutions. Brainstorming can be carried out individually or in group sessions. During the early stages of a brainstorming activity, students should write or verbalize *all* thoughts and ideas that come to mind, no matter how silly, way-out, or wild the ideas may be. The best way to promote free-wheeling and offbeat thinking is to value quantity and withhold criticism and evaluation until students have exhausted their total supply of ideas related to a given problem. This principle, known as the principle of unevaluated practice, is further discussed in the section dealing with evaluation (pp. 10-12).

The following is a list of general questions (adapted from Arnold (1962)) that can be used to spur students' thinking during brainstorming sessions:

Other Uses

> Can it be put to other uses as is?
> Can it be put to other uses if it is modified?

Adaptation

> What else is like it?
> What other ideas does it suggest?
> What could you copy?
> Whom could you imitate?

Modification

> What new twist can you make?
> Can you change the color, size, shape, motion, sound, form, odor?

Magnification

> What could you add?
> Can you add more time, strength, height, length, thickness, value?
> Can you duplicate or exaggerate it?

Minification

> Can you make it smaller, shorter, lighter, lower?
> Can you divide it up or omit certain parts?

Substitution

> Who else can do it?
> What can be used instead?
> Can you use other ingredients or materials?
> Can you use another source of power, another place, another process?
> Can you use another tone of voice?

Rearrangement

> Can you interchange parts?
> Can you use a different plan, pattern, or sequence?
> Can you change the schedule or rearrange cause and effect?

Reversibility

> Can you turn it backward or upside down?
> Can you reverse roles or do the opposite?

Combination

> Can you combine parts or ideas?
> Can you blend things together?
> Can you combine purposes?

These are only some of the questions that teachers and students can use to stimulate creative thinking during the brainstorming activities included in the program. Once students have learned the basic brainstorming technique, you should encourage students to approach each activity with an idea-finding frame of reference. The section "Introducing the Primary Activities" (pages 12-14) is especially designed to teach the brainstorming process through active involvement in both group and individual brainstorming activities. As a general rule, you should always encourage students to go as far as

they can in completing the exercises on the activity sheets and the follow-up activities. Students may need to go beyond the spaces provided or you may need to extend time limits when youngsters are engaged in a highly productive activity. Keep in mind that brainstorming is a skill that grows through practice, and students will develop this skill if they know you place major value on the quantity rather than the quality of their responses.

The Principle of Mild Competition

Although a great deal has been written about the dangers of high-pressure competition in the classroom, research with various curricular materials has shown that *mild* competition is a positive nutrient in motivating students to become involved in learning activities. The use of simulation and learning games to promote learning is based on the finding that gamelike activity is one of the child's preferred ways of learning. Several researchers have investigated the relationship between children's play and creativity. For example, Li (1985) found significant gains in preschool children's creativity after being exposed to play training. Mellou (1995) examined the literature on the relationship between dramatic play and creativity and concluded that most of the research supports a positive relationship between them, noting the alternative symbolic constructions and flexibility common to both. In a research synthesis on creativity processes in children that are predictive of adult creativity, Russ (1996) also concluded that the relationship between children's play and creativity is strong.

We have made an attempt to capitalize on the motivational benefits of gamelike activity by suggesting that certain exercises be carried out under mildly competitive conditions. This approach will introduce an element of excitement into the program and give youngsters an opportunity to pursue classroom activities in their preferred manner of learning.

To avoid the dangers associated with high-pressure competition, you should use caution when employing the mildly competitive mode. You should observe the following general rules whenever you introduce competition into creativity training activities.

1. Group competition should be used rather than individual competition.

2. Grades or other material rewards should never be associated with competitive activities. Students will derive satisfaction from the competitiveness itself and the excitement of winning or trying to win.

3. Teams should continually be rearranged in a way that allows all youngsters an opportunity to be on a winning team.

There are several ways of arranging teams for competitive classroom activities—row against row, boys against girls, or everybody wearing a certain color on one team, to name a few. If some youngsters find it difficult to perform under competitive conditions or if some put undue pressure on others who slow the team down, it may be wise to ask these students to serve as moderators or scorekeepers because "you need their help." A good way to help build up enthusiasm is to get involved in competitive activities on an equal basis with students. When you join a given team, the students will no doubt look to you for leadership, but you should try to be just another member of the team and avoid contributing more than a proportionate share of the responses. You will, of course, have to experiment to determine the best ways for operating in the mildly competitive mode. A good deal of the art of teaching is involved in knowing your students and in using classroom management procedures that are especially applicable to a given group.

A general strategy that you can use in follow-up discussions of the exercises is intergroup competition. Prior to assigning a particular exercise or after an exercise has been completed, divide the class into several small groups which can then compete with each other on the basis of (1) the greatest number of team responses and (2) the most original responses (i.e., responses that other teams did not think of). A team's score would consist of one point for the total number of responses generated by all team members (including duplications) minus a given number of points for each response that appears on another team's list. Slowly increasing the number of points deducted for responses that are common among teams will encourage the students to strive for originality, as well as quantity, of responses. Students might like to keep a score card on the bulletin board to record team progress. Competitive follow-up activity of this type is probably most appropriate for exercises that emphasize the quantity of responses rather than the production of a story or single product.

The Principle of Cooperation

Researchers have found that activities involving team collaboration help youngsters increase their creative productivity. You should allow students to work on some activities in pairs or in small groups,

and students should direct their efforts toward the production of group responses, as well as individual responses. Group activities provide an opportunity for youngsters to learn cooperation and the benefits of bringing several minds to bear on a particular problem. They also provide opportunities for you to develop leadership skills and help less creative youngsters experience success by working cooperatively with more highly creative individuals. Since you can use many of the activities for both individual and group work, it is important for you to review each activity sheet before using it with students. Field tests have shown that the classroom teacher is the best judge of the conditions under which the class works best, and therefore the activities have not been classified as individual or group activities.

The best way to maximize the effectiveness of the *New Directions in Creativity* program is to vary continually the strategies for using the activities in the classroom. You should use competitive and cooperative modes as alternatives to the individual mode and use students as a guide in selecting the approach for a given activity. Part IV of this manual includes activity-by-activity lesson guides and suggestions for alternative ways of using the activities and follow-up activities. You should, of course, employ your own creative teaching strategies and develop new strategies by combining, modifying, and adapting suggested approaches.

Evaluation: The All-Important Classroom Atmosphere

The success of any creativity training program depends on the amount of freedom and flexibility that exists in the classroom. The very nature of creativity requires that students be allowed to express their thoughts and ideas in a warm and open atmosphere. Teachers should encourage their students to play with ideas, laugh, and have fun without worrying about being graded and evaluated when they are engaged in creativity training activities. Rogers (1969) emphasized the importance of freedom from the threat of evaluation and asserted that creativity can be fostered by establishing psychological safety through the unconditional acceptance of each individual's worth. When you encourage youngsters to express themselves in an uninhibited manner, it is extremely important that you also provide them with a climate that is free from external evaluation and the critical judgments so often associated with schoolwork. The importance of providing this free climate is supported by the research of Amabile (1996) and Lepper, Greene, and Nisbet

(1973) who found that extrinsic motivation undermines students' creativity, and Amabile identified factors of intrinsic motivation that impact students' performance on creative tasks. Since no right answers are prescribed for this creativity training program, students have the opportunity to work in an open atmosphere without the constant threat of failure hanging over their heads.

The most effective way to open up the classroom atmosphere is to minimize formal evaluation and lead students in the direction of self-evaluation. In the real world, people often judge things in terms of self-satisfaction and the degree to which they, as individuals, like or dislike the things they do or the products they produce. The only way that we can teach students to become self-evaluators is to give them numerous opportunities to judge their own work and to modify their work when they are not satisfied with it. Thus, this program does not include a formal grading system, and the suggestions that follow are designed to help develop strategies for (1) valuing students' original products and (2) teaching youngsters the techniques of self-assessment.

The principle of unevaluated practice simply means that judgment is deferred until the individual has had an opportunity to explore several possible answers or solutions to a given problem. The principle of deferred adjustment, first espoused by Osborn (1963), has consistently been shown to be an essential ingredient for creative thinking. Several researchers, such as Amabile (1985) and Baer (1993), have found evidence to support this claim. The main purpose of unevaluated practice is to free children from the fear of making mistakes.

Creating such an atmosphere in the classroom is far easier said than done, but there are some specific strategies that teachers can use to help promote an environment that is more supportive of creativity. The most important strategy is to be tolerant and respectful of children's ideas, questions, and products. You should show interest, acceptance, and excitement toward student responses and avoid expressions of shock, surprise, annoyance, or disinterest. Above all, never laugh at or make light of a youngster's responses and try to discourage teasing and laughter from other students. Healthy amusement and friendly competition will help promote a supportive atmosphere, but ridicule and scowls will have a negative effect. Each student must come to believe that his or her ideas are as valuable as the ideas of others.

One of the hardest things to control in the classroom is the spontaneous laughter that may arise when a student says something that is somewhat unusual. A good way to overcome this problem is to legitimatize

laughter by showing students that you also have some way-out ideas and that you do not mind if the students laugh when you express them. You will note that in the section "Introducing the Primary Activities" the teacher is asked to demonstrate use of a pogo stick. This activity has been found to be an extremely effective way to legitimatize laughter and show students that you are not afraid to express unusual ideas or actions. Whenever possible, participate in written and oral activities and set the pace by contributing your own unusual responses. Your contributions will help students realize that you are a human being and that you are not afraid to express yourself freely. Remember, you set the limits on student behavior. If you actually participate in creative activities, students will learn that you value creative behavior, and they will quickly begin to display their own creative thoughts.

Another strategy aimed at promoting an environment that encourages students to be creative involves the principle of rewarding desired types of responses. If you show generous praise for quantity and unusualness of responses, students will quickly recognize the types of behavior that you value and they will strive to achieve these types of behaviors.

You can increase creative production by combining the fluency principle with the reward principle and the principle of unevaluated practice. In follow-up discussions to the activities, you should praise individual responses and give generous praise to the sheer quantity of response. Remember that an increase in fluency will almost always result in a corresponding increase in originality. Consequently, you should develop a repertoire of fluency-producing, enthusiastic comments, such as "That's really good. Can you think of a few more?" and "Let's see who can come up with five more possible titles for Bill's picture." Don't be afraid to make up a few new words (for example, "fantabulous," "super-great") to show your enthusiasm. Gently probing youngsters for more and more responses will help them develop a fluency set; and, hopefully, practice in this mode of thinking will carry over to other areas of learning and experience.

You should make every effort to avoid using phrases or expressions that are natural killers of creativity. Examples of such phrases include:

Don't be silly.
Let's be serious.
That's ridiculous.
Quiet down.
The principal won't like it.
Let's be practical.

You should know better.
What's the matter with you?
That's not our problem.
We've tried that before.
That's not part of your assignment.
That's childish.
A good idea but . . .
It won't work.
Don't be so sloppy.

One of the underlying purposes of the *New Directions in Creativity* program is to help youngsters learn how to evaluate their own creative products. One of the great tragedies of traditional school instruction is that students almost always look to the teacher for evaluation and approval. By so doing, they fail to develop a system of internal self-evaluation. And yet, psychological studies have revealed that each person has a need to be his or her own primary evaluator. The nature of creativity is such that the individual produces something that is new, unique, or novel for him or her at a particular time. To break away from social pressure toward ordinary and common production, a person must place his or her own opinions and feelings above those of others. He or she must be satisfied with his or her products and feel that they express a part of his or her feeling, thoughts, and ideas.

One of the primary tasks for teachers using this program is to help youngsters learn how to make judgments about their own work. This task is undoubtedly one of the most difficult of teaching, but there are a few simple guides that you can use to help students evaluate their own work. When students look to you for judgment, you might ask:

What do *you* think about it?
Do you feel good about it?
Would you like to work on it some more?
Why do you like (or dislike) it?
What things (criteria) are important to you?
How would you compare it to the work you did last time?

Encourage students to compare their own products by ranking them and selecting the ones they like best. Students should learn that you respect their judgment and will not overrule that judgment by placing your evaluation above their own. This behavior does not mean that you should not comment and make suggestions, but students should understand that you are stating your opinion and there is no reason to assume that it is more important than theirs. Since there are no right answers to creativity

exercises, and since students will not be graded on their creativity or creative products, the program provides a real opportunity for students to develop self-evaluation techniques. The key word in this process is *trust*. If students think that you will consider their creative activities in their final grades, they will constantly look to you as the ultimate source of judgment.

Peer evaluation can also provide students with a source of feedback. This feedback should always be informal, and it should be related to the type of product involved. For example, in writing a humorous ending for an unfinished story activity, if a student elicits laughter from the class, he or she will know that his or her efforts have been effective. You should encourage students to add their own praise to other children's responses, and their spontaneous reactions should be a regular part of all follow-up discussions.

A final consideration in the creation of a free and open classroom atmosphere is the acceptance of humor and playfulness. When you purposefully ask youngsters to strive for clever and unusual responses, a good deal of healthy noise and whimsical behavior is likely to result. The creative adult has the same uninhibited expressiveness and spontaneity found in happy and secure children. Creativity time should be a fun time, and playfulness, impulsiveness, humor, and spontaneity are all part of having fun.

How to Use the Primary Activities

Although many of the primary activities are most effective when used with groups, they can also serve as independent studies or as supplementary classroom activities. Field tests have shown that the program can be used continuously for a given period of time or on a one- or two-day-a-week basis throughout the school year. The suggested follow-up activities are an important part of the program. Together with the activity sheets, they provide a year-long supply of creativity training exercises. As indicated in Part I, the program is not intended to be an end in itself. Rather, it is designed to assist teachers in learning the nature of creative problem solving and in developing their own creativity activities. The program will yield maximum benefits if you follow a plan that uses a balanced combination of activity sheets and suggested follow-up activities.

Because of variations in the needs of various age and ability groups and because of differences in individual and group preferences, the "Suggested Sequence for *Mark A* Activities" (p. 21) should not be considered a rigid lesson-by-lesson sequence. It is intended to serve as a broad guide, and you should feel free to modify the sequence to serve the individual interests and learning preferences of particular groups.

After students have become familiar with the various types of activities, you should give them opportunities to decide which activities they would like to pursue. Student interests should also guide you in determining which type of follow-up activities to use in future training sessions.

As students progress, you should encourage them to use the skills they have developed in previous activities. For example, you might introduce an unfinished story activity by suggesting the first sentence of a possible ending to the story and asking students to suggest synonyms for specific words that would make the sentence more precise, colorful, and imaginative. When students are working on advertising or promotion activities, you should make them aware of the use of homonyms and rhyming words in slogans and jingles and remind them of the rhyming exercises they completed earlier.

The general plan for sequencing primary activities takes account of (1) a balance between semantic, symbolic, and figural material, (2) a balance between units, classes, relations, systems, transformations, and implications and elaborations, and (3) the level of difficulty and logical relationships between certain activities. Since there are two activity sheets for each type of activity, you can work through the suggested sequence twice. In each set of exercises, comprehensive directions and sample responses (when applicable) are always included on the first activity sheet. Therefore, for any given exercise, you should always use the activity sheet lettered "a" before the activity sheet lettered "b." By the time students get to the second activity sheet, they will have caught on to the nature of the exercise, and you can refresh their memory by referring to the first activity sheet. Occasionally, examples have been included on the second activity sheet to help provoke new ideas.

Each exercise should take approximately one class period, although some of the exercises that involve creative writing may require more time. You may want to assign for homework exercises that cannot be completed in class. However, it is necessary to have group discussions of all material that is completed outside of class as an important part of the creative process involves sharing creative products with others.

You can use the suggested follow-up activities included in the lesson guides any time after the students have completed the first activity sheet for each activity. Whenever students show a preference for a particular type of activity, capitalize on their enthusiasm by developing similar activities of the type suggested in the follow-up sections of the lesson guides.

Introducing the Primary Activities

The basic strategy for introducing primary activities consists of freeing the classroom atmosphere from the usual constraints often associated with convergent production. Allow approximately one class period for the introductory session. It is extremely important for students to learn to appreciate questions and activities for which there are no right answers. You can introduce this concept by contrasting a convergent type of question with a divergent one. Before distributing the first activity sheet, you might say something like the following (but do not read it verbatim or sound too rehearsed):

> Today we are going to begin practicing a new kind of thinking. This kind of thinking will help us learn how to explore many different kinds of solutions to a given problem. Some problems and questions have only one right answer, but there are also many problems and questions that have hundreds of possible answers.

> Suppose I asked you, "In what year did Columbus discover America?" (Wait for an answer and write it on the chalkboard.)

> Are there any other possible answers to this question? (General conclusion should be negative.)

> Now suppose I were to ask you, "What are *all* of the possible ways that you *might* have come to school this morning?" (Call on youngsters and list responses on the chalkboard.)

Students will probably give some fairly common responses ("walk," "bus," "car," "bicycle"). At this point, you might say:

> Remember, I said all of the possible ways that you might have come. Use your imagination. Let your mind wander, even if you think the method for coming to school is silly or way-out. How about by donkey or pogo stick? (Add these to the list on the chalkboard.)

This point is extremely crucial to introducing the creativity training program. By suggesting the donkey and the pogo stick, you have accomplished three very important objectives. First, you have conveyed the idea that answers need not be feasible, practical, or realistic. Second, you have let youngsters know that you will accept these kinds of answers. Third and perhaps most important, you have let the youngsters know that you are capable of some way-out ideas. You can be emphasize this point by grabbing a yardstick (conveniently placed nearby beforehand) and improvising with a few hops to demonstrate a pogo stick. Students will no doubt become a little noisy, but it is very important to tolerate this reaction. If you hush them, the whole atmosphere of freedom will be lost, and they will subjectively think that this new kind of thinking is the same old game—the teacher questions and students answer.

After your examples, students may give a wide variety of answers. Let them call out their answers (rather than raising hands) as you write them on the chalkboard. Prompt students if necessary:

> Any other animals that you might come to school on? How about an airplane or a rocket? Or being dropped from a plane with a parachute?

A second crucial factor at this point is the generous use of praise on your part. Enthusiastic comments such as "good," "great," and "fantastic" will help youngsters open up. Do not call on students who are not taking part. It takes some youngsters longer than others to trust the teacher and his or her classmates in this type of situation. The main idea is to let students know that you like what is going on and that you are having fun. When the flow of responses begins to slow down, say:

> Let's go one step farther. Suppose you could change your size or shape. Can you think of some other ways that you might possibly come to school?

If no one responds, say:

> Could you make yourself very tiny and come in your brother's lunch box? Or, could you change to a drop of water and come in through the drinking fountain?

Continue to fill the chalkboard as long as the youngsters are generating responses. When you finally call a halt, say:

> I guess there really are many questions and problems that have several possible answers. Do you think this kind of thinking is fun?

> From time to time, we are going to be working on some activities like the one we just did. The main purpose of these activities will be to practice

answering questions and solving problems that have many possible answers. We will be using our imaginations to come up with some clever new ideas.

At this point, distribute the first activity sheet for "Thinking about Things" and read the directions in the manual to the students. If you have any doubts about youngsters' understanding the directions, ask if there are any questions. Then ask the students to complete the first exercise.

After they have finished, allow some students to discuss their responses. Ask, "How many had that idea?" and after a few students have shared their entire lists, ask if anyone has any responses that have not yet been mentioned. Praise unusual responses from individuals, and praise the entire group for catching on.

Follow the same procedure for the second exercise. It is especially important to be tolerant of unusual responses, increased noise levels, and occasional bursts of laughter. A comment such as "Let's be serious" could destroy the entire atmosphere of freedom to express oneself. If time permits, you may wish to pursue one of the follow-up activities suggested in the lesson guide.

RATIONALE UNDERLYING THE PROGRAM

The Need for Creativity Training Programs

Although interest in the identification and development of creativity has become one of the vital concerns of teachers, curriculum developers, and leaders in education, the actual effectiveness of schools in helping children realize their creative potential can be judged, at very best, as questionable. More than forty years of intensive research into the nature of creativity has yielded enough understanding about this dynamic process to enable educators to begin translating some of the research findings into classroom practice. The sad fact remains that in spite of dozens of books about creativity, hundreds of research studies, and thousands of training programs and workshops, the development of creative potential is still a largely ignored aspect of a child's total repertoire of acquired behaviors. At least three major problems seem to account for the failure to translate existing knowledge and understanding about the creative process into meaningful classroom practice.

The first problem is a lack of agreement among educators about the definition of creativity and its distinctiveness from other cognitive behaviors. A great deal of research devoted to this issue has led to conflicting conceptions of creativity, such that Davis (1999) concluded, "There are about as many definitions, theories, and ideas about creativity as there are people who have set their opinions on paper" (p. 40). Despite different views, however, most theorists agree with at least two generalizations about creativity. First, several research studies have supported the threshold concept of creativity, namely, a low to moderate relationship between creativity and intelligence (Getzels & Jackson, 1962; Simonton, 1988; Walberg & Zeiser, 1997; Wallach & Kogan, 1965). Highly creative individuals have generally been found to be above average in intelligence, but high intelligence does not necessarily insure high creativity. In addition, a number of studies (Jaben (1980), for example) have found that children of *all* ability levels, including students with special

needs, are capable of creative thinking. In summarizing this issue, Davis (1999) said, "It is absolutely true that despite genetic differences in our cognitive and affective gifts, everyone can become a more flexible, imaginative, and productive thinker" (p. ix). Thus, we can conclude that *all* children can benefit from systematic programming in this area.

The second generalization relating to defining creativity is that, rather than being an independent process, creativity consists of multidimensional processes involving interactions between the individual and his or her environment. These processes may differ from one another to such a degree that we must consider verbal creativity, creativity in problem solving, and creativity in the nonverbal arts as essentially different psychological phenomena. In other words, scientific creativity and creative problem solving may require different explanations than creativity in areas such as painting, music, and writing. And because of differences between individuals and their respective environments, what is a routine task for one person may very well be a creative experience for another. Since one of the basic assumptions underlying the development of the *New Directions in Creativity* program is that all people possess the ability to think creatively in varying degrees, the main purpose of the program is to assist youngsters in generating responses that are creative for the individual student at his or her present level of mental functioning. It is of course hoped that such experiences in creative thinking will help students develop a characteristic way of looking at things that will ultimately result in the creation of ideas and products that are truly original and useful for the culture at large. A good deal of research evidence that shows that people who have engaged in systematic creativity training exercises can increase their capacity for creative thinking in a variety of fields (Baer, 1996; Rose & Lin, 1984; Torrance, 1987).

Although this approach to the definition of creativity is relativistic rather than absolute, it is in

keeping with Guilford's (1967) conception of divergent thinking (discussed on pages 16-19) and Torrance's (1965) analytic description of the process which places creativity in the realm of daily living experiences rather than reserving it for the rarely achieved heights of creation:

> I have tried to describe creative thinking as taking place in the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing these guesses and possibly revising and retesting them; and finally in communicating the results. I like this definition because it describes such a natural process. Strong human needs appear to be at the basis of each of its stages. If we sense any incompleteness, something missing or out of place, tension is aroused. We are uncomfortable and want to do something to relieve the tension. As a result, we begin investigating, asking questions, manipulating things, making guesses, and the like. Until the guesses or hypotheses have been tested, modified, and retested, we are still uncomfortable. Then, even when this has been accomplished, the tension is usually unrelieved until we tell somebody what we have discovered. Throughout the process there is an element of responding constructively to existing or new situations, rather than merely adapting to them. (Torrance, 1965)

For the purposes of this program, creativity is defined as follows

> Creativity is the production of an idea or product that is new, original, and satisfying to the creator or to someone else at a particular point in time, even if the idea or product has been previously discovered by someone else or if the idea or product will not be considered new, original, and satisfying at a later time or under different circumstances.

The second problem that has hampered efforts to promote creative thinking in the classroom has been the shortage of validated curriculum materials in this area. This shortage was the basis for one of the research challenges that emerged from the Sixth Utah Creativity Research Conference (Taylor and Williams, 1966), and was reemphasized in a study by Feldhusen, Bahlke, and Treffinger (1969). Among the many suggestions offered by theorists and researchers who have devoted attention to this problem has been a call for instructional materials that give youngsters practice in opening up their minds and using modes of thought that are not characteristically developed in traditional curricular materials. An overwhelming proportion of existing curricular material places major emphasis on the acquisition of factual information and a kind of thinking that focuses on locating the one right solution to a problem. Although these activities are valuable in the total development of the learner, they often dominate the curriculum and are usually pursued at the expense of other aspects of development. Thus the development of higher level thought processes such as creativity simply does not take place or is an accidental by-product of instruction.

The third major inhibitor to the development of creativity in children has been a lack of understanding about the nature of creativity on the part of many classroom teachers (Williams, 1964; Eberle, 1966; Guilford, 1967). In some cases, this lack of understanding has resulted in the severe inhibition of creative thinking in the classroom and even discrimination against students who display creative behavior.

Although the development of an effective program of teacher training is beyond the scope of this manual, Part II presents a number of practical suggestions for teaching strategies. These suggestions are not intended to serve as a substitute for a course or workshop in creativity, nor will they provide the teacher with the breadth of information that they could gained through intensive reading in this area. Rather, the main purpose is to call attention to the characteristics of creative teachers and to point out a number of widely accepted principles for rewarding creative behavior.

Each manual in the *New Directions in Creativity* program provides a set of experiences that are systematically and purposefully directed toward developing certain creative thinking abilities. The program is not offered as the only approach to this problem, nor is it maintained that the program will develop all of the many dimensions of creativity that seem to exist. Rather, it is one possible approach to creativity training that has been developed within a specified framework. This framework is described in the following section.

The Structure of the Intellect Model

The *New Directions in Creativity* program represents an attempt to translate one aspect of Guilford's Structure of the Intellect Model (1967) of human abilities into classroom practice. This model, developed through factor-analytic methods at the University of Southern California Psychological Laboratory, has been viewed by

many educators as a potentially powerful tool for bringing about needed changes in the curriculum. Although the program focuses on only one dimension of the model, a brief overview of the entire system will provide teachers with the necessary frame of reference for understanding the approach used in this curriculum package.

The Structure of the Intellect Model (see Figure 2) is a three-dimensional classification system that is designed to encompass and organize 120 possible abilities according to (1) the types of mental *operations* employed in the act of thinking, (2) the types of *contents* involved in the thinking process, and (3) the types of *products* that result from the act of thinking.

(1) Operations

The operation dimension of Guilford's model consists of five major types of intellectual activities or processes of mind—the things that the organism does with the raw materials of information. These five categories represent the mental operations that we as human beings can learn to use in processing the information with which we come into contact as we go about living and learning.

Cognition is the mental process involving immediate discovery, awareness, rediscovery, or recognition of information in various forms. *Understanding* and *comprehension* are terms that are commonly used to describe the act of cognition.

Memory is the process that deals with the retention or storage of information. It is accompanied by an ability to bring the information out of storage in response to cues or stimuli that bear some relationship to the stimuli presented when the information was originally stored.

Convergent production is the process of generating information from given information, where the emphasis is on achieving the conventionally accepted outcome. It is quite likely that the given information (cue) fully determines the response. Convergent production involves finding the correct solution to a problem by manipulating given information rather than

OPERATION:
Evaluation
Convergent production
Divergent production
Memory
Cognition

PRODUCT:
Units
Classes
Relations
Systems
Transformations
Implications

CONTENT:
Figural
Symbolic
Semantic
Behavioral

F S M B
U
C
R
S
T
I
E
N
D
M
C

Figure 2. Guilford's Structure of the Intellect Model.

merely retrieving information from memory; however, both memory and cognition are involved in convergent production.

Evaluation is the mental operation that refers to reaching decisions or making judgments concerning the criterion satisfaction (correctness, suitability, adequacy, desirability, etc.) of information. This operation implies a sensitivity to error and a judgment of the relative nearness of things to points on a continuum or set of standards.

Divergent production, the operation upon which this creativity training program focuses, involves the generation of information from given information, but here the emphasis is on variety and quantity of output from the same source. This operation is most clearly involved in aptitudes of creative potential and will be discussed in greater detail later in this section.

(2) Contents

The content dimension consists of the following four broad classes of information that are discriminable by the organism:

Figural content consists of information in concrete form, as perceived or recalled in the form of images. The term *figural* implies some degree of organization or structuring. Different sense modalities may be involved, such as seeing, touching, hearing, and smelling. Content information does not represent anything but itself—that which is sensed and discriminated.

Symbolic content involves information in the form of signs that have no significance in and of themselves. Letters, numbers, musical notations, and other code elements are examples of symbolic content. Objects, figures, and shapes are also examples of this type of content.

Semantic content is information in the form of meanings to which words commonly become attached. Semantic material is the major element in verbal thinking and in verbal communication (writing and speaking).

Behavioral content consists of essentially nonverbal information that is involved in human interactions, such as the awareness of attitudes, needs, desires, moods, intentions, perceptions, and thoughts of other persons and of ourselves. The identification of abilities involving this type of content has not been as precisely

defined as those abilities involved in figural, symbolic, and semantic content.

(3) Products

The product dimension of the Structure of the Intellect Model consists of the organization or form that information takes when it is processed by the human mind. The following six products, as defined by Guilford, are the result of interaction between our senses and the world around us:

Units are relatively segregated or circumscribed items of information that have singular character. For example, one chair would constitute a unit.

Classes are recognized sets of items of information grouped together by virtue of their common properties. Thus several chairs would form a class.

Relations are recognized connections between units of information based on variables or points of contact that apply to them. For example, a chair and a desk would constitute a relation.

Systems are organized or structured aggregates of items of information that are grouped together because of the interrelatedness or interaction of their respective parts. Systems are combinations of units, classes, and relations that have some total function. An example of this category is a "school system."

Transformations are changes of various kinds of existing or known information. Transformations involve the redefinition or modification of existing ideas, products, or materials.

Implications and *elaborations* consist of extrapolations of information in the form of expectancies, predictions, known or suspected antecedents, commitments, or consequences. Asking questions, the answers to which should help people see a particular problem more clearly, suggests implications from known information.

The *New Directions in Creativity* program deals primarily with the divergent production operation of the Structure of the Intellect Model. Within this "slab" of the model, eight of the twenty-four factors have not yet been completely identified by Guilford (see Figure 3); thus only a few experimental activities have been developed in these areas. The program does, however, include activities that sample all of the divergent

production factors that involve semantics, as well as some selected activities that use symbolic and figural information. None of the exercises in the program are offered as "pure" exercises in the development of a given factor. For example, Guilford (1967) has stated that "memory storage" underlies all problem solving and creative production, and other researchers (Pollert et al., 1969) have found that memory abilities play an important role in divergent production. Guilford's factor-analytic data also have shown that certain activities are related in varying degrees to more than one factor. Thus abilities from other areas such as cognition and memory are brought to bear on the operation of divergent production; and within the area of divergent production, certain abilities seem to act as contributory factors to the development of other abilities. For this reason, the classification of activities according to the Guilford structure is intended to point out the major focus of the respective activities in the program, but these classifications should not be interpreted to mean that other abilities are not involved in a given exercise.

The main purpose of this brief overview of Guilford's Structure of the Intellect Model is to underscore the relationship between the focus on divergent production presented by the *New Directions in Creativity* program and the overall dimensions of the Guilford model. Teachers who are interested in delving further into the various dimensions of the model should refer to Guilford's major work in this area, *The Nature of Human Intelligence* (1967). Another excellent interpretation of the model is presented in Meeker's book entitled *The Structure of Intellect: Its Interpretation and Uses* (1969).

Figure 3. Factors in divergent production.

PART IV

No printed word nor spoken plea
Can teach young minds what men should be,
Nor all the books on all the shelves
But what the teachers are themselves.
Anonymous

LESSON GUIDES FOR *MARK 2*

The activities in this book are presented in the order indicated below. As noted earlier, this sequence is offered only as a suggestion, and you should feel free to alter this sequence to serve the interests and preferences of a particular class. The activity number has been printed in the upper left-hand margin of each activity sheet to help you keep the sheets in order after each use.

A schematic overview of these activities, based on Guilford's classification system, is presented in Figure 4. For a description of this system, see pages 16-19.

As you use these activities in your class, you may find it helpful to keep a record to which you can refer when you use the activities with other classes. For your convenience, a chart for this purpose is provided on the first four duplicating masters at the back of this manual. This chart contains spaces for you to record the date a particular activity sheet was used and to make notes on the class reaction and on how you used the follow-up activities.

Suggested Sequence for *Mark 2* Activities

Activity	Type of Activity	Activity	Type of Activity
1 Thinking about Things	Semantic Units	13 Wandering Words	Symbolic Transformations
2 Fun with Words	Symbolic Units	14 Alternate Uses	Semantic Units
3 What's in a Name?	Semantic Transformations	15 Comparisons	Semantic Relations
4 Fun with Figures		16 Cartoon Captions	Figural Implications
5 Sentence Skeletons	Figural Units	17 Words with Feeling	Semantic Classes
	Semantic Systems	18 Consequences	Semantic Transformations
6 What Would You Call It?	Semantic Implications	19 Word Boxes	Symbolic Relations
7 Way-out Words	Symbolic Relations	20 Make-a-Sentence	Semantic Systems
8 The Headline Cutter	Semantic Units	21 Let's Write a News Story	Semantic Implications
9 Saying It Nicely	Semantic Transformations	22 Figure Families	Figural Classes
10 Say It with Symbols	Figural Relations	23 Creative Story Generator	Semantic Elaborations
11 Word Trees		24 Hidden Figures	Figural Transformations
12 A Message from Planet X	Semantic Relations / Semantic Elaborations		

Figure 4. Mark 2 Activities

	SEMANTIC	SYMBOLIC	FIGURAL
UNITS	Thinking about Things The Headline Cutter Alternate Uses	Fun with Words	Fun with Figures
CLASSES	Words with Feeling		Figure Families
RELATIONS	Word Trees Comparisons	Way-out Words Word Boxes	Say It with Symbols
SYSTEMS	Sentence Skeletons Make-a-Sentence		
TRANSFORMATIONS	What's in a Name? Saying It Nicely Consequences	Wandering Words	Hidden Figures
IMPLICATIONS AND ELABORATIONS	What Would You Call It? A Message from Planet X Let's Write a News Story Creative Story Generator		Cartoon Captions

1 Thinking about Things

Type of Activity

Semantic Units

Objectives

To develop ideational fluency.
To develop the ability to group things according to a common attribute (disjunctive classes).
To be able to distinguish between conjunctive and disjunctive classes.

Teaching Suggestions

This activity works well when carried out under mildly competitive conditions. Once students have acquired a knack for listing things (usually after one or two exercises), increase competition by setting a time limit for each exercise and giving additional points for responses that are only on one list. Time limits should vary according to the age and ability levels of the group.

Be sure to allow students to read some of their responses aloud in class. If they are scoring their responses under competitive conditions, a good deal of excitement and debate will probably ensue. Some of the more creative youngsters will no doubt produce debatable responses (for example, when listing things that come in pairs, students might include "a pair of pants," or half of a "quartet"). Encourage the children to explain why they think their responses are legitimate, as it will help them develop logical organization and give you an opportunity to call attention to idiomatic language (e.g., "eating humble pie" or "eating your words").

Follow-up Activities

- Most of the exercises in the "Thinking about Things" activities are based on disjunctive classes—that is, only one attribute or common characteristic has been specified. In one exercise, students are asked to list things that are long and thin. Since this exercise requires responses that possess a combination of attributes, it is based on a conjunctive class. After students have completed all of the "Thinking about Things" exercises, you might ask if they can tell how one exercise differs from all of the others. Lead them to see the difference between single- and multiple-attribute classes.

- Conjunctive classes can be based on two or more attributes (students may be asked to list things that

are long *and* thin *and* made of metal), and you can easily raise the level of challenge by increasing the number of common attributes required. You can develop many exercises using the "Thinking about Things" format, including forming classes around people (famous generals in American history or in world history) or places (cities that are located on rivers, cities or countries that begin with the letter *C*). Consider letting students specify attributes to try out on their classmates.

2 Fun with Words

Type of Activity

Symbolic Units

Objective

To develop verbal fluency by producing words that conform to simple specifications.

Teaching Suggestions

This activity is designed to give students practice with brainstorming. The exercises begin with simple specifications (only the first letter is specified) and proceed to more complicated versions (first and last letters are specified). You can use the activity with or without time limits, and children can work individually or in pairs. The activity works well under conditions of mild competition, and you may wish to use a scoreboard to record team scores. If students have a tendency to use only one-syllable words, encourage them to think of bigger words. Also encourage them to think of words that no one else will have on his or her list. You can give extra points for words that do not appear on the lists of opposing teams or for words that consist of three or four syllables.

Students should look up the spellings and meanings of words on their lists that they may not be certain about. When you find an unusual word on a student's list, you might ask the class, "How many know the meaning of that word?" or "Can someone use that word in a sentence?" Students seem to take greater interest in vocabulary when they or their peers generate the words.

The "Fun with Words" activity provides good practice for higher level creative activities. Because it can be pursued for very short periods of time and under competitive circumstances, it can help create a free classroom atmosphere for other activities.

- In addition to specifying beginning and ending letters of words, you can apply other restrictions to the activity, such as using only nouns, verbs, or adjectives. The activity can be carried out as a relay race at the chalkboard or on individually prepared activity sheets.

3 What's in a Name?

Type of Activity

Semantic Transformations

Objectives

To develop the ability to produce unusual or clever names that involve a reinterpretation of given information.
To develop the ability to produce symbolic relationships based on given information.

Teaching Suggestions

Introduce this activity by asking students if they know the meaning or significance of their last names. Try to lead youngsters to the conclusion that many surnames are derived from the type of work that a person's ancestors did. Discuss some of the more obvious name-occupation relations, such as Cook, Baker, Farmer, and Carpenter. Then call attention to some less direct relationships by asking what occupation the following names might imply: Walker, Merriman, Blade, Clay, Underwood. Since the meanings of these names are open to interpretation, students will begin to speculate about occupations from which the names may be derived. Encourage students to suggest several possible occupations for each name.

An interesting way to discuss the first activity sheet with the class is to have youngsters read at random the names they wrote and see if the rest of the class can guess which occupations the names represent. Since their first responses are likely to be common or obvious names, it is important to encourage students to list two or more names for each occupation.

Introduce the second activity sheet by showing students some comic-strip characters with symbolic or catchy names (e.g., Broom Hilda, the Wizard of Id, Fred Flintstone, Casper the Ghost, Beetle Bailey). Invite students to speculate about how the cartoonists selected their names. Students might want to suggest other names for these characters. This activity provides a good opportunity for you to point out the use of alliteration in creating catchy names, as well as the use of symbolism in naming characters that play a prescribed role. Encourage youngsters to let their minds wander in thinking up names for their characters and do not show disapproval if they tend to get a little silly. You can stimulate a good deal of playful imagination by adding your own imaginative names.

Follow-up Activities

- Students can develop their own lists of occupations for additional "What's in a Name" exercises. You can also pursue this activity in reverse by developing lists of surnames and asking students to speculate about the origins of the names. The telephone directory is, of course, a good source of interesting names, and you should allow students to select names for follow-up activities.

- Ask students to elaborate on the names they list in activity "b" by developing comic-strip sequences for one or more of the characters. They can also write comic-strip sequences to dramatize for their classmates. Students with a particular interest in this activity may want to prepare a daily or weekly comic strip for a classroom bulletin board display or the class or school newspaper. This activity also provides a good opportunity for students with writing ability to team up with students with drawing ability. If a cartoonist lives in your community, you may want to invite him or her to speak to your class about how he or she creates characters and selects names for them.

Resources

Occupational Outlook Handbook 1998-99 by the U.S. Bureau of Labor Statistics. 1998. Published by VGM Career Horizons: Chicago, IL.
The Creative Cartoonist by Dick Gautier. 1989. Published by Perigree Books: New York.
The Complete Book of Caricature by Bob Staake. 1991. North Light Books: Cincinnati, OH.
Getting Started Drawing & Selling Cartoons by Randy Glasbergen. 1993. Northlight Books: Cincinnati, OH.
The Usborne Young Cartoonist by Judy Tatchell. 1987. Usborne Publishing Limited: London, Great Britain.

4 Fun with Figures

Type of Activity

Figural Units

Objectives

To develop nonverbal flexibility and originality.
To construct a variety of nonmeaningful figures based on the manipulation of given elements.
To demonstrate nonverbal applications of creativity skills.

Teaching Suggestions

This activity will help students understand that creative thinking skills can be applied to nonverbal, as well as verbal, information. The examples have been purposefully constructed to show students the various possibilities that exist in combining the given elements. You should point out the nonmeaningful nature of these examples—that is, the figures do not convey a meaning such as that which might be conveyed in a drawing of a face or house. Before students begin working on these activity sheets, call their attention to the way the figures have been rotated in the examples on the first activity sheet. Encourage students to try to combine the figures in ways that no one else will combine them.

After students have completed the exercise, ask some of them to put their most original figure on the chalkboard. Ask the class, "How many had that one?" and praise responses that are unique. Suggest that students rotate their papers in different directions to see if they can come up with any more ideas for combining the two figures.

Follow-up Activities

• Ask students to select some figures of their own creation to use in activities of this kind. For variation, you might ask students to use shading or color in completing their figures or to cut geometric figures out of paper and combine them in various ways. Students can make attractive bulletin board displays by cutting out the given shapes in various colors and pasting them on sheets of paper to form geometric collages. They can make other interesting collages by cutting out objects in a given category from magazines (faces, automobiles, airplanes, and so on) and combining them in interesting and unusual ways.

5 Sentence Skeletons

Type of Activity

Semantic Systems

Objective

To develop expressional fluency and flexibility.

Teaching Suggestions

The "Sentence Skeletons" exercise begins with simple specifications and proceeds to more complicated versions. Students might tend to develop a fixed pattern of responding to each set of items (for example, beginning each sentence in the first set with "Shopping is always . . ."). Therefore you should encourage students to strive for originality in each sentence. Some sentences will no doubt be humorous and somewhat illogical, but you should accept these responses, especially in the early stages of this activity. By asking students to read some of their sentences aloud in class and by heavily praising those sentences that flow smoothly, you will help channel future responses in the desired direction. You should encourage, but not pressure, hesitant students to reveal responses.

This activity is very popular among middle-grade youngsters, and you might use it to develop language skills among learners who are not especially motivated by traditional approaches. Sentences in our language are modeled on relatively few distinctive patterns; thus lessons relating to the basic structures of sentences (such as adjective-noun-verb-noun, noun-verb-adverb) can be built around "Sentence Skeletons" activities. You can use these activities as a basis for lessons dealing with noun determiners (*a*, *an*, *the*, *each*, *some*, *one,* etc.), verb helpers (*shall*, *will*, *should have*, etc.), phrase and clause markers (*to*, *in*, *by*, *which*, etc.), question markers (*who*, *what*, *when*, *etc.*), and connectors (*and*, *but*, *or*, etc.).

Follow-up Activities

• In addition to varying the number of blanks and letter specifications, you can do any of the following: insert various punctuation marks in the skeletons, make certain letters within the skeleton upper case (thereby requiring a proper noun), and allow youngsters one or two free words that can be inserted anywhere (especially helpful for getting slower students started on the activity).

- To make a much more challenging variation of this activity, specify one or more ending letters as well as beginning letters.

- Students can prepare their own sentence skeletons and exchange them with their classmates.

6 What Would You Call It?

Type of Activity

Semantic Implications

Objectives

To develop the ability to produce new words that are appropriate in meaning to given information.
To develop verbal imagination.

Teaching Suggestions

A good way to introduce this activity is to put the word laundromat on the chalkboard and ask students if they know its meaning. They will probably recognize that the word is a combination of laundry and automatic. Point out that this word was created from existing words to describe commercial laundries where coin-operated automatic washing machines and dryers are located for people to use. When it was introduced in the 1950s, the laundromat was a new concept in laundering; therefore a new word was created to help people communicate this idea more effectively. Computer technology and the internet has forced people to come up with a wealth of new words and new definitions for old words, including website, e-mail, download, hit, e-commerce, and spam. Ask students if they can think of other words that have been created to describe new things or ideas. Encourage students to add their own suggestions to the list. Point out that well-known roots such as *-phonic*, *-graph*, *-matic*, *aqua-*, and *aero-* can combine with other words to format new words.

It is important in this activity to encourage students to generate at least two responses for each item. First thoughts are likely to be relatively common or obvious responses. You should, of course, reward first responses, but imaginative words are more likely to emerge if students create more than one word or phrase for each item.

After students have completed the activity sheets, ask them to read their responses aloud. Allow them to judge which words they like best and to explain why they like those words.

Follow-up Activities

- Ask students to generate lists of imaginary things. They may want to draw sketches of some of the imaginary things, or they may also want to build creative stories around some of their ideas. Putting the two activities together provides a good opportunity for students with writing ability to team up with youngsters with artistic talent.

- You might want to introduce students who show a great interest in this type of activity to etymology—the study of the origin, formation, and development of words. You may want to provide students with a copy of *The Oxford Dictionary of English Etymology* (edited by C. T. Onions, Oxford University Press, New York, 1966).

7 Way-out Words

Type of Activity

Symbolic Relations

Objective

To develop the ability to produce a symbolic relationship between the meanings of words and the way they are written.

Teaching Suggestions

Write the word *look* on the chalkboard and ask, "How can I make the word *look* look like *look*?" If students do not get the idea, fill in the two o's so that they look like eyes and draw eyebrows above them. Before distributing the activity sheets, ask students if they can think of any other words that look like their meanings and invite them to write words on the chalkboard. When students are working on these exercises, allow them to use colored pencils or crayons.

After students have completed their activity sheets, ask them to reproduce their responses on the chalkboard. As you review the responses with the class, ask, "Did anyone write this word differently from the way it is written on the board?" Allow all major variations of each word to be reproduced on the chalkboard, and let the class decide which variation they like best. You may want to reserve a section of the bulletin board for students to display their original versions of "Way-out Words."

Follow-up Activities

- Ask students to compile lists of words that they could use for additional "Way-out Words" activities.

- Students who show an interest in this type of activity, may want to refer to "Wacky Wordles," a section in *Arrow Book of Brain Teasers* by Martin Gardner (TAB Books, Inc., 1959). It shows how well-known sayings can be expressed in a symbolic fashion. Students may want make their own "Wacky Wordles."

8 The Headline Cutter

Type of Activity

Semantic Units

Objectives

To produce written communications that arouse curiosity and interest in specified material.
To develop ideational fluency based on a specified written communication.

Teaching Suggestions

Introduce this activity by showing several provocative headlines clipped from newspapers and asking the class to speculate about the articles that appear below the headlines. Emphasize the function that headlines perform in arousing the reader's curiosity and invite students to think of alternative headlines for those that you have cut out of the newspaper. After they have speculated about a few articles, read a brief newspaper article and ask students to suggest some possible headlines. Record these on the chalkboard and allow students to judge which headlines they think would create the most interest in the article.

Follow-up Activities

- The daily newspaper can supply you with an unlimited number of headlines and articles to use in this type of activity. You can mount brief articles on poster paper and place it a bulletin board so that students can read the articles and record their suggested headlines above them.

- This activity provides an opportunity for you to call students' attention to two additional functions of newspaper headlines. Some headlines are intended to summarize the information in the article so that readers can discern the main message of the article at a glance ("Red Sox Sweep Doubleheader from the Yankees"). Another function of a headline is to raise a question that will be answered in the article ("Will Mayor Seek Re-election to Third Term?"). Ask students to collect headlines that fall into each category. Then have them scramble the headlines and exchange them with their classmates for reclassification. Whenever differences in opinion occur, allow students to give reasons in support of their classification and make the final judgments.

- If your local newspaper has a person who is responsible for cutting headlines, you may want to invite him or her to speak to the class about how he or she decides on a headline.

9 Saying It Nicely

Type of Activity

Semantic Transformations

Objectives

To develop the technique of listing attributes.
To develop the ability to reinterpret given information to produce a desired effect.

Teaching Suggestions

You can use the first exercise activity sheet "a" to help youngsters learn the basic technique of listing attributes. Ask the class what qualities people would look for in a vacation cottage (near the water, quiet, peaceful, good fishing and swimming, pleasant view, and so on) and list these attributes on the chalkboard. Suggest that students approach the other two exercises on this page by first listing the attributes that people would look for if they were purchasing a pet dog or an antique clock. After students have listed attributes for each item, they should attempt to write a description that hints at these attributes and, at the same time, disguises the negative features of each item. Ask students to read their completed advertisements aloud and allow the group to judge which ones make the items sound the most attractive.

Introduce the second activity sheet by asking students to look at the drawing and think of other possible ways of saying "Bill is a liar." Point out that people frequently substitute roundabout expressions for harsh words or statements that make them feel uneasy. If they have difficulty getting the idea, write the following statements on the chalkboard and ask students if they can tell which harsh words the statements are trying to disguise.

John sometimes borrows things from others without asking. (steals)

John often relies on the work of others when he is taking a test. (cheats)

Follow-up Activities

• Ask students to develop their own lists of not-so-attractive items and invite them to write advertisements similar to those activity sheet "a." You may also introduce the concept of a "white elephant" and suggest that each student write an advertisement for one useless item. You can place these advertisements on the bulletin board under the title "White Elephant Sale."

• The class can also do "Saying It Nicely" activities in reverse. Students can study the classified ads in the newspaper and then write descriptions or draw pictures of items in a way that makes the items sound or look useless or unattractive. Humor is an important part of creativity, and you should encourage some silliness when students work on this activity.

• You can also use activity sheet "b" as the basis for follow-up exercises on euphemistic words and expressions that are popular in our language. Ask students to generate lists of harsh words and expressions (*committed suicide*, *vomited*, *stink*) and then see if they can substitute words or phrases that are somewhat less offensive (*took his own life*, *got sick*, *unpleasant aroma*). You may want to reserve a small section of the bulletin board where students can record euphemisms whenever they encounter them in their reading or elsewhere.

10 Say It with Symbols

Type of Activity

Figural Relations

Objectives

To develop the ability to produce relations between figures and given ideas.
To show symbolism in figural information that is based on given requirements.

Teaching Suggestions

Introduce this activity by asking students to look at the illustrations on the activity sheets and to speculate about the types of products or services that the symbols represent. Point out the essential characteristics of a good symbol (instant and unambiguous recognition of what is represented by the figure). Ask students if they can think of other common symbols that are encountered in our society (highway signs; commercial symbols, such as the NBC peacock and airline logos; safety symbols, such as the skull and crossbones on poisonous substances; political symbols, such as the donkey, elephant, American eagle, British Lion; and so on). The key to creative productivity in this activity is in helping students understand that they can make their drawings symbolic as well as realistic. Unless you emphasize this concept, many of the responses will be rather obvious. Symbolism can be emphasized by pointing out the indirect connotations of the example illustrations on the activity sheets. The mortar and pestle, for example, are symbols of the pharmacist's profession, and the pony express rider is a symbol of the early beginnings of the postal service. If students dwell on the obvious in their drawings, suggest that they make a second drawing for each product or service that is completely different from their first.

Allow students to use crayons or colored pencils to complete their drawings and display their symbols on a bulletin board. When discussing the content of students' drawings, ask them to explain the meaning of any symbol or part of a symbol that is not immediately obvious. Let the students decide which drawings they like best and encourage them to re-create their symbols if they have picked up any good ideas from their classmates.

Follow-up Activities

• In addition to creating symbols for a wide variety of businesses and occupations, students may want to develop their own set of highway symbols or sets of symbols for sending secret messages. Students can obtain a listing of international highway symbols from travel agencies or automobile clubs, and several books on the origin of language have sections that deal with early forms of symbol writing.

• If this type of activity is especially interesting to some of the youngsters in your class, you may want to consult the *Symbol Sourcebook* by Henry Dreyfuss (John Wiley & Sons, 1984). It contains

more than eight thousand categorized symbols that have been used by man since the beginning of recorded history and can serve as the basis for many creative activities.

11 Word Trees

Type of Activity

Semantic Relations Objectives

Objectives

To develop verbal flexibility.
To develop the ability to construct relationships between groups of words.
To point out the distinction between direct and indirect relationships.

Teaching Suggestions

The object of Word Trees is to fill each empty box with a word that is related to the box or boxes above it. Introduce the concept behind Word Trees by going through the following exercise at the chalkboard. Start by drawing the diagram below on the chalkboard. Explain to the class:

> The word *baby* in the following Word Tree might make you think of words such as *crib* and *play pen*. Think of another word that is related to *baby* and write it in the empty box next to *play pen*. The words *crib* and *playpen* might make you think of the word *protection*. Can you think of a word that is related to *playpen* and the word you wrote in the empty box? Write the word in the other empty box.
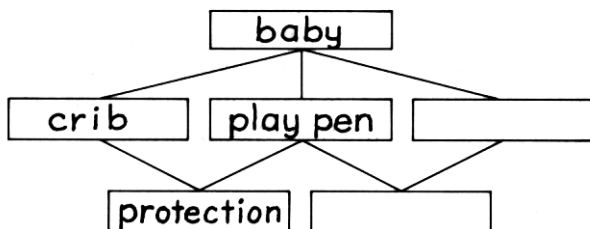
A Word Tree can also begin with two words. For example, what word comes to mind when you think of the words noise and hear? One word might be crash. Can you think of another word related to *noise* and *hear*? Write the word in the empty box.
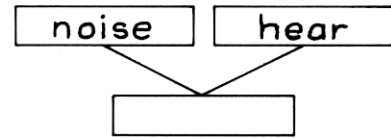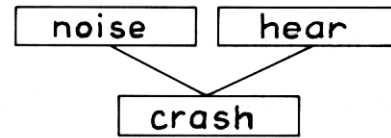
Once students have caught on to the principle underlying Word Trees, encourage them to think of words that no one else will use. If the activity is carried out under competitive conditions, you may want to give more points for words that are unique in the group. This activity provides a good opportunity to call attention to the types and degrees of relationships between words. If most students attempt to complete the Word Trees by using direct or concrete relations, point out the possibility of using some less direct relations. For example, in the first sample Word Tree, the words *crib* and *play pen* illustrate direct relations. You might also suggest some words that are indirectly related to *baby*, such as *helpless* and *kitten*. Explain how these words are related, and encourage students to think of words that express direct and indirect relationships. You might suggest that they fill in each box with two words—one showing a direct relationship and the other showing an indirect relationship.

Follow-up Activities

- Using a variety of stimulus words and Word Tree formats, you can construct an unlimited number of Word Trees. In addition, you should give students an opportunity to construct their own Word Trees and share them with their classmates.

- You can help students develop their language skills by specifying that the Word Trees be completed with particular parts of speech or with synonyms or antonyms. More complex variations of this activity might include specifications involving part-whole relationships, action-agent relationships, or verb-object relationships.

12 A Message from Planet X

Type of Activity

Semantic Elaborations

Objectives

To develop the ability to elaborate on given information. To develop the ability to produce an original or unusual communication.

Teaching Suggestions

To introduce this activity, ask students if they have read science-fiction stories or watched science-fiction shows on television. Invite them to recall some of the strange people, animals, and other things they have experienced in science fiction and lead them to the conclusion that these things are the products of highly imaginative thinking. Point out that a science-fiction writer must let his or her mind run wild and tell students that you would like them to do the same in this activity.

The success of this activity depends on getting students to elaborate on their responses instead of writing one- or two-word statements. When students are working on the activity sheets, observe their responses and give positive reinforcement to short statements, but also encourage them to extend themselves by saying, "That's a good idea—can you tell more about it?" If, as you wander around the room, you observe a particularly creative response, ask the class to pause for a moment and have the student read the response aloud. The response may help give the group a feeling for the extent to which each unfinished statement can be expanded. Encourage students to stretch their imaginations by saying, "Let's see who can think of the most way-out description of people." Since communicating ideas is an important part of the creative process, be sure to allow students to read their statements aloud to the group.

Follow-up Activities

- Encourage students who show an interest in this activity to use their responses as a springboard for writing a science-fiction story. You might suggest that the they write stories in the form of a daily log or radio messages to Earth.

- An interesting nonverbal follow-up activity invites students to draw pictures of the people, buildings, and monsters that they described on their activity sheets. Allow students to display their pictures on a bulletin board.

- You can create additional activities of this type by developing unfinished statements that relate to the basic ingredients of a culture, including clothing, occupations, forms of government, transportation, recreation, and education.

13 Wandering Words

Type of Activity

Symbolic Transformations

Objectives

To develop the ability to generate new words from given words, using a given specification.
To develop word fluency.

Teaching Suggestions

Point out the numerous possibilities for completing the exercises in this activity by asking students to see how many other words they can derive from *beat* by changing only one letter (see the example on activity sheet "a"). Although most students will quickly learn the rules for completing this activity, it may be necessary for you to emphasize that the letters may not be interchanged; each letter except the one being changed must keep its own place in the word being formed.

You can also carry out this activity under mildly competitive conditions by encouraging students to make their lists as long as possible and giving extra points for words that are not included on any other student's list. You can heighten competition by setting a time limit. Whenever questions arise regarding the legitimacy of a word, students should consult their dictionaries.

Follow-up Activities

- Ask students to generate lists of words of varying length and prepare some blank duplicating masters for additional activities of this type.

- Turn the activity into a relay race. Give each team the same word and have each team member add a word to the list and pass the activity sheet on to his teammates.

- If students show an interest in this type of activity, you may want to introduce them to the game of

Doublets, which was devised by Lewis Carroll in 1879. The game is similar to "Wandering Words" except that both the beginning and ending words are specified. The object of the game is to convert the beginning word to the ending word with as few changes as possible. In the Doublets developed by Carroll, the beginning word was often related in meaning to the ending word. For example:

Beginning word: *H E A D*
                   H E A L
                   T E A L
                   T E L L
                   T A L L
Ending word: *T A I L*

Encourage students to develop their own Doublets and try them out on their classmates. Carroll's Doublets can be found in *Lewis Carroll's Games and Puzzles* (Dover Publishers, 1992).

14 Alternate Uses

Type of Activity

Semantic Units

Objectives

To develop ideational flexibility and originality.
To develop the abilities to modify, adapt, redefine, and improvise.

Teaching Suggestions

This activity allows students to develop both practical and creative products. After students have read the directions and examples in the first exercise, invite them to point out the difference between the two examples. Using familiar stories as examples of fanciful writing (e.g., *Alice in Wonderland*, *The Wizard of Oz*, television cartoons), point out that children and adults both receive endless hours of enjoyment from fanciful material such as fairy tales, science fiction, tall tales, and cartoons. In other words, help youngsters see that all writing need not be realistic or serious. Also point out that many useful devices can be made from objects that were meant to serve some other purpose (e.g., bird feeders can be made from milk cartons; bracelets can be made from paper clips). Ask students if they or their parents have ever used an object in ways other than the way it was meant to be used. As they work through the exercise, encourage them to develop both practical and

fanciful ideas and allow them a good deal of freedom in modifying the objects to suit their purposes.

If students are slow to catch on to the activity, you might suggest some of the following strategies for modifying objects: taking them apart or breaking them up into smaller parts; putting several of them together or combining them with other types of objects; turning them upside down or inside out; stretching them and adding color, motion, sound, or odor. Suggest a few examples of how objects can be modified to form different products. For example, a story and music can be combined to make an opera, and apples can be used in a variety recipes. Ask students if they can think of other ingredients that they can modify to form different products.

This activity will no doubt produce some laughter and some way-out suggestions, but you should make every effort to value even the most ridiculous response. This type of activity allows students to practice freeing their minds from the usual constraints that limit creativity.

Follow-up Activities

• Ask students to make a list of all the things that they and their families discard from their homes and use these lists as the bases for additional "Alternate Uses" exercises. Follow-up exercises can be restricted to practical or fanciful uses, and you might have an occasional contest to see who can come up with the best response within a particular specification. Whenever possible, let the youngsters judge which is the best idea.

15 Comparisons

Type of Activity

Semantic Relations

Objectives

To develop verbal originality.
To develop the use of imagery.
To express ideational relationships and colorful comparisons.

Teaching Suggestions

Before students begin this activity, ask them for some of the common comparisons with which they are familiar ("as old as the hills," "as quiet as a mouse," "as sly as a fox," "as stubborn as a mule," "as light as a feather"). Write the stems of these well-known

comparisons on the chalkboard and invite students to give several possible analogies for each stem. Encourage them to be as original and as colorful as possible in completing the sentences on the activity sheets.

Explain to students that comparisons can be direct and realistic or they can be fanciful and unrealistic. For example, a realistic comparison might be "Fred is as strong as his father," but a more fanciful and less realistic comparison might be "Fred is as strong as steel." Sometimes people use extreme or even ridiculous comparisons to emphasize a relationship or lack of relationship between two persons, objects, or situations. Thus someone might call attention to a person's lack of strength by saying, "He is about as strong as wet spaghetti" or "He is as strong as a mouse."

Remind students that there are no right answers to these exercises. Encourage them to write any comparison they think of, regardless of how silly or ridiculous it may seem. Point out that truly great writers often gain fame by thinking of comparisons that no one else has ever used.

After students have completed the exercises, have some read their responses aloud and ask the class to comment on those they feel are particularly colorful. Call attention to varying degrees of relationship (direct and realistic, magnified and fanciful) and ask students to explain comparisons that are not readily apparent to their classmates.

Follow-up Activities

- Invite students who are interested in writing to watch for comparisons in their reading and to record them in a notebook. After they have accumulated several examples, ask students to group them into various categories such as comparisons of physical characteristics ("as big as. . . ," "as pretty as. . . ," "as blue as . . . "), emotional characteristics ("as happy as. . . ," "as angry as. . ."), and temporal characteristics ("as old as . . . ," "as recent as . . ."). Encourage them to add their own comparisons to the list whenever they think of them.

16 Cartoon Captions

Type of Activity

Figural Implications

Objectives

To develop the ability to produce varied implications based on given figural material.

To show relationships between figural and semantic material.

Teaching Suggestions

A good way to introduce this activity is to show students a cartoon that conveys a humorous situation without a caption. Then show them a captioned cartoon with the caption removed or covered and ask if the cartoon brings out the humor in the situation. Ask the class what words might be written below the cartoon to make it humorous. Try to elicit several responses from students and allow them to decide which caption they like the best. It is important to emphasize that there are many possible captions. After several students have had an opportunity to suggest captions, you might reveal the caption that was written by the cartoonist.

After students have completed each activity sheet, ask them to read their captions aloud or display their activity sheets on the bulletin board. Exposure to each other's responses may provoke additional ideas; therefore give students an opportunity to add new responses.

This activity provides an opportunity for helping students appreciate peer evaluation. The class will exhibit varying amounts of laughter in relation to the degree of humor that a caption brings out. Students may choose to submit their best cartoons to the school newspaper for possible publication.

Follow-up Activities

- Ask students to cut out and bring to class cartoons that they think will be good for this activity. They can mount cartoons on poster paper and display them on a bulletin board with space for students to add their own captions.

- This activity can be used to introduce youngsters to political cartoons and the special types of messages that they attempt to convey. Be sure to point out the symbolic nature of political cartoon characters (Uncle Sam, donkey, elephant, and so on). Famous political cartoons such as those by Thomas Nast allow students to see the way that editorial opinions of historical events may be communicated. Invite students to draw political or editorial cartoons of past or current events.

- One game-type activity might involve matching cartoons with appropriate captions. Break the class into workable groups, giving half of each group some cartoons and the other half the corresponding

captions, and have students try to find the right caption for each cartoon.

- An exciting variation of the "Cartoon Captions" activity is to ask youngsters to draw their own cartoons and exchange them with their classmates so that the classmate can add the caption. Or, you might give students a caption and ask them to produce a sketch that brings out the humor implicit in the caption. As a final exercise, you can synthesize figural and semantic activity by asking children to draw cartoons and then write captions for their own cartoons.

17 Words with Feeling

Type of Activity

Semantic Classes

Objectives

To develop the ability to produce many categories of words and phrases appropriate in meaning to a given situation.
To develop verbal fluency and word association skills.

Teaching Suggestions

To introduce this activity, select a short paragraph that creates a certain mood and read it to the class. Ask students which words the author has used to help create a particular mood. You can also ask students what words come to mind when they think of a certain mood.

After students have completed each activity sheet, invite them to read individual words or phrases at random and ask the class to guess which category the word or phrase is associated with. The beginning words in each list are likely to be obvious associates of the situation in question. Therefore it is important to encourage youngsters to generate at least five words or phrases for each situation. Ask students to explain words or phrases that are less obvious and generously praise responses that show clever or remote associations. Ask students if any of the responses could be used for more than one of the six situations in the exercise. Some debate is likely to ensue, and it is important to let the students themselves resolve their differences.

Follow-up Activities

- A natural follow-up to the "Words with Feeling" exercises is to ask students to write short paragraphs about each situation. This activity will help them synthesize their words and phrases and use them in

a creative writing task. Encourage youngsters who show an interest in this type of follow-up activity to write a short story based on one of the moods.

- Responses to this activity often deal with the visual and auditory senses. You can help students expand their perception of mood-associated words by asking them to classify words according to one of the five senses with which they are associated This exercise will help students realize that moods can also be created by words associated with smell, taste, and touch. An interesting variation of this activity is to ask youngsters to describe the sound effects they would use if they were developing a radio program designed to convey a given mood. Some students may actually want to create a sound-effects tape for one or more of the situations listed on the activity sheets or other situations of their choice.

18 Consequences

Type of Activity

Semantic Transformations

Objectives

To develop ideational fluency and originality.
To develop the ability to speculate and to imagine.

Teaching Suggestions

Since most of the situations in this activity are improbable, it allows students to exercise a playful imagination. You can encourage this playfulness by adding your own unusual suggestions to the discussion. Humor is a very important part of creativity, and students will make an extra effort to be clever and humorous if they feel that the teacher values these traits. Humor also has its own built-in feedback mechanism. If students' ideas result in spontaneous laughter or comments, they will be getting an immediate peer evaluation of their work.

Follow-up Activities

- Encourage students to think up their own improbable situations and allow them to ask their classmates to think of possible consequences. Newspapers and magazines occasionally print articles and pictures that record unusual happenings. You might post some on a bulletin board and suggest that students write a possible consequence beneath a picture or article whenever they have a good idea.

- Pose hypothetical questions based on history. Allow students to speculate what would happen if the South had won the Civil War or the Louisiana Purchase had never taken place. Additional speculative activities might involve descriptions of what certain aspects of our culture might be like one hundred years from now (clothing, transportation, national boundaries, and so on). You can also discuss some of the recurrent issues the world faces. Youngsters might speculate about what the world would be like if there were no such things as war, discrimination, disease, or pollution. You may want to ask students to speculate about possible solutions to problems in which they have a particular interest.

19 Word Boxes

Type of Activity

Symbolic Relations

Objectives

To develop verbal fluency and flexibility.
To produce connections between words that are based on symbolic (letter) relationships rather than semantic (meaning) relationships.
To learn how to distinguish between symbolic and semantic relationships.

Teaching Suggestions

Before students begin this activity, put the following example on the chalkboard:
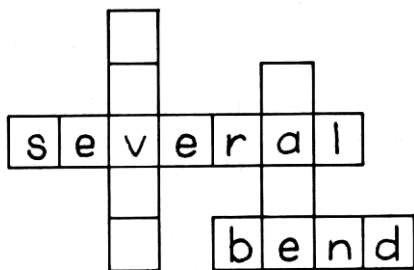
Ask students if they can think of a five-letter word that has a *v* for the third letter (for example, *saved*, *rover*). Encourage them to give several possible responses so that they will understand that many different words can be used to complete the Word Boxes. Now ask if they can think of a four-letter word that has an *a* for the second letter and an *e* for the last letter (*made*, *pale*, *lake*, and so on). Again, allow all students to contribute their suggestions and re-emphasize that there are many words that can be used in these exercises.

This activity is very exciting when carried out under mildly competitive conditions. Ask students to see how quickly they can complete the Word Boxes and encourage them to think of words that no one else will use. After they have completed the boxes, suggest that each student develop a set of clues for each of his or her words (as in a crossword puzzle), exchange lists of clues with a partner, and see if they can solve each other's puzzles.

Follow-up Activities

- You can use this activity to develop skills involved in creating crossword puzzles. Have students study some crossword puzzles and draw their attention to the types of relationships that are used to specify words (synonyms, antonyms, abbreviations, rhymes, colloquialisms, and so on). Ask students to use as many of these relationships as possible in creating their own crossword puzzles. Be sure to provide students with graph paper so they can draw out their puzzles.

20 Make-a-Sentence

Type of Activity

Semantic Systems

Objectives

To develop expressional fluency and flexibility.
To develop the ability to organize words into meaningful, complex ideas.

Teaching Suggestions

Words for the "Make-a-Sentence" activities have been purposefully selected because of their limited logical relationship to each other. This limited relationship is essential in achieving the creativity objectives listed above. Since students sometimes have difficulty starting this activity, encourage them to persevere by being very receptive to their early responses. These early responses may be somewhat awkward and often humorous, but the students will quickly realize that by using clauses and compound sentences, they can construct meaningful thoughts. After students have caught on to the activity, you can increase the level of difficulty by asking them to construct sentences with a minimal number of words. This slight modification, perhaps carried out under mildly competitive conditions, will require a reorientation in their thinking.

Follow-up Activities

- Many variations can be introduced into the "Make-a-Sentence" activity: the number of specified words can be increased; the number of connecting words (that is, nonspecified words) can be limited; and the specified words can be "loaded" with various parts of speech, words from spelling lists, or words from social studies units. When selecting words, choose ones that do not logically go together. Students will write very ordinary sentences if you select words such as *little*, *lost*, *dog*, and *boy*.

- Students can develop dictionary and vocabulary skills by working in teams to prepare sets of words for a "Make-a-Sentence" competition. They will undoubtedly seek out unusual words, thus inspiring their classmates to look up words in the dictionary.

- You can also use this activity to develop vocabulary and syntax skills in a foreign language if students have already begun study in this area.

21 Let's Write a News Story

Type of Activity

Semantic Implications

Objectives

To develop imagination and verbal originality.
To produce an original communication that is extended beyond the limits of the given information.

Teaching Suggestions

This activity provides youngsters with a good opportunity to use their imaginations. They will, in effect, have to create the lost city and the talking dog. Encourage them to be original in creating their city and dog and suggest that they illustrate their story with a picture that might appear with the newspaper article. Before students begin this activity, review the five *W*'s of a news story (*Who*, *What*, *When*, *Where*, and *Why*). Emphasize that a good news story attempts to answer these questions for the reader.

When students are done, ask them to read their articles to the class and display their drawings on a bulletin board. A good deal of humor and perhaps some silliness is likely to result from this activity, but it is important to be supportive of students' responses. Creativity will flourish when students feel that you value

some of their highly imaginative and not-too-serious ideas.

Follow-up Activities

- Ask students to invent headlines that might provoke imaginative stories and suggest that they watch the newspapers and magazines for actual headlines that are open to a wide variety of interpretations. Use these two sources of headlines for developing additional exercises.

22 Figure Families

Type of Activity

Figural Classes

Objectives

To develop the ability to classify figural information in a variety of ways.
To develop flexibility in viewing figural information.

Teaching Suggestions

Introduce this activity by writing the letters R, D, L, F, O, and C on the chalkboard. Ask students if they can form subgroups of these letters, each of which makes a class according to similar figural characteristics. They will probably recognize such groups as RDO (enclosed space), LF (horizontal lines), and $RDOC$ (curved lines). Be sure to point out that each letter can belong to more than one group. After several groups have been listed at the chalkboard, you might ask what other letters could be added to each of the categories.

Although there are a limited number of categories that you can create with any given set of figural information, "Figure Families" will allow students to explore various ways in which information can be categorized. Youngsters will quickly recognize some of the more obvious categories, but you should encourage them to look for the subtle characteristics that the figures have in common. Any common feature that a student can justify should be accepted.

This activity might provoke some interesting discussions in class. For example, some students may want to include Figure G on the first activity sheet in the first sample category (figures that contain only one circle), using the rationale that two half circles make a whole circle. On activity "b," some youngsters may group the clock with the bed and table in a furniture category. Whether or not a clock is furniture

is debatable, but the important thing is to let students resolve their own differences. Help them along with questions such as "Are clocks sold in furniture stores? Does this mean they are furniture?" Some of the more able students will be challenged by these questions, and you should encourage them to do some research on the meanings of the words that they use as categories.

Follow-up Activities

- Objects and figural material can be grouped according to a variety of physical properties, such as size, shape, color, texture, flexibility, and type of material (wood, plastic, glass, etc.). A good way to help students practice their classification skills using nonverbal material is to fill a box with all sorts of odds and ends (straws, bottle caps, rubber bands, chalk, etc.) and allow each student to spend some time studying the materials and creating categories. After all students have examined the box of materials, ask them to compare lists to see who developed the most categories. Students can also prepare their own boxes of materials and exchange them with their classmates.

23 Creative Story Generator

Type of Activity

Semantic Elaborations

Objectives

To develop verbal fluency.
To develop the ability to produce an original story based on given information.

Teaching Suggestions

This activity will help youngsters develop creative stories by forcing relationships among three ingredients (people, places, and actions) that do not ordinarily go together. The directions to students are somewhat complicated and may need some additional explanation. Be sure they know what a die is since they may not be familiar with the singular form of the word *dice*. When each Creative Story Generator is completed, students will have the basic material for 216 different stories. Although you should encourage them to use their Generators two or three times, the activity will lose some of its excitement if they overuse it.

To introduce this activity, ask students if they ever wondered where writers get ideas for their stories.

Allow youngsters to speculate about the origins of ideas for stories and present the concept of a Creative Story Generator by distributing the first activity sheet.

Students will have little difficulty completing the People and Places columns. However, they may need some help in completing the Actions column. For those who have difficulty, suggest that they think of action verbs or of things that people do when they are working or pursuing leisure-time activities. Slower students may need some specific suggestions to get started on this column.

In order to carry out this activity, you will need a die or a spinner that is numbered from one through six. (Directions for making a spinner are given at the end of this section.) If students want to select their own ingredients without using of the die or spinner, discourage them from doing so because the element of randomness is essential to the success of this activity. Students will develop unusual or uncommon plots only if they base their stories on ingredients that are not logically related.

When students present their stories to the class, they should first list their three ingredients on the chalkboard. During group discussions, encourage students to suggest their own ideas for stories that they might build around each person's ingredients.

Directions for Making a Spinner

Cut out two figures like those illustrated in this section and paste them on pieces of cardboard. The circle should be about six inches in diameter, and the arrow should be about five inches long. Trim the cardboard to the shape of the figures and place the arrow on top of the number wheel. Push a thumbtack through the bottom of the number wheel and the arrow so that it passes through the two dots.

Type of Activity

Figural Transformations

Objectives

To develop the ability to transform meaningful figures into original drawings.
To develop nonverbal originality and elaboration.

Teaching Suggestions

You may wish to introduce this activity by writing the number eight in a large square on the chalkboard and decorating the number so that it looks like a snowman (face, buttons, arms, hat, pipe, broomstick). Ask if anyone else would like to come to the board and try to "hide" the number eight in a drawing. Since the object of this activity is to have students develop clever ways of hiding figures in their drawings, you should stress the part of the directions that asks them to conceal the figure so that it cannot be recognized in its original form. The number in the example has been written in heavy lines so that students can discern it; however, the remaining figures have been written in thin lines so that they will not stand out after the drawings have been completed. Allow students to use colored pencils or crayons and suggest that they color the numbers and letters so that they blend into the drawing.

After students have finished their drawings, suggest that they initial each one. Then have them cut their drawings out and randomly place them on the bulletin board so that other students can guess which figure is hidden in each drawing.

Follow-up Activities

- One variation of this activity is to ask students to write their initials in block capital letters and attempt to hide them in a drawing. Students can also use other numbers and letters or symbols with which youngsters are familiar, such as those used in mathematics. Whenever possible, allow students to prepare exercises for class use.

- Students with artistic talent should study the hidden picture puzzles that are frequently found in children's magazines (e.g., *Highlights for Children*) and attempt to develop their own hidden pictures for classmates or the school newspaper.

Follow-up Activities

- You can develop an interesting variation of the Creative Story Generator by using three sets of pictures clipped from magazines and newspapers. Approximately ten pictures (number each of them) should be placed in each of three folders as follows:

    Set A: pictures of people (Select several types of interesting people.)

    Set B: pictures of places (Select several unusual locations, such as mountains, the moon's surface, an operating room in a hospital.)

    Set C: pictures of things (Select unusual as well as common objects, such as a telephone, a sling shot, an aardvark.)

Using a die or a spinner, students should randomly select one picture from each folder. The students can use the three pictures as the basis for a short story.

BIBLIOGRAPHY

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writing. *Journal of Personality and Social Psychology, 48,* 393-399.

Amabile, T. M. (1996). *Creativity in context.* Boulder, CO: Westview Press.

Anderson, Harold H. (Ed.). (1959). *Creativity and its cultivation.* New York: Harper & Brothers.

Archambault, Francis X. (1970, March). *A computerized approach to scoring the Torrance tests of creative thinking.* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Arnold, John E. (1962). Useful creative techniques. In Sidney J. Parnes and Harold F. Harding (Eds.), *A Source Book for Creative Thinking.* New York: Charles Scribner's Sons.

Baer, J. (1993). *Creativity and divergent thinking.* Hillsdale, NJ: Erlbaum.

Baer, J. (1996). The effects of task-specific divergent thinking training. *Journal of Creative Behavior, 18* (1), 11-22.

Davis, G. A. (1999). *Creativity is forever* (4th ed.). Dubuque, IA: Kendall/Hunt Publishing.

Eberle, Robert F. (1966). *Teaching for creative productive thinking through subject matter content.* Unpublished. State of Illinois Bulletin to Edwardsville, Illinois, Community Schools, Community District 7.

Feldhusen, John F., Bahlke, Susan J., & Treffinger, Donald J. (1969). Teaching creative thinking. *Elementary School Journal, 70,* 48-53.

Gretzels, J. W., & Jackson, P. W. (1962). *Creativity and intelligence.* New York: John Wiley & Sons.

Guilford, J. P. (1967) *The nature of human intelligence.* New York: McGraw-Hill.

Jaben, T. H. (1980). *The impact of creativity training on learning disabled students' creative thinking abilities and problem solving skills.* Paper presented at the Annual International Convention of the Council for Exceptional Children. (ERIC Reproduction No. ED192481).

Lepper, M., Greene, D., & Nisbet, R. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28,* 129-137.

Li, A. K. F. (1985). Correlates and effects of training in make-believe play in preschool children. *Alberta Journal of Educational Research, 31* (1) 70-79.

Meeker, Mary Nicol. (1969) *The structure of intellect: Its interpretation and uses.* Columbus, OH: Charles E. Merrill.

Mellou. E. (1995). Review of the relationship between dramatic play and creativity in young children. *Early Child Development and Care, 112,* 85-107.

Osborn, Alex F. (1963). *Applied imagination* (3rd ed.). New York: Charles Scribner's Sons.

Paulus, Dieter H. (1970, March) *Are sub-tests of the Torrance test independent?* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Pollert, Leslie H., Feldhusen, John F., Von Mondfrans, Adrian P., & Treffinger, Donald J. (1969). Role of memory in divergent thinking. *Psychological Reports, 25,* 151-56.

Rogers, Carl. (1969). *Freedom to learn.* Columbus, OH: Charles E. Merrill.

Rose, L. H., & Lin, H. T. (1984). A meta-analysis of long-term creativity training programs. *Journal of Creative Behavior, 18* (1), 11-22.

Russ, S. W. (1996). Development of creative processes in children. *New Directions in Child Development, 72,* 31-42.

Simonton, D. K. (1988). Creativity, leadership, and choice. In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 386-426). New York: Cambridge University Press.

Starko, A. J. (1995). *Creativity in the classroom: Schools of curious delight.* While Plains, NY: Longman Publishers.

Taylor, Calnn W., & Williams, Frank E., (Eds.). (1966). *Instructional media and creativity.* New York: John Wiley & Sons.

Torrance, E. P. (1965). *Rewarding creative behavior: Experiments in classroom creativity.* Englewood Cliffs, N.J.: PrenticeHall.

Torrance, E. P. (1987). Teaching creative and gifted learnings. In S. G. Isaksen (Ed.). *Frontiers of creativity research: Beyond the basics* (pp. 189-215). Buffalo, NY: Bearly Limited.

Walberg, H. J., & Zeiser, S. (1997). Productivity, accomplishment, and eminence. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed.) (pp. 328-334). Boston: Allyn & Bacon.

Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children.* New York: Holt.

Watts, A. (1964). A psychedelic experience: Factor fantasy." In David Soloman (Ed.), *LSD: The Consciousness Expanding Drug.* New York: G. P. Putnam's Sons.

Williams, Frank E. (1964). *Reinforcement in classroom learning,* Washington, D.C.: U.S. Office of Education (Department of Health, Education, and Welfare).

1   Thinking about Things (a)

When you are in a supermarket, have you ever noticed that all foods of a certain type are grouped together? You will find all the breakfast cereals in one place and all the dog foods in another place. For some reason, people like to group together things that have certain characteristics in common. In this activity, see how many things you can think of that have the same characteristics.
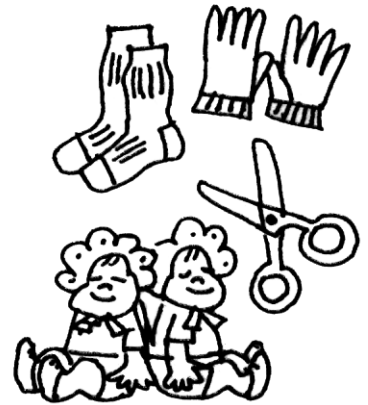
List all the things you can think of that come in pairs. A few examples are given to help you get started. If you need more space, continue your list on the back of this page.

shoes
twins
scissors
earrings
a doubleheader

List all the ways you can think of that people use water. Use the back of this page if you need more space.

shower
drink
cook
plants

Name_____Date_____

1   **Thinking about Things (b)**

List all the things you can think of that are round and that you can hold in your hand. Use the back of this page if you need more space.

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

List all the things you can think of that people do in their spare time. Use the back of this page if you need more space.

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

Name_____Date_____

2   Fun with Words (a)

The Fun with Words exercises will help you get into the habit of making several responses rather than just one or two. Fill in as many of the blanks as you can. Keep in mind that there are no correct answers. When you have finished, compare your lists with those of your classmates to see who thought of the most words and to see if you put down some words that no one else listed.

Write as many words as you can think of that begin or end with the letters indicated on each line below. A few examples are given to help you get started. If you need more space, continue your lists on the back of this page.

v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e
v_____	m_____	_____r	b_____e

Name_____Date_____

2   Fun with Words (b)

Write as many words as you can think of that begin and/or end with the letters indicated on each line below. If you need more space, continue your lists on the back of this page.

q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	c_____l	v_____e
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	s_____t	r_____m
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y
q_____	_____w	p_____e	d_____y

3   What's in a Name? (a)

Have you ever wondered how people get their last names? Years ago a person's last name often told the kind of work he or she did. For example, a person with the last name of Smith may have been a blacksmith or silversmith and a person with the last name of Thatcher probably made thatched roofs for houses.

Pretend that you have been given the job of creating last names for people based on the kind of work that those people do. For each of the occupations listed below, see if you can create two last names that are related to the type of work that people in that occupation do.

Makes candy   Repairs television sets

Ms Sweet_____   _____
_____   _____

Drives racing cars   Builds solar houses

_____   _____
_____   _____

Trains seeing-eye dogs   Reports the movements of hurricanes

_____   _____
_____   _____

Tests parachutes   Paints lines on highways

_____   _____
_____   _____

Name_____Date_____
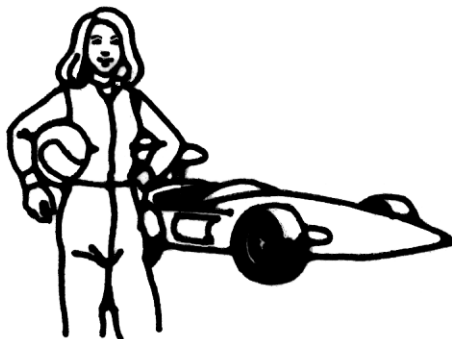
3   What's in a Name? (b)

Have you ever thought about how the heroes of comic strips got their names? Comic-strip characters often have unusual names that tell us something about the kind of people or animals that they represent. For example, Dennis the Menace is a little boy who is always getting into trouble and Snoopy is an unusual dog who likes to act like a human being.

Pretend that you are going to write a comic strip about each of the characters below. See if you can think of two names for each of these characters. Try to think of interesting and colorful names that will make people want to read about them.

A cowhand   An invisible girl

_____   _____
_____   _____

A detective   A silly elephant

_____   _____
_____   _____

A singing crocodile   An absentminded astronaut

_____   _____
_____   _____

A talking bulldozer   A medieval knight
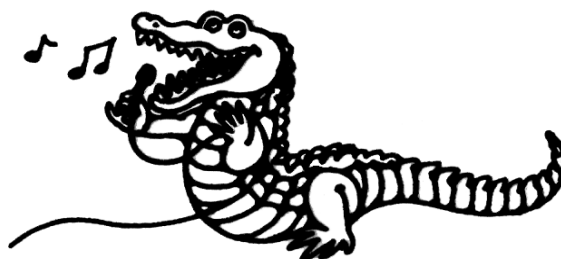
_____   _____
_____   _____

4   Fun with Figures (a)

See how many different ways you can combine the above two figures to produce a new figure. The two examples should help you think of other combinations. Use the back of this page if you need more space.
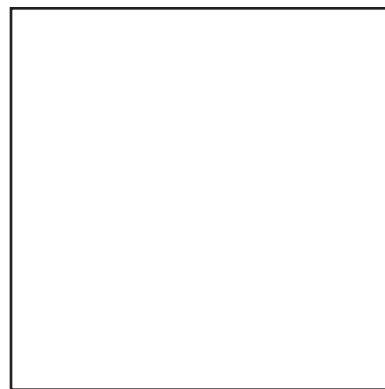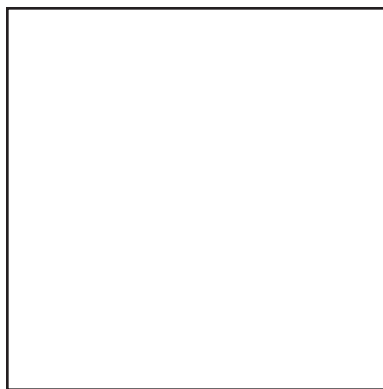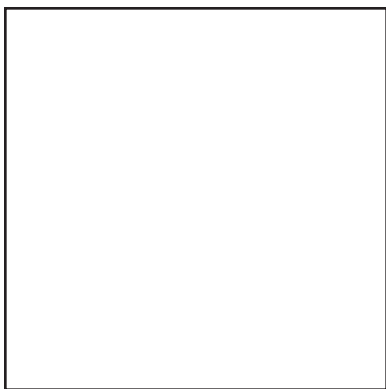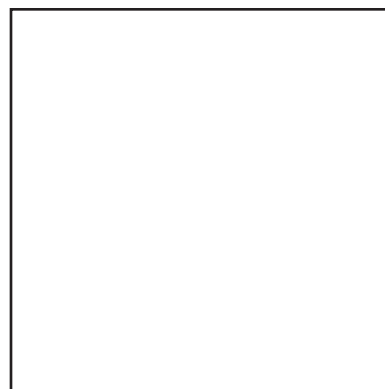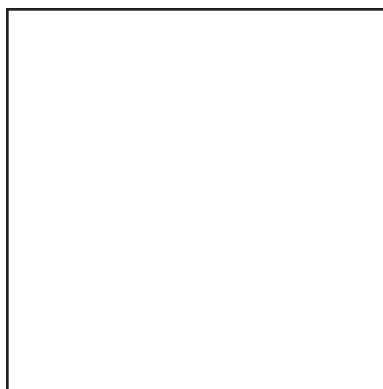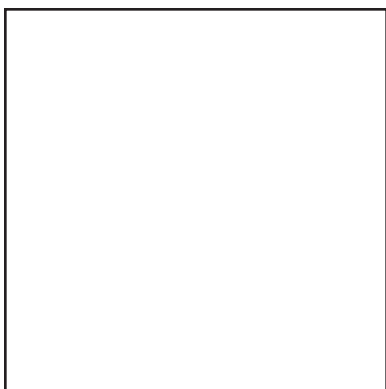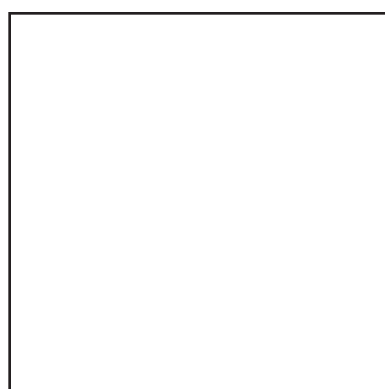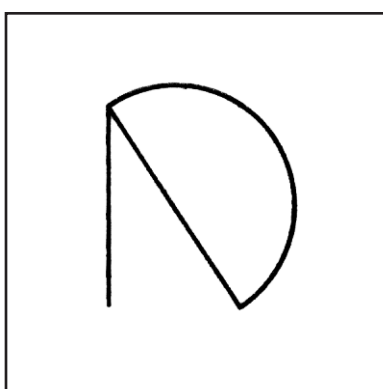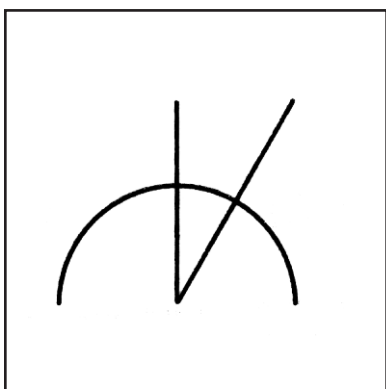
4   Fun with Figures (b)
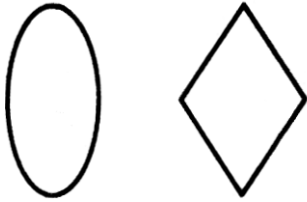
See how many different ways you can combine the above two figures to produce a new figure. Use the back of this page if you need more space.
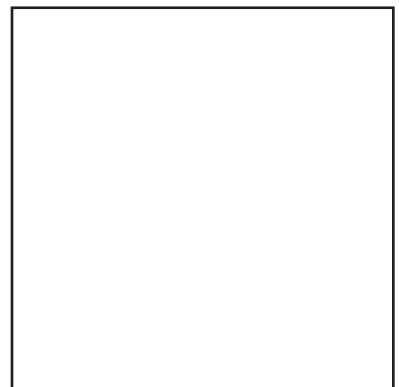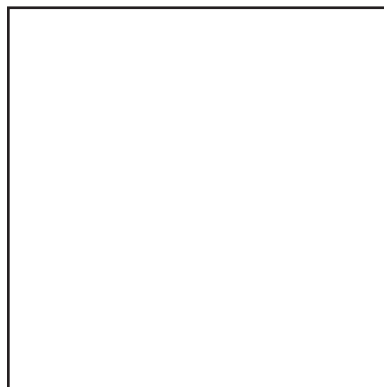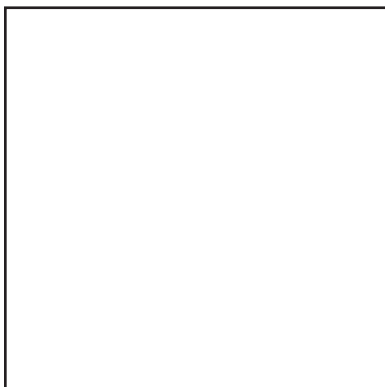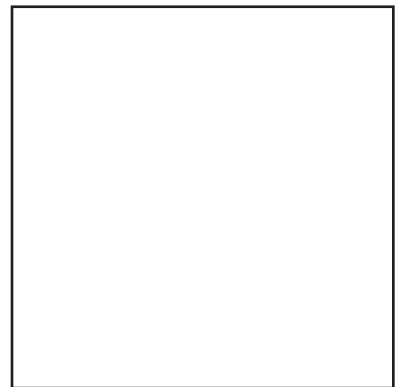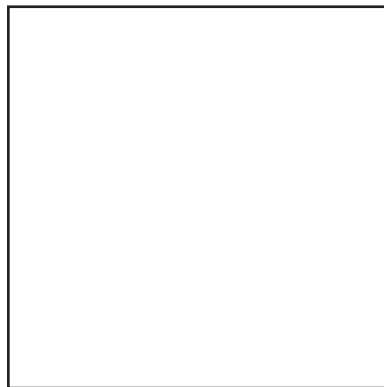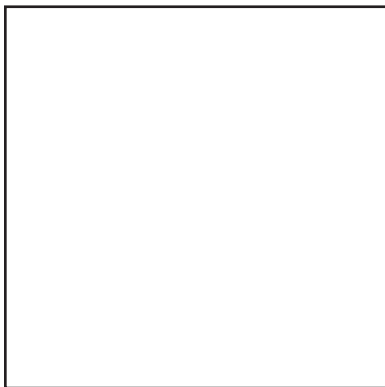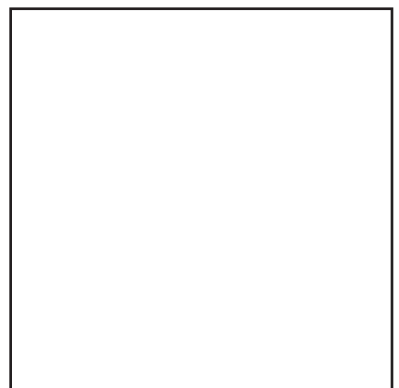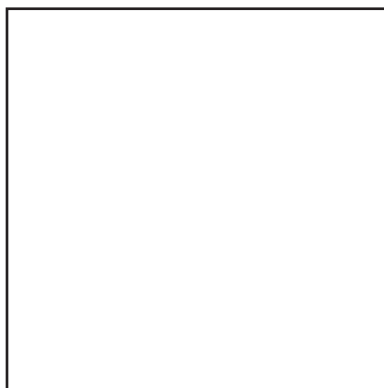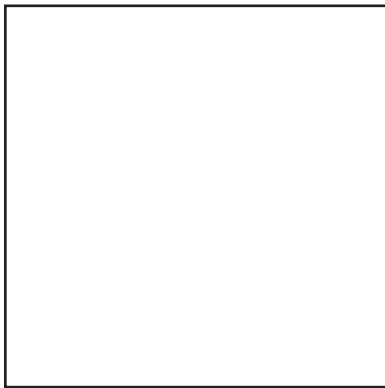
5   Sentence Skeletons (a)

A sentence skeleton is a sentence in which only the first letters of some of the words have been provided. In this activity, you are going to construct four- and five-word sentences in which the first letters of some of the words have been specified. For example, the first word of the first sentence skeleton below must begin with *S*, and the last word must begin with *f*. The other two words can begin with any letters you choose.

See how many sentences you can think of that will complete each of the following sentence skeletons. Try to make your sentences as different and as original as possible. Use the back of this page if you need more space.

S_____   _____   _____   f_____.
S_____   _____   _____   f_____.
S_____   _____   _____   f_____.
S_____   _____   _____   f_____.
S_____   _____   _____   f_____.
S_____   _____   _____   f_____.
S_____   _____   _____   f_____.

R_____   d_____   _____   _____.
R_____   d_____   _____   _____.
R_____   d_____   _____   _____.
R_____   d_____   _____   _____.
R_____   d_____   _____   _____.
R_____   d_____   _____   _____.
R_____   d_____   _____   _____.

U_____   _____   j_____   a_____.
U_____   _____   j_____   a_____.
U_____   _____   j_____   a_____.
U_____   _____   j_____   a_____.
U_____   _____   j_____   a_____.
U_____   _____   j_____   a_____.
U_____   _____   j_____   a_____.

Name_____Date_____

5   Sentence Skeletons (b)

See how many sentences you can think of that will complete each of the following sentence skeletons. Try to make your sentences as different as possible. Use the back of this page if you need more space.

Y_____   o_____   _____   l_____.
Y_____   o_____   _____   l_____.
Y_____   o_____   _____   l_____.
Y_____   o_____   _____   l_____.
Y_____   o_____   _____   l_____.

_____   c_____   f_____   s_____.
_____   c_____   f_____   s_____.
_____   c_____   f_____   s_____.
_____   c_____   f_____   s_____.
_____   c_____   f_____   s_____.

A_____   m_____   e_____   n_____.
A_____   m_____   e_____   n_____.
A_____   m_____   e_____   n_____.
A_____   m_____   e_____   n_____.
A_____   m_____   e_____   n_____.

F_____   a_____   t_____   t_____   g_____.
F_____   a_____   t_____   t_____   g_____.
F_____   a_____   t_____   t_____   g_____.
F_____   a_____   t_____   t_____   g_____.
F_____   a_____   t_____   t_____   g_____.

6   What Would You Call It? (a)

Although our language contains thousands of words, additional words must sometimes be created to describe new inventions or things that did not exist before. For example, *launch pad, lunar module,* and *astronaut* are words that were created to help us describe various aspects of our space program.

Pretend that you have been given the responsibility for creating new names for each of the imaginary things listed below. See if you can think of two names for each thing.

Shoes that enable people to walk on water
aquaboots
_____   _____

A pen that never runs out of ink

_____   _____

A breakfast cereal made from dandelions

_____   _____

A dance that you do on your hands and knees

_____   _____

A book that you can eat when you are finished reading it

_____   _____

A piece of clothing that you wear to keep your nose warm in winter

_____   _____

Name_____Date_____

6   What Would You Call It? (b)

Pretend that you have been given the responsibility for creating new names for each of the imaginary things listed below. See if you can think of two names for each thing.

An animal that has the body of a giraffe and the head of a lion

_____   _____

A machine that does your homework for you

_____   _____

A new game that is played by knocking over plastic bottles with lemons

_____   _____

A machine that converts garbage into fertilizer

_____   _____

A pill that will make you smarter in arithmetic

_____   _____

A tree that produces fruit that is a combination of cherries and oranges

_____   _____

A house that automatically turns so that it is always facing the sun

_____   _____

7   Way-out Words (a)

Words can sometimes be written in ways that make them look like their meanings. See if you can write each of the following words so that it will look like its meaning. Examples of how the first words might be written are shown below.
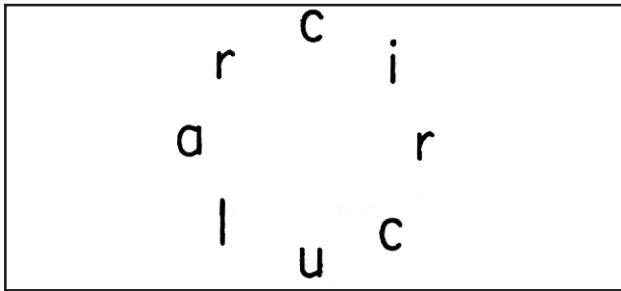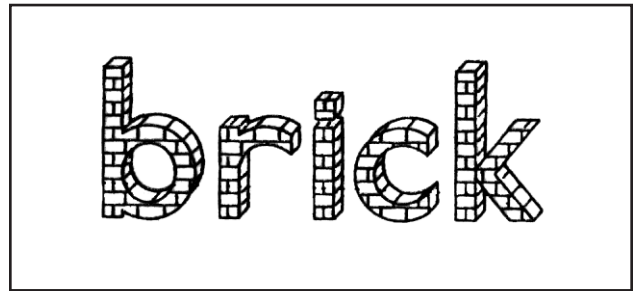
<table>
<tr><td>c
r   i
a   r
l   c
  u</td><td>brick</td></tr>
<tr><td>circular</td><td>brick</td></tr>
</table>

flat	snake

mirror	tilt
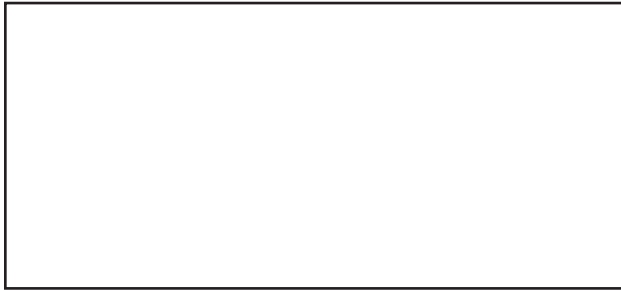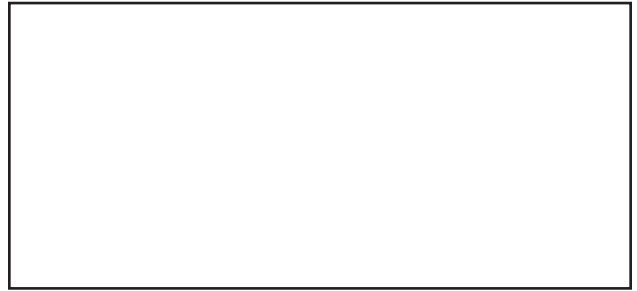
trampoline	stretch

7   Way-out Words (b)

See if you can write each of the following words so that it will look like its meaning.

knife	wooden
skinny	broken
decrease	hot
split	water

8   The Headline Cutter (a)

Most large newspapers have a person on their staff called a "headline cutter." This person's main job is to think up headlines that will attract the reader's attention to the articles that appear in the paper. For each of the newspaper articles below, see if you can think of two short, interesting headlines.

_____

_____

_____

BETHANY - What would you do if you saw a full-grown gorilla on the side of a highway holding a sign that read "Morocco"?

Chances are you'd hit the gas and turn on the radio for news of an escaped simian from a nearby circus or carnival.

But if you were a seasoned state police trooper en route to duty in Bethany from your home in Meriden, you would stop your cruiser to check out the unusual hitchhiker.

And as Trooper May Chang walked toward the gorilla standing alongside the Wilbur Cross Parkway, she was quite relieved to hear the brute speak good English.

As it turned out, beneath the hairy hide was a 21-year-old college student by the name of Raul Ramos, of Hamden.

Ramos explained that the caper was to photograph expressions of motorists as they spotted the gorilla. It was to be part of a home movie.

_____

_____
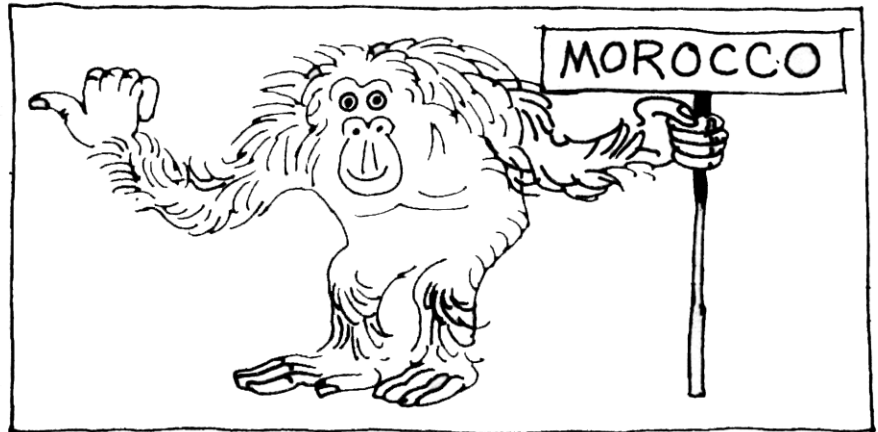
JUNEAU, Alaska (AP) - It's a well-known fact that piggies say "oink" and cows say "moo," but the latest thing in animal jargon these days is the moose's "err-aaaaaaaanh."

Sometimes, however, the moose cuts loose with a healthy "err-orh-rrr."

Studies on "calf behavior and the cow-calf bond in moose" by a University of Alaska graduate student confirmed these latest additions to animal talk.

Conducted at the Moose Research Center on the Kenai National Moose Range, the study also determined that when disturbed to a greater degree, a young moose calf will say "err-aaaaaaanh" or "aaa-aaaaanh."

The report explains that as more anxiety is blended into fright, the "aaa" components become more predominant.

_____

_____

_____

NEW YORK (UPI) - Benjamin Franklin, Thomas Jefferson, John Hancock, and John Adams, all received free dinners and rides at Coney Island over the Independence Day holiday weekend.

They were the only persons to show up in response to an announcement by Coney Island officials promising a day on the house to anyone with names the same as those of the 56 signers of the Declaration of Independence.

8   The Headline Cutter (b)

Read the following newspaper articles and see if you can think of two interesting headlines for each article. Each headline should be short and should attract the reader's attention.

_____
_____
_____

BOSTON (AP) - The New England Aquarium has added 50 octopuses to its supply of marine life.

The growth came Thursday night when 50 octopus eggs hatched. The babies are a half-inch in diameter, are eating brine shrimp and showing ability to change color and to discharge protective ink clouds.

Grace Satiacum, curator, said approximately 1,000 octopus eggs are waiting to hatch.

She said they were laid in the aquarium Feb. 16. The aquarium received two female octopuses from southern California the month before, and Ms. Satiacum said both apparently were carrying fertilized eggs.

She said the species is that of an octopus native to southern California that grows to about two feet in diameter.

_____
_____
_____

Finding a new twist to an animal story isn't easy but occasionally a bear cooperates. Here's the report, according to a recent Associated Press dispatch from Maple Heights, Ohio:

The first customer at a self-service laundry almost put his dirty clothes in a washing machine with a dozing bear. Instead, he jumped back and called the manager. She in turn called the dog catcher who proceeded to put a leash around the animal.

Then it dawned on them all. A pet shop was only three stores away.

The 50-pound bear had escaped its cage in the shop and took quite a trip. It had crawled up some bookshelves, moved acoustical ceiling tiles, climbed into an air space between the ceiling tiles, climbed into an air space between the ceiling and the roof and walked through it until it dropped into the laundromat.

At daybreak, it curled up in the washing machine and dozed off.

_____
_____
_____

WASHINGTON (AP) - Mice on the loose kept a Washington-bound jet airliner on the ground at Dayton, Ohio, airport for almost two hours Monday.

Travelers aboard a Trans World Airlines 727 reported that after the plane landed at Dayton, on arrival from Indianapolis, they were informed that the flight would be delayed because a cage full of mice had broken open in the cargo compartment.

They said the airline served drinks to the passengers during the hour and 45 minutes it took to round up the estimated 50 mice hiding in the air freight.

_____
_____
_____

BRECON, Wales (UPI) - Town authorities have ordered a gas station to remove its "talking" self-service gas pumps because they kept neighbors up at night.

But neighbors still are not satisfied. They say they are awakened at night by noisy motorists shouting and slamming doors.

9   Saying It Nicely (a)

Have you ever read the want ads in the newspaper? When people try to sell things by placing an advertisement in the want ads, they usually try to make the things appear as attractive as possible. Pretend that you are trying to sell each of the things pictured below by placing an advertisement in the want ads. How would you make the things sound more attractive than they actually are? Use your imagination and don't be afraid to stretch the truth a little bit.

Vacation Cottage for Sale

_____
_____
_____
_____
_____

An old shack in the middle of a swamp

Pet Dog for Sale

_____
_____
_____
_____
_____
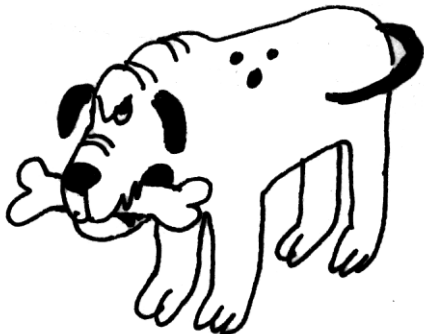
An evil-tempered dog

Antique Clock for Sale

_____
_____
_____
_____
_____

A broken-down old clock

9   Saying It Nicely (b)

The two girls in the drawing are both saying the same thing about Bill, but the second girl is using an indirect expression that is less harsh than the first girl's statement. See if you can rewrite each of the statements below so that it sounds nicer or less harsh.
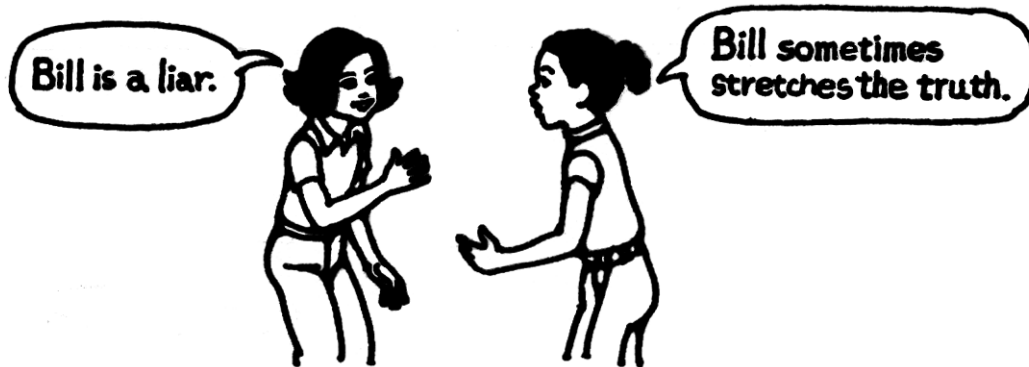
Sam is a gossip. _____

_____

Mr. Cahora is fat. _____

_____

Ms. Lopez is a penny pincher. _____

_____

Kevin is a bully. _____

_____

Elston was a coward. _____

_____

Kumi is very skinny. _____

_____

Robin is very selfish. _____

_____

Sal is rude. _____

_____

Name_____Date_____

10   Say It with Symbols (a)

Stores and businesses often use symbols to help people recognize the products they offer to the public. A good business symbol should enable people to recognize instantly the type of products that a particular store is selling. Imagine that you are a designer who has been asked to create a symbol for each of the stores below. Draw your symbols in the spaces provided.
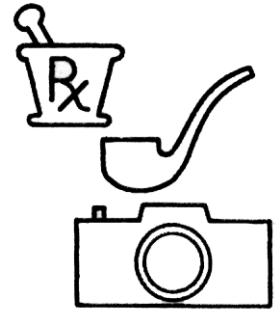
A store that sells athletic equipment

A store that sells musical instruments

A store that sells furniture

A store that sells pets and tropical fish

10   Say It with Symbols (b)

Pretend that you live in a country where there are no such things as written words. The store owners and shopkeepers must use symbols to advertise the kinds of services that they perform. See if you can design a symbol that will help people recognize the service that is offered by each of the stores or shops below.
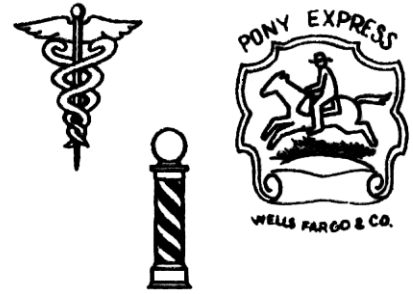
An automobile repair shop

A tailor shop

A store that repairs watches and clocks

A store that makes false teeth

11   Word Trees (a)

What words can you think of to complete the following Word Trees?

shovel

wing		clothes	money

cheese

shower
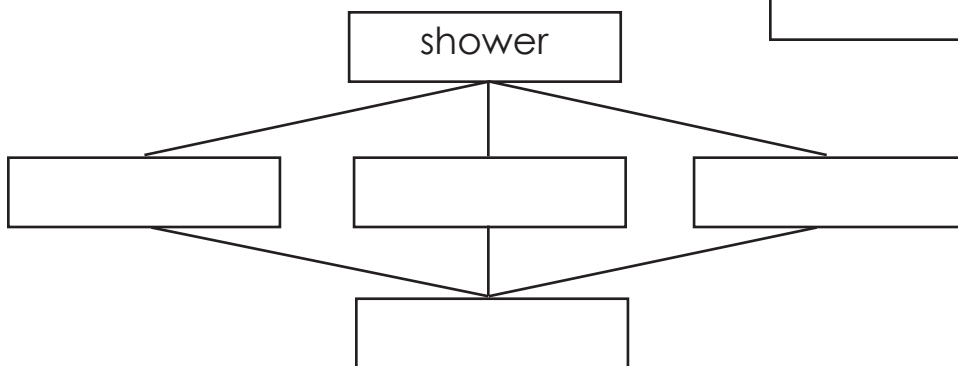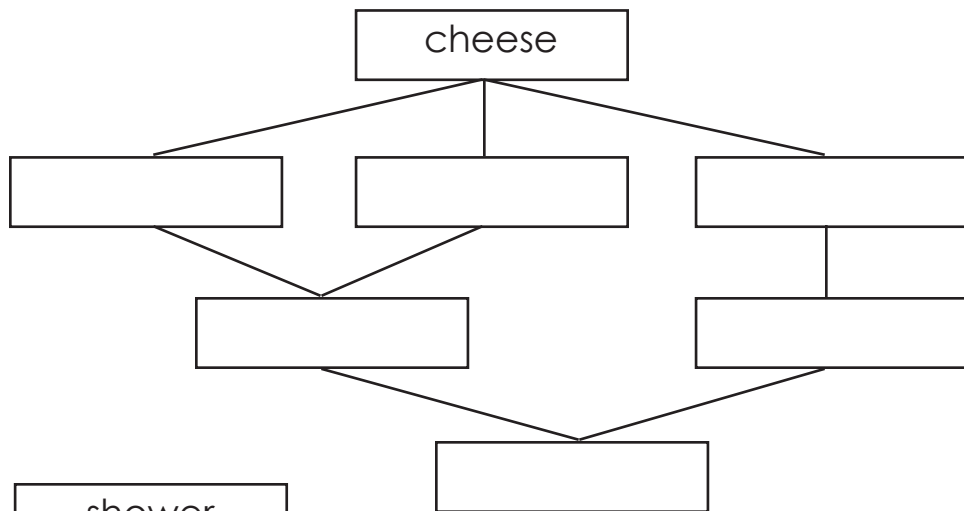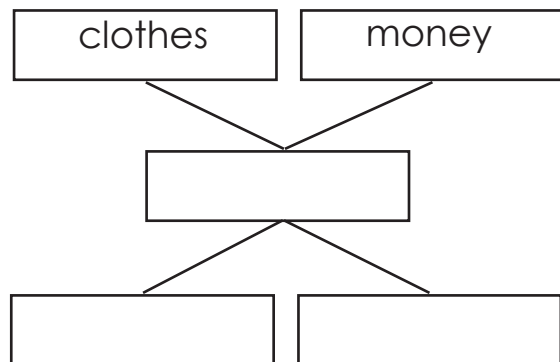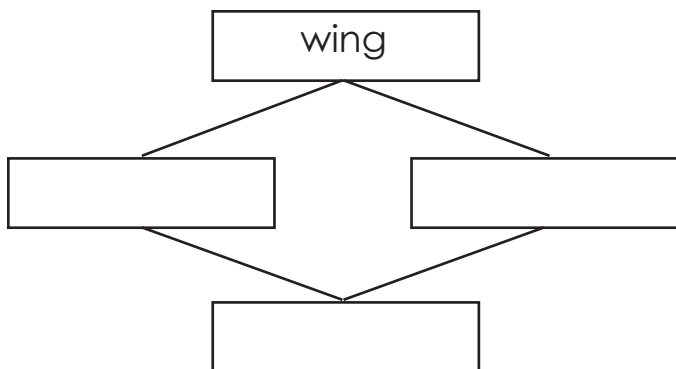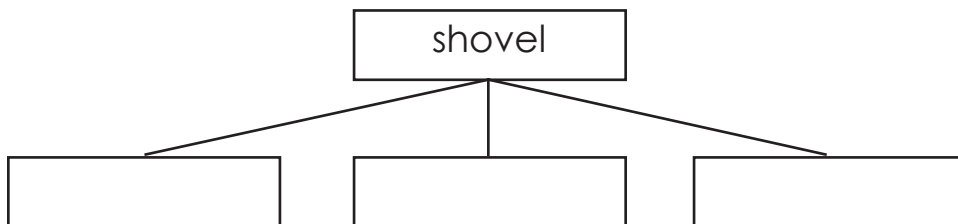
11   Word Trees (b)

What words can you think of to complete the following Word Trees?

time

save
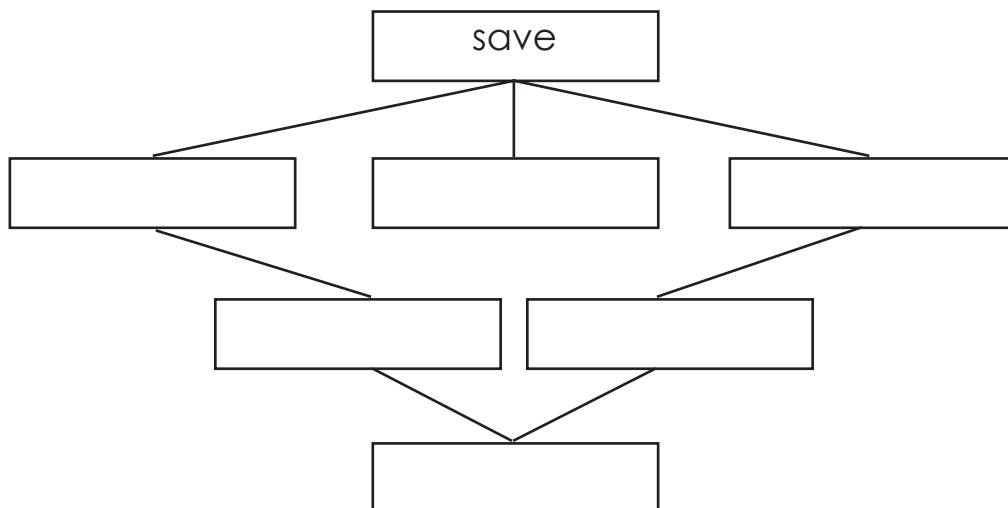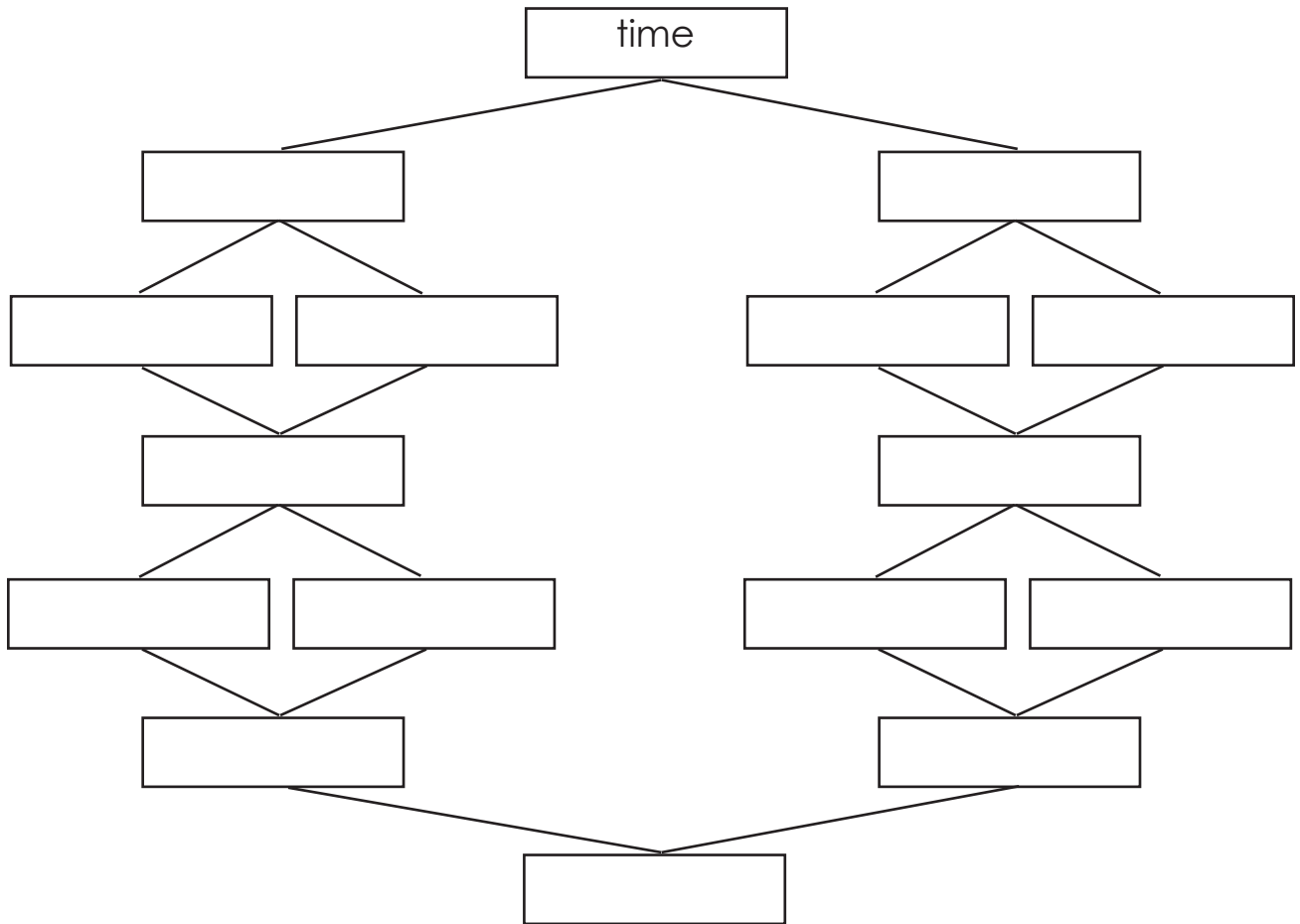
12   A Message from Planet X (a)

Imagine that you are a space explorer who has been sent to visit a newly discovered planet. As you explore the planet, you are supposed to send radio messages back to Earth. Write your messages by completing the following statements. Use your imagination and make your messages as interesting and as exciting as you can. Use the back of this page if you need more space.

When I landed on Planet X, I was greeted by strange-looking people. They looked something like people on Earth, except they had _____

_____

_____.

They also had _____

_____

_____.

The people on Planet X eat food that is very different from ours. Their favorite meal is ca

lled_____,

and it is made of _____

_____

_____.

The people on Planet X live in strange-looking buildings. The buildings are made of _____

_____,

and they look like _____

_____

_____.

The people on Planet X do not have any _____

because _____

_____

_____.

12   A Message from Planet X (b)

Imagine that you are a space explorer who has been sent to visit a newly discovered planet. As you explore the planet, you are supposed to send radio messages back to Earth. Write your messages by completing the following statements. Use your imagination and make your messages as interesting and as exciting as you can. Use the back of this page if you need more space.

The people on Planet X have an unusual game called _____.
The game is played by _____
_____
_____
_____
_____
_____.
Today I explored a place on Planet X called the Valley of the Monsters. The biggest monster was called a _____,
and it looked like _____
_____
_____
_____.
Another monster was called a _____,
and it looked like _____
_____
_____
_____.
When I saw the monsters, I felt like _____
_____
_____.

13   Wandering Words (a)

See how many four-letter words you can make by changing one letter at a time in the words below. You may change one letter in the given word, then one letter in the word you made, and so on. All of the letters except the one you change must keep its own place in the new words you make. One complete example is done for you. Use the back of this page if you need more space.

b	e	a	t
b	**o**	a	t
b	o	a	**r**
r	o	a	r
r	o	a	**m**
r	**e**	a	m
r	e	a	**l**
r	e	**e**	l

t	a	l	l

s	a	c	k

f	a	c	e

b	o	o	k

n	a	m	e

13   Wandering Words (b)

See how many five-letter words you can make by changing one letter at a time in the words below. You may change one letter in the given word, then one letter in the word you made, and so on. All of the letters except the one you change must keep its own place in the new words you make. Use the back of this page if you need more space.

l	e	a	v	e

s	t	a	i	r

c	h	e	s	t

g	u	i	d	e

b	l	a	n	k

n	a	i	l	s

Name_____Date_____

14   Alternate Uses (a)

We can often find uses for things that were originally intended for some other purpose. For example, people sometimes make candle holders from used tin cans. For each of the following objects, list as many interesting and unusual uses as you can. Let your mind wander and try to think of ideas that come to mind, even if they seem silly or impractical. You may change the objects to suit your purposes. Use the back of this page if you need more space.

Brown paper bags
Cut holes in them and paint them to make Halloween masks.
Elves could use them as parachutes.
_____
_____
_____
_____
_____
_____
_____
_____

Wire coat hangers
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

14   Alternate Uses (b)

See how many interesting and unusual uses you can think of for the following things. Use the back of this page if you need more space.

Empty plastic jugs

_____
_____
_____
_____
_____
_____
_____
_____

Sea shells

_____
_____
_____
_____
_____
_____
_____
_____

Empty thread spools

_____
_____
_____
_____
_____
_____
_____
_____

Name_____Date_____

15   Comparisons (a)

Comparisons help us make our written and spoken language more interesting and colorful. By trying to create several comparisons for a particular situation, we will be stretching our imaginations and developing new ways to look at the world around us.

In this activity, make your comparisons as different and as colorful as you can. After you have completed these sentences, see how many comparisons you thought of that are completely different from the ones developed by your classmates.

The wind was as cold as a polar bear _____.

The soup was as hot as a dragon's breath _____.

When I got into bed, the sheets were as cold as _____

_____.

The sun was as hot as _____

_____.

The mashed potatoes were as cold as _____

_____.

The sand at the beach was as hot as _____

_____.

He had a temper that was as hot as _____

_____.

The game was duller than _____

_____.

Her stories are always as exciting as _____

_____.

She rushed into the room as excited as _____

_____.

The blade of the old axe was duller than _____

_____.

Name_____Date_____

15   Comparisons (b)

Complete the following sentences by writing interesting and colorful comparisons.

The pillow was as soft as _____
_____.

After about an hour, the bench I was sitting on felt as hard as _____
_____.

The baby's skin was softer than _____
_____.

The wood Elena was trying to saw was harder than _____
_____.

The soles on their shoes were worn as thin as _____
_____.

The old dog looked fatter than _____
_____.

After three weeks in the desert, the survivors were as thin as _____
_____.

The lump on that player's head looked fatter than _____
_____.

The runner dashed across home plate as fast as _____
_____.

Otis said his turtle was slower than _____
_____.

The arrow flew through the air faster than _____
_____.

The water trickled from the faucet slower than _____
_____.

16   Cartoon Captions (a)

For each cartoon on this page, write two captions that will help make the cartoon humorous.

_____

_____

_____

_____

_____

_____

_____

_____
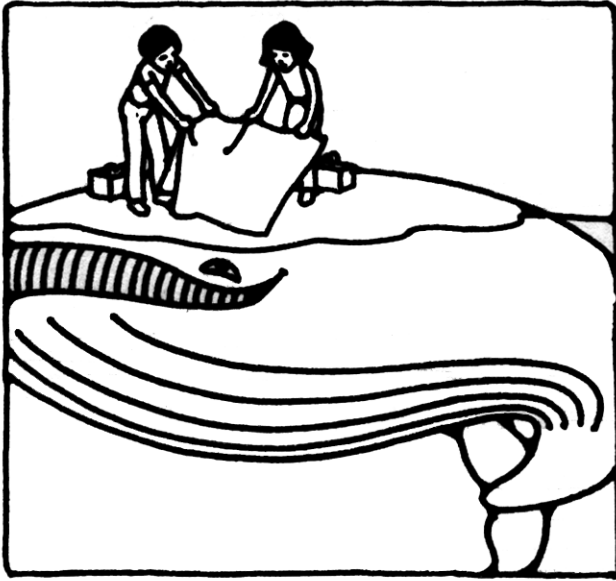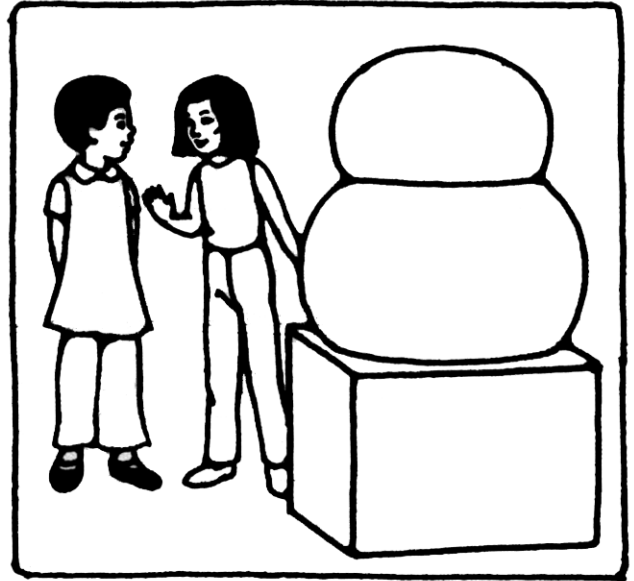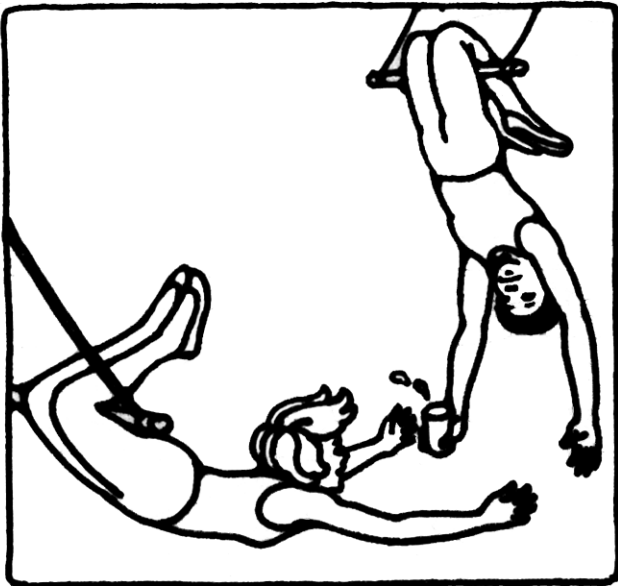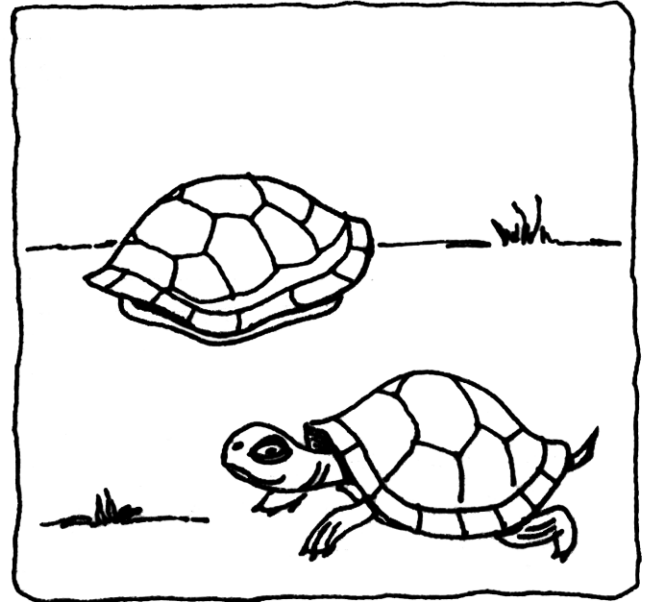
16   Cartoon Captions (b)

For each cartoon on this page, write two captions that will help make the cartoon humorous.

_____

_____

_____

_____

_____

_____

_____

_____
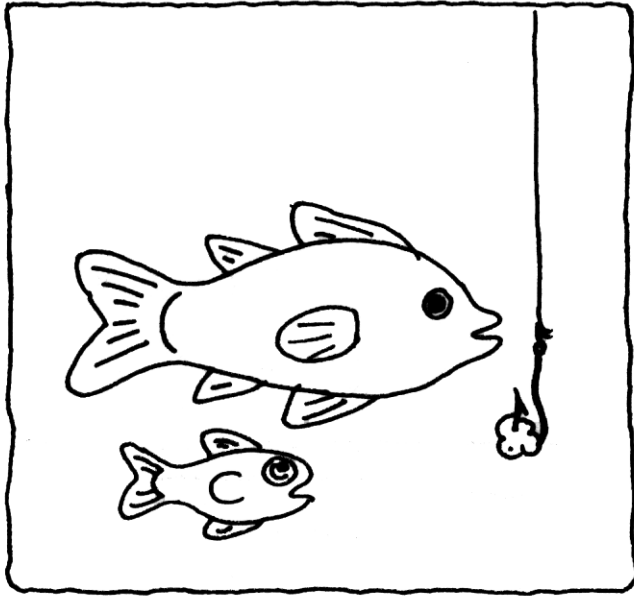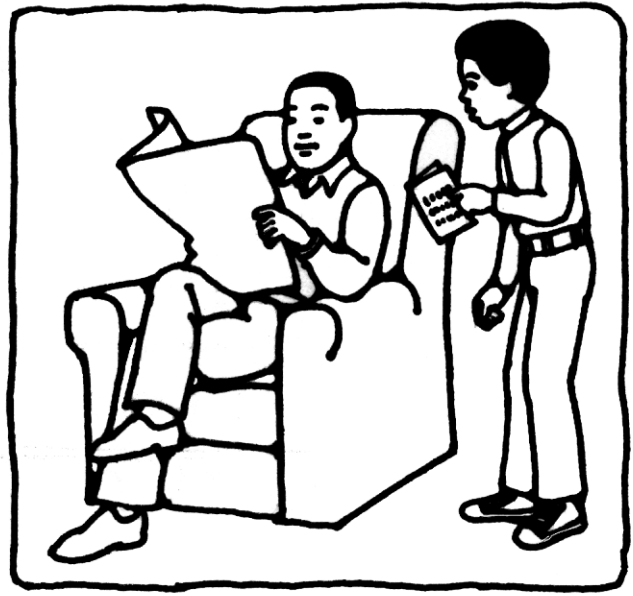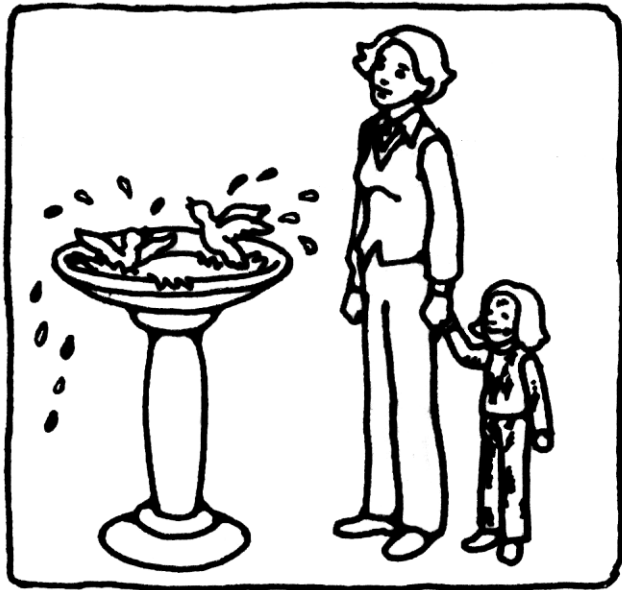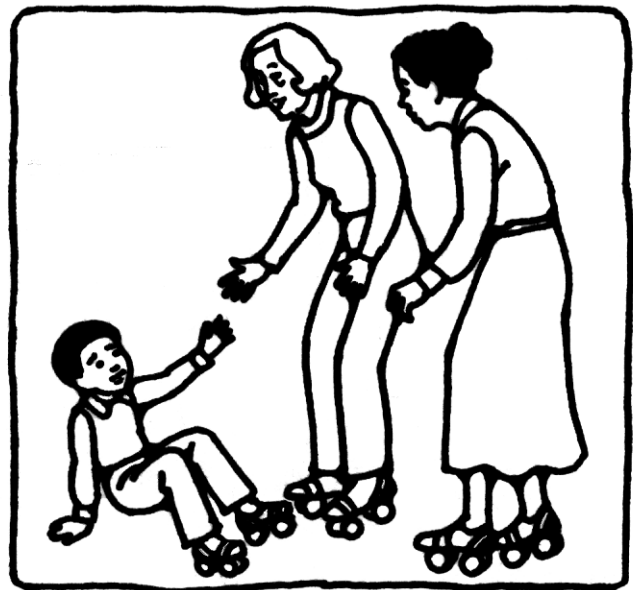
17   Words with Feeling (a)

Good writers try to select words that will help them create the kinds of moods that they want to develop in their stories. You can practice creating moods by thinking of words and phrases that describe each of the situations below. See how many words and phrases you can list that will create each mood. Use the back of this page if you need more space.

A haunted house
creaking door
vampire
_____
_____
_____
_____

A rainy day
_____
_____
_____
_____
_____
_____

A baseball game
_____
_____
_____
_____
_____
_____

A stock-car race
_____
_____
_____
_____
_____
_____

A dog fight
_____
_____
_____
_____
_____
_____

A snowstorm
_____
_____
_____
_____
_____
_____

17   Words with Feeling (b)

Good writers try to select words that will help them create the kinds of moods that they want to develop in their stories. You can practice creating moods by thinking of words and phrases that describe each of the situations below. See how many words and phrases you can list that will create each mood. Use the back of this page if you need more space.

A child who is lost

_____

_____

_____

_____

_____

_____

A hunter stalking a deer

_____

_____

_____

_____

_____

_____

An airport

_____

_____

_____

_____

_____

_____

A medieval castle

_____

_____

_____

_____

_____

_____

A circus parade

_____

_____

_____

_____

_____

_____

A symphony orchestra

_____

_____

_____

_____

_____

_____

18   Consequences (a)

Sometimes it is fun to let your mind wander and imagine all the things that would happen if an unusual situation were to occur. For each of the following situations, list as many possible consequences as you can.

What would happen if popcorn fell from the sky like snow?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

What would happen if all of the oceans in the world suddenly dried up?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

18   Consequences (b)

For each of the following situations, list as many possible consequences as you can.

What would happen if people had wings and could fly like birds?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

What would happen if there were no such things as wheels?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

19   Word Boxes (a)

People who write crossword puzzles must think of words that will fit into a certain number of spaces and have certain letters in common with other words. In this activity, try to complete the Word Boxes below by thinking of words that fit in the spaces provided.

Name_____Date_____

19   Word Boxes (b)

Complete the Word Boxes below by thinking of words that fit into the spaces provided.

v	o	i	d

f
r
i
e
n
d

t	r	i	p	l	e
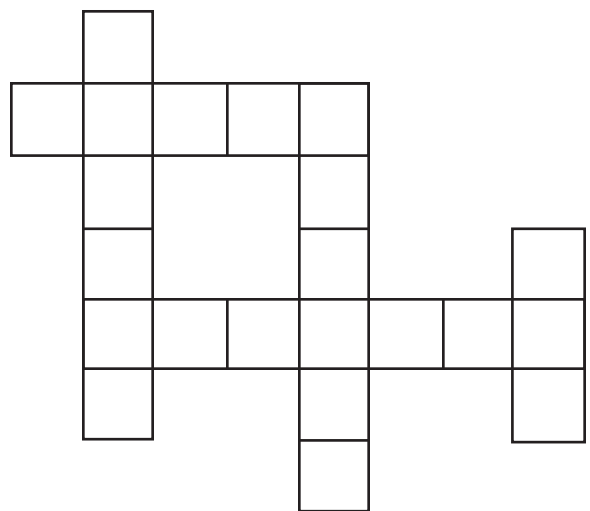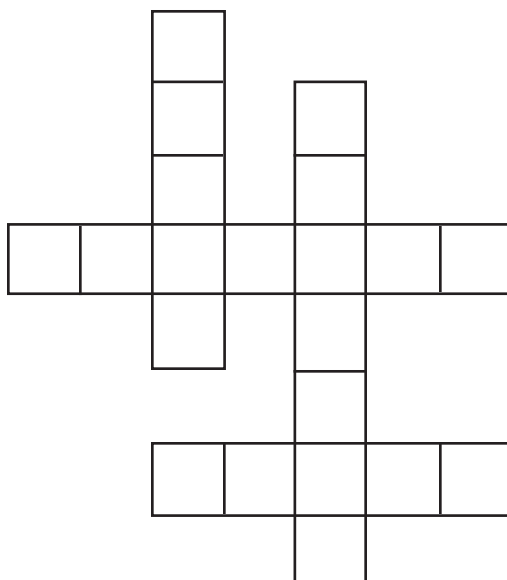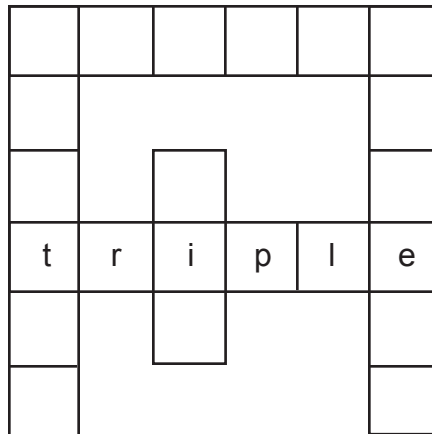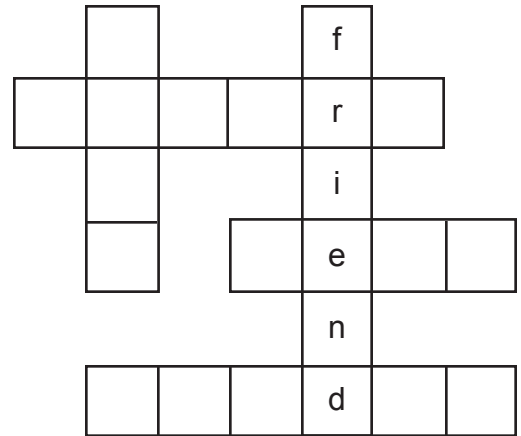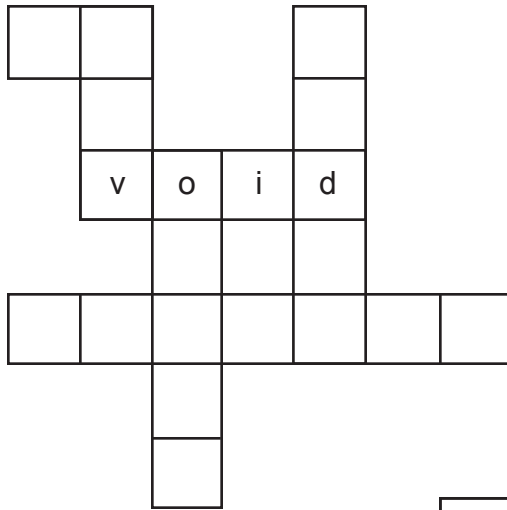
20   Make-a-Sentence (a)

See how many sentences you can write using the four words listed
below in each sentence. You may change the nouns by making
them plural and the verbs by changing their tense. You may also
change some words by adding suffixes such as *-er*, *-est*, *-ness*. Use
the back of this page if you need more space.

tiger   leaves   wet   number

A number of tigers dashed through the wet leaves.
"The wet tiger is sleeping in Cage Number 5," said the man who was
raking leaves.

_____

_____

_____

_____

_____

_____

_____

_____

_____

puppet   tissue   how   stop

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name_____Date_____

20   Make-a-Sentence (b)
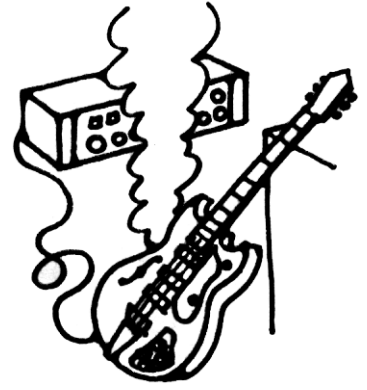
See how many sentences you can write using the four words
listed below in each sentence. You may change the nouns by
making them plural and the verbs by changing their tense. You
may also change some words by adding suffixes.

instrument   smoke   explain   busybody

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

sell   teenagers   bread   statue

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name_____Date_____

21   Let's Write a News Story (a)

In this activity, you will write a newspaper story about an imaginary event. In the space provided, write a brief news story about the event suggested by the following headline. Try to make your story as original and as interesting as possible. Use the back of this page if you need more space.

EXPLORER DISCOVERS LOST CITY OF ANCIENT CIVILIZATION

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

21   Let's Write a News Story (b)

Suppose that the following headline appeared in your local newspaper. Write a news story about the event suggested by the headline. Use the back of this page if you need more space.

Local Woman Teaches Dog How to Talk
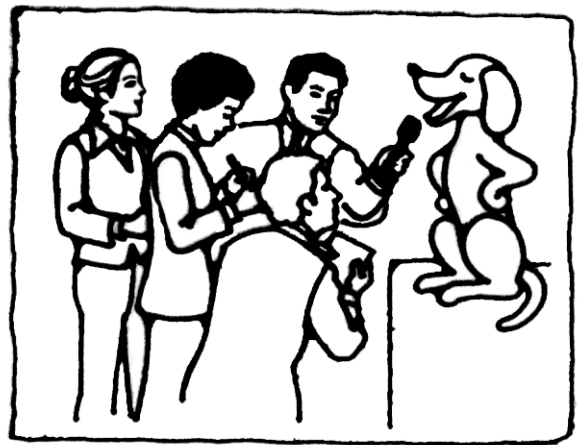
_____
_____
_____
_____
_____
_____
_____
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_____
_____
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_____
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_____
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_____
_____
_____
_____

22   Figure Families (a)

Study the figures below and see if you can group them together according to characteristics they have in common. You can use each figure as many times as you wish. Some examples of common characteristics are given below.

A   B   C   D   E

F   G   H   I   J

K   L   M   N   O
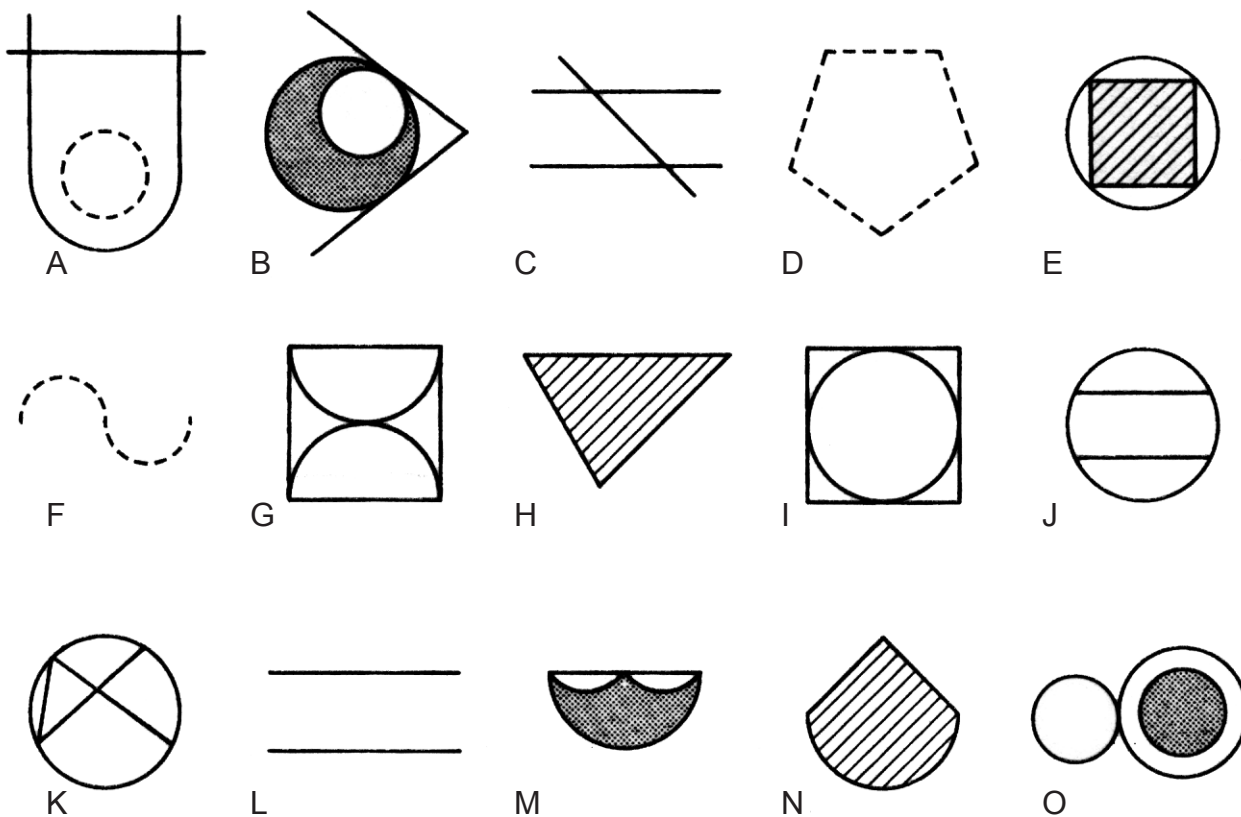
Common characteristics	Figures
Contain only one circle	A, E, I, J, K
Contain squares	E, G, I

22   Figure Families (b)

Study the figures below and see if you can group them together according to characteristics they have in common. You can use each figure as many times as you wish. Some examples of common characteristics are given below.

A   B   C   D   E

F   G   H   I   J
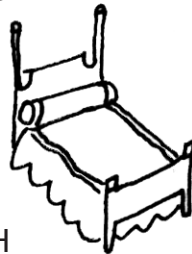
K   L   M   N   O
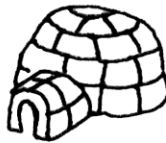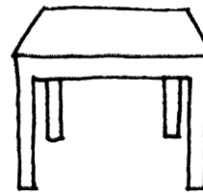
Common characteristics	Figures
Places where people live	L, M
Things that have legs	A, B, G, H, I, K, L, N
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

23   Creative Story Generator (a)

Most stories usually contain three basic ingredients—people, places, and actions. A good way to get some interesting ideas for stories is to use a Creative Story Generator. The first thing you should do to build you own Creative Story Generator is to list six types of people such as explorers, football players, or Indians. Six places should be listed in the second column. Examples of places might be a mountain top, a racetrack, or a kitchen. The third column should contain some of the things that people do, such as swimming, painting, or building a sand castle.

After you have completed the three lists, use a spinner to select one item from each list. For example, if you get a 6 on the first spin, circle the sixth entry in the People column. If you get a 3 on the second spin, circle the third entry in the Places column. If you get a 5 on the third spin, circle the fifth entry in the Actions column. You could also select three items by throwing one die three times.

On a separate piece of paper, write a short story based on the three items you have circled. You can use your Creative Story Generator several times, and you can build a new Generator by making new lists of people, places, and actions.
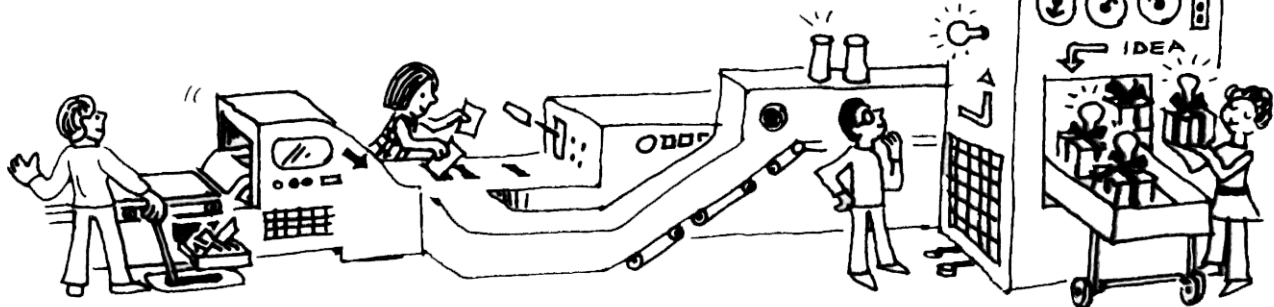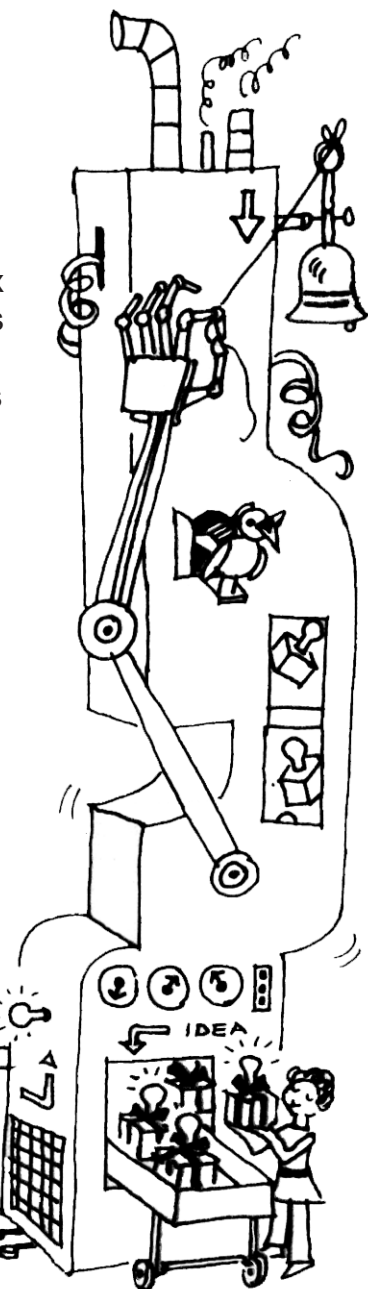
People	Places	Actions
1._____	_____	_____
2._____	_____	_____
3._____	_____	_____
4._____	_____	_____
5._____	_____	_____
6._____	_____	_____

23   Creative Story Generator (b)

This Creative Story Generator will help you write some interesting stories about animals. In the first column below, list six kinds of animals. The list might contain wild animals, household pets, prehistoric animals, or imaginary animals. The second column should contain places, such as a city, a desert, or the inside of a spaceship. The third column should contain actions, such as hunting, bowling, or fixing a flat tire.

After you have completed the three lists, use a die or a spinner to choose one item from each list. On a separate piece of paper, write a story about the animal that you selected from the first column. Use the place and action you chose from the second and third columns in your story. You can use your Generator several times, and you can build a new Generator by making new lists of animals, places, and actions. Make your stories as interesting as you can.

Animals	Places	Actions
1._____	_____	_____
2._____	_____	_____
3._____	_____	_____
4._____	_____	_____
5._____	_____	_____
6._____	_____	_____
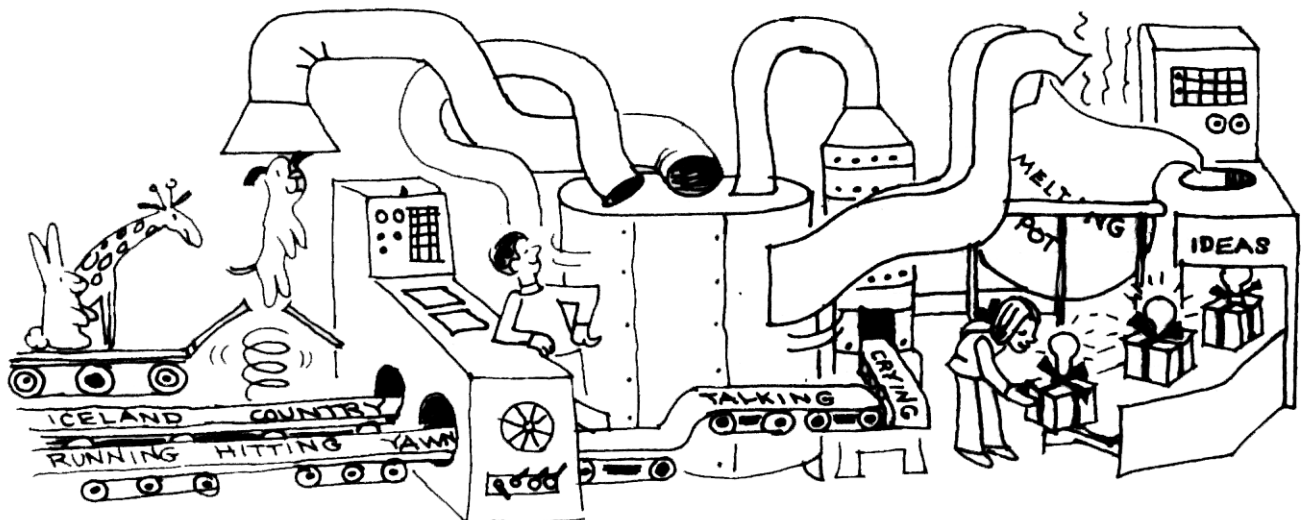
24   Hidden Figures (a)

See if you can build a picture around each of the numbers and letters below so that the figure becomes hidden in your drawing. Try to make the figure blend into your drawings so that it cannot be recognized in its original form. The first drawing is done for you.

K

B

6

2

G
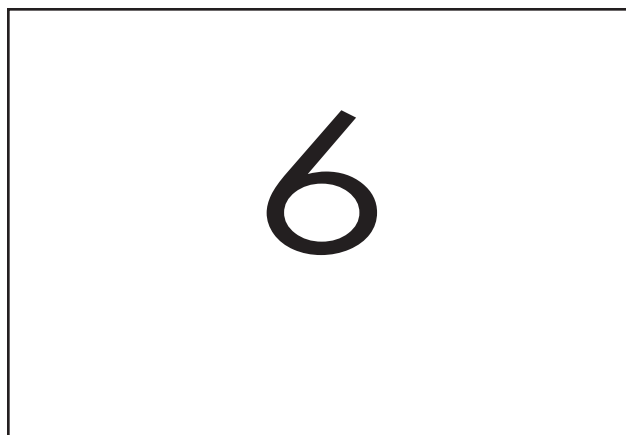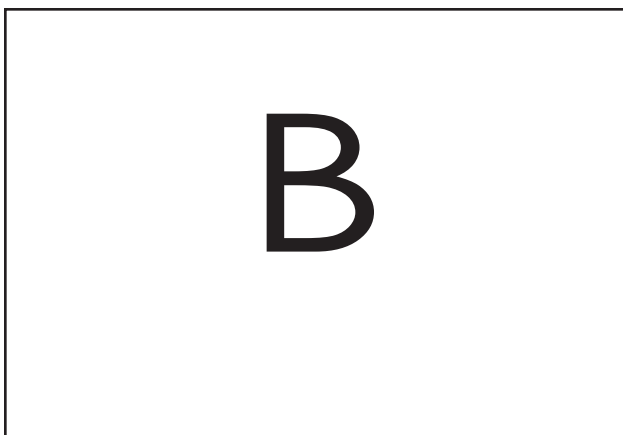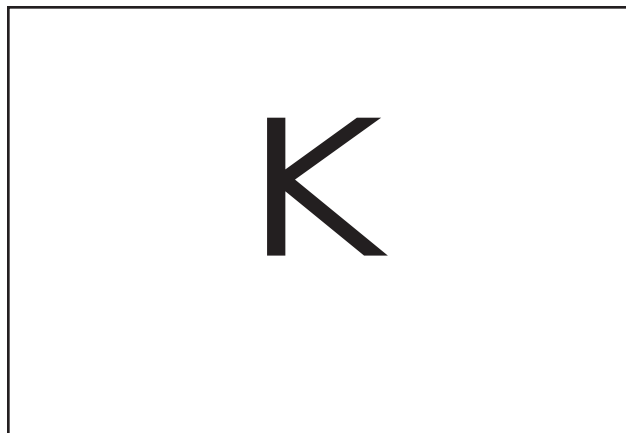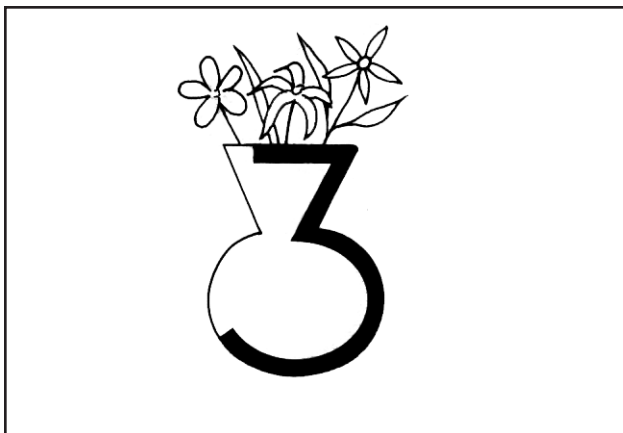
24   Hidden Figures (b)

See if you can build a picture around each of the numbers and letters below so that the figure becomes hidden in your drawing. Try to make the figure blend into your drawing so that it cannot be recognized in its original form.
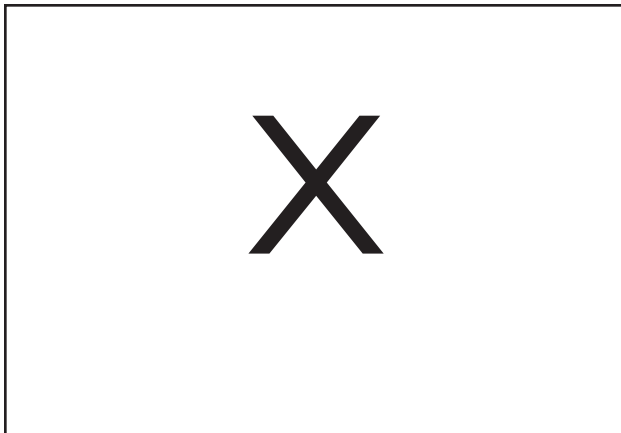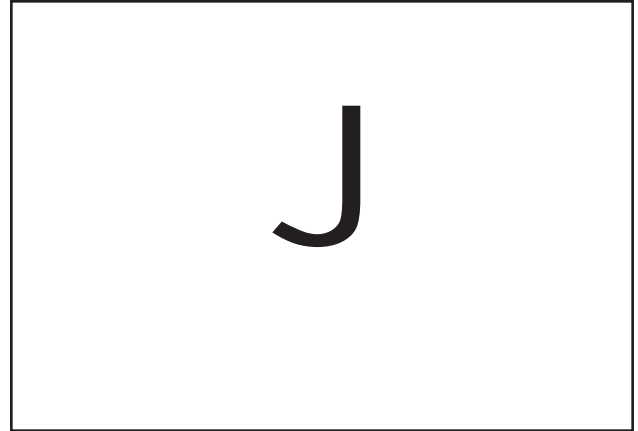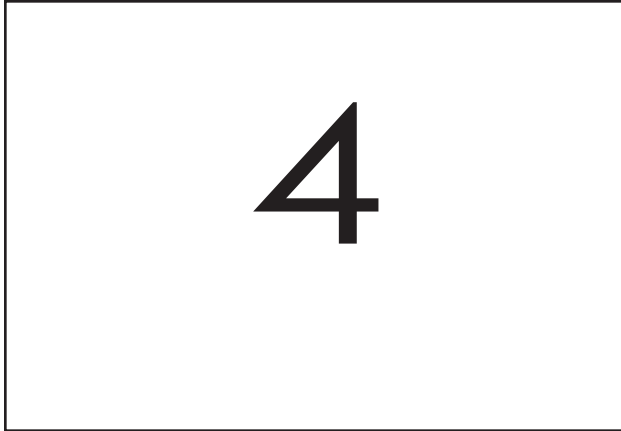
M	5
4	J
X	F

MARK 2: Activity Sheet Record

ACTIVITY	DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
1 Thinking about Things (a)			
Thinking about Things (b)			
2 Fun with Words (a)			
Fun with Words (b)			
3 What's in a Name? (a)			
What's in a Name? (b)			
4 Fun with Figures (a)			
Fun with Figures (b)			
5 Sentence Skeletons (a)			
Sentence Skeletons (b)			
6 What Would You Call It? (a)			
What Would You Call It? (b)			

MARK 2: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
7 Way-out Words	(a)			
Way-out Words	(b)			
8 The Headline Cutter	(a)			
The Headline Cutter	(b)			
9 Saying It Nicely	(a)			
Saying It Nicely	(b)			
10 Say It with Symbols	(a)			
Say It with Symbols	(b)			
11 Word Trees	(a)			
Word Trees	(b)			
12 A Message from Planet X	(a)			
A Message from Planet X	(b)			

MARK 2: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
13 Wandering Words	(a)			
Wandering Words	(b)			
14 Alternate Uses	(a)			
Alternate Uses	(b)			
15 Comparisons	(a)			
Comparisons	(b)			
16 Cartoon Captions	(a)			
Cartoon Captions	(b)			
17 Words with Feeling	(a)			
Words with Feeling	(b)			
18 Consequences	(a)			
Consequences	(b)			

MARK 2: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
19 Word Boxes	(a)			
Word Boxes	(b)			
20 Make-a-Sentences	(a)			
Make-a-Sentences	(b)			
21 Let's Write a News Story	(a)			
Let's Write a News Story	(b)			
22 Figure Families	(a)			
Figure Families	(b)			
23 Creative Story Generator	(a)			
Creative Story Generator	(b)			
24 Hidden Figures	(a)			
Hidden Figures	(b)			

NEW DIRECTIONS IN CREATIVITY   **MARK 3**

The *NEW DIRECTIONS IN CREATIVITY* program,
under the direction of Joseph S. Renzulli,
includes the following manuals:
MARK A
MARK B
MARK 1
MARK 2
MARK 3

Editorial:
Betty L. Comer, Project Director
Herta S. Breiter, Editor

Design:
Barbara Wasserman
Kristin Nelson

Illustrations by John Faulkner

Revised edition

Rachel A. Knox, Editor
Lori D. Frazier, Associate Editor

Cover Illustration by David J. Jernigan

NEW DIRECTIONS IN CREATIVITY

MARK 3

JOSEPH S. RENZULLI
CAROLYN M. CALLAHAN

CONTENTS

In children creativity is a universal. Among adults it is almost nonexistent. The great question is: What has happened to this enormous and universal human resource? This is the question of the age and the quest of our research.

—from Harold H. Anderson, ed., *Creativity and Its Cultivation* (New York: Harper & Brothers, 1959), p. xii.

"The main thing is not to take it personal."

"What I liked best about school this year was the teachers' strike."

A PERSONAL NOTE TO TEACHERS

Whenever teachers ask me how I became interested in creativity and why I developed a creativity training program for children, I often answer by referring to the quotation and the two cartoons on page vi. The quotation from Harold Anderson's book points out the great loss in human potential for creative development that takes place between childhood and adulthood. Although this loss no doubt takes its toll by limiting the number of people who make creative contributions to our society, a much more serious and far-reaching consequence is that many adults never have the opportunity to experience the satisfaction and enjoyment that results from the act of creating. Somehow the joys that were associated with childhood fantasy and imaginary excursions into the world of the improbable seem to disappear as we engage in the business of growing up. Although growing up is indeed a serious business, I often wonder if the emphasis that our culture places on the practical and the utilitarian causes most people to arrive at adulthood without the creative ability that they possessed as children.

The first cartoon illustrates the emphasis that our educational system places on the process of conformity. Most learning experiences are designed in a way that causes all youngsters to arrive at the same solutions to problems; thus it is not surprising to see a very homogenized group emerging from "the system." A quick glance at most workbooks or exercises in textbooks reveals that only rarely do these materials purposefully encourage youngsters to be as original as possible in their answers to given problems and questions.

The second cartoon presents a sad but essentially valid picture of most children's perception of school. Our preoccupation with order, control, routine, and conformity has made schools into dreary and often oppressive places for many children. The supposedly exciting act of learning has frequently been a coercive and sometimes even punitive process.

Many writers have summarized problems that have made schools such unfriendly places and have pointed out some of the ways that these problems can be overcome. One suggestion common to many writers is that classrooms need to be more engaging, creative, and interactive places and that youngsters need to be given greater opportunities to imagine, create, and express themselves.

The creativity training program described in this manual represents one attempt to provide both teachers and students with a set of materials that will help them learn a variety of ways for expressing their creative potential. Creativity is a dynamic process that involves "a way of looking at things"; therefore the activities included in this program are designed to broaden the way that youngsters look at their world. The program is not an end in itself, but rather a series of first steps that will provide teachers and students with the basic skills involved in creative production. Over the past few years, I have worked with hundreds of teachers in courses and workshops dealing with creativity. These experiences have shown me that a minimum amount of instruction and a maximum amount of actual involvement with the materials have effected the biggest changes in teachers' understanding and application of creativity training activities. The old saying "The best way to learn how to do it is to do it" is a guiding principle in my approach to teaching teachers the skills of creative production. Once these skills have been assimilated, they can be applied to all areas of the curriculum and to most of the learning experiences that take place in the classroom.

Joseph S. Renzulli
Storrs, Connecticut

PART I

I hear, and I forget;
I see, and I remember;
I do, and I understand.
Chinese Proverb

PURPOSE AND DESCRIPTION OF THE PROGRAM

The *New Directions in Creativity* program consists of five volumes: *Mark A*, *Mark B*, *Mark 1*, *Mark 2*, and *Mark 3*. The program is designed to help teachers develop the creative thinking abilities of primary and middle-grade youngsters. Research has shown that almost all children have the potential to think creatively and that creative production can be improved by providing systematic learning experiences that foster use of imagination.

Purpose of the Program

The general purpose of this creativity training program can best be explained by contrasting the creative or *divergent* production abilities with the *convergent* production abilities emphasized in most elementary school classrooms. In most traditional teaching-learning situations, major emphasis is placed on locating or converging upon correct answers. Teachers raise questions and present problems with a predetermined response in mind, and student performance is usually evaluated in terms of the correctness of a particular answer and the speed and accuracy with which youngsters respond to verbal or written exercises. Thus the types of problems raised by the teacher or textbook and the system of rewards used to evaluate student progress cause most youngsters to develop a learning style that is oriented toward zeroing in on the "right" answer as quickly and as efficiently as possible. Although this ability has its place in the overall development of the learner, most teachers would agree that impressionable young minds also need opportunities to develop their rare and precious creative thinking abilities.

Divergent production is a kind of thinking that is characterized by breaking away from conventional restrictions on thinking and letting one's mind flow across a broad range of ideas and possible solutions to a problem. The real problems humanity confronts do not have the kinds of predetermined or "pat" answers that a great deal of instruction focuses on in the convergent-oriented classrooms. Yet we give our children very few opportunities to practice letting their minds range far and wide over a broad spectrum of solutions. The philosopher Alan Watts (1964) has talked about these two kinds of thinking in terms of what he calls the "spotlight mind" and the "floodlight mind." The spotlight mind focuses on a clearly defined area and cannot see the many alternative possibilities or solutions to a problem that may exist outside that area. Floodlight thinking, on the other hand, reaches upward and outward without clearly defined borders or limitations. The floodlight thinker is free to let his or her imagination wander without the confinements or limitations that usually lead to conformity. Both types of thinking are valuable, and to pursue one at the expense of the other is clearly a disservice to the children for whose development we are responsible.

This description of divergent thinking should not lead teachers to believe it is undisciplined or disorderly. Mary Nicol Meeker (1969) has pointed out that "divergent generation does not proceed willy-nilly; the divergent thinker is not a scatterbrain; the worthwhile generation of information requires discipline and guidance." Following Meeker's suggestion, the *New Directions in Creativity* program has attempted to provide youngsters with an opportunity to break away from conventional restrictions on their thinking. Yet an effort has been made to generate responses that are relevant to particular kinds of problems and that fall within reasonable bounds.

Specific Abilities Developed by the Program

The *New Directions in Creativity* program is designed to develop each of the following creative thinking abilities:

1. *Fluency*—the ability to generate a ready flow of ideas, possibilities, consequences, and objects

2. *Flexibility*—the ability to use many different approaches or strategies in solving a problem; the

willingness to change direction and modify given information

3. *Originality*—the ability to produce clever, unique, and unusual responses

4. *Elaboration*—the ability to expand, develop, particularize, and embellish one's ideas, stories, and illustrations

Each activity in the program is designed to promote one or more of these four general abilities. The activities are also classified according to (1) the types of information involved in each exercise (semantic, symbolic, figural) and (2) the ways that information is organized in each exercise (units, classes, relations, systems, transformations, implications, elaborations). These two dimensions are described in detail in Part III of this manual. The activity-by-activity lesson guides presented in Part IV include the specific objectives for each activity and suggestions for follow-up activities designed to develop further the specific abilities toward which the respective exercises are directed. Although many of the objectives and suggestions for follow-up activity are directed toward the development of traditional skills in language arts, these skills are always "piggybacked" on the four major creative thinking skills. Field testing has shown that students are more motivated to pursue traditional language arts skills when such skills are based upon activities that make use of their own creative products.

Although the purpose of each manual in this program is to provide teachers with a systematic set of activities aimed at promoting creativity in children, a second and equally important objective is to help teachers unlock their own potential for more creative teaching. In almost every school where these activities were field tested, participating teachers began to develop their own materials and activities for creativity training. In many cases, the teacher-made activities were highly original and skillfully integrated with various aspects of the regular curriculum. Once teachers understood the general nature of the creative process, they were quickly able to apply the same basic strategies to other areas of the curriculum. Therefore, teachers should view this creativity training program as a starting point that will eventually lead to the development of a "creativity orientation" on the part of teachers. This orientation will assist teachers in finding numerous opportunities for creativity training in a wide variety of learning situations.

Description of the Program

Each manual in the *New Directions in Creativity* program consists of twenty-four types of creativity training activities. Two activity sheets, both containing one or more exercises, are provided for each type of activity, and each type is classified according to the kinds of information involved in the exercises and the ways that information is organized. Each activity is further classified according to the level of response required. This classification scheme is based on Guilford's model of the structure of human abilities. Teachers who wish to know more about this model should refer to Part III of this manual. (An overview of the activities in this manual, listing the types of activities according to Guilford's classification scheme appears on page 22.)

Mark A and *Mark B* : Most of the activities in the primary volumes have been designed so that children can respond with either words or pictures. This approach allows children who cannot yet express themselves in writing to communicate their creative ideas through pictures. Suggestions for alternative modes of expression, such as dictating responses to a teacher's aid or to a tape recorder are also included. The primary volumes are also designed to develop the psychomotor abilities of younger children through manipulative and dramatic activities, and the teaching suggestions present ideas for using primary teaching aids such as flannel boards, chart paper, scissors, and paste.

The format of the primary activities attempts to take account of the developmental level of the young child. Illustrations on the exercise sheets are generally larger and less complicated than the drawings in the middle-grade books, and fewer responses are required to allow for the gross motor coordination of the primary-aged youngster. Page directions are simpler, and greater reliance is placed on illustrations than on written directions. The lesson guides for the primary volumes contain more detailed suggestions for introducing activities and emphasize using concrete examples to get children started on exercises that are more easily demonstrated than described.

Mark 1, Mark 2, and Mark 3 : Most of the activities in the middle-grade volumes deal with semantic information. Some symbolic activities that involve the use of words have been included, and a few figural activities have also been included to help students understand that creativity skills can be applied to both verbal and nonverbal information.

Activities dealing with information that is organized into units, classes, or relations generally require

students to (1) fill in blanks with unspecified words, (2) manipulate given words and figures, or (3) complete short statements. These activities are considered warm- ups for higher level activities, and they are generally directed toward giving students practice in the basic creativity skill of brainstorming. Brainstorming activities help students free their thinking processes from the restraints that usually hinder creativity and provide an effective means for promoting a free and open classroom atmosphere.

The higher level activities deal with information that is organized into systems, transformations, implications, or elaborations. The major difference between the two levels of activities is that fewer specifications are given for the kinds of responses required in the higher level activities. These responses are generally more open-ended, and fewer restrictions are placed on the nature of the products developed by students. Although all activities provide youngsters with opportunities to express themselves in a relatively free and unrestricted manner, the program will be most effective if students pursue a balanced combination of the various types of activities. Each type is designed to develop and give practice in the use of certain creativity skills, and the skills developed by the warm-up activities are necessary for maximum development of the more advanced kinds of creative thinking necessary for the higher level activities. Suggestions for the most effective sequencing of activities are included in Part II of this manual.

Grade and Ability Levels

Although no specific grade level has been assigned to the respective volumes, field tests have shown that *Mark A* is most successful with children in kindergarten and first grade and that *Mark B* works best with second- and third-grade youngsters. An attempt was made to separate activities in the primary volumes so that the first book would contain exercises for children who have not yet developed reading and writing abilities or who are in the beginning stages of development in these areas. The exercises in *Mark B* were designed in accordance with the level of communication skills that typically are taught in second and third grades.

Field tests have shown that *Mark 1*, *Mark 2*, and *Mark 3* are most successful with students in grades four through eight. The open-ended nature of creativity training activities has provided an opportunity to develop a truly nongraded program, and many of the exercises have been used successfully with students at several grade levels. When there are no "right" or "wrong" answers, each student sets his or her own level of response. The responses of bright youngsters are often characterized by higher degrees of fluency, flexibility, originality, and elaboration, but even the slowest child is able to respond in a way that is appropriate to his or her own developmental level. It may be necessary for teachers to read some of the directions to students and to supervise their work more closely until they catch on to the nature of the various tasks. To help both younger and slower students grasp the main idea, most of the introductory exercises include illustrative examples. These examples are useful in helping students who have some trouble reading the directions or getting started on some of the more difficult exercises. Most of the exercises are not too difficult for younger or slower students, but because of the open-ended nature of the exercises, teachers must carefully explain directions, and they may have to provide a few examples of their own in order to start students off on the right track.

An important feature of this creativity training program is that a youngster can respond to each activity in terms of his or her own background and experience. Because the program is not based on the student's ability to recall factual information, each student can express his or her creativity by drawing on his or her own knowledge and experiences. Many writers have pointed out that the child's own experiences and activities are the principal agents of his or her development and that no matter how "primitive" a child's level of development, he or she can extend his or her mental abilities by probing, manipulating, and applying his or her own experiences to new kinds of materials and situations. This idea is one of the fundamental principles on which the constructivist learning is based, and field tests with the *New Directions in Creativity* program have shown that students from so-called disadvantaged backgrounds are able to use their own experiences to complete most of the activities in the program.

Insofar as individualized programming is concerned, it is important for teachers to carefully consider each child's preferences. Some students may show a preference for semantic activities, whereas others may prefer to respond figurally or symbolically. Similarly, certain children may like exercises with a less complicated response format (units, classes, relations), whereas others may show a preference for more complicated modes of expression such as poetry or story writing. The classification system which underlies the *New Direction in Creativity* program provides a unique opportunity for teachers to study children's learning style preferences and to adapt accordingly. The program will be most successful if teachers respect children's preferences and avoid forcing every child to complete every activity.

PART II

"Imagination grows by exercise."
W. Somerset Maugham

GENERAL STRATEGIES FOR USING THE PROGRAM

Although a great deal has been written about fostering creativity in the classroom, relatively few basic teaching strategies have been effective in encouraging creative development. This section of the manual will describe the basic strategies that teachers have found most helpful in using the *New Directions in Creativity* program. Although the materials have been designed to require minimum preparation time, the importance of the teacher's role cannot be overemphasized. In describing the role of teachers in this regard, Starko (1995) emphasized the distinction between teaching for the development of creativity versus creative teaching. She concluded that effective teachers who develop students' creative thinking know how to teach techniques that "facilitate creative thinking across disciplines and provide a classroom atmosphere that is supportive of creativity" (p. 17). Other studies, including a meta-analysis study by Rose & Lin (1984) and a research synthesis by Torrance (1987), indicate that creativity training is associated with increased creativity, involvement in creative activities, and positive feelings toward school.

Brainstorming and the Fluency Principle

In most cases, the first thought that comes to mind in seeking the solution to a difficult problem is seldom the most original idea. Therefore, *fluency,* defined as the ability to produce several ideas or possible solutions to a problem situation, is an important condition for creative production. The fluency principle, which underlies the development of this creativity training program, maintains that fluency is a necessary, though not sufficient, condition for originality. Although there are some cases on record of highly creative products that have resulted from sudden inspirations, research on creativity in both children and adults strongly supports the fluency principle. Studies by Archambault (1970), Paulus (1970), and Baer (1993) have shown that initial responses to a given problem tend to be the more common ones and that the greater the number

of answers generated, the higher the probability of producing an original response (*original* in the sense that fewer students come up with that response). Therefore, a hypothetical curve of creativity for a given task or activity (see Figure 1) would show a gently sloping gradient with an increase in originality being related to an increase in the number of responses. For example, if we asked a group of students to list all of the utensils that people *might* use to eat with, their initial responses would no doubt include common utensils such as forks, spoons, and knives. But if we encouraged them to increase their lists by using their imaginations ("Suppose you didn't have any forks or spoons. What *could* you use?"), students would begin to explore some possible alternatives. They might suggest such items as sharpened sticks, shells, and bottle caps. If we compared the lists of several youngsters, we would find that most of the initial answers are quite common—that most of the students have given the same responses. As the lists grow longer, we would find more divergence occurring, and the probability of a youngster's producing an original response increases. In other words, quantity

Figure 1. Hypothetical curve of creativity.

breeds quality, and research has shown that individuals who produce a large number of ideas are more likely to produce ideas that are more original.

Each manual in this program attempts to capitalize on the fluency principle by including a number of exercises that generate a large number of responses. In opposition to the techniques of convergent production discussed earlier, these exercises have no right answers. Rather, they are designed to encourage the student to produce a large quantity of responses, and, hopefully, practice in this mode of thinking will help free the learner from previously acquired habits which predispose him or her to rely mainly upon recall and convergent thinking.

The basic technique for increasing fluency of expression is called *brainstorming*. The first step in this process is to provide students with a problem that has many possible alternative solutions. Brainstorming can be carried out individually or in group sessions. During the early stages of a brainstorming activity, students should write or verbalize *all* thoughts and ideas that come to mind, no matter how silly, way-out, or wild the ideas may be. The best way to promote free-wheeling and offbeat thinking is to value quantity and withhold criticism and evaluation until students have exhausted their total supply of ideas related to a given problem. This principle, known as the principle of unevaluated practice, is further discussed in the section dealing with evaluation (pp. 10-12).

The following is a list of general questions (adapted from Arnold (1962)) that can be used to spur students' thinking during brainstorming sessions:

Other Uses

Can it be put to other uses as is?
Can it be put to other uses if it is modified?

Adaptation

What else is like it?
What other ideas does it suggest?
What could you copy?
Whom could you imitate?

Modification

What new twist can you make?
Can you change the color, size, shape, motion, sound, form, odor?

Magnification

What could you add?
Can you add more time, strength, height, length, thickness, value?
Can you duplicate or exaggerate it?

Minification

Can you make it smaller, shorter, lighter, lower?
Can you divide it up or omit certain parts?

Substitution

Who else can do it?
What can be used instead?
Can you use other ingredients or materials?
Can you use another source of power, another place, another process?
Can you use another tone of voice?

Rearrangement

Can you interchange parts?
Can you use a different plan, pattern, or sequence?
Can you change the schedule or rearrange cause and effect?

Reversibility

Can you turn it backward or upside down?
Can you reverse roles or do the opposite?

Combination

Can you combine parts or ideas?
Can you blend things together?
Can you combine purposes?

These are only some of the questions that teachers and students can use to stimulate creative thinking during the brainstorming activities included in the program. Once students have learned the basic brainstorming technique, you should encourage students to approach each activity with an idea-finding frame of reference. The section "Introducing the Primary Activities" (pages 12-14) is especially designed to teach the brainstorming process through active involvement in both group and individual brainstorming activities. As a general rule, you should always encourage students to go as far as they can in completing the exercises on the activity

sheets and the follow-up activities. Students may need to go beyond the spaces provided or you may need to extend time limits when youngsters are engaged in a highly productive activity. Keep in mind that brainstorming is a skill that grows through practice, and students will develop this skill if they know you place major value on the quantity rather than the quality of their responses.

The Principle of Mild Competition

Although a great deal has been written about the dangers of high-pressure competition in the classroom, research with various curricular materials has shown that *mild* competition is a positive nutrient in motivating students to become involved in learning activities. The use of simulation and learning games to promote learning is based on the finding that gamelike activity is one of the child's preferred ways of learning. Several researchers have investigated the relationship between children's play and creativity. For example, Li (1985) found significant gains in preschool children's creativity after being exposed to play training. Mellou (1995) examined the literature on the relationship between dramatic play and creativity and concluded that most of the research supports a positive relationship between them, noting the alternative symbolic constructions and flexibility common to both. In a research synthesis on creativity processes in children that are predictive of adult creativity, Russ (1996) also concluded that the relationship between children's play and creativity is strong.

We have made an attempt to capitalize on the motivational benefits of gamelike activity by suggesting that certain exercises be carried out under mildly competitive conditions. This approach will introduce an element of excitement into the program and give youngsters an opportunity to pursue classroom activities in their preferred manner of learning.

To avoid the dangers associated with high-pressure competition, you should use caution when employing the mildly competitive mode. You should observe the following general rules whenever you introduce competition into creativity training activities.

1. Group competition should be used rather than individual competition.

2. Grades or other material rewards should never be associated with competitive activities. Students will derive satisfaction from the competitiveness itself and the excitement of winning or trying to win.

3. Teams should continually be rearranged in a way that allows all youngsters an opportunity to be on a winning team.

There are several ways of arranging teams for competitive classroom activities—row against row, boys against girls, or everybody wearing a certain color on one team, to name a few. If some youngsters find it difficult to perform under competitive conditions or if some put undue pressure on others who slow the team down, it may be wise to ask these students to serve as moderators or scorekeepers because "you need their help." A good way to help build up enthusiasm is to get involved in competitive activities on an equal basis with students. When you join a given team, the students will no doubt look to you for leadership, but you should try to be just another member of the team and avoid contributing more than a proportionate share of the responses. You will, of course, have to experiment to determine the best ways for operating in the mildly competitive mode. A good deal of the art of teaching is involved in knowing your students and in using classroom management procedures that are especially applicable to a given group.

A general strategy that you can use in follow-up discussions of the exercises is intergroup competition. Prior to assigning a particular exercise or after an exercise has been completed, divide the class into several small groups which can then compete with each other on the basis of (1) the greatest number of team responses and (2) the most original responses (i.e., responses that other teams did not think of). A team's score would consist of one point for the total number of responses generated by all team members (including duplications) minus a given number of points for each response that appears on another team's list. Slowly increasing the number of points deducted for responses that are common among teams will encourage the students to strive for originality, as well as quantity, of responses. Students might like to keep a score card on the bulletin board to record team progress. Competitive follow-up activity of this type is probably most appropriate for exercises that emphasize the quantity of responses rather than the production of a story or single product.

The Principle of Cooperation

Researchers have found that activities involving team collaboration help youngsters increase their creative productivity. You should allow students to work on some activities in pairs or in small groups,

9

and students should direct their efforts toward the production of group responses, as well as individual responses. Group activities provide an opportunity for youngsters to learn cooperation and the benefits of bringing several minds to bear on a particular problem. They also provide opportunities for you to develop leadership skills and help less creative youngsters experience success by working cooperatively with more highly creative individuals. Since you can use many of the activities for both individual and group work, it is important for you to review each activity sheet before using it with students. Field tests have shown that the classroom teacher is the best judge of the conditions under which the class works best, and therefore the activities have not been classified as individual or group activities.

The best way to maximize the effectiveness of the *New Directions in Creativity* program is to vary continually the strategies for using the activities in the classroom. You should use competitive and cooperative modes as alternatives to the individual mode and use students as a guide in selecting the approach for a given activity. Part IV of this manual includes activity-by-activity lesson guides and suggestions for alternative ways of using the activities and follow-up activities. You should, of course, employ your own creative teaching strategies and develop new strategies by combining, modifying, and adapting suggested approaches.

Evaluation: The All-lmportant Classroom Atmosphere

The success of any creativity training program depends on the amount of freedom and flexibility that exists in the classroom. The very nature of creativity requires that students be allowed to express their thoughts and ideas in a warm and open atmosphere. Teachers should encourage their students to play with ideas, laugh, and have fun without worrying about being graded and evaluated when they are engaged in creativity training activities. Rogers (1969) emphasized the importance of freedom from the threat of evaluation and asserted that creativity can be fostered by establishing psychological safety through the unconditional acceptance of each individual's worth. When you encourage youngsters to express themselves in an uninhibited manner, it is extremely important that you also provide them with a climate that is free from external evaluation and the critical judgments so often associated with schoolwork. The importance of providing this free climate is supported by the research of Amabile (1996) and Lepper, Greene, and Nisbet

(1973) who found that extrinsic motivation undermines students' creativity, and Amabile identified factors of intrinsic motivation that impact students' performance on creative tasks. Since no right answers are prescribed for this creativity training program, students have the opportunity to work in an open atmosphere without the constant threat of failure hanging over their heads.

The most effective way to open up the classroom atmosphere is to minimize formal evaluation and lead students in the direction of self-evaluation. In the real world, people often judge things in terms of self-satisfaction and the degree to which they, as individuals, like or dislike the things they do or the products they produce. The only way that we can teach students to become self-evaluators is to give them numerous opportunities to judge their own work and to modify their work when they are not satisfied with it. Thus, this program does not include a formal grading system, and the suggestions that follow are designed to help develop strategies for (1) valuing students' original products and (2) teaching youngsters the techniques of self-assessment.

The principle of unevaluated practice simply means that judgment is deferred until the individual has had an opportunity to explore several possible answers or solutions to a given problem. The principle of deferred adjustment, first espoused by Osborn (1963), has consistently been shown to be an essential ingredient for creative thinking. Several researchers, such as Amabile (1985) and Baer (1993), have found evidence to support this claim. The main purpose of unevaluated practice is to free children from the fear of making mistakes.

Creating such an atmosphere in the classroom is far easier said than done, but there are some specific strategies that teachers can use to help promote an environment that is more supportive of creativity. The most important strategy is to be tolerant and respectful of children's ideas, questions, and products. You should show interest, acceptance, and excitement toward student responses and avoid expressions of shock, surprise, annoyance, or disinterest. Above all, never laugh at or make light of a youngster's responses and try to discourage teasing and laughter from other students. Healthy amusement and friendly competition will help promote a supportive atmosphere, but ridicule and scowls will have a negative effect. Each student must come to believe that his or her ideas are as valuable as the ideas of others.

One of the hardest things to control in the classroom is the spontaneous laughter that may arise when a student says something that is somewhat unusual. A good way to overcome this problem is to legitimatize

laughter by showing students that you also have some way-out ideas and that you do not mind if the students laugh when you express them. You will note that in the section "Introducing the Primary Activities" the teacher is asked to demonstrate use of a pogo stick. This activity has been found to be an extremely effective way to legitimatize laughter and show students that you are not afraid to express unusual ideas or actions. Whenever possible, participate in written and oral activities and set the pace by contributing your own unusual responses. Your contributions will help students realize that you are a human being and that you are not afraid to express yourself freely. Remember, you set the limits on student behavior. If you actually participate in creative activities, students will learn that you value creative behavior, and they will quickly begin to display their own creative thoughts.

Another strategy aimed at promoting an environment that encourages students to be creative involves the principle of rewarding desired types of responses. If you show generous praise for quantity and unusualness of responses, students will quickly recognize the types of behavior that you value and they will strive to achieve these types of behaviors.

You can increase creative production by combining the fluency principle with the reward principle and the principle of unevaluated practice. In follow-up discussions to the activities, you should praise individual responses and give generous praise to the sheer quantity of response. Remember that an increase in fluency will almost always result in a corresponding increase in originality. Consequently, you should develop a repertoire of fluency-producing, enthusiastic comments, such as "That's really good. Can you think of a few more?" and "Let's see who can come up with five more possible titles for Bill's picture." Don't be afraid to make up a few new words (for example, "fantabulous," "super-great") to show your enthusiasm. Gently probing youngsters for more and more responses will help them develop a fluency set; and, hopefully, practice in this mode of thinking will carry over to other areas of learning and experience.

You should make every effort to avoid using phrases or expressions that are natural killers of creativity. Examples of such phrases include:

Don't be silly.
Let's be serious.
That's ridiculous.
Quiet down.
The principal won't like it.
Let's be practical.

You should know better.
What's the matter with you?
That's not our problem.
We've tried that before.
That's not part of your assignment.
That's childish.
A good idea but . . .
It won't work.
Don't be so sloppy.

One of the underlying purposes of the *New Directions in Creativity* program is to help youngsters learn how to evaluate their own creative products. One of the great tragedies of traditional school instruction is that students almost always look to the teacher for evaluation and approval. By so doing, they fail to develop a system of internal self-evaluation. And yet, psychological studies have revealed that each person has a need to be his or her own primary evaluator. The nature of creativity is such that the individual produces something that is new, unique, or novel for him or her at a particular time. To break away from social pressure toward ordinary and common production, a person must place his or her own opinions and feelings above those of others. He or she must be satisfied with his or her products and feel that they express a part of his or her feeling, thoughts, and ideas.

One of the primary tasks for teachers using this program is to help youngsters learn how to make judgments about their own work. This task is undoubtedly one of the most difficult of teaching, but there are a few simple guides that you can use to help students evaluate their own work. When students look to you for judgment, you might ask:

What do *you* think about it?
Do you feel good about it?
Would you like to work on it some more?
Why do you like (or dislike) it?
What things (criteria) are important to you?
How would you compare it to the work you did last time?

Encourage students to compare their own products by ranking them and selecting the ones they like best. Students should learn that you respect their judgment and will not overrule that judgment by placing your evaluation above their own. This behavior does not mean that you should not comment and make suggestions, but students should understand that you are stating your opinion and there is no reason to assume that it is more important than theirs. Since there are no right

answers to creativity exercises, and since students will not be graded on their creativity or creative products, the program provides a real opportunity for students to develop self-evaluation techniques. The key word in this process is *trust*. If students think that you will consider their creative activities in their final grades, they will constantly look to you as the ultimate source of judgment.

Peer evaluation can also provide students with a source of feedback. This feedback should always be informal, and it should be related to the type of product involved. For example, in writing a humorous ending for an unfinished story activity, if a student elicits laughter from the class, he or she will know that his or her efforts have been effective. You should encourage students to add their own praise to other children's responses, and their spontaneous reactions should be a regular part of all follow-up discussions.

A final consideration in the creation of a free and open classroom atmosphere is the acceptance of humor and playfulness. When you purposefully ask youngsters to strive for clever and unusual responses, a good deal of healthy noise and whimsical behavior is likely to result. The creative adult has the same uninhibited expressiveness and spontaneity found in happy and secure children. Creativity time should be a fun time, and playfulness, impulsiveness, humor, and spontaneity are all part of having fun.

How to Use the Primary Activities

Although many of the primary activities are most effective when used with groups, they can also serve as independent studies or as supplementary classroom activities. Field tests have shown that the program can be used continuously for a given period of time or on a one- or two-day-a-week basis throughout the school year. The suggested follow-up activities are an important part of the program. Together with the activity sheets, they provide a year-long supply of creativity training exercises. As indicated in Part I, the program is not intended to be an end in itself. Rather, it is designed to assist teachers in learning the nature of creative problem solving and in developing their own creativity activities. The program will yield maximum benefits if you follow a plan that uses a balanced combination of activity sheets and suggested follow-up activities.

Because of variations in the needs of various age and ability groups and because of differences in individual and group preferences, the "Suggested Sequence for *Mark A* Activities" (p. 21) should not be considered a rigid lesson-by-lesson sequence. It is intended to serve as a broad guide, and you should feel free to modify the sequence to serve the individual interests and learning preferences of particular groups.

After students have become familiar with the various types of activities, you should give them opportunities to decide which activities they would like to pursue. Student interests should also guide you in determining which type of follow-up activities to use in future training sessions.

As students progress, you should encourage them to use the skills they have developed in previous activities. For example, you might introduce an unfinished story activity by suggesting the first sentence of a possible ending to the story and asking students to suggest synonyms for specific words that would make the sentence more precise, colorful, and imaginative. When students are working on advertising or promotion activities, you should make them aware of the use of homonyms and rhyming words in slogans and jingles and remind them of the rhyming exercises they completed earlier.

The general plan for sequencing primary activities takes account of (1) a balance between semantic, symbolic, and figural material, (2) a balance between units, classes, relations, systems, transformations, and implications and elaborations, and (3) the level of difficulty and logical relationships between certain activities. Since there are two activity sheets for each type of activity, you can work through the suggested sequence twice. In each set of exercises, comprehensive directions and sample responses (when applicable) are always included on the first activity sheet. Therefore, for any given exercise, you should always use the activity sheet lettered "a" before the activity sheet lettered "b." By the time students get to the second activity sheet, they will have caught on to the nature of the exercise, and you can refresh their memory by referring to the first activity sheet. Occasionally, examples have been included on the second activity sheet to help provoke new ideas.

Each exercise should take approximately one class period, although some of the exercises that involve creative writing may require more time. You may want to assign for homework exercises that cannot be completed in class. However, it is necessary to have group discussions of all material that is completed outside of class as an important part of the creative process involves sharing creative products with others.

You can use the suggested follow-up activities included in the lesson guides any time after the students have completed the first activity sheet for each activity. Whenever students show a preference for a particular type of activity, capitalize on their enthusiasm by

developing similar activities of the type suggested in the follow-up sections of the lesson guides.

Introducing the Primary Activities

The basic strategy for introducing primary activities consists of freeing the classroom atmosphere from the usual constraints often associated with convergent production. Allow approximately one class period for the introductory session. It is extremely important for students to learn to appreciate questions and activities for which there are no right answers. You can introduce this concept by contrasting a convergent type of question with a divergent one. Before distributing the first activity sheet, you might say something like the following (but do not read it verbatim or sound too rehearsed):

> Today we are going to begin practicing a new kind of thinking. This kind of thinking will help us learn how to explore many different kinds of solutions to a given problem. Some problems and questions have only one right answer, but there are also many problems and questions that have hundreds of possible answers.

> Suppose I asked you, "In what year did Columbus discover America?" (Wait for an answer and write it on the chalkboard.)

> Are there any other possible answers to this question? (General conclusion should be negative.)

> Now suppose I were to ask you, "What are *all* of the possible ways that you *might* have come to school this morning?" (Call on youngsters and list responses on the chalkboard.)

Students will probably give some fairly common responses ("walk," "bus," "car," "bicycle"). At this point, you might say:

> Remember, I said all of the possible ways that you might have come. Use your imagination. Let your mind wander, even if you think the method for coming to school is silly or way-out. How about by donkey or pogo stick? (Add these to the list on the chalkboard.)

> *This point is extremely crucial to introducing the creativity training program.* By suggesting the donkey and the pogo stick, you have accomplished three very

important objectives. First, you have conveyed the idea that answers need not be feasible, practical, or realistic. Second, you have let youngsters know that you will accept these kinds of answers. Third and perhaps most important, you have let the youngsters know that you are capable of some way-out ideas. You can be emphasize this point by grabbing a yardstick (conveniently placed nearby beforehand) and improvising with a few hops to demonstrate a pogo stick. Students will no doubt become a little noisy, but it is very important to tolerate this reaction. If you hush them, the whole atmosphere of freedom will be lost, and they will subjectively think that this new kind of thinking is the same old game—the teacher questions and students answer.

After your examples, students may give a wide variety of answers. Let them call out their answers (rather than raising hands) as you write them on the chalkboard. Prompt students if necessary:

> Any other animals that you might come to school on? How about an airplane or a rocket? Or being dropped from a plane with a parachute?

A second crucial factor at this point is the generous use of praise on your part. Enthusiastic comments such as "good," "great," and "fantastic" will help youngsters open up. Do not call on students who are not taking part. It takes some youngsters longer than others to trust the teacher and his or her classmates in this type of situation. The main idea is to let students know that you like what is going on and that you are having fun. When the flow of responses begins to slow down, say:

> Let's go one step farther. Suppose you could change your size or shape. Can you think of some other ways that you might possibly come to school?

If no one responds, say:

> Could you make yourself very tiny and come in your brother's lunch box? Or, could you change to a drop of water and come in through the drinking fountain?

Continue to fill the chalkboard as long as the youngsters are generating responses. When you finally call a halt, say:

> I guess there really are many questions and problems that have several possible answers. Do you think this kind of thinking is fun?

13

From time to time, we are going to be working on some activities like the one we just did. The main purpose of these activities will be to practice answering questions and solving problems that have many possible answers. We will be using our imaginations to come up with some clever new ideas.

At this point, distribute the first activity sheet for "Thinking about Things" and read the directions in the manual to the students. If you have any doubts about youngsters' understanding the directions, ask if there are any questions. Then ask the students to complete the first exercise.

After they have finished, allow some students to discuss their responses. Ask, "How many had that idea?" and after a few students have shared their entire lists, ask if anyone has any responses that have not yet been mentioned. Praise unusual responses from individuals, and praise the entire group for catching on.

Follow the same procedure for the second exercise. It is especially important to be tolerant of unusual responses, increased noise levels, and occasional bursts of laughter. A comment such as "Let's be serious" could destroy the entire atmosphere of freedom to express oneself. If time permits, you may wish to pursue one of the follow-up activities suggested in the lesson guide.

RATIONALE UNDERLYING THE PROGRAM

The Need for Creativity Training Programs

Although interest in the identification and development of creativity has become one of the vital concerns of teachers, curriculum developers, and leaders in education, the actual effectiveness of schools in helping children realize their creative potential can be judged, at very best, as questionable. More than forty years of intensive research into the nature of creativity has yielded enough understanding about this dynamic process to enable educators to begin translating some of the research findings into classroom practice. The sad fact remains that in spite of dozens of books about creativity, hundreds of research studies, and thousands of training programs and workshops, the development of creative potential is still a largely ignored aspect of a child's total repertoire of acquired behaviors. At least three major problems seem to account for the failure to translate existing knowledge and understanding about the creative process into meaningful classroom practice.

The first problem is a lack of agreement among educators about the definition of creativity and its distinctiveness from other cognitive behaviors. A great deal of research devoted to this issue has led to conflicting conceptions of creativity, such that Davis (1999) concluded, "There are about as many definitions, theories, and ideas about creativity as there are people who have set their opinions on paper" (p. 40). Despite different views, however, most theorists agree with at least two generalizations about creativity. First, several research studies have supported the threshold concept of creativity, namely, a low to moderate relationship between creativity and intelligence (Getzels & Jackson, 1962; Simonton, 1988; Walberg & Zeiser, 1997; Wallach & Kogan, 1965). Highly creative individuals have generally been found to be above average in intelligence, but high intelligence does not necessarily insure high creativity. In addition, a number of studies (Jaben (1980), for example) have found that children of *all* ability levels, including students with special needs, are capable of creative thinking. In summarizing

this issue, Davis (1999) said, "It is absolutely true that despite genetic differences in our cognitive and affective gifts, everyone can become a more flexible, imaginative, and productive thinker" (p. ix). Thus, we can conclude that *all* children can benefit from systematic programming in this area.

The second generalization relating to defining creativity is that, rather than being an independent process, creativity consists of multidimensional processes involving interactions between the individual and his or her environment. These processes may differ from one another to such a degree that we must consider verbal creativity, creativity in problem solving, and creativity in the nonverbal arts as essentially different psychological phenomena. In other words, scientific creativity and creative problem solving may require different explanations than creativity in areas such as painting, music, and writing. And because of differences between individuals and their respective environments, what is a routine task for one person may very well be a creative experience for another. Since one of the basic assumptions underlying the development of the *New Directions in Creativity* program is that all people possess the ability to think creatively in varying degrees, the main purpose of the program is to assist youngsters in generating responses that are creative for the individual student at his or her present level of mental functioning. It is of course hoped that such experiences in creative thinking will help students develop a characteristic way of looking at things that will ultimately result in the creation of ideas and products that are truly original and useful for the culture at large. A good deal of research evidence that shows that people who have engaged in systematic creativity training exercises can increase their capacity for creative thinking in a variety of fields (Baer, 1996; Rose & Lin, 1984; Torrance, 1987).

Although this approach to the definition of creativity is relativistic rather than absolute, it is in

keeping with Guilford's (1967) conception of divergent thinking (discussed on pages 16-19) and Torrance's (1965) analytic description of the process which places creativity in the realm of daily living experiences rather than reserving it for the rarely achieved heights of creation:

> I have tried to describe creative thinking as taking place in the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing these guesses and possibly revising and retesting them; and finally in communicating the results. I like this definition because it describes such a natural process. Strong human needs appear to be at the basis of each of its stages. If we sense any incompleteness, something missing or out of place, tension is aroused. We are uncomfortable and want to do something to relieve the tension. As a result, we begin investigating, asking questions, manipulating things, making guesses, and the like. Until the guesses or hypotheses have been tested, modified, and retested, we are still uncomfortable. Then, even when this has been accomplished, the tension is usually unrelieved until we tell somebody what we have discovered. Throughout the process there is an element of responding constructively to existing or new situations, rather than merely adapting to them. (Torrance, 1965)

For the purposes of this program, creativity is defined as follows

> Creativity is the production of an idea or product that is new, original, and satisfying to the creator or to someone else at a particular point in time, even if the idea or product has been previously discovered by someone else or if the idea or product will not be considered new, original, and satisfying at a later time or under different circumstances.

The second problem that has hampered efforts to promote creative thinking in the classroom has been the shortage of validated curriculum materials in this area. This shortage was the basis for one of the research challenges that emerged from the Sixth Utah Creativity Research Conference (Taylor and Williams, 1966), and was reemphasized in a study by Feldhusen, Bahlke, and Treffinger (1969). Among the many suggestions offered by theorists and researchers who have devoted attention to this problem has been a call for instructional materials that give youngsters practice in opening up their minds and using modes of thought that are not characteristically developed in traditional curricular materials. An overwhelming proportion of existing curricular material places major emphasis on the acquisition of factual information and a kind of thinking that focuses on locating the one right solution to a problem. Although these activities are valuable in the total development of the learner, they often dominate the curriculum and are usually pursued at the expense of other aspects of development. Thus the development of higher level thought processes such as creativity simply does not take place or is an accidental by-product of instruction.

The third major inhibitor to the development of creativity in children has been a lack of understanding about the nature of creativity on the part of many classroom teachers (Williams, 1964; Eberle, 1966; Guilford, 1967). In some cases, this lack of understanding has resulted in the severe inhibition of creative thinking in the classroom and even discrimination against students who display creative behavior.

Although the development of an effective program of teacher training is beyond the scope of this manual, Part II presents a number of practical suggestions for teaching strategies. These suggestions are not intended to serve as a substitute for a course or workshop in creativity, nor will they provide the teacher with the breadth of information that they could gained through intensive reading in this area. Rather, the main purpose is to call attention to the characteristics of creative teachers and to point out a number of widely accepted principles for rewarding creative behavior.

Each manual in the *New Directions in Creativity* program provides a set of experiences that are systematically and purposefully directed toward developing certain creative thinking abilities. The program is not offered as the only approach to this problem, nor is it maintained that the program will develop all of the many dimensions of creativity that seem to exist. Rather, it is one possible approach to creativity training that has been developed within a specified framework. This framework is described in the following section.

The Structure of the Intellect Model

The *New Directions in Creativity* program represents an attempt to translate one aspect of Guilford's Structure of the Intellect Model (1967) of human abilities into classroom practice. This model, developed through factor-analytic methods at the University of Southern California Psychological Laboratory, has been viewed

by many educators as a potentially powerful tool for bringing about needed changes in the curriculum. Although the program focuses on only one dimension of the model, a brief overview of the entire system will provide teachers with the necessary frame of reference for understanding the approach used in this curriculum package.

The Structure of the Intellect Model (see Figure 2) is a three-dimensional classification system that is designed to encompass and organize 120 possible abilities according to (1) the types of mental *operations* employed in the act of thinking, (2) the types of *contents* involved in the thinking process, and (3) the types of *products* that result from the act of thinking.

(1) Operations

The operation dimension of Guilford's model consists of five major types of intellectual activities or processes of mind—the things that the organism does with the raw materials of information. These five categories represent the mental operations that we as human beings can learn to use in processing the information with which we come into contact as we go about living and learning.

Cognition is the mental process involving immediate discovery, awareness, rediscovery, or recognition of information in various forms. *Understanding* and *comprehension* are terms that are commonly used to describe the act of cognition.

Memory is the process that deals with the retention or storage of information. It is accompanied by an ability to bring the information out of storage in response to cues or stimuli that bear some relationship to the stimuli presented when the information was originally stored.

Convergent production is the process of generating information from given information, where the emphasis is on achieving the conventionally accepted outcome. It is quite likely that the given information (cue) fully determines the response. Convergent production involves finding the correct solution to a

Figure 2. Guilford's Structure of the Intellect Model.

problem by manipulating given information rather than merely retrieving information from memory; however, both memory and cognition are involved in convergent production.

Evaluation is the mental operation that refers to reaching decisions or making judgments concerning the criterion satisfaction (correctness, suitability, adequacy, desirability, etc.) of information. This operation implies a sensitivity to error and a judgment of the relative nearness of things to points on a continuum or set of standards.

Divergent production, the operation upon which this creativity training program focuses, involves the generation of information from given information, but here the emphasis is on variety and quantity of output from the same source. This operation is most clearly involved in aptitudes of creative potential and will be discussed in greater detail later in this section.

(2) Contents

The content dimension consists of the following four broad classes of information that are discriminable by the organism:

Figural content consists of information in concrete form, as perceived or recalled in the form of images. The term *figural* implies some degree of organization or structuring. Different sense modalities may be involved, such as seeing, touching, hearing, and smelling. Content information does not represent anything but itself—that which is sensed and discriminated.

Symbolic content involves information in the form of signs that have no significance in and of themselves. Letters, numbers, musical notations, and other code elements are examples of symbolic content. Objects, figures, and shapes are also examples of this type of content.

Semantic content is information in the form of meanings to which words commonly become attached. Semantic material is the major element in verbal thinking and in verbal communication (writing and speaking).

Behavioral content consists of essentially nonverbal information that is involved in human interactions, such as the awareness of attitudes, needs, desires, moods, intentions, perceptions, and thoughts of other persons and of ourselves. The identification of abilities involving this type of content has not been as precisely defined as those abilities involved in figural, symbolic, and semantic content.

(3) Products

The product dimension of the Structure of the Intellect Model consists of the organization or form that information takes when it is processed by the human mind. The following six products, as defined by Guilford, are the result of interaction between our senses and the world around us:

Units are relatively segregated or circumscribed items of information that have singular character. For example, one chair would constitute a unit.

Classes are recognized sets of items of information grouped together by virtue of their common properties. Thus several chairs would form a class.

Relations are recognized connections between units of information based on variables or points of contact that apply to them. For example, a chair and a desk would constitute a relation.

Systems are organized or structured aggregates of items of information that are grouped together because of the interrelatedness or interaction of their respective parts. Systems are combinations of units, classes, and relations that have some total function. An example of this category is a "school system."

Transformations are changes of various kinds of existing or known information. Transformations involve the redefinition or modification of existing ideas, products, or materials.

Implications and *elaborations* consist of extrapolations of information in the form of expectancies, predictions, known or suspected antecedents, commitments, or consequences. Asking questions, the answers to which should help people see a particular problem more clearly, suggests implications from known information.

The *New Directions in Creativity* program deals primarily with the divergent production operation of the Structure of the Intellect Model. Within this "slab" of the model, eight of the twenty-four factors have not yet been completely identified by Guilford (see Figure 3); thus only a few experimental activities have been developed in these areas. The program does, however,

include activities that sample all of the divergent production factors that involve semantics, as well as some selected activities that use symbolic and figural information. None of the exercises in the program are offered as "pure" exercises in the development of a given factor. For example, Guilford (1967) has stated that "memory storage" underlies all problem solving and creative production, and other researchers (Pollert et al., 1969) have found that memory abilities play an important role in divergent production. Guilford's factor-analytic data also have shown that certain activities are related in varying degrees to more than one factor. Thus abilities from other areas such as cognition and memory are brought to bear on the operation of divergent production; and within the area of divergent production, certain abilities seem to act as contributory factors to the development of other abilities. For this reason, the classification of activities according to the Guilford structure is intended to point out the major focus of the respective activities in the program, but these classifications should not be interpreted to mean that other abilities are not involved in a given exercise.

The main purpose of this brief overview of Guilford's Structure of the Intellect Model is to underscore the relationship between the focus on divergent production presented by the *New Directions in Creativity* program and the overall dimensions of the Guilford model. Teachers who are interested in delving further into the various dimensions of the model should refer to Guilford's major work in this area, *The Nature of Human Intelligence* (1967). Another excellent interpretation of the model is presented in Meeker's book entitled *The Structure of Intellect: Its Interpretation and Uses* (1969).

Figure 3. Factors in divergent production.

PART IV

No printed word nor spoken plea
Can teach young minds what men should be,
Nor all the books on all the shelves
But what the teachers are themselves.
Anonymous

LESSON GUIDES FOR *MARK 3*

The activities in this book are presented in the order indicated below. As noted earlier, this sequence is offered only as a suggestion, and you should feel free to alter this sequence to serve the interests and preferences of a particular class. The activity number has been printed in the upper left-hand margin of each activity sheet to help you keep the sheets in order after each use.

A schematic overview of these activities, based on Guilford's classification system, is presented in Figure 4. For a description of this system, see pages 16-19.

As you use these activities in your class, you may find it helpful to keep a record to which you can refer when you use the activities with other classes. For your convenience, a chart for this purpose is provided on the first four duplicating masters at the back of this manual. This chart contains spaces for you to record the date a particular activity sheet was used and to make notes on the class reaction and on how you used the follow-up activities.

Suggested Sequence for *Mark 3* Activities

Activity	Type of Activity	Activity	Type of Activity
1 Thinking about Things	Semantic Units	12 Figure Families	Figural Classes
2 Sames and Opposites	Semantic Relations	13 A Peck of Pickled Peppers	Semantic Systems
3 Way-out Words	Symbolic Relations	14 Planning	Semantic Elaborations
4 Changing Things	Semantic Transformations	15 Hide-a-Word	Symbolic Systems
5 Another Point of View	Semantic Elaborations	16 Words with Feeling	Semantic Classes
		17 Haiku	Semantic Systems
6 Say It with Symbols	Figural Relations	18 Make-a-Character	Figural Relations
7 Words with Many Meanings	Semantic Units	19 The Headline Cutter	Semantic Units
8 Laughing with Limericks	Semantic Systems	20 Sights, Sounds, and Smells	Semantic Transformations
9 Building Words	Symbolic Units	21 Word Families	Symbolic Classes
10 Crunch, Munch	Semantic Relations	22 Can You Design It?	Figural Elaborations
11 Talk Show	Semantic Implications	23 The Advertising Game	Semantic Transformations
		24 The Reason Why	Semantic Elaborations

Figure 4. Mark 3 Activities

	SEMANTIC	SYMBOLIC	FIGURAL
UNITS	Thinking about Things Words with Many Meanings The Headline Cutter	Building Words	
CLASSES	Words with feeling	Word Families	Figure Families
RELATIONS	Sames and Opposites	Way-out Words	Say It with Symbols Make-a-Character
SYSTEMS	Laughing with Limericks A Peck of Pickled Peppers Haiku	Hide-a-Word	
TRANSFORMATIONS	Changing Things Sights, Sounds, and Smells The Advertising Game		
IMPLICATIONS AND ELABORATIONS	Another Point of View Talk Show Planning The Reason Why		Can You Design It?

1 Thinking about Things

Type of Activity

Semantic Units

Objectives

To develop ideational fluency.
To develop the ability to group things according to a common attribute (disjunctive classes).
To be able to distinguish between conjunctive and disjunctive classes.

Teaching Suggestions

This activity works well when carried out under mildly competitive conditions. After students have acquired a knack for listing things (usually after one or two exercises), you can increase competition by setting a time limit for each exercise and by giving additional points for responses that do not appear on other students' lists. Time limits should vary according to the age and ability levels of the group.

You should give students an opportunity to read some of their responses aloud in class. If they are scoring their responses under competitive conditions, a good deal of excitement and debate will probably ensue. Some of the more creative youngsters will no doubt produce debatable responses. Encourage children to explain why they think their responses are legitimate as it will help them develop the concept of logical organization and give you an opportunity to call their attention to the idiomatic use of language (for example, "a wooden-headed person").

Follow-up Activities

• Most of the exercises in the "Thinking About Things" activities are based on disjunctive classes—that is, only one attribute or common characteristic has been specified. On the other hand, in one exercise, students are asked to list things that are soft *and* blue. Since this exercise requires responses that possess a combination of attributes, it is based on a *conjunctive* class. After students have completed all of the "Thinking about Things" exercises, ask if they can tell how one exercise differs from all of the others. Lead them to see the difference between single- and multiple-attribute classes.

• You can raise the level of challenge by increasing the number of common attributes required. For example, students may be asked to list things that are soft, blue, *and* worn as clothing. You can also develop exercises around events (well-known battles or discoveries) or products (brands of breakfast cereals or makes of automobiles). An exciting adaptation is to let the students specify the attributes and try them out on their classmates.

2 Sames and Opposites

Type of Activity

Semantic Relations

Objectives

To develop verbal fluency and flexibility.
To develop the ability to construct relationships that are appropriate in meaning to a given idea and convey the concepts of same and opposite.

Teaching Suggestions

You can use the "Sames and Opposites" activities to lay the groundwork for higher level activities designed to develop verbal originality and the use of imagery. Explain to students that writers make their work come alive by varying their language and that they can develop feelings and moods by selecting the best word from a number of possible alternatives. You might illustrate this point by writing the following sentence on the chalkboard: *A group of _____ singers performed at our school last week*. You can insert several different words in the blank, each connoting a different kind of performance (for example, *opera*, *rock*, *country and western*, *folk*).

The number of possible responses to words in these activities varies, and students will probably be able to create long lists for some words and to give only a few responses for others. After students have completed as many blanks as they can, introduce them to the thesaurus and point out its value to writers.

This activity has been found to be successful when carried out under conditions of mild competition (either individual or team). Allow sufficient time for students to discuss whether or not a given word or phrase is really the same as, or opposite of, one of the words specified in the exercises. Encourage them to use the dictionary as an arbitrator whenever opinions differ.

Follow-up Activities

• Antonyms are much more difficult to construct than synonyms. More able students might enjoy

working on additional exercises asking them to think of opposites.

• In addition to preparing similar exercises based on the "Sames and Opposites" format, you can ask students to write sentences that will convey various moods by substituting one word or phrase for another. This activity will help them appreciate word power, and you can use it as a lead-in to writing entire paragraphs that create a certain mood. You might introduce students to poems that are especially effective in creating certain moods by using carefully selected words. The poem "The Green Moth ' by Winifred Welles creates a mysteriously beautiful mood about the nighttime Luna moth.

3 Way-out Words

Type of Activity

Symbolic Relations

Objective

To develop the ability to produce a symbolic relationship between the meanings of words and the way they are written.

Teaching Suggestions

Before distributing the activity sheets, write the word *divide* on the chalkboard and ask, "How can I make the word *divide* look like *divide*?" If students do not get the idea, erase through the middle of the word so that it looks like this: **divide**. Ask students if they can think of any other words that look like their meanings and have students write these words on the chalkboard. When students begin these exercises, make sure they have access to colored pencils or crayons.

After students have completed their activity sheets, ask them to reproduce their responses on the chalkboard. As you review the responses with the group, ask, "Did anyone write this word differently from the way it is written on the board?" Make sure that all major variations of each word are reproduced on the chalkboard and let the group decide which variation they like best. You may want to reserve a section of a bulletin board for students to display their original versions of "Way-out Words."

Follow-up Activities

• Invite students to compile lists of words to use in additional activities of this type.

4 Changing Things

Type of Activity

Semantic Transformations

Objectives

To develop ideational fluency.
To give practice in brainstorming.

Teaching Suggestions

To introduce this activity, call attention to items that are functional and designed to appeal to the eye (e.g., automobiles, toasters, furniture). To help students understand the difference between works of art and products that have been beautified for aesthetic rather than functional reasons, ask students if a modernistic design of a clock makes it any more useful.

After students have completed the exercises, invite students to read aloud some of their lists and suggested changes. Give special praise to unusual items and to ideas that are unique in the group. Ask students to draw upon their own experience in explaining why they would like to have certain things made more attractive or durable.

Follow-up Activities

• You can develop similar activities around other possible modifications. For example, things can be made softer, quieter, safer, or less expensive. Ask students to set the specifications and try them out on their classmates. You can also ask students to suggest functional or aesthetic changes in other common objects, such as telephones, bicycles, playgrounds, highways, and eating utensils.

5 Another Point of View

Type of Activity

Semantic Elaborations

Objectives

To develop the technique of personification by elaborating upon given information.
To develop imagination and creative writing skills.

Teaching Suggestions

This activity provides students with an opportunity to extend their imaginations by identifying both physically and emotionally with nonhuman creatures.

The activity will be most successful if an appropriate classroom climate is created prior to beginning the exercises. To achieve such a climate, ask students if they have ever visited a zoo and observed animals in a cage. Then ask them how they think the animals feel about being put in cages so that people can look at them and what the animals might say if they could talk. It might be worthwhile for pairs of students to play the parts of an animal and a visitor at the zoo and make up an imaginary conversation between them.

After students have completed each exercise, ask them to share their responses with the group or with a partner. You might ask other students to close their eyes and see if they feel as though a wolf or a mouse were actually telling the story. Early attempts at personification are likely to be awkward; therefore encourage students to revise their stories after they have had an opportunity to receive feedback from their partners or classmates. It is important to emphasize that there are no predetermined ways of completing these exercises and that every student should try to reflect his or her own personal feelings.

Follow-up Activities

• In addition to writing stories based on other animals, students can attempt to personify nonliving things such as clocks, baseballs, and automobiles. An interesting variation is to ask students to write stories entitled "If I Could Talk, What Stories I Could Tell" using as characters such inanimate but historically significant objects as Benjamin Franklin's kite, the Colosseum in Rome, or Amelia Aerhart's airplane. Introduce students who are especially interested in this type of writing to outstanding examples of personification such as Robert Lawson's *Ben and Me*, the story of Benjamin Franklin as told by his friend Amos, the mouse.

6 Say It with Symbols

Type of Activity

Figural Relations

Objectives

To develop the ability to produce relations between figures and given ideas.
To show symbolism in figural information that is based on given requirements.

Teaching Suggestions

Ask students to look at the illustrations on the first activity sheet and to speculate about the messages they intend to convey (open drawbridge, falling rocks). Point out the essential characteristics of a good symbol (instant and unambiguous recognition of what is represented by the figure). Ask the students if they can think of other common symbols that are encountered in our society (symbols on weather maps; commercial and safety symbols; and political symbols, such as the donkey, elephant, American eagle, British Lion, and so on). The key to creative productivity in this activity is in helping students understand that they can make their drawings symbolic as well as realistic. Unless you emphasize this concept, many of the responses will be rather obvious. If students dwell on the obvious in their drawings, suggest that for each symbol they make a second drawing that is completely different from their first.

Allow students to use crayons or colored pencils when completing their drawings and display them on a bulletin board. When discussing the content of students' drawings, ask them to explain the meaning of any symbol or part of a symbol that is not immediately obvious. This activity helps develop peer evaluation. Let the students decide which drawings they like best and encourage them to re-create their symbols if they have picked up any good ideas from their classmates.

Follow-up Activities

• In addition to creating new highway and recreation symbols, students may want to develop their own sets of symbols to send secret messages. You can obtain a listing of international highway symbols from travel agencies or automobile clubs, and several books on the origin of language have sections that deal with early forms of symbol writing.

Resources

Symbol Sourcebook by Henry Dreyfuss. 1984. Published by John Wiley & Sons: New York.

7 Words with Many Meanings

Type of Activity

Semantic Units

Objective

To develop the ability to produce a variety of contextual meanings for given words.

Teaching Suggestions

To introduce this activity, write the word *subject* on the chalkboard and ask a student to use the word in a sentence. Record the sentence on the chalkboard and then ask if anyone can think of another sentence that brings out an entirely different meaning of the word *subject*. Continue this process until students have identified the following meanings: subject of a sentence, a king's subjects, subject to colds, a school subject, subject for a composition. (An additional meaning can be added if the word is accented on the second syllable as in "subjected to torture.") Although this word has a number of different meanings, students will quickly realize that the intended meaning of a word is usually revealed by the way the word is used in a sentence.

After students have completed the exercises, ask them to read their responses aloud. Call attention to meanings that are relatively unique in the group. For example, the word strike is sometimes used to indicate that a fish has attacked a baited hook, and *run* may be used in contexts such as "a run of good luck" and "a run in a stocking."

Follow-up Activities

• Encourage students to develop their own lists of words for additional activities of this type. In order to make the activity sufficiently challenging, students should identify at least three different meanings for each word included on their lists. Invite more able students to develop four-meaning or five-meaning word lists. In addition, you can ask students to rewrite their sentences using synonyms or synonymous phrases for the words with many meanings.

8 Laughing with Limericks

Type of Activity

Semantic Systems

Objectives

To develop the ability to organize words into meaningful ideas.
To create original limericks.

Teaching Suggestions

The limerick is a form of poetry that children enjoy because it appeals to their sense of humor. Early attempts at writing limericks are often awkward and frequently nonsensical. Therefore it is especially important for you to support students' early attempts. As they continue practicing, both the meaning and the rhythm of their poems will improve.

Introduce this activity by having a student read the sample limerick aloud in class and calling attention to the rhyming pattern. Ask students what word they could use as the final word in the unfinished limerick. After students have completed each activity sheet, allow them to read their limericks aloud. Give special praise to limericks that have flawless rhythm and rhyme and that convey a meaningful message.

Follow-up Activities

• Encourage students to write original limericks to display on a bulletin board or include in a class newspaper or literary magazine. Students with artistic talent can work cooperatively with the writers to illustrate the humor in various limericks.

• Ask youngsters to write the first two lines of a limerick and exchange them with their classmates for completion.

9 Building Words

Type of Activity

Symbolic Units

Objectives

To develop verbal fluency by producing words that conform to given specifications.
To develop spelling and vocabulary skills.

Teaching Suggestions

Write the word *script* on the chalkboard and ask students how many words they can form that contain script but that do not begin or end with it (*descriptive*, *subscription*, *prescriptive*, *transcription*, etc.). Once students have caught on to the idea, invite them to see who can develop the longest lists and who can think of some words that no one else will have on his or her lists. If students have difficulty, you may want to let them work in small groups and use their dictionaries.

After students have completed each activity sheet, have them read the words to the class and praise both quantity of response and responses that are unique in the group. Encourage youngsters to check the spellings and meanings of their words and ask students to use some of the words in sentences.

Follow-up Activities

- Since some combinations of letters may have only very limited possibilities for word building, ask students to think of at least five possible answers for a given set of letters before they submit an exercise to their classmates.

- A variation of this activity is to ask students to see how many small words they can discover in a given larger word. For example, eight small words can be found in the word *amendment* (*a*, *am*, *amen*, *amend*, *me*, *men*, *mend*, *end*).

10 Crunch, Munch

Type of Activity

Semantic Relations

Objectives

To develop the ability to produce relationships between the meanings and sounds of words.
To develop word fluency.

Teaching Suggestions

   This activity is based on the literary device of *onomatopoeia*, or the use of words to imitate sounds. You can introduce this activity by asking students to look at the three words given as examples in the first exercise and to think of some other words that describe a person eating potato chips. Lead them to discover the difference between onomatopoeic words and other words that describe eating, such as *bite*, *chew*, and *swallow*. Point out that words that imitate sounds are often "made-up" words that are not found in the dictionary and encourage them to invent some of their own words. Also point out that onomatopoeic words are sometimes used to highlight action in comic strips and ask students if they can think of some examples. (Comics about superheroes are a good source of examples.)

   Students will no doubt have differences of opinion about whether certain words imitate sounds. You should let the group judge the degree to which words are onomatopoeic.

Follow-up Activities

- You can also carry out this activity in reverse—that is, you can ask students to list onomatopoeic words and then describe situations in which such words can be used.

- You might also ask students to draw action pictures that include onomatopoeic words or to place their drawings on the bulletin board and allow their classmates to list appropriate words beneath each picture.

- Introduce students who are especially interested in this type of activity to poetry that relies heavily on onomatopoeia. Edgar Allen Poe's "The Bells" is a classic example. Other poems that use onomatopoeia include Longfellow's "The Building of the Ship," Masefield's "Cargoes," and Tennyson's "Blow, Bugle, Blow" and "The Brook." Invite students to write their own poems that make use of onomatopoeic words.

11 Talk Show

Type of Activity

Semantic Implications

Objectives

To develop the ability to produce antecedents based on given information.
To generate relevant and provocative questions relating to given situations.

Teaching Suggestions

   Although curiosity is an almost universal characteristic of young minds, students are sometimes not given opportunities to develop the skills of expressing their natural inquisitiveness. This activity allows students to develop inquiry training skills and learn the distinction between questions that can be answered with a simple yes or no and questions that are of a more probing nature. When introducing this activity, emphasize the importance of asking insightful as well as factual questions and phrasing questions in a way that will elicit a great deal of information. Early questions are likely to deal with obvious material, and therefore it is important to encourage students to give three responses to each exercise.

   After students have completed each exercise, ask them to read their questions aloud and allow the class to judge which questions they think are most effective. Since the responses of others will provoke new ideas, allow students an opportunity to formulate additional questions after they have heard their classmates' questions.

Follow-up Activities

- If students are studying the lives of famous people, the activity can be staged as a simulated interview, with youngsters assuming the roles of famous individuals. Have them use tape and video recorders to record interviews for subsequent analysis and evaluation. (An interesting variation is to ask students to formulate questions for well-known cartoon characters such as Mickey Mouse or well known animals such as Lassie.)

- Encourage students who show a special interest in this type of activity to study the way that questions are phrased on television talk shows such as *Face the Nation* and *Meet the Press*.

12 Figure Families

Type of Activity

Figural Classes

Objectives

To develop the ability to classify figural information in a variety of ways.
To develop flexibility in viewing figural information.

Teaching Suggestions

Introduce this activity by writing the letters *R*, *D*, *L*, *F*, *O*, and *C* on the chalkboard. Ask students if they can form subgroups of these letters, each of which makes a class according to similar figural characteristics. They will probably recognize such groups as *RDO* (enclosed space), *LF* (horizontal lines), and *RDOC* (curved lines). Be sure to point out that each letter can belong to more than one group. After students have listed several groups on the chalkboard, you might ask what other letters could be added to each of the categories.

Although there are a limited number of categories that you can create with any given set of figural information, "Figure Families" will allow students to explore various ways in which information can be categorized. Youngsters will quickly recognize some of the more obvious categories, but you should encourage them to look for the subtle characteristics that the figures have in common. Any common feature that a student can justify should be accepted.

This activity might provoke some interesting discussions in class. For example, some students may object to classifying the kangaroo (Figure G on the second activity sheet) as having four feet. There may

also be disagreement about whether a purse (Figure F) can be classified as wearing apparel. However, it is important to let students resolve their own differences. Help them along with questions such as "What is the difference between wearing apparel and accessories? Is one a subcategory of the other?" Some of the more able students will be challenged by these questions, and you should encourage them to do some research on the meanings of the words that they use as categories.

Follow-up Activities

- Objects and figural material can be grouped according to a variety of physical properties, such as size, shape, color, texture, flexibility, and type of material (wood, plastic, glass, etc.). A good way to help students practice their classification skills using nonverbal material is to fill a box with all sorts of odds and ends (straws, bottle caps, rubber bands, chalk, etc.) and allow each student to spend some time studying the materials and creating categories. After all students have examined the box of materials, ask them to compare lists to see who developed the most categories. Students can also prepare their own boxes of materials and exchange them with their classmates.

13 A Peck of Pickled Peppers

Type of Activity

Semantic Systems

Objective

To develop the ability to organize words according to initial sound patterns.

Teaching Suggestions

You can introduce this activity by having a student read aloud the poem on the first activity sheet and calling attention to the author's use of alliteration. Point out how the repetition of the initial b sound gives rhythm to the poem. Ask students if they can think of other examples of alliteration that they have encountered in their reading or in their daily speech habits. Expressions such as "bottom of the barrel," "dirty dog," "double dealing," and "wild west" are examples of rhythmical patterns in everyday speech. Tongue twisters are also good examples of alliteration, and you may want to ask students if they would like to recite some familiar tongue twisters such as "Peter Piper picked a peck of pickled peppers."

Students may have some difficulty getting started on this activity if they think that the alliterated sounds must be the same as the initial sounds of the topics. Point out the second example for *submarine* and emphasize that any beginning sound can be used regardless of the beginning sound of a given topic (i.e., the topic is submarine but the alliterated sound is b).

After students have completed each activity sheet, ask them to read their sentences aloud. Allow the group to judge which sounds give force and strength to the sentences.

Follow-up Activities

• Ask students to watch for good examples of alliteration in their reading and everyday speech and recording these examples in a reserved section in their notebooks.

• Encourage students who display an interest in this activity to explore poetry that is especially alliterative and, of course, to try their hand at writing poetry that uses this technique.

Resources

The Rooster Crows: A Book of American Rhymes and Jingles by Maud Petersham. 1987. Published by Macmillan: New York.

The Z Was Zapped: A Play in Twenty-Six Acts by Chris van Allsburg. 1987. Published by Houghton Mifflin Co.: New York.

14 Planning

Type of Activity

Semantic Elaborations

Objectives

To develop ideational fluency and flexibility.
To produce an original plan of operation that is based on minimal specifications.

Teaching Suggestions

This activity allows youngsters to practice brainstorming skills and develop an organized plan based on one or more of the ideas produced in brainstorming. Although planning and organizing are extremely important abilities, most of the work that students do in school is planned for them by adults. Therefore, some students will find this activity

difficult, and they may look to you for more guidance and direction than you should give. If students are to developed these abilities to the fullest, you should give some general suggestions, but the main responsibility rests with the students. General suggestions might be built around questions such as the following:

What are the objectives of the project?
How can the objectives be divided and clarified?
What skills will be required?
What jobs have to be done?
Should some job be done before others?
What materials and resources will be needed?

Encourage students to develop flow charts and time lines that present responsibilities, persons assigned to various jobs, and sequences of events.

After students have worked on their individual plans, you might divide them into small groups and suggest that they pool their ideas to produce a group plan. Let the class decide which plan would be the most effective.

Follow-up Activities

• In addition to developing other hypothetical planning situations, encourage students to apply their planning skills to both their individual work and any group projects that the class may undertake. Sometimes it is difficult for teachers to refrain from structuring activities, but if students are to develop planning abilities, they should be allowed to plan their own work whenever possible. The business sector and government have developed a number of planning and project management systems, and students who have an interest in, and aptitude for, this activity should be given an opportunity to study the area further. Unfortunately, most of the material in this area is too complicated for elementary-age youngsters. Nonetheless, you might help them interpret some of the material in a book such as *Program Evaluation and Review Technique* (PERT) by Desmond L. Cook (University Press of America, 1978).

15 Hide-a-Word

Type of Activity

Symbolic Systems

Objectives

To develop the ability to organize given symbolic information into different systematic arrangements.

To manipulate words so that they convey a meaningful message and, at the same time, meet predetermined symbolic specifications.

Teaching Suggestions

Introduce this activity by writing the following sentences on the chalkboard and asking students if they can find the names of two vegetables hidden in each sentence:

> John said a picnic or nature walk would interest him because he wanted to be a naturalist.

> John's mother said, "All I'm asking is that you go to sleep early."

If students' initial efforts at hiding words in sentences are awkward, be sure to praise them for their early attempts and encourage them to make their sentences as meaningful as possible. After students have caught on, encourage them to break up the stimulus words in more than one way. After students have completed the exercises, they can exchange papers and attempt to identify the hidden words.

Follow-up Activities

• Ask students to create their own words and challenge others to discover them. Students who show a special talent for this type of activity might enjoy developing "Hide-a-Word" exercises that are built around a given theme, such as the names of fruits, trees, or animals.

16 Words with Feeling

Type of Activity

Semantic Classes

Objectives

To develop the ability to produce many categories of words and phrases appropriate in meaning to a given situation.
To develop verbal fluency and word association skills.

Teaching Suggestions

To introduce this activity, select a short paragraph that creates a certain mood and read it to the class. Ask students what words the author used to help create the mood in question. You can also ask students what words come to mind when they think of *fear* or *excitement*.

After students have completed each activity sheet, invite them to read individual words or phrases at random. Then ask the class to guess with which category the word or phrase is associated. The beginning words in each list are likely to be obvious associates of the situation in question. Therefore, it is important to encourage youngsters to generate at least five words or phrases for each situation. Ask students to explain words or phrases that are less obvious and generously praise responses that show clever or remote associations. Ask students if any of the responses that are read aloud could be used for more than one of the six situations in the exercise. Some debate is likely to ensue, and it is important to let the students themselves resolve their differences.

Follow-up Activities

• A natural follow-up to the "Words with Feeling" exercises is to ask students to write short paragraphs about each situation. This activity will help them synthesize their words and phrases and use them in a creative writing task. Invite youngsters who show an interest in this type of follow-up activity to write a short story based on one of the moods.

• Responses to this activity often deal with visual and auditory senses. You can help students expand their perception of mood-associated words by asking them to classify words according to one of the five senses with which they are associated. This activity will help students realize that moods can also be created by words that are associated with smell, taste, and touch.

• You can also ask youngsters to describe the sound effects they would use if they were developing a radio program designed to convey a given mood. Some students may actually want to create a sound effects tape for one or more of the situations listed on the activity sheets or other situations of their choice.

17 Haiku

Type of Activity

Semantic Systems

Objectives

To develop the ability to convey mood and feeling.
To create original haiku.

You may choose to introduce this activity by asking students to read the examples on each activity sheet aloud and suggesting that they underline each of the seventeen syllables in the poems. Although early attempts at writing haiku are likely to be awkward, praise students for their initial efforts and encourage them to revise their poems so that they conform to the 5-7-5 pattern of haiku.

As students gain experience in writing haiku, point out the simple picture-making description usually included in the early part of the poem and the statement of mood or feeling that follows. Since haiku usually focuses on direct (eyewitness) accounts, encourage students to draw on their own experience and observations of natural phenomena.

Follow-up Activities

• Allow students who express an interest in haiku to work together to stimulate ideas and assist each other in revising their poems. They may wish to make illustrated booklets or bulletin board displays of their haiku.

• Introduce interested students to some of the many books that contain haiku.

18 Make-a-Character

Type of Activity

Figural Relations

Objectives

To develop the ability to produce relationships between given figural information.
To develop imagination by producing and elaborating upon an original character.

Teaching Suggestions

Prior to introducing this activity, ask students to cut out and bring to class some of their favorite comic-strip characters from the daily newspaper. Discuss the characteristics of various expressions on these characters' faces (for example, serious, silly, sinister) and ask students how they think cartoonists achieve the desired effect in their characters.

Provide students with scissors and paste for this activity and encourage them to experiment with several combinations of facial parts before they prepare their final product. Some students may want to predetermine the type of character they wish to create, or they can simply manipulate the parts and let their characters evolve. After students have decided on the parts they would like to use for their characters, suggest that they use color and shading to elaborate upon the faces. Allow students to present their characters to the class and to read their stories aloud. You can use the final products for classroom decorations or display them on a bulletin board.

Follow-up Activities

• Allow students to work in groups, each contributing one part to form a composite face.

• Students can also prepare their own facial parts and exchange them with their classmates.

• Encourage students who are especially talented in this type of activity to prepare a comic strip series to display on a bulletin board or publish in a class or school newspaper.

19 The Headline Cutter

Type of Activity

Semantic Units

Objectives

To produce written communications that arouse curiosity and interest in specified material.
To develop ideational fluency based on a specified written communication.

Teaching Suggestions

Introduce this activity by showing several provocative headlines clipped from newspapers and asking the class to speculate about the articles that appear below the headlines. Emphasize the function that headlines perform in arousing the reader's curiosity and invite students to think of alternative headlines for those that you have cut out of the newspaper. After they have speculated about a few articles, read a brief newspaper article and ask students to suggest some possible headlines. Record these on the chalkboard and allow students to judge which headlines they think would create the most interest in the article.

Follow-up Activities

• The daily newspaper can supply you with an unlimited number of headlines and articles to use

in this type of activity. You can mount brief articles on poster paper and place it on a bulletin board so that students can read the articles and record their suggested headlines above them.

- This activity provides an opportunity for you to call students' attention to two additional functions of newspaper headlines. Some headlines are intended to summarize the information in the article so that readers can discern the main message of the article at a glance ("Red Sox Sweep Doubleheader from the Yankees"). Another function of a headline is to raise a question that will be answered in the article ("Will Mayor Seek Re-election to Third Term?"). Ask students to collect headlines that fall into each category. Then have them scramble the headlines and exchange them with their classmates for reclassification. Whenever differences in opinion occur, allow students to give reasons in support of their classification and make the final judgments.

- If your local newspaper has a person who is responsible for cutting headlines, you may want to invite him or her to speak to the class about how he or she decides on a headline.

20 Sights, Sounds, and Smells

Type of Activity

Semantic Transformations

Objectives

To develop the ability to identify and isolate the kinds of information obtained through the senses.
To transform separate pieces of information into an original descriptive paragraph.

Teaching Suggestions

Close observation is a primary requisite for descriptive writing, and it is important for students to appreciate the importance of the senses in receiving information that leads to description. Write the words *Sight*, *Sound*, *Smell*, *Taste*, and *Touch* across the chalkboard and ask what descriptive words students might list under each heading. Lead students to the conclusion that carefully selected words not only help describe things and situations, but also help create moods and feelings. For example, the words aroma and stench, both associated with the sense of smell, create two different attitudes.

After students have completed their descriptive paragraphs, have them read their paragraphs aloud. Then ask the class to judge whether the writer has made them feel as though they were on a busy city street or in a tropical jungle. Encourage students to revise and rewrite their descriptions, keeping in mind that the main objective is to make the reader feel as though he or she is experiencing the situation being described.

Follow-up Activities

- Follow-up activities can concentrate on one of the senses or on any combination of the five senses. Photographs and paintings provide good stimulus material for descriptive writing. You should also encourage students to include the senses of taste and touch in their descriptions. Students who enjoy descriptive writing can work cooperatively with youngsters who are talented in art. Provide students who are especially talented in this area of writing with exemplary pieces of descriptive writing and encourage them to expand their paragraphs into short stories.

21 Word Families

Type of Activity

Symbolic Classes

Objectives

To develop the ability to classify verbal information in a variety of ways.
To develop flexibility in viewing verbal information.

Teaching Suggestions

Write the following words across the chalkboard and ask students to think of ways in which the words can be grouped together according to common characteristics: *book*, *take*, *cooking*, *sewed*, *looked*, *safe*. Lead students to discover that words can be grouped according to meaning, sound, letter configuration, number of syllables, beginnings and endings, and parts of speech. Point out that some words will fit into several categories.

Although there are a limited number of categories that can be created with any given set of words, this activity allows youngsters to explore a variety of ways in which verbal information can be categorized. The activity can generate a good deal of enthusiasm when pursued under mildly competitive conditions. You should accept any common feature that a student can justify as a legitimate category and encourage students to resolve

their own differences of opinion when disagreements arise.

Follow-up Activities

• An unlimited number of activities can be patterned after the "Word Families" format, and students should take responsibility for producing lists of words to use in follow-up exercises. An interesting variation is to have students write each word on a slip of paper and then sort the slips into several small boxes, each of which is labeled to indicate a particular category. When students discover more than one category into which a word can be placed, they may write the word on another slip of paper.

22 Can You Design It?

Type of Activity

Figural Elaborations

Objectives

To develop nonverbal elaboration and originality.
To produce an organized plan that includes anticipated consequences arranged in unique ways.
To write a description that translates figural information into verbal information.

Teaching Suggestions

Before students begin this activity, ask them to brainstorm a list of things that they will want to include in their plan. If they have had some experience in scale drawing, you might suggest that they devise a scale for their drawings and use rulers to convert objects to a given scale.

After students have completed each exercise, have them develop a comprehensive list on the chalkboard of all the things that are included in everyone's drawing. Use tally marks each time an object is repeated and call attention to objects that are relatively unique in the group.

Display students' plans on the bulletin board and compare them with pictures and plans that might be available from magazines or actual blueprints. (Maps of parks and recreation areas are sometimes made available so that users can easily locate equipment and facilities. Ask youngsters who might visit national parks or recreation areas to look for such maps and descriptive literature.)

Follow-up Activities

• You can correlate language arts activities with this activity by asking students to write descriptions and specifications for their classroom and recreation area plans. Technical writing is a highly valuable skill which youngsters seldom get a chance to develop. Encourage students to be imaginative by reminding them that descriptive writing should create a mental image that accurately represents the object being described and, at the same time, makes the object sound attractive. You can use this follow-up activity with students who are especially interested in writing or with students who like to draw but are somewhat reluctant to write. For this latter group, emphasize the drawing, but use the figural work as a basis for getting them to do some writing about their drawings. This activity can serve as a lead-in or follow-up to "The Advertising Game."

• Other design activities can be based on a variety of objects. Entire schools, rocket ships, houses, traffic systems, and various types of stores, banks, and zoos are some of the things that youngsters can design. For those who express an extreme interest in this area, you might want to obtain some blueprints or books on design and drafting and arrange for them to talk with an architect or draftsman.

Resources

KidTech by Lucy Miller. 1998. Published by Dale Seymour: New York.
WhyDesign? by Anna Slafer and Kevin Cahill. 1995. Published by Chicago Review Press: Chicago, IL.

23 The Advertising Game

Type of Activity

Semantic Transformations

Objectives

To develop verbal originality and elaboration.
To produce a clever and convincing communication that is directed toward a given purpose.

Teaching Suggestions

Before introducing this activity, you may want to bring in a variety of advertisements from newspapers and magazines. Ask students what they think the writers

of the advertisements did to attract the attention of readers. For example, they might appeal to particular age groups or use well-known persons or attractive models. In a similar fashion, analyze a few radio or television commercials and encourage youngsters to talk about their favorite commercials as well as those they dislike. Point out the efforts commercial writers make to excite potential buyers by using clever language and appeals to values that people consider important. Call attention to the use of humor in many television commercials, but also remind students that humor is only a device to attract attention.

Follow-up Activities

- In addition to writing advertisements and commercials for an almost unlimited variety of products, students can develop artistic and graphic skills by preparing advertisements for magazines and billboards. Allow them to judge each other's work and to compare their work to professional advertisements. Lead them to discover the importance of balanced layouts, bold colors, and dynamic words.

- Dramatizing written scripts is a natural follow-up to this activity. If students show an interest and appear to be having fun, allow them to elaborate on their commercials by incorporating such things as musical background, makeup, costumes, and puppets. Students should use tape recorders (and video recorders, if available) for rehearsals and for recording the final production.

- In a somewhat more advanced version of "The Advertising Game," students create ads or public service announcements that are directed toward popularizing certain noncommercial behaviors. Encouraging people to get health checkups, to stop smoking, to drive carefully, and to avoid polluting the environment are examples of public service announcements. Again, encourage students to use a variety of media to help them produce effective communications. Students could use some of the noncommercial presentations for school campaigns.

24 The Reason Why

Type of Activity

Semantic Elaborations

Objectives

To develop imagination through fanciful speculation. To produce unique or clever antecedents based on given information.

Teaching Suggestions

To introduce this activity, discuss with students the fanciful and exaggerated exploits of folklore heroes such as Paul Bunyan and Pecos Bill. If students are not familiar with tall tales, it will be worthwhile to read one of these stories or one or two of Kipling's *Just-So Stories*, such as "How the Leopard Got His Spots" or "How the Camel Got His Hump." This activity may be somewhat difficult for students because they are usually asked to give logical explanations for natural phenomena. Therefore, it is necessary to encourage students to be as imaginative as possible in answering the questions. Ask them to read their responses aloud and allow the class to judge which explanations are the most imaginative.

Follow-up Activities

- In addition to making fanciful speculations about other natural phenomena and unusual events or situations, students can develop short stories that are similar in format to Kipling's *Just-So Stories*. In fact, the best use of these exercises is as a lead-in to creative writing activities that encourage fanciful speculation. Students can illustrate stories, and you should encourage students with artistic talent to team up with other students who are especially interested in writing stories. Students can also dramatize and present outstanding stories to primary grade youngsters.

BIBLIOGRAPHY

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writing. *Journal of Personality and Social Psychology, 48,* 393-399.

Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.

Anderson, Harold H. (Ed.). (1959). *Creativity and its cultivation*. New York: Harper & Brothers.

Archambault, Francis X. (1970, March). *A computerized approach to scoring the Torrance tests of creative thinking*. Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Arnold, John E. (1962). Useful creative techniques. In Sidney J. Parnes and Harold F. Harding (Eds.), *A Source Book for Creative Thinking*. New York: Charles Scribner's Sons.

Baer, J. (1993). *Creativity and divergent thinking*. Hillsdale, NJ: Erlbaum.

Baer, J. (1996). The effects of task-specific divergent thinking training. *Journal of Creative Behavior, 18* (1), 11-22.

Davis, G. A. (1999). *Creativity is forever* (4th ed.). Dubuque, IA: Kendall/Hunt Publishing.

Eberle, Robert F. (1966). *Teaching for creative productive thinking through subject matter content*. Unpublished. State of Illinois Bulletin to Edwardsville, Illinois, Community Schools, Community District 7.

Feldhusen, John F., Bahlke, Susan J., & Treffinger, Donald J. (1969). Teaching creative thinking. *Elementary School Journal, 70,* 48-53.

Gretzels, J. W., & Jackson, P. W. (1962). *Creativity and intelligence*. New York: John Wiley & Sons.

Guilford, J. P. (1967) *The nature of human intelligence*. New York: McGraw-Hill.

Jaben, T. H. (1980). *The impact of creativity training on learning disabled students' creative thinking abilities and problem solving skills*. Paper presented at the Annual International Convention of the Council for Exceptional Children. (ERIC Reproduction No. ED192481).

Lepper, M., Greene, D., & Nisbet, R. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28,* 129-137.

Li, A. K. F. (1985). Correlates and effects of training in make-believe play in preschool children. *Alberta Journal of Educational Research, 31* (1) 70-79.

Meeker, Mary Nicol. (1969) *The structure of intellect: Its interpretation and uses*. Columbus, OH: Charles E. Merrill.

Mellou. E. (1995). Review of the relationship between dramatic play and creativity in young children. *Early Child Development and Care, 112,* 85-107.

Osborn, Alex F. (1963). *Applied imagination* (3rd ed.). New York: Charles Scribner's Sons.

Paulus, Dieter H. (1970, March) *Are sub-tests of the Torrance test independent?* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Pollert, Leslie H., Feldhusen, John F., Von Mondfrans, Adrian P., & Treffinger, Donald J. (1969). Role of memory in divergent thinking. *Psychological Reports, 25,* 151-56.

Rogers, Carl. (1969). *Freedom to learn*. Columbus, OH: Charles E. Merrill.

Rose, L. H., & Lin, H. T. (1984). A meta-analysis of long-term creativity training programs. *Journal of Creative Behavior, 18* (1), 11-22.

Russ, S. W. (1996). Development of creative processes in children. *New Directions in Child Development, 72,* 31-42.

Simonton, D. K. (1988). Creativity, leadership, and choice. In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 386-426). New York: Cambridge University Press.

Starko, A. J. (1995). *Creativity in the classroom: Schools of curious delight*. While Plains, NY: Longman Publishers.

Taylor, Calnn W., & Williams, Frank E., (Eds.). (1966). *Instructional media and creativity*. New York: John Wiley & Sons.

Torrance, E. P. (1965). *Rewarding creative behavior: Experiments in classroom creativity*. Englewood Cliffs, N.J.: PrenticeHall.

Torrance, E. P. (1987). Teaching creative and gifted learnings. In S. G. Isaksen (Ed.). *Frontiers of creativity research: Beyond the basics* (pp. 189-215). Buffalo, NY: Bearly Limited.

Walberg, H. J., & Zeiser, S. (1997). Productivity, accomplishment, and eminence. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed.) (pp. 328-334). Boston: Allyn & Bacon.

Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children*. New York: Holt.

Watts, A. (1964). A psychedelic experience: Factor fantasy." In David Soloman (Ed.), *LSD: The Consciousness Expanding Drug*. New York: G. P. Putnam's Sons.

Williams, Frank E. (1964). *Reinforcement in classroom learning*, Washington, D.C.: U.S. Office of Education (Department of Health, Education, and Welfare).

Name_____Date_____

1   Thinking about Things (a)

When you are in a department store, have you ever noticed that all of the things of a certain type are grouped together? You will find all the men's clothing in one section and all the women's clothing in another. For some reason, people like to group things together according to certain characteristics that they have in common. In this activity, see how many things you can think of that have the same characteristics.

List all the things that you can think of that have four legs. A few examples are given to help you get started. If you need more space, continue your list on the back of this page.

horses_____   _____   _____

tables_____   _____   _____

a pair of twins_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

List all the things you can think of that are made of wood. Use the back of this page if you need more space.

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

Name_____Date_____

1   Thinking about Things (b)

List all the things you can think of that are soft and blue. Use the back of this page if you need more space.

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

List all the things you can think of that can be found in a school. Use the back of this page if you need more space.

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

Name_____Date_____

2   Sames and Opposites (a)

See how many words or phrases you can think of that mean the same or almost the same as the word at the top of each column. Use the back of this page if you need more space.

acquire	funny	follow	drink
obtain	_____	_____	_____
get	_____	_____	_____
pick up	_____	_____	_____
_____	_____	_____	_____

change	arise	bend	artist
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See how many words or phrases you can think of that mean the opposite of the word at the top of each column.

behind	wicked	cold	success
before	_____	_____	_____
in front of	_____	_____	_____
ahead of	_____	_____	_____
_____	_____	_____	_____

clean	wrong	low	trust
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Name_____Date_____

2   Sames and Opposites   (b)

See how many words or phrases you can think of that mean the same or almost the same as the word at the top of each column. Use the back of this page if you need more space.

assemble	barrier	spot	part
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

boundary	break	container	flight
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See how many words or phrases you can think of that mean the opposite of the word at the top of each column.

build	choose	hard	take
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

calm	square	enemy	slow
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Name_____Date_____

3   Way-out Words (a)

Words can sometimes be written in ways that make them look like their meanings. See if you can write each of the following words so that it will look like its meaning. An example of how the first word might be written is shown below.
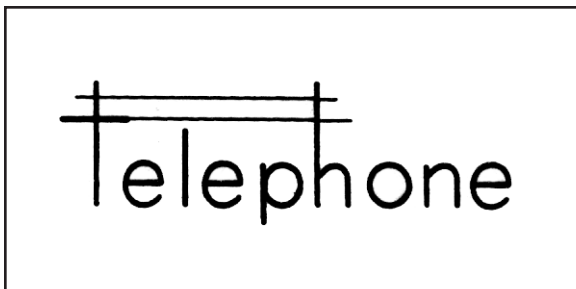
telephone

depress

squeeze

knot

American

sneeze

leak

fire

Name_____Date_____

3 Way-out Words (b)

See if you can write each of the following words so that it will look like its meaning.

square	peel
question	fall
slide	peek
far	double

Name_____Date_____

4   Changing Things (a)

Many things that serve a useful purpose in our daily lives are more appealing because they have been made more attractive or beautiful. For example, dishes have been beautifully designed and decorated so that they are attractive as well as useful. In the spaces below, list all the things you can think of that might be made more beautiful or attractive. Try to think of things that no one else has thought of. A few examples are given to help you get started. Use the back of this page if you need more space.

pencils _____   _____   _____

garbage cans _____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

Select one of the things from your list and tell how you would go about making it more beautiful or attractive. Use the back of this page if you need more space. On a separate piece of paper, make a sketch of the thing you designed.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name_____Date_____

4   Changing Things (b)

Many things are more useful to us because they have been
made stronger or made to last longer. For example, the
manufacturers of paper towels and aluminum foil try to make
their products as strong as possible. In the spaces below, list all
the things you can think of that would be more useful if they were
made stronger or were made so that they would last longer. Use
the back of this page if you need more space.

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

Pretend that you have been asked by a toy manufacturing company to make any changes
you wanted in their yo-yos so that they would be more fun to play with. What changes
would you make? List your ideas in the space below. Use the back of this page if you need
more space.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

5   Another Point of View (a)

Do you remember the story about the three little pigs? In that story, the wolf is depicted as a mean and evil character, but few people have ever told the story from the wolf's point of view. Imagine that you are the wolf in this story. Retell your story in a way that will let the reader to understand how it feels to be the big bad wolf. A few lines are written to help you get started. Use the back of this page if you need more space.

<div align="center">

The Three Little Pigs
by
I. M. A. Wolf

</div>

It's not easy being a big bad wolf. I don't have very many friends, and everybody runs away when they see me coming.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

5   **Another Point of View (b)**

What do you think the world looks like to a mouse? Would people look like giants and fish bowls like big aquariums? Imagine that you are a mouse and write a description of what the world looks like to you. Tell how it feels to see the world from a "mouse-eye view." Use the back of this page if you need more space.

A Mouse-eye View

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Name_____Date_____

6   Say It with Symbols (a)

The signs along our highways often use pictures or symbols to give directions to drivers. A good symbol should enable the driver to recognize its meaning instantly so that he or she knows what to do when he or she sees it. Imagine that you are a designer who has been asked to design a symbol for each message below. Draw your symbols in the spaces provided.
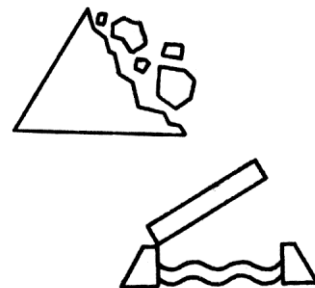
Bumpy Road   Narrow Bridge

Animal Crossing   Slippery Road

6   Say It with Symbols (b)

Pretend that you have been asked to design a symbol for each
type of recreation listed below. Remember that a good symbol
should enable people to recognize its meaning instantly. Draw your
symbols in the spaces provided.
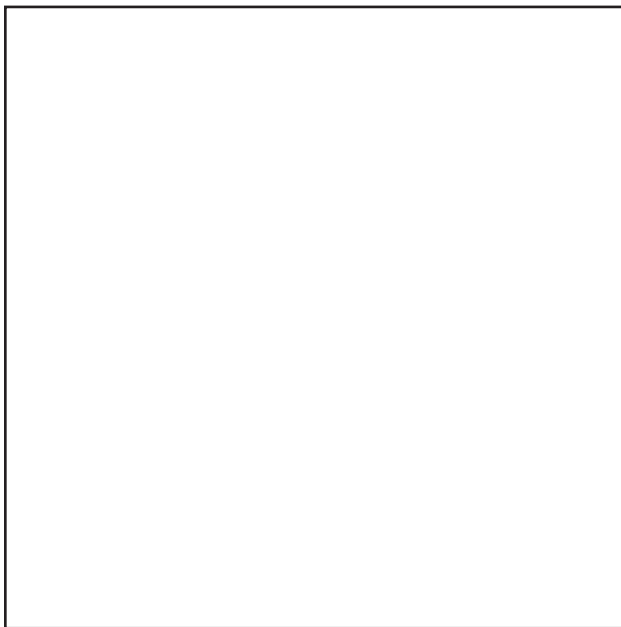
Skiing
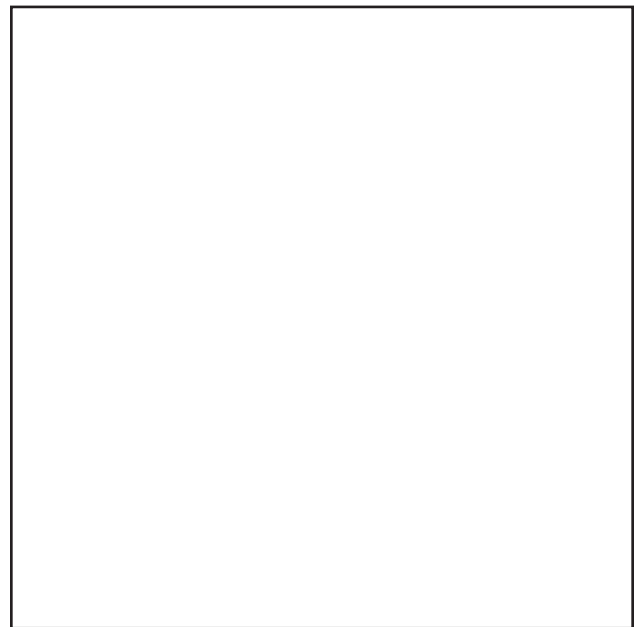
Hunting
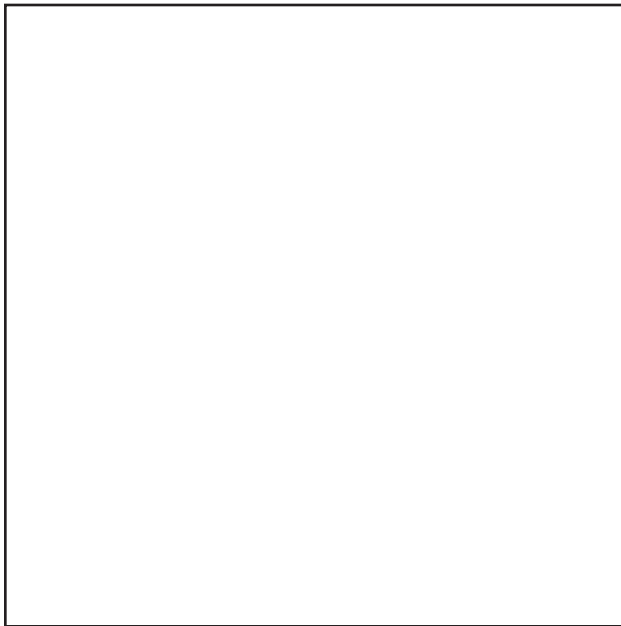
Archery
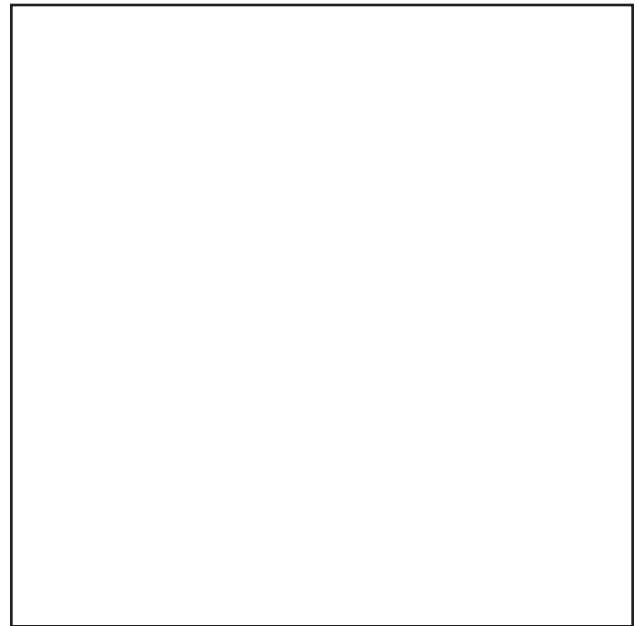
Snowmobiling

7   Words with Many Meanings (a)

Some words in English have many meanings, but people can usually tell which meaning is intended by the way a word is used in a sentence. See how many different meanings you can think of for each word below, and for each meaning, write a sentence which reveals that meaning. A few examples are given to help you get started. Use the back of this page if you need more space.

strike
The count was two strikes and one ball._____
The miners hope that they would strike gold._____
_____
_____

hand
_____
_____
_____
_____

run
_____
_____
_____
_____

fire
_____
_____
_____
_____

Name_____Date_____

7   Words with Many Meanings (b)

Some words in English have many meanings, but people can usually tell which meaning is intended by the way a word is used in a sentence. See how many different meanings you can think of for each word below, and for each meaning, write a sentence which reveals that meaning. Use the back of this page if you need more space.

light

_____
_____
_____
_____

round

_____
_____
_____
_____

spring

_____
_____
_____
_____

play

_____
_____
_____
_____

Name_____Date_____

8   Laughing with Limericks (a)

A limerick is a five-line poem that usually tells a funny story. The second and fifth lines of a limerick rhyme with the first line, and the third and fourth lines rhyme with each other. The third and fourth lines are usually shorter than the other three lines. Read the following limerick and study the rhyming pattern.

A kindly young girl from Rangoon
On her guitar played a rock and roll tune.
        Her friends were all there
        And said, "What a pair!"
As she danced with a silly baboon.
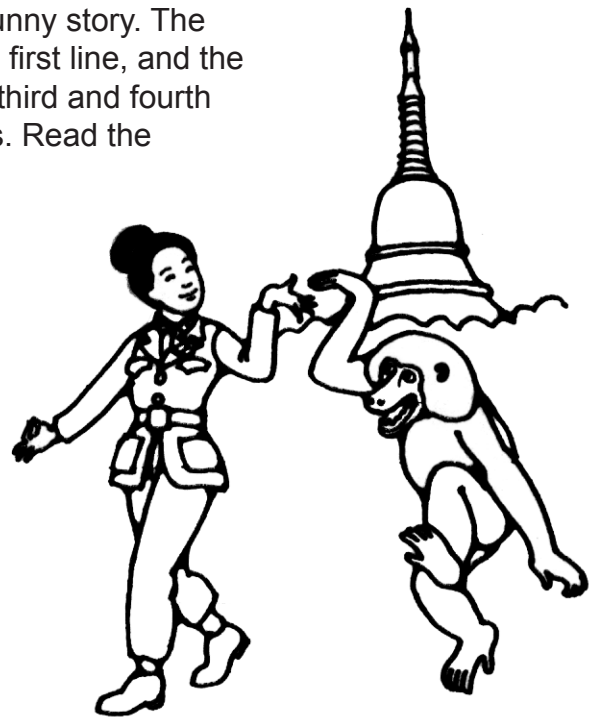
Use the limerick rhyming pattern to complete the following poem.

There was an old woman named Gayle
Who caught a big fish by the tail

_____
_____
_____

In the space below, see if you can write an original limerick.

_____
_____
_____
_____
_____

8   Laughing with Limericks (b)

Use the limerick rhyming pattern to complete the following poem.

One day I swam in the lake.
I picked up a stick by mistake.

_____
_____
_____

 In the spaces below, see if you can write three original limericks.

_____
_____
_____
_____
_____

_____
_____
_____
_____
_____

_____
_____
_____
_____
_____

_____
_____
_____
_____
_____

Name_____Date_____

9   Building with Words (a)

See how many words you can form by adding parts to both the beginning and ending of each word or word part below. A few examples are given to help you get started. Use the back of this page if you need more space.

form	port	graph
trans form ation	re port s	_____graph_____
con form ity	trans port ed	_____graph_____
per form ance	_____port_____	_____graph_____
_____form_____	_____port_____	_____graph_____
_____form_____	_____port_____	_____graph_____

dis	fer	trust
_____dis_____	_____fer_____	_____trust_____
_____dis_____	_____fer_____	_____trust_____
_____dis_____	_____fer_____	_____trust_____
_____dis_____	_____fer_____	_____trust_____
_____dis_____	_____fer_____	_____trust_____

man	mar	con
_____man_____	_____mar_____	_____con_____
_____man_____	_____mar_____	_____con_____
_____man_____	_____mar_____	_____con_____
_____man_____	_____mar_____	_____con_____
_____man_____	_____mar_____	_____con_____

9   Building with Words (b)

See how many words you can form by adding parts to both the beginning and ending of each word or word part below. Use the back of this page if you need more space.

ate	miss	owe
_____ate_____	_____miss_____	_____owe_____
_____ate_____	_____miss_____	_____owe_____
_____ate_____	_____miss_____	_____owe_____
_____ate_____	_____miss_____	_____owe_____
_____ate_____	_____miss_____	_____owe_____
_____ate_____	_____miss_____	_____owe_____

all	den	ink
_____all_____	_____den_____	_____ink_____
_____all_____	_____den_____	_____ink_____
_____all_____	_____den_____	_____ink_____
_____all_____	_____den_____	_____ink_____
_____all_____	_____den_____	_____ink_____
_____all_____	_____den_____	_____ink_____

and	cen	arm
_____and_____	_____cen_____	_____arm_____
_____and_____	_____cen_____	_____arm_____
_____and_____	_____cen_____	_____arm_____
_____and_____	_____cen_____	_____arm_____
_____and_____	_____cen_____	_____arm_____
_____and_____	_____cen_____	_____arm_____

Name_____Date_____

10   Crunch, Munch (a)

Some of the words in English imitate sounds. Think about each sound listed below and then see if you can think of a few words that describe that sound. Don't be afraid to make up some words of your own. A few examples are given to help you get started.

The sound of people eating potato chips

crunch, munch, chomp_____

_____

The sound of church bells ringing

_____

_____

The sound of logs burning in a fireplace

_____

_____

The sound of a typewriter in action

_____

_____

The sound of racing cars in a race

_____

_____
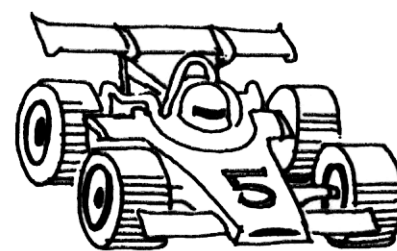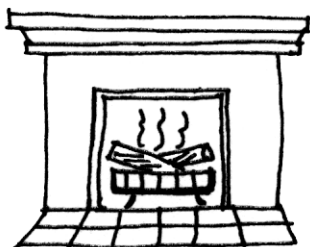
10   Crunch, Munch (b)

Some of the words in our language imitate sounds. Think about each sound listed below and then see if you can think of a few words that describe that sound. Don't be afraid to make up some words of your own.

The sound of a thunderstorm

_____

_____

The sound of a jet plane taking off

_____

_____

The sound of two dogs fighting

_____

_____

The sound of wind blowing through the trees

_____

_____

The sound of a person walking through mud

_____

_____

The sound of glass breaking

_____

_____

The sound of water dripping from a faucet

_____

_____

11   Talk Show (a)

Did you ever wish that you could talk to a famous person? Imagine that you are an interviewer on a television talk show and that your job is to ask questions of the famous people listed below. Since you have time for only three questions for each person, it is important to ask questions that will provide the audience with interesting and useful information. List your questions in the spaces below. An example is given to help you get started.
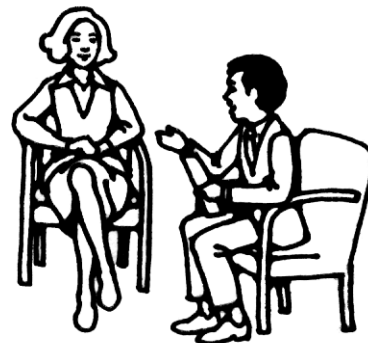
Neil Armstrong (the first man to ever walk on the surface of the moon)
<u>What thoughts went through your mind as your space craft approached the moon</u>?
_____
_____
_____
_____
_____

Nina Kuscsik (the first woman to win the Boston Marathon)
_____
_____
_____
_____
_____
_____

Harriet Tubman (the leader of the Underground Railroad)
_____
_____
_____
_____
_____
_____

11   Talk Show (b)

Imagine that you are an interviewer on a television talk show.
If you could invite any guests, living or dead, to appear on your
show, whom would you ask? Write your choices in the boxes
below and then list three questions that you would ask each
guest.

12   Figure Families (a)

Study the figures below and group them together according to characteristics they have in common. See how many groups you can create. You can use each figure as many times a you wish. Some examples are given below.

0	2	Ⅱ	I	•
=	M	√	?	two
S	C	5	A	$

Common characteristics	Figures
letters	O, I, M, S, C, A
Arabic numerals	0, 2, 5

12   Figure Families (b)

Study the figures below and see if you can group them together according to characteristics they have in common. You can use each figure as many times as you wish. An example is given below.

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
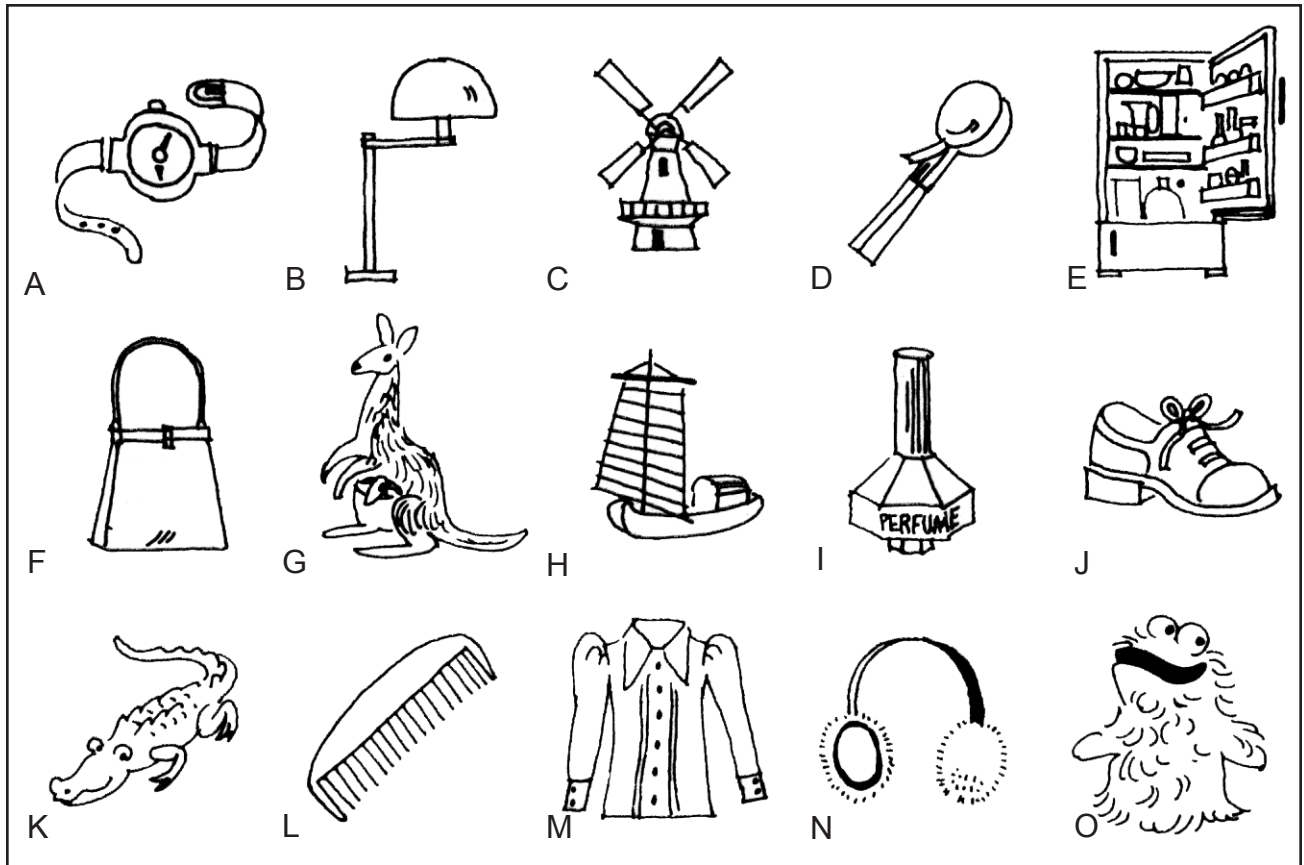
Common characteristics	Figures
furry things	G, N, O
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

13   A Peck of Pickled Peppers (a)

One of the favorite devices of writers is to repeat the same beginning sound in two or more words in a sentence. This technique is called *alliteration*. Read the following poem and note how the author has used alliteration.

Betty Botter bought some butter,
But, she said, the butter's bitter;
If I put it in my batter
It will make my batter bitter,
But a bit of better butter
Will make my batter better.
So she bought a bit of butter
Better than her bitter butter,
And she put it in her batter
and the batter was not bitter.
So 'twas better Betty Botter bought
   a bit of better butter.

For each topic below, see if you can write a sentence in which you use alliteration. A few examples are given to help you get started.
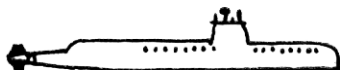
A submarine
The submarine silently slipped beneath the surface of the sea.
The big boat was blasted out of the water by the submarine.

A motorcycle

_____
_____

A frog

_____
_____

A moon

_____
_____

13   A Peck of Pickled Peppers (b)

For each situation below, see if you can write a sentence in which you use alliteration.

A man walking through the snow

_____

_____

A snake in the grass

_____

_____

A machine mixing cement

_____

_____

Water falling over a dam

_____

_____

A charging bull

_____

_____

Children sliding down a hill on a sled

_____

_____

A person playing a guitar

_____

_____

A dog chasing a squirrel

_____

_____

Name_____Date_____

14   Planning (a)

Imagine that you are in charge of setting up a school store where things will be sold to other students in your school. What things would you sell in the store? List the items in the spaces below. Use the back of this page if you need more space.

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

What steps would you take in setting up your store? What equipment and workers would you need? How would you advertise, and what would you do to encourage students to shop in your store rather than in a regular store? List your ideas in the space below. Try to be as creative as possible in developing ways to make your store a success. Use the back of this page if you need more space.

Name_____Date_____

14   Planning (b)

Pretend that you are the campaign manager for one of your classmates who is running for president of the student government. How would you go about organizing and carrying out your candidate's campaign? What would you do first? What committees would you need, and what responsibilities would you assign to them? Write all the details of your plan in the space below. Try to make your campaign as interesting and creative as possible. Use the back of this page if you need more space.

_____

_____

_____

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_____

_____

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_____

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_____

_____

_____

_____

_____

15   Hide-a-Word (a)

Sentences can be written in a way that allows writers to hide other words in the sentences. See if you can hide each word listed below in two different sentences. An example is given to help you get started. Use the back of this page if you need more space.

apple
The hunter bragged that he would trap plenty of wild animals._____

_____
_____
_____
_____
_____

person

_____
_____
_____
_____

drown

_____
_____
_____
_____

raisin

_____
_____
_____
_____

15   Hide-a-Word (b)

Sentences can be written in a way that allows writers to hide other words in the sentences. See if you can hide each word listed below in two different sentences. Use the back of this page if you need more space.

born

_____
_____
_____
_____

spine

_____
_____
_____
_____

hammer

_____
_____
_____
_____

lower

_____
_____
_____
_____

16   Words with Feeling (a)

Good writers try to select words that will help them create the kinds
of moods that they want to develop in their stories. You can practice
creating moods by thinking of words and phrases that describe
each of the situations below. See how many words and phrases you
can list that will create each mood. Use the back of this page if you
need more space.
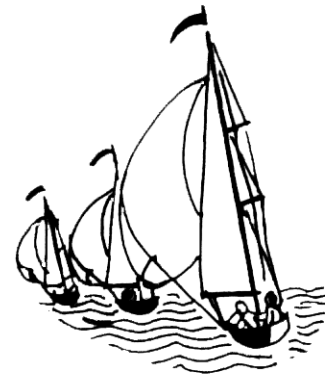
A waterfall

_____

_____

_____

_____

_____

_____

A railroad train

_____

_____

_____

_____

_____

_____

A busy office

_____

_____

_____

_____

_____

_____

A farm

_____

_____

_____

_____

_____

_____

A sailboat race

_____

_____

_____

_____

_____

_____

A funeral

_____

_____

_____

_____

_____

_____

16   Words with Feelings (b)

Good writers try to select words that will help them create the kinds of moods that they want to develop in their stories. You can practice creating moods by thinking of words and phrases that describe each of the situations below. See how many words and phrases you can list that will create each mood. Use the back of this page if you need more space.

A thunderstorm

_____
_____
_____
_____
_____
_____

A rock concert

_____
_____
_____
_____
_____
_____

Thanksgiving dinner

_____
_____
_____
_____
_____
_____

A rocket launching

_____
_____
_____
_____
_____
_____

Kittens playing

_____
_____
_____
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_____
_____

A cattle stampede

_____
_____
_____
_____
_____
_____

17   Haiku (a)

Haiku is an ancient Japanese form of poetry. The entire poem consists of only seventeen syllables written in three lines. The first and third lines must contain five syllables, and the second line must contain seven syllables. The lines do not have to rhyme. Study the following poems and then see if you can write your own haiku. Give each of your poems a title.

You! Bold Butterfly!
Dare you flutter so calmly
As my net descends?

Feeling lonely now
I turn from the cold light to
Where my shadow waits.

Quiet, silly bird!
I've already heard the news.
Morning comes too soon.

_____
Title

_____
_____
_____

_____
Title

_____
_____
_____

_____
Title

_____
_____
_____

_____
Title

_____
_____
_____

17   Haiku (b)

Writers of haiku have often written about the four seasons of the year. Study the following poems and then see if you can write a haiku about each season.

Cruel Autumn taunts us
With bright and saucy plumage
To mask Winter's grey.

Oh Glorious Winter!
Deep white paths, cold racing winds,
And me . . . on my sled.
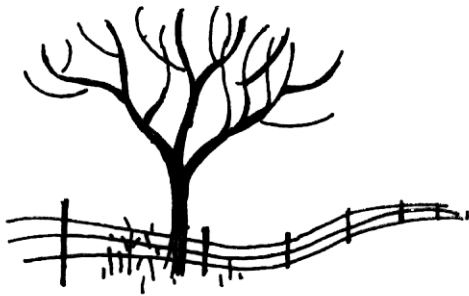
Winter

Spring

_____

_____

_____

_____

_____

_____

Summer

Fall

_____

_____

_____

_____

_____

_____

18   Make-a-Character (a)

Imagine that you are a cartoonist who is creating a character for a comic strip. Cut out the face parts below and combine them in various ways until you have created an interesting character. After you have decided on the parts of your character, paste them on a separate piece of paper. Then give your character a name and write a brief story about him or her.
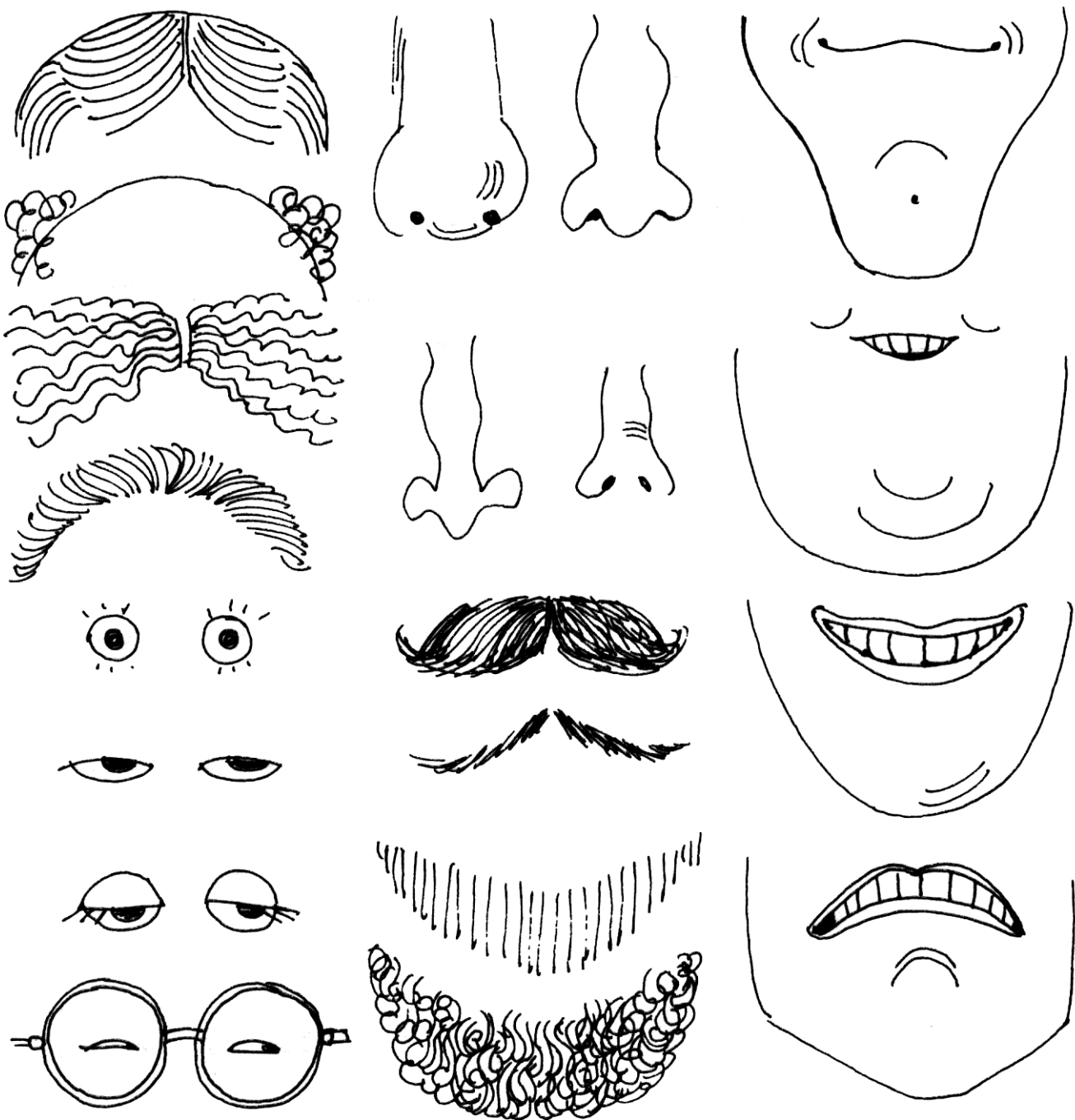
18   Make-a-Character (b)

Imagine that you are a cartoonist who is creating a character for a comic strip. Cut out the face parts below and combine them in various ways until you have created an interesting character. After you have decided on the parts for your character, paste them on a separate piece of paper. Then give your character a name and write a brief story about him or her.

Name_____Date_____
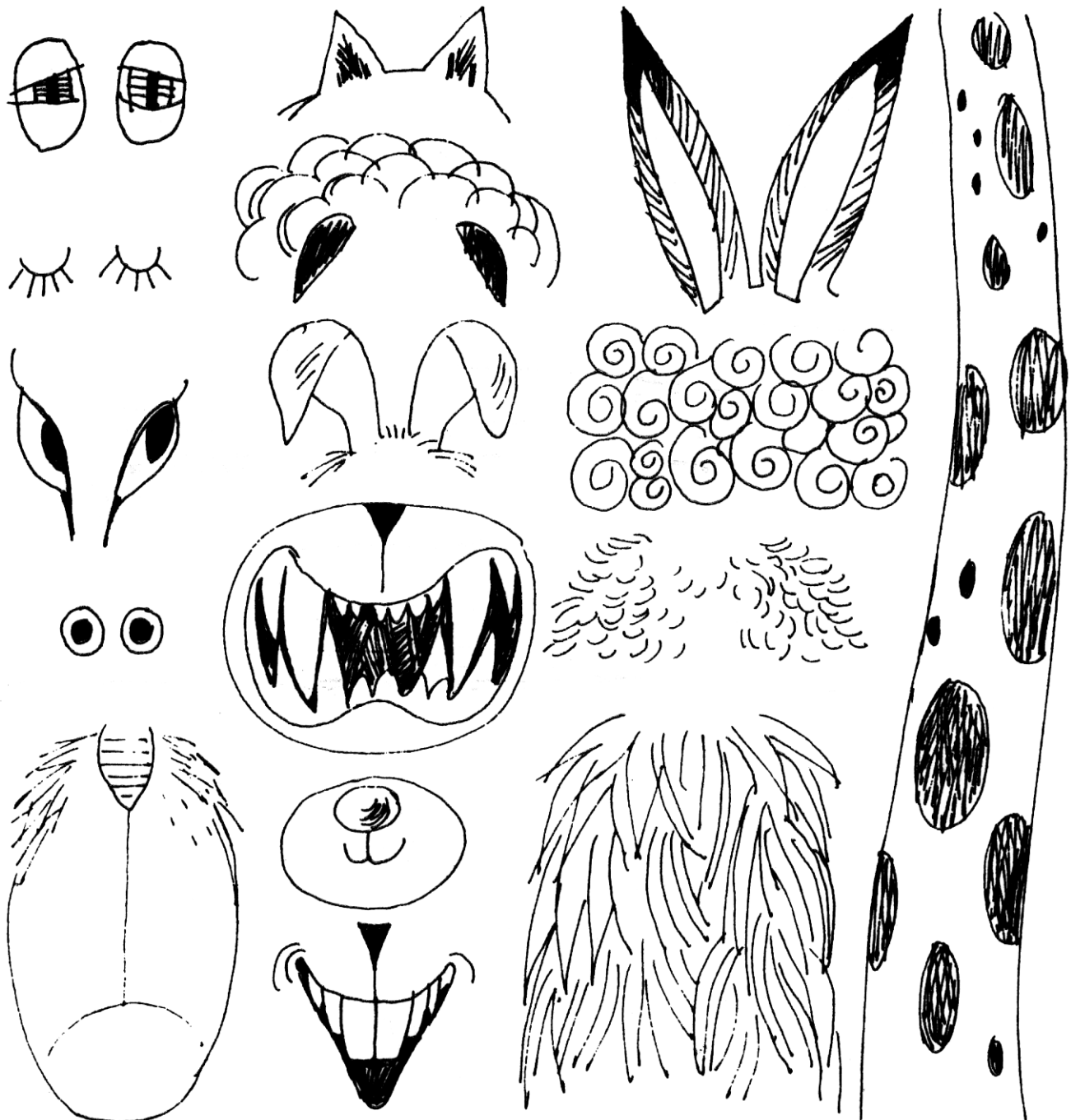
19   The Headline Cutter (a)

Most large newspapers have a person on their staff called a "headline cutter." This person's main job is to think of headlines that will attract the reader's attention to the articles that appear in the paper. For each newspaper article below, see if you can think of two short, interesting headlines that will make the reader want to read the article.

_____
_____
_____
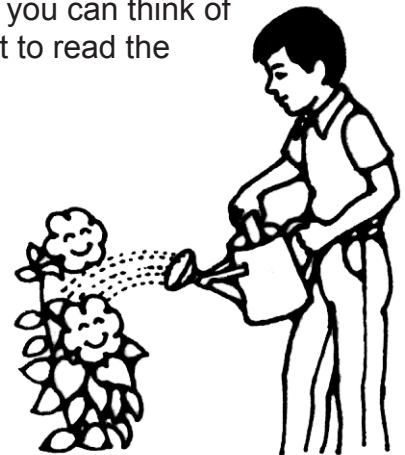
BERKELEY, Calif. (UPI)—Agricultural researchers wired a polygraph to some petunias and found the plants responding to emotional situations.

The lie detector showed that the petunias appreciated being watered, worried when a dog approached, "fainted" when violence threatened their growth, and showed sympathy when harm came to nearby foliage.

The California Farm Bureau concluded that gardeners with "green thumbs" probably develop an emotional relationship with their plants.

_____
_____
_____

_____
_____
_____

HOUSTON (AP)—A baby chimpanzee named Bam Bam has been identified as the culprit responsible for an outbreak of hepatitis among employees at the Houston zoo.

There are three confirmed cases and two suspected, with four persons hospitalized. All cases are mild.

Bam Bam shows no sign of the disease, but it is common for primates to carry viruses that infect humans but don't make the animals noticeably ill.

CAPE KENNEDY (UPI)—Kennedy Space Center has a new pet alligator.

The 4 1/2 footer turned up several weeks ago in a pond in front of the spaceport's headquarters building. It has been named Kasey after a seven-foot gator that disappeared from the pond several months ago after living there for almost three years.

The original Kasey was a mere three-footer when it discovered the pond. Kasey dined well from food provided by space workers. Some of the gator's favorites were marshmallows.

The spaceport is a wildlife refuge, and the alligator population is estimated at 2,000.

PROVIDENCE, R.I. (UPI)—Juanita Blair's faith in human nature has slipped a notch.

A robber who promised he'd return the $50 he stole from Ms. Blair's Meadowlark Farms store last Friday night did not return.

"I'm disappointed he didn't come back," she said.

Asked what she would have done if the man had returned, the store manager said, "I would have said thank you very much for returning the money."

The robber took $50 from Ms. Blair when he held up the store, saying that's all he needed and he would return it Monday. She had handed the man $60 that was in the cash register, but the robber returned $10.

Ms. Blair said, "I guess it just goes to show you can't trust a thief."

19   The Headline Cutter (b)

Read the following newspaper articles and see if you can think of two interesting headlines for each article. Each headline should be short and should attract the reader's attention.

_____
_____
_____

BOZEMAN, Mont. (AP)—A wayward skunk has held up telephone installation work at a $20-million realty corporation south of here.

Telephone contractors at the year-round recreation and resort center have been unable to complete chores since the skunk fell into a construction hole Monday evening.

Workers have placed a plank in the hole with hopes of allowing the unwelcome guest to return to a more natural environment.

_____
_____
_____
_____

LODI, Calif. (UPI)—Using cutting torches, highway workers Thursday dismantled the first of 4,000 billboards marked for oblivion in an effort to make California's highways more beautiful.

"I hope it won't be recycled into another billboard," quipped a California resident after the 6-by-24-foot metal sign advertising Harold's Club of Reno was
sent crashing to the ground.

A six-year program by the state will remove all signs not conforming with the federal Highway Beautification Act and the state Outdoor Advertising Act.

_____
_____
_____

MONTPELIER, Vt. (AP)—The Montpelier Area Chamber of Commerce has received a donation to its antishoplifting campaign from an unexpected source.

An anonymous letter arrived from Detroit, Mich., along with a $10 bill and a variety of small items.

"Dear People," the letter read, "I am sending back some of the things that I stole from the stationers and the grocery store. I am also sending money because you cannot use them again. I apologize for taking them."

_____
_____
_____
_____

NEWARK, N.J. (AP)—Note for those who think conservationists should go climb a tree: Phillip Littlebud did so Monday and spared a 200-year-old elm from the ax.

The 44-year-old mail carrier perched 30 feet up in the venerable elm and declared he would stay there during his entire month of vacation to keep the Newark council from felling the tree to make room for a soccer field.

The council held a special meeting and decided to put the field elsewhere.

Name_____Date_____

20   Sights, Sounds, and Smells (a)

Imagine that you are walking down a busy street in a large city. All around you are things you can see, hear, and smell. In the spaces below, list the things your senses tell you about the city street. Some examples are given to help you get started. After you have listed the sights, sounds, and smells, write a paragraph describing your walk down the city street. Use the back of this page if you need more space.

Sights	Sounds	Smells
tall buildings	policeman's whistle	roasted peanuts
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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Name_____Date_____
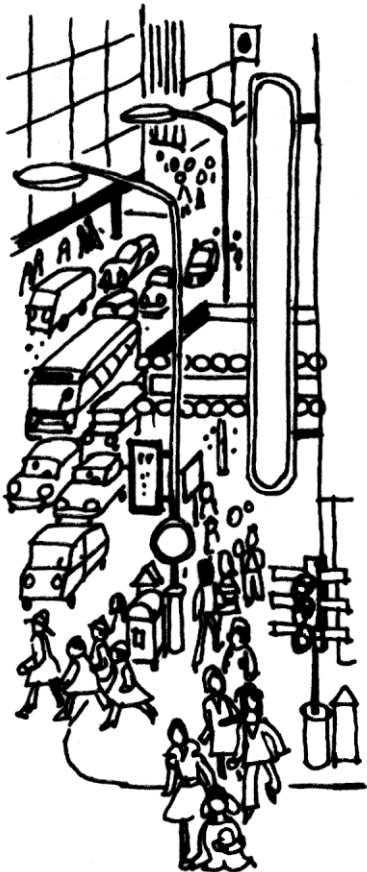
20   Sights, Sounds, and Smells   (b)

Imagine that you are walking through a tropical jungle. All around you are things you can see, hear, and smell. In the spaces below, list the things your senses tell you about the jungle. After you have listed the sights, sounds, and smells, write a paragraph describing your walk through the jungle. Use the back of this page if you need more space.

Sights	Sounds	Smells
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

21   Word Families   (a)

Study the words below and find as many ways as you can to group them together according to common characteristics. You can use each word as many times as you wish. Some examples of common characteristics are given below.

1. feel	11. bee	21. borrow	31. spear
2. May	12. California	22. Sally	32. weak
3. cleanliness	13. Mississippi	23. boat	33. freedom
4. goat	14. knife	24. June	34. spider
5. strong	15. arrow	25. Montana	35. elephant
6. sorrow	16. moose	26. baboon	36. Amazon
7. monumental	17. big	27. reinstate	37. renominate
8. representation	18. accept	28. ball	38. justice
9. Nile	19. impress	29. pistol	39. inaccurate
10. repeatedly	20. train	30. small	40. impractical

Common characteristics	Words
contain five syllables	8, 40
opposites	17 and 30, 5 and 2
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Name_____Date_____

21   Word Families (b)

Study the words below and find as many ways as you can to group them together according to common characteristics. You can use each word as many times as you wish.

1. paper	11. cats	21. truck	31. road
2. water	12. elephant	22. time	32. life
3. paints	13. April	23. watch	33. case
4. crayon	14. daytime	24. hour	34. snake
5. boys	15. eggshell	25. eyeglass	35. fever
6. girls	16. watercolor	26. sheet	36. Charlestown
7. mother	17. junk	27. party	37. bike
8. speed	18. watermelon	28. mouse	38. matches
9. water lily	19. street	29. church	39. phone
10. neighbors	20. car	30. hill	40. number

Common characteristics   Words

_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____

22   Can You Design It? (a)

Did you ever wish that you could change the design of your
schoolroom? Imagine that you are an architect and that you have
been asked to develop a creative design for a classroom. The
room can be any size or shape you want, but it must be able to
accommodate about twenty-five students. How would you design
your classroom? What furniture, equipment, and other things would
you include? Draw your floor plan in the space below.

22   Can You Design It? (b)

Pretend that you have been asked by your city to design a
playground or recreation park. The park should have recreation
facilities for both children and adults. What types of playing fields
and equipment would you have in your park? Draw a ground plan
for your recreation park in the space below. Try to include facilities
for as many types of activities as possible.

23   The Advertising Game (a)

People who work in the field of advertising are always trying to think of clever ways of selling products or getting more people to use their products. For example, they might try to get more people to use their brand of shampoo by saying that well-known athletes use it. Or they might tell how attractive a person will look if she or he uses their products.

Pretend that you are responsible for writing a short television commercial for a company that sells vitamin pills. What would you say to encourage people to buy this brand of vitamins? Write the script for the commercial in the spaces below. Don't forget to give your vitamins a name.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

23 The Advertising Game (b)

Pretend that you are responsible for writing a short television commercial for a company that makes chewing gum. What would you say to encourage people to buy your brand of chewing gum? Write the script for the commercial in the space below. Don't forget to give your chewing gum a name.

_____

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24   The Reason Why (a)

Writers of children's stories sometimes make up fanciful or humorous reasons for some of the things that happen in their stories. Imagine that you are a writer of children's stories, and see if you can make up two fanciful or humorous explanations for each question listed below. Don't be afraid to let your mind wander and try to think of some way-out reasons. An example is given to help you get started. Use the back of this page if you need more space.

How did the elephant get his long trunk?
He was always poking it into other animals' business.
_____
_____
_____

How did the football get its shape?
_____
_____
_____
_____

Why do doughnuts have holes in them?
_____
_____
_____
_____
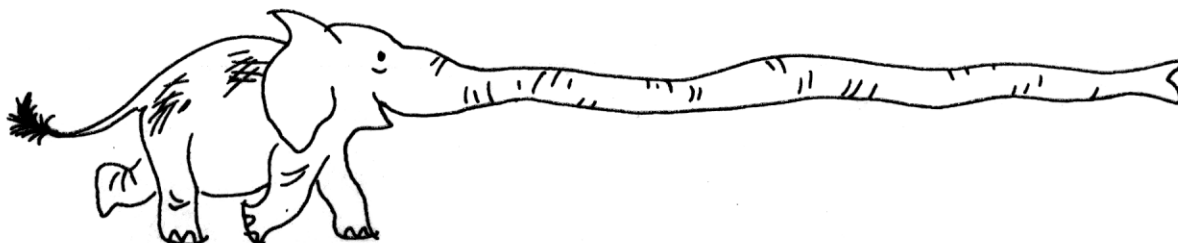
24   The Reason Why (b)

The writers of children's stories sometimes make up fanciful or humorous reasons for some of the things that happen in their stories. Imagine that you are a writer of children's stories, and see if you can make up two fanciful or humorous explanations for each question listed below. Don't be afraid to let your mind wander and try to think of some way-out reasons. Use the back of this page if you need more space.

Why do turtles have shells?

_____

_____

_____

_____

How did the city of Kalamazoo get its name?

_____

_____

_____

_____

Why do cats have nine lives?

_____

_____

_____

_____

MARK 3: Activity Sheet Record

ACTIVITY	DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
1 Thinking about Things (a)			
Thinking about Things (b)			
2 Sames and Opposites (a)			
Sames and Opposites (b)			
3 Way-out Words (a)			
Way-out Words (b)			
4 Changing Things (a)			
Changing Things (b)			
5 Another Point of View (a)			
Another Point of View (b)			
6 Say It with Symbols (a)			
Say It with Symbols (b)			

MARK 3: Activity Sheet Record

ACTIVITY	DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
7 Words with Many Meanings (a)			
Words with Many Meanings (b)			
8 Laughing with Limericks (a)			
Laughing with Limericks (b)			
9 Building Words (a)			
Building Words (b)			
10 Crunch, Munch (a)			
Crunch, Munch (b)			
11 Talk Show (a)			
Talk Show (b)			
12 Figure Families (a)			
Figure Families (b)			

MARK 3: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
13 A Peck of Pickled Peppers	(a)			
A Peck of Pickled Peppers	(b)			
14 Planning	(a)			
Planning	(b)			
15 Hide-a-Word	(a)			
Hide-a-Word	(b)			
16 Words with Feeling	(a)			
Words with Feeling	(b)			
17 Haiku	(a)			
Haiku	(b)			
18 Make-a-Character	(a)			
Make-a-Character	(b)			

MARK 3: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
19 The Headline Cutter	(a)			
The Headline Cutter	(b)			
20 Sights, Sounds, and Smells	(a)			
Sights, Sounds, and Smells	(b)			
21 Word Families	(a)			
Word Families	(b)			
22 Can You Design It?	(a)			
Can You Design It?	(b)			
23 The Advertising Game	(a)			
The Advertising Game	(b)			
24 The Reason Why	(a)			
The Reason Why	(b)			

NEW DIRECTIONS IN CREATIVITY   **MARK A**

The *NEW DIRECTIONS IN CREATIVITY* program,
under the direction of Joseph S. Renzulli,
includes the following manuals:
MARK A
MARK B
MARK 1
MARK 2
MARK 3

NEW DIRECTIONS IN CREATIVITY

MARK A

MARY JO SCOTT
BARBARA GAY FORD
LINDA SMITH
JOSEPH S. RENZULLI

CONTENTS

In children creativity is a universal. Among adults it is almost nonexistent. The great question is: What has happened to this enormous and universal human resource? This is the question of the age and the quest of our research.

—from Harold H. Anderson, ed., *Creativity and Its Cultivation* (New York: Harper & Brothers, 1959), p. xii.

"The main thing is not to take it personal."

"What I liked best about school this year was the teachers' strike."

A PERSONAL NOTE TO TEACHERS

Whenever teachers ask me how I became interested in creativity and why I developed a creativity training program for children, I often answer by referring to the quotation and the two cartoons on page vi. The quotation from Harold Anderson's book points out the great loss in human potential for creative development that takes place between childhood and adulthood. Although this loss no doubt takes its toll by limiting the number of people who make creative contributions to our society, a much more serious and far-reaching consequence is that many adults never have the opportunity to experience the satisfaction and enjoyment that results from the act of creating. Somehow the joys that were associated with childhood fantasy and imaginary excursions into the world of the improbable seem to disappear as we engage in the business of growing up. Although growing up is indeed a serious business, I often wonder if the emphasis that our culture places on the practical and the utilitarian causes most people to arrive at adulthood without the creative ability that they possessed as children.

The first cartoon illustrates the emphasis that our educational system places on the process of conformity. Most learning experiences are designed in a way that causes all youngsters to arrive at the same solutions to problems; thus it is not surprising to see a very homogenized group emerging from "the system." A quick glance at most workbooks or exercises in textbooks reveals that only rarely do these materials purposefully encourage youngsters to be as original as possible in their answers to given problems and questions.

The second cartoon presents a sad but essentially valid picture of most children's perception of school. Our preoccupation with order, control, routine, and conformity has made schools into dreary and often oppressive places for many children. The supposedly exciting act of learning has frequently been a coercive and sometimes even punitive process.

Many writers have summarized problems that have made schools such unfriendly places and have pointed out some of the ways that these problems can be overcome. One suggestion common to many writers is that classrooms need to be more engaging, creative, and interactive places and that youngsters need to be given greater opportunities to imagine, create, and express themselves.

The creativity training program described in this manual represents one attempt to provide both teachers and students with a set of materials that will help them learn a variety of ways for expressing their creative potential. Creativity is a dynamic process that involves "a way of looking at things"; therefore the activities included in this program are designed to broaden the way that youngsters look at their world. The program is not an end in itself, but rather a series of first steps that will provide teachers and students with the basic skills involved in creative production. Over the past few years, I have worked with hundreds of teachers in courses and workshops dealing with creativity. These experiences have shown me that a minimum amount of instruction and a maximum amount of actual involvement with the materials have effected the biggest changes in teachers' understanding and application of creativity training activities. The old saying "The best way to learn how to do it is to do it" is a guiding principle in my approach to teaching teachers the skills of creative production. Once these skills have been assimilated, they can be applied to all areas of the curriculum and to most of the learning experiences that take place in the classroom.

Joseph S. Renzulli
Storrs, Connecticut

1

PART I

I hear, and I forget;
I see, and I remember;
I do, and I understand.
Chinese Proverb

PURPOSE AND DESCRIPTION OF THE PROGRAM

The *New Directions in Creativity* program consists of five volumes: *Mark A*, *Mark B*, *Mark 1*, *Mark 2*, and *Mark 3*. The program is designed to help teachers develop the creative thinking abilities of primary and middle-grade youngsters. Research has shown that almost all children have the potential to think creatively and that creative production can be improved by providing systematic learning experiences that foster use of imagination.

Purpose of the Program

The general purpose of this creativity training program can best be explained by contrasting the creative or *divergent* production abilities with the *convergent* production abilities emphasized in most elementary school classrooms. In most traditional teaching-learning situations, major emphasis is placed on locating or converging upon correct answers. Teachers raise questions and present problems with a predetermined response in mind, and student performance is usually evaluated in terms of the correctness of a particular answer and the speed and accuracy with which youngsters respond to verbal or written exercises. Thus the types of problems raised by the teacher or textbook and the system of rewards used to evaluate student progress cause most youngsters to develop a learning style that is oriented toward zeroing in on the "right" answer as quickly and as efficiently as possible. Although this ability has its place in the overall development of the learner, most teachers would agree that impressionable young minds also need opportunities to develop their rare and precious creative thinking abilities.

Divergent production is a kind of thinking that is characterized by breaking away from conventional restrictions on thinking and letting one's mind flow across a broad range of ideas and possible solutions to a problem. The real problems humanity confronts do not have the kinds of predetermined or "pat" answers that a great deal of instruction focuses on in the convergent-oriented classrooms. Yet we give our children very few opportunities to practice letting their minds range far and wide over a broad spectrum of solutions. The philosopher Alan Watts (1964) has talked about these two kinds of thinking in terms of what he calls the "spotlight mind" and the "floodlight mind." The spotlight mind focuses on a clearly defined area and cannot see the many alternative possibilities or solutions to a problem that may exist outside that area. Floodlight thinking, on the other hand, reaches upward and outward without clearly defined borders or limitations. The floodlight thinker is free to let his or her imagination wander without the confinements or limitations that usually lead to conformity. Both types of thinking are valuable, and to pursue one at the expense of the other is clearly a disservice to the children for whose development we are responsible.

This description of divergent thinking should not lead teachers to believe it is undisciplined or disorderly. Mary Nicol Meeker (1969) has pointed out that "divergent generation does not proceed willy-nilly; the divergent thinker is not a scatterbrain; the worthwhile generation of information requires discipline and guidance." Following Meeker's suggestion, the *New Directions in Creativity* program has attempted to provide youngsters with an opportunity to break away from conventional restrictions on their thinking. Yet an effort has been made to generate responses that are relevant to particular kinds of problems and that fall within reasonable bounds.

Specific Abilities Developed by the Program

The *New Directions in Creativity* program is designed to develop each of the following creative thinking abilities:

1. *Fluency*—the ability to generate a ready flow of ideas, possibilities, consequences, and objects

2. *Flexibility*—the ability to use many different approaches or strategies in solving a problem; the

willingness to change direction and modify given information

3. *Originality*—the ability to produce clever, unique, and unusual responses

4. *Elaboration*—the ability to expand, develop, particularize, and embellish one's ideas, stories, and illustrations

Each activity in the program is designed to promote one or more of these four general abilities. The activities are also classified according to (1) the types of information involved in each exercise (semantic, symbolic, figural) and (2) the ways that information is organized in each exercise (units, classes, relations, systems, transformations, implications, elaborations). These two dimensions are described in detail in Part III of this manual. The activity-by-activity lesson guides presented in Part IV include the specific objectives for each activity and suggestions for follow-up activities designed to develop further the specific abilities toward which the respective exercises are directed. Although many of the objectives and suggestions for follow-up activity are directed toward the development of traditional skills in language arts, these skills are always "piggybacked" on the four major creative thinking skills. Field testing has shown that students are more motivated to pursue traditional language arts skills when such skills are based upon activities that make use of their own creative products.

Although the purpose of each manual in this program is to provide teachers with a systematic set of activities aimed at promoting creativity in children, a second and equally important objective is to help teachers unlock their own potential for more creative teaching. In almost every school where these activities were field tested, participating teachers began to develop their own materials and activities for creativity training. In many cases, the teacher-made activities were highly original and skillfully integrated with various aspects of the regular curriculum. Once teachers understood the general nature of the creative process, they were quickly able to apply the same basic strategies to other areas of the curriculum. Therefore, teachers should view this creativity training program as a starting point that will eventually lead to the development of a "creativity orientation" on the part of teachers. This orientation will assist teachers in finding numerous opportunities for creativity training in a wide variety of learning situations.

Description of the Program

Each manual in the *New Directions in Creativity* program consists of twenty-four types of creativity training activities. Two activity sheets, both containing one or more exercises, are provided for each type of activity, and each type is classified according to the kinds of information involved in the exercises and the ways that information is organized. Each activity is further classified according to the level of response required. This classification scheme is based on Guilford's model of the structure of human abilities. Teachers who wish to know more about this model should refer to Part III of this manual. (An overview of the activities in this manual, listing the types of activities according to Guilford's classification scheme appears on page 22.)

Mark A and *Mark B* : Most of the activities in the primary volumes have been designed so that children can respond with either words or pictures. This approach allows children who cannot yet express themselves in writing to communicate their creative ideas through pictures. Suggestions for alternative modes of expression, such as dictating responses to a teacher's aid or to a tape recorder are also included. The primary volumes are also designed to develop the psychomotor abilities of younger children through manipulative and dramatic activities, and the teaching suggestions present ideas for using primary teaching aids such as flannel boards, chart paper, scissors, and paste.

The format of the primary activities attempts to take account of the developmental level of the young child. Illustrations on the exercise sheets are generally larger and less complicated than the drawings in the middle-grade books, and fewer responses are required to allow for the gross motor coordination of the primary-aged youngster. Page directions are simpler, and greater reliance is placed on illustrations than on written directions. The lesson guides for the primary volumes contain more detailed suggestions for introducing activities and emphasize using concrete examples to get children started on exercises that are more easily demonstrated than described.

Mark 1, Mark 2, and Mark 3 : Most of the activities in the middle-grade volumes deal with semantic information. Some symbolic activities that involve the use of words have been included, and a few figural activities have also been included to help students understand that creativity skills can be applied to both verbal and nonverbal information.

Activities dealing with information that is organized into units, classes, or relations generally require students to (1) fill in blanks with unspecified words,

(2) manipulate given words and figures, or (3) complete short statements. These activities are considered warm-ups for higher level activities, and they are generally directed toward giving students practice in the basic creativity skill of brainstorming. Brainstorming activities help students free their thinking processes from the restraints that usually hinder creativity and provide an effective means for promoting a free and open classroom atmosphere.

The higher level activities deal with information that is organized into systems, transformations, implications, or elaborations. The major difference between the two levels of activities is that fewer specifications are given for the kinds of responses required in the higher level activities. These responses are generally more open-ended, and fewer restrictions are placed on the nature of the products developed by students. Although all activities provide youngsters with opportunities to express themselves in a relatively free and unrestricted manner, the program will be most effective if students pursue a balanced combination of the various types of activities. Each type is designed to develop and give practice in the use of certain creativity skills, and the skills developed by the warm-up activities are necessary for maximum development of the more advanced kinds of creative thinking necessary for the higher level activities. Suggestions for the most effective sequencing of activities are included in Part II of this manual.

Grade and Ability Levels

Although no specific grade level has been assigned to the respective volumes, field tests have shown that *Mark A* is most successful with children in kindergarten and first grade and that *Mark B* works best with second- and third-grade youngsters. An attempt was made to separate activities in the primary volumes so that the first book would contain exercises for children who have not yet developed reading and writing abilities or who are in the beginning stages of development in these areas. The exercises in *Mark B* were designed in accordance with the level of communication skills that typically are taught in second and third grades.

Field tests have shown that *Mark 1*, *Mark 2*, and *Mark 3* are most successful with students in grades four through eight. The open-ended nature of creativity training activities has provided an opportunity to develop a truly nongraded program, and many of the exercises have been used successfully with students at several grade levels. When there are no "right" or "wrong" answers, each student sets his or her own level of response. The responses of bright youngsters are often characterized by higher degrees of fluency, flexibility, originality, and elaboration, but even the slowest child is able to respond in a way that is appropriate to his or her own developmental level. It may be necessary for teachers to read some of the directions to students and to supervise their work more closely until they catch on to the nature of the various tasks. To help both younger and slower students grasp the main idea, most of the introductory exercises include illustrative examples. These examples are useful in helping students who have some trouble reading the directions or getting started on some of the more difficult exercises. Most of the exercises are not too difficult for younger or slower students, but because of the open-ended nature of the exercises, teachers must carefully explain directions, and they may have to provide a few examples of their own in order to start students off on the right track.

An important feature of this creativity training program is that a youngster can respond to each activity in terms of his or her own background and experience. Because the program is not based on the student's ability to recall factual information, each student can express his or her creativity by drawing on his or her own knowledge and experiences. Many writers have pointed out that the child's own experiences and activities are the principal agents of his or her development and that no matter how "primitive" a child's level of development, he or she can extend his or her mental abilities by probing, manipulating, and applying his or her own experiences to new kinds of materials and situations. This idea is one of the fundamental principles on which the constructivist learning is based, and field tests with the *New Directions in Creativity* program have shown that students from so-called disadvantaged backgrounds are able to use their own experiences to complete most of the activities in the program.

Insofar as individualized programming is concerned, it is important for teachers to carefully consider each child's preferences. Some students may show a preference for semantic activities, whereas others may prefer to respond figurally or symbolically. Similarly, certain children may like exercises with a less complicated response format (units, classes, relations), whereas others may show a preference for more complicated modes of expression such as poetry or story writing. The classification system which underlies the *New Direction in Creativity* program provides a unique opportunity for teachers to study children's learning style preferences and to adapt accordingly. The program will be most successful if teachers respect children's preferences and avoid forcing every child to complete every activity.

PART II

"Imagination grows by exercise."
W. Somerset Maugham

GENERAL STRATEGIES FOR USING THE PROGRAM

Although a great deal has been written about fostering creativity in the classroom, relatively few basic teaching strategies have been effective in encouraging creative development. This section of the manual will describe the basic strategies that teachers have found most helpful in using the *New Directions in Creativity* program. Although the materials have been designed to require minimum preparation time, the importance of the teacher's role cannot be overemphasized. In describing the role of teachers in this regard, Starko (1995) emphasized the distinction between teaching for the development of creativity versus creative teaching. She concluded that effective teachers who develop students' creative thinking know how to teach techniques that "facilitate creative thinking across disciplines and provide a classroom atmosphere that is supportive of creativity" (p. 17). Other studies, including a meta-analysis study by Rose & Lin (1984) and a research synthesis by Torrance (1987), indicate that creativity training is associated with increased creativity, involvement in creative activities, and positive feelings toward school.

Brainstorming and the Fluency Principle

In most cases, the first thought that comes to mind in seeking the solution to a difficult problem is seldom the most original idea. Therefore, *fluency,* defined as the ability to produce several ideas or possible solutions to a problem situation, is an important condition for creative production. The fluency principle, which underlies the development of this creativity training program, maintains that fluency is a necessary, though not sufficient, condition for originality. Although there are some cases on record of highly creative products that have resulted from sudden inspirations, research on creativity in both children and adults strongly supports the fluency principle. Studies by Archambault (1970), Paulus (1970), and Baer (1993) have shown that initial responses to a given problem tend to be the more common ones and that the greater the number of answers generated, the higher the probability of producing an original response (*original* in the sense that fewer students come up with that response). Therefore, a hypothetical curve of creativity for a given task or activity (see Figure 1) would show a gently sloping gradient with an increase in originality being related to an increase in the number of responses. For example, if we asked a group of students to list all of the utensils that people *might* use to eat with, their initial responses would no doubt include common utensils such as forks, spoons, and knives. But if we encouraged them to increase their lists by using their imaginations ("Suppose you didn't have any forks or spoons. What *could* you use?"), students would begin to explore some possible alternatives. They might suggest such items as sharpened sticks, shells, and bottle caps. If we compared the lists of several youngsters, we would find that most of the initial answers are quite common—that most of the students have given the same responses. As the lists grow longer, we would find more divergence occurring, and the probability of a youngster's producing an original response increases. In other words, quantity

Figure 1. Hypothetical curve of creativity.

breeds quality, and research has shown that individuals who produce a large number of ideas are more likely to produce ideas that are more original.

Each manual in this program attempts to capitalize on the fluency principle by including a number of exercises that generate a large number of responses. In opposition to the techniques of convergent production discussed earlier, these exercises have no right answers. Rather, they are designed to encourage the student to produce a large quantity of responses, and, hopefully, practice in this mode of thinking will help free the learner from previously acquired habits which predispose him or her to rely mainly upon recall and convergent thinking.

The basic technique for increasing fluency of expression is called *brainstorming*. The first step in this process is to provide students with a problem that has many possible alternative solutions. Brainstorming can be carried out individually or in group sessions. During the early stages of a brainstorming activity, students should write or verbalize *all* thoughts and ideas that come to mind, no matter how silly, way-out, or wild the ideas may be. The best way to promote free-wheeling and offbeat thinking is to value quantity and withhold criticism and evaluation until students have exhausted their total supply of ideas related to a given problem. This principle, known as the principle of unevaluated practice, is further discussed in the section dealing with evaluation (pp. 10-12).

The following is a list of general questions (adapted from Arnold (1962)) that can be used to spur students' thinking during brainstorming sessions:

Other Uses

Can it be put to other uses as is?
Can it be put to other uses if it is modified?

Adaptation

What else is like it?
What other ideas does it suggest?
What could you copy?
Whom could you imitate?

Modification

What new twist can you make?
Can you change the color, size, shape, motion, sound, form, odor?

Magnification

What could you add?
Can you add more time, strength, height, length, thickness, value?
Can you duplicate or exaggerate it?

Minification

Can you make it smaller, shorter, lighter, lower?
Can you divide it up or omit certain parts?

Substitution

Who else can do it?
What can be used instead?
Can you use other ingredients or materials?
Can you use another source of power, another place, another process?
Can you use another tone of voice?

Rearrangement

Can you interchange parts?
Can you use a different plan, pattern, or sequence?
Can you change the schedule or rearrange cause and effect?

Reversibility

Can you turn it backward or upside down?
Can you reverse roles or do the opposite?

Combination

Can you combine parts or ideas?
Can you blend things together?
Can you combine purposes?

These are only some of the questions that teachers and students can use to stimulate creative thinking during the brainstorming activities included in the program. Once students have learned the basic brainstorming technique, you should encourage students to approach each activity with an idea-finding frame of reference. The section "Introducing the Primary Activities" (pages 12-14) is especially designed to teach the brainstorming process through active involvement in both group and individual brainstorming activities. As a general rule, you should always encourage students to go as far as they can in completing the exercises on

the activity sheets and the follow-up activities. Students may need to go beyond the spaces provided or you may need to extend time limits when youngsters are engaged in a highly productive activity. Keep in mind that brainstorming is a skill that grows through practice, and students will develop this skill if they know you place major value on the quantity rather than the quality of their responses.

The Principle of Mild Competition

Although a great deal has been written about the dangers of high-pressure competition in the classroom, research with various curricular materials has shown that *mild* competition is a positive nutrient in motivating students to become involved in learning activities. The use of simulation and learning games to promote learning is based on the finding that gamelike activity is one of the child's preferred ways of learning. Several researchers have investigated the relationship between children's play and creativity. For example, Li (1985) found significant gains in preschool children's creativity after being exposed to play training. Mellou (1995) examined the literature on the relationship between dramatic play and creativity and concluded that most of the research supports a positive relationship between them, noting the alternative symbolic constructions and flexibility common to both. In a research synthesis on creativity processes in children that are predictive of adult creativity, Russ (1996) also concluded that the relationship between children's play and creativity is strong.

We have made an attempt to capitalize on the motivational benefits of gamelike activity by suggesting that certain exercises be carried out under mildly competitive conditions. This approach will introduce an element of excitement into the program and give youngsters an opportunity to pursue classroom activities in their preferred manner of learning.

To avoid the dangers associated with high-pressure competition, you should use caution when employing the mildly competitive mode. You should observe the following general rules whenever you introduce competition into creativity training activities.

1. Group competition should be used rather than individual competition.

2. Grades or other material rewards should never be associated with competitive activities. Students will derive satisfaction from the competitiveness itself and the excitement of winning or trying to win.

3. Teams should continually be rearranged in a way that allows all youngsters an opportunity to be on a winning team.

There are several ways of arranging teams for competitive classroom activities—row against row, boys against girls, or everybody wearing a certain color on one team, to name a few. If some youngsters find it difficult to perform under competitive conditions or if some put undue pressure on others who slow the team down, it may be wise to ask these students to serve as moderators or scorekeepers because "you need their help." A good way to help build up enthusiasm is to get involved in competitive activities on an equal basis with students. When you join a given team, the students will no doubt look to you for leadership, but you should try to be just another member of the team and avoid contributing more than a proportionate share of the responses. You will, of course, have to experiment to determine the best ways for operating in the mildly competitive mode. A good deal of the art of teaching is involved in knowing your students and in using classroom management procedures that are especially applicable to a given group.

A general strategy that you can use in follow-up discussions of the exercises is intergroup competition. Prior to assigning a particular exercise or after an exercise has been completed, divide the class into several small groups which can then compete with each other on the basis of (1) the greatest number of team responses and (2) the most original responses (i.e., responses that other teams did not think of). A team's score would consist of one point for the total number of responses generated by all team members (including duplications) minus a given number of points for each response that appears on another team's list. Slowly increasing the number of points deducted for responses that are common among teams will encourage the students to strive for originality, as well as quantity, of responses. Students might like to keep a score card on the bulletin board to record team progress. Competitive follow-up activity of this type is probably most appropriate for exercises that emphasize the quantity of responses rather than the production of a story or single product.

The Principle of Cooperation

Researchers have found that activities involving team collaboration help youngsters increase their creative productivity. You should allow students to work on some activities in pairs or in small groups, and students should direct their efforts toward the production

of group responses, as well as individual responses. Group activities provide an opportunity for youngsters to learn cooperation and the benefits of bringing several minds to bear on a particular problem. They also provide opportunities for you to develop leadership skills and help less creative youngsters experience success by working cooperatively with more highly creative individuals. Since you can use many of the activities for both individual and group work, it is important for you to review each activity sheet before using it with students. Field tests have shown that the classroom teacher is the best judge of the conditions under which the class works best, and therefore the activities have not been classified as individual or group activities.

The best way to maximize the effectiveness of the *New Directions in Creativity* program is to vary continually the strategies for using the activities in the classroom. You should use competitive and cooperative modes as alternatives to the individual mode and use students as a guide in selecting the approach for a given activity. Part IV of this manual includes activity-by-activity lesson guides and suggestions for alternative ways of using the activities and follow-up activities. You should, of course, employ your own creative teaching strategies and develop new strategies by combining, modifying, and adapting suggested approaches.

Evaluation: The All-Important Classroom Atmosphere

The success of any creativity training program depends on the amount of freedom and flexibility that exists in the classroom. The very nature of creativity requires that students be allowed to express their thoughts and ideas in a warm and open atmosphere. Teachers should encourage their students to play with ideas, laugh, and have fun without worrying about being graded and evaluated when they are engaged in creativity training activities. Rogers (1969) emphasized the importance of freedom from the threat of evaluation and asserted that creativity can be fostered by establishing psychological safety through the unconditional acceptance of each individual's worth. When you encourage youngsters to express themselves in an uninhibited manner, it is extremely important that you also provide them with a climate that is free from external evaluation and the critical judgments so often associated with schoolwork. The importance of providing this free climate is supported by the research of Amabile (1996) and Lepper, Greene, and Nisbet (1973) who found that extrinsic motivation undermines students' creativity, and Amabile identified factors of intrinsic motivation that impact students' performance

on creative tasks. Since no right answers are prescribed for this creativity training program, students have the opportunity to work in an open atmosphere without the constant threat of failure hanging over their heads.

The most effective way to open up the classroom atmosphere is to minimize formal evaluation and lead students in the direction of self-evaluation. In the real world, people often judge things in terms of self-satisfaction and the degree to which they, as individuals, like or dislike the things they do or the products they produce. The only way that we can teach students to become self-evaluators is to give them numerous opportunities to judge their own work and to modify their work when they are not satisfied with it. Thus, this program does not include a formal grading system, and the suggestions that follow are designed to help develop strategies for (1) valuing students' original products and (2) teaching youngsters the techniques of self-assessment.

The principle of unevaluated practice simply means that judgment is deferred until the individual has had an opportunity to explore several possible answers or solutions to a given problem. The principle of deferred adjustment, first espoused by Osborn (1963), has consistently been shown to be an essential ingredient for creative thinking. Several researchers, such as Amabile (1985) and Baer (1993), have found evidence to support this claim. The main purpose of unevaluated practice is to free children from the fear of making mistakes.

Creating such an atmosphere in the classroom is far easier said than done, but there are some specific strategies that teachers can use to help promote an environment that is more supportive of creativity. The most important strategy is to be tolerant and respectful of children's ideas, questions, and products. You should show interest, acceptance, and excitement toward student responses and avoid expressions of shock, surprise, annoyance, or disinterest. Above all, never laugh at or make light of a youngster's responses and try to discourage teasing and laughter from other students. Healthy amusement and friendly competition will help promote a supportive atmosphere, but ridicule and scowls will have a negative effect. Each student must come to believe that his or her ideas are as valuable as the ideas of others.

One of the hardest things to control in the classroom is the spontaneous laughter that may arise when a student says something that is somewhat unusual. A good way to overcome this problem is to legitimatize laughter by showing students that you also have some way-out ideas and that you do not mind if the students laugh when you express them. You will note that in

the section "Introducing the Primary Activities" the teacher is asked to demonstrate use of a pogo stick. This activity has been found to be an extremely effective way to legitimatize laughter and show students that you are not afraid to express unusual ideas or actions. Whenever possible, participate in written and oral activities and set the pace by contributing your own unusual responses. Your contributions will help students realize that you are a human being and that you are not afraid to express yourself freely. Remember, you set the limits on student behavior. If you actually participate in creative activities, students will learn that you value creative behavior, and they will quickly begin to display their own creative thoughts.

Another strategy aimed at promoting an environment that encourages students to be creative involves the principle of rewarding desired types of responses. If you show generous praise for quantity and unusualness of responses, students will quickly recognize the types of behavior that you value and they will strive to achieve these types of behaviors.

You can increase creative production by combining the fluency principle with the reward principle and the principle of unevaluated practice. In follow-up discussions to the activities, you should praise individual responses and give generous praise to the sheer quantity of response. Remember that an increase in fluency will almost always result in a corresponding increase in originality. Consequently, you should develop a repertoire of fluency-producing, enthusiastic comments, such as "That's really good. Can you think of a few more?" and "Let's see who can come up with five more possible titles for Bill's picture." Don't be afraid to make up a few new words (for example, "fantabulous," "super-great") to show your enthusiasm. Gently probing youngsters for more and more responses will help them develop a fluency set; and, hopefully, practice in this mode of thinking will carry over to other areas of learning and experience.

You should make every effort to avoid using phrases or expressions that are natural killers of creativity. Examples of such phrases include:

Don't be silly.
Let's be serious.
That's ridiculous.
Quiet down.
The principal won't like it.
Let's be practical.
You should know better.
What's the matter with you?
That's not our problem.

We've tried that before.
That's not part of your assignment.
That's childish.
A good idea but . . .
It won't work.
Don't be so sloppy.

One of the underlying purposes of the *New Directions in Creativity* program is to help youngsters learn how to evaluate their own creative products. One of the great tragedies of traditional school instruction is that students almost always look to the teacher for evaluation and approval. By so doing, they fail to develop a system of internal self-evaluation. And yet, psychological studies have revealed that each person has a need to be his or her own primary evaluator. The nature of creativity is such that the individual produces something that is new, unique, or novel for him or her at a particular time. To break away from social pressure toward ordinary and common production, a person must place his or her own opinions and feelings above those of others. He or she must be satisfied with his or her products and feel that they express a part of his or her feeling, thoughts, and ideas.

One of the primary tasks for teachers using this program is to help youngsters learn how to make judgments about their own work. This task is undoubtedly one of the most difficult of teaching, but there are a few simple guides that you can use to help students evaluate their own work. When students look to you for judgment, you might ask:

What do *you* think about it?
Do you feel good about it?
Would you like to work on it some more?
Why do you like (or dislike) it?
What things (criteria) are important to you?
How would you compare it to the work you did last time?

Encourage students to compare their own products by ranking them and selecting the ones they like best. Students should learn that you respect their judgment and will not overrule that judgment by placing your evaluation above their own. This behavior does not mean that you should not comment and make suggestions, but students should understand that you are stating your opinion and there is no reason to assume that it is more important than theirs. Since there are no right answers to creativity exercises, and since students will not be graded on their creativity or creative products, the program provides a real opportunity for students

to develop self-evaluation techniques. The key word in this process is *trust*. If students think that you will consider their creative activities in their final grades, they will constantly look to you as the ultimate source of judgment.

Peer evaluation can also provide students with a source of feedback. This feedback should always be informal, and it should be related to the type of product involved. For example, in writing a humorous ending for an unfinished story activity, if a student elicits laughter from the class, he or she will know that his or her efforts have been effective. You should encourage students to add their own praise to other children's responses, and their spontaneous reactions should be a regular part of all follow-up discussions.

A final consideration in the creation of a free and open classroom atmosphere is the acceptance of humor and playfulness. When you purposefully ask youngsters to strive for clever and unusual responses, a good deal of healthy noise and whimsical behavior is likely to result. The creative adult has the same uninhibited expressiveness and spontaneity found in happy and secure children. Creativity time should be a fun time, and playfulness, impulsiveness, humor, and spontaneity are all part of having fun.

How to Use the Primary Activities

Although many of the primary activities are most effective when used with groups, they can also serve as independent studies or as supplementary classroom activities. Field tests have shown that the program can be used continuously for a given period of time or on a one- or two-day-a-week basis throughout the school year. The suggested follow-up activities are an important part of the program. Together with the activity sheets, they provide a year-long supply of creativity training exercises. As indicated in Part I, the program is not intended to be an end in itself. Rather, it is designed to assist teachers in learning the nature of creative problem solving and in developing their own creativity activities. The program will yield maximum benefits if you follow a plan that uses a balanced combination of activity sheets and suggested follow-up activities.

Because of variations in the needs of various age and ability groups and because of differences in individual and group preferences, the "Suggested Sequence for *Mark A* Activities" (p. 21) should not be considered a rigid lesson-by-lesson sequence. It is intended to serve as a broad guide, and you should feel free to modify the sequence to serve the individual interests and learning preferences of particular groups.

After students have become familiar with the various types of activities, you should give them opportunities to decide which activities they would like to pursue. Student interests should also guide you in determining which type of follow-up activities to use in future training sessions.

As students progress, you should encourage them to use the skills they have developed in previous activities. For example, you might introduce an unfinished story activity by suggesting the first sentence of a possible ending to the story and asking students to suggest synonyms for specific words that would make the sentence more precise, colorful, and imaginative. When students are working on advertising or promotion activities, you should make them aware of the use of homonyms and rhyming words in slogans and jingles and remind them of the rhyming exercises they completed earlier.

The general plan for sequencing primary activities takes account of (1) a balance between semantic, symbolic, and figural material, (2) a balance between units, classes, relations, systems, transformations, and implications and elaborations, and (3) the level of difficulty and logical relationships between certain activities. Since there are two activity sheets for each type of activity, you can work through the suggested sequence twice. In each set of exercises, comprehensive directions and sample responses (when applicable) are always included on the first activity sheet. Therefore, for any given exercise, you should always use the activity sheet lettered "a" before the activity sheet lettered "b." By the time students get to the second activity sheet, they will have caught on to the nature of the exercise, and you can refresh their memory by referring to the first activity sheet. Occasionally, examples have been included on the second activity sheet to help provoke new ideas.

Each exercise should take approximately one class period, although some of the exercises that involve creative writing may require more time. You may want to assign for homework exercises that cannot be completed in class. However, it is necessary to have group discussions of all material that is completed outside of class as an important part of the creative process involves sharing creative products with others.

You can use the suggested follow-up activities included in the lesson guides any time after the students have completed the first activity sheet for each activity. Whenever students show a preference for a particular type of activity, capitalize on their enthusiasm by developing similar activities of the type suggested in the follow-up sections of the lesson guides.

Introducing the Primary Activities

The basic strategy for introducing primary activities consists of freeing the classroom atmosphere from the usual constraints often associated with convergent production. Allow approximately one class period for the introductory session. It is extremely important for students to learn to appreciate questions and activities for which there are no right answers. You can introduce this concept by contrasting a convergent type of question with a divergent one. Before distributing the first activity sheet, you might say something like the following (but do not read it verbatim or sound too rehearsed):

> Today we are going to begin practicing a new kind of thinking. This kind of thinking will help us learn how to explore many different kinds of solutions to a given problem. Some problems and questions have only one right answer, but there are also many problems and questions that have hundreds of possible answers.

> Suppose I asked you, "In what year did Columbus discover America?" (Wait for an answer and write it on the chalkboard.)

> Are there any other possible answers to this question? (General conclusion should be negative.)

> Now suppose I were to ask you, "What are *all* of the possible ways that you *might* have come to school this morning?" (Call on youngsters and list responses on the chalkboard.)

Students will probably give some fairly common responses ("walk," "bus," "car," "bicycle"). At this point, you might say:

> Remember, I said all of the possible ways that you might have come. Use your imagination. Let your mind wander, even if you think the method for coming to school is silly or way-out. How about by donkey or pogo stick? (Add these to the list on the chalkboard.)

This point is extremely crucial to introducing the creativity training program. By suggesting the donkey and the pogo stick, you have accomplished three very important objectives. First, you have conveyed the idea that answers need not be feasible, practical, or realistic. Second, you have let youngsters know that you will accept these kinds of answers. Third and perhaps most important, you have let the youngsters know that you are capable of some way-out ideas. You can be emphasize this point by grabbing a yardstick (conveniently placed nearby beforehand) and improvising with a few hops to demonstrate a pogo stick. Students will no doubt become a little noisy, but it is very important to tolerate this reaction. If you hush them, the whole atmosphere of freedom will be lost, and they will subjectively think that this new kind of thinking is the same old game—the teacher questions and students answer.

After your examples, students may give a wide variety of answers. Let them call out their answers (rather than raising hands) as you write them on the chalkboard. Prompt students if necessary:

> Any other animals that you might come to school on? How about an airplane or a rocket? Or being dropped from a plane with a parachute?

A second crucial factor at this point is the generous use of praise on your part. Enthusiastic comments such as "good," "great," and "fantastic" will help youngsters open up. Do not call on students who are not taking part. It takes some youngsters longer than others to trust the teacher and his or her classmates in this type of situation. The main idea is to let students know that you like what is going on and that you are having fun. When the flow of responses begins to slow down, say:

> Let's go one step farther. Suppose you could change your size or shape. Can you think of some other ways that you might possibly come to school?

If no one responds, say:

> Could you make yourself very tiny and come in your brother's lunch box? Or, could you change to a drop of water and come in through the drinking fountain?

Continue to fill the chalkboard as long as the youngsters are generating responses. When you finally call a halt, say:

> I guess there really are many questions and problems that have several possible answers. Do you think this kind of thinking is fun?

> From time to time, we are going to be working on some activities like the one we just did. The main purpose of these activities will be to practice answering questions and solving problems that

have many possible answers. We will be using our imaginations to come up with some clever new ideas.

At this point, distribute the first activity sheet for "Thinking about Things" and read the directions in the manual to the students. If you have any doubts about youngsters' understanding the directions, ask if there are any questions. Then ask the students to complete the first exercise.

After they have finished, allow some students to discuss their responses. Ask, "How many had that idea?" and after a few students have shared their entire lists, ask if anyone has any responses that have not yet been mentioned. Praise unusual responses from individuals, and praise the entire group for catching on.

Follow the same procedure for the second exercise. It is especially important to be tolerant of unusual responses, increased noise levels, and occasional bursts of laughter. A comment such as "Let's be serious" could destroy the entire atmosphere of freedom to express oneself. If time permits, you may wish to pursue one of the follow-up activities suggested in the lesson guide.

PART III

RATIONALE UNDERLYING THE PROGRAM

The Need for Creativity Training Programs

Although interest in the identification and development of creativity has become one of the vital concerns of teachers, curriculum developers, and leaders in education, the actual effectiveness of schools in helping children realize their creative potential can be judged, at very best, as questionable. More than forty years of intensive research into the nature of creativity has yielded enough understanding about this dynamic process to enable educators to begin translating some of the research findings into classroom practice. The sad fact remains that in spite of dozens of books about creativity, hundreds of research studies, and thousands of training programs and workshops, the development of creative potential is still a largely ignored aspect of a child's total repertoire of acquired behaviors. At least three major problems seem to account for the failure to translate existing knowledge and understanding about the creative process into meaningful classroom practice.

The first problem is a lack of agreement among educators about the definition of creativity and its distinctiveness from other cognitive behaviors. A great deal of research devoted to this issue has led to conflicting conceptions of creativity, such that Davis (1999) concluded, "There are about as many definitions, theories, and ideas about creativity as there are people who have set their opinions on paper" (p. 40). Despite different views, however, most theorists agree with at least two generalizations about creativity. First, several research studies have supported the threshold concept of creativity, namely, a low to moderate relationship between creativity and intelligence (Getzels & Jackson, 1962; Simonton, 1988; Walberg & Zeiser, 1997; Wallach & Kogan, 1965). Highly creative individuals have generally been found to be above average in intelligence, but high intelligence does not necessarily insure high creativity. In addition, a number of studies (Jaben (1980), for example) have found that children of *all* ability levels, including students with special needs,

are capable of creative thinking. In summarizing this issue, Davis (1999) said, "It is absolutely true that despite genetic differences in our cognitive and affective gifts, everyone can become a more flexible, imaginative, and productive thinker" (p. ix). Thus, we can conclude that *all* children can benefit from systematic programming in this area.

The second generalization relating to defining creativity is that, rather than being an independent process, creativity consists of multidimensional processes involving interactions between the individual and his or her environment. These processes may differ from one another to such a degree that we must consider verbal creativity, creativity in problem solving, and creativity in the nonverbal arts as essentially different psychological phenomena. In other words, scientific creativity and creative problem solving may require different explanations than creativity in areas such as painting, music, and writing. And because of differences between individuals and their respective environments, what is a routine task for one person may very well be a creative experience for another. Since one of the basic assumptions underlying the development of the *New Directions in Creativity* program is that all people possess the ability to think creatively in varying degrees, the main purpose of the program is to assist youngsters in generating responses that are creative for the individual student at his or her present level of mental functioning. It is of course hoped that such experiences in creative thinking will help students develop a characteristic way of looking at things that will ultimately result in the creation of ideas and products that are truly original and useful for the culture at large. A good deal of research evidence that shows that people who have engaged in systematic creativity training exercises can increase their capacity for creative thinking in a variety of fields (Baer, 1996; Rose & Lin, 1984; Torrance, 1987).

Although this approach to the definition of creativity is relativistic rather than absolute, it is in

keeping with Guilford's (1967) conception of divergent thinking (discussed on pages 16-19) and Torrance's (1965) analytic description of the process which places creativity in the realm of daily living experiences rather than reserving it for the rarely achieved heights of creation:

> I have tried to describe creative thinking as taking place in the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing these guesses and possibly revising and retesting them; and finally in communicating the results. I like this definition because it describes such a natural process. Strong human needs appear to be at the basis of each of its stages. If we sense any incompleteness, something missing or out of place, tension is aroused. We are uncomfortable and want to do something to relieve the tension. As a result, we begin investigating, asking questions, manipulating things, making guesses, and the like. Until the guesses or hypotheses have been tested, modified, and retested, we are still uncomfortable. Then, even when this has been accomplished, the tension is usually unrelieved until we tell somebody what we have discovered. Throughout the process there is an element of responding constructively to existing or new situations, rather than merely adapting to them. (Torrance, 1965)

For the purposes of this program, creativity is defined as follows

> Creativity is the production of an idea or product that is new, original, and satisfying to the creator or to someone else at a particular point in time, even if the idea or product has been previously discovered by someone else or if the idea or product will not be considered new, original, and satisfying at a later time or under different circumstances.

The second problem that has hampered efforts to promote creative thinking in the classroom has been the shortage of validated curriculum materials in this area. This shortage was the basis for one of the research challenges that emerged from the Sixth Utah Creativity Research Conference (Taylor and Williams, 1966), and was reemphasized in a study by Feldhusen, Bahlke, and Treffinger (1969). Among the many suggestions offered by theorists and researchers who have devoted attention to this problem has been a call for instructional materials that give youngsters practice in opening up their minds and using modes of thought that are not characteristically developed in traditional curricular materials. An overwhelming proportion of existing curricular material places major emphasis on the acquisition of factual information and a kind of thinking that focuses on locating the one right solution to a problem. Although these activities are valuable in the total development of the learner, they often dominate the curriculum and are usually pursued at the expense of other aspects of development. Thus the development of higher level thought processes such as creativity simply does not take place or is an accidental by-product of instruction.

The third major inhibitor to the development of creativity in children has been a lack of understanding about the nature of creativity on the part of many classroom teachers (Williams, 1964; Eberle, 1966; Guilford, 1967). In some cases, this lack of understanding has resulted in the severe inhibition of creative thinking in the classroom and even discrimination against students who display creative behavior.

Although the development of an effective program of teacher training is beyond the scope of this manual, Part II presents a number of practical suggestions for teaching strategies. These suggestions are not intended to serve as a substitute for a course or workshop in creativity, nor will they provide the teacher with the breadth of information that they could gained through intensive reading in this area. Rather, the main purpose is to call attention to the characteristics of creative teachers and to point out a number of widely accepted principles for rewarding creative behavior.

Each manual in the *New Directions in Creativity* program provides a set of experiences that are systematically and purposefully directed toward developing certain creative thinking abilities. The program is not offered as the only approach to this problem, nor is it maintained that the program will develop all of the many dimensions of creativity that seem to exist. Rather, it is one possible approach to creativity training that has been developed within a specified framework. This framework is described in the following section.

The Structure of the Intellect Model

The *New Directions in Creativity* program represents an attempt to translate one aspect of Guilford's Structure of the Intellect Model (1967) of human abilities into classroom practice. This model, developed through factor-analytic methods at the University of Southern

California Psychological Laboratory, has been viewed by many educators as a potentially powerful tool for bringing about needed changes in the curriculum. Although the program focuses on only one dimension of the model, a brief overview of the entire system will provide teachers with the necessary frame of reference for understanding the approach used in this curriculum package.

The Structure of the Intellect Model (see Figure 2) is a three-dimensional classification system that is designed to encompass and organize 120 possible abilities according to (1) the types of mental *operations* employed in the act of thinking, (2) the types of *contents* involved in the thinking process, and (3) the types of *products* that result from the act of thinking.

(1) Operations

The operation dimension of Guilford's model consists of five major types of intellectual activities or processes of mind—the things that the organism does with the raw materials of information. These five categories represent the mental operations that we as human beings can learn to use in processing the information with which we come into contact as we go about living and learning.

Cognition is the mental process involving immediate discovery, awareness, rediscovery, or recognition of information in various forms. *Understanding* and *comprehension* are terms that are commonly used to describe the act of cognition.

Memory is the process that deals with the retention or storage of information. It is accompanied by an ability to bring the information out of storage in response to cues or stimuli that bear some relationship to the stimuli presented when the information was originally stored.

Convergent production is the process of generating information from given information, where the emphasis is on achieving the conventionally accepted outcome. It is quite likely that the given information (cue) fully determines the response. Convergent production involves

Figure 2. Guilford's Structure of the Intellect Model.

finding the correct solution to a problem by manipulating given information rather than merely retrieving information from memory; however, both memory and cognition are involved in convergent production.

Evaluation is the mental operation that refers to reaching decisions or making judgments concerning the criterion satisfaction (correctness, suitability, adequacy, desirability, etc.) of information. This operation implies a sensitivity to error and a judgment of the relative nearness of things to points on a continuum or set of standards.

Divergent production, the operation upon which this creativity training program focuses, involves the generation of information from given information, but here the emphasis is on variety and quantity of output from the same source. This operation is most clearly involved in aptitudes of creative potential and will be discussed in greater detail later in this section.

(2) Contents

The content dimension consists of the following four broad classes of information that are discriminable by the organism:

Figural content consists of information in concrete form, as perceived or recalled in the form of images. The term *figural* implies some degree of organization or structuring. Different sense modalities may be involved, such as seeing, touching, hearing, and smelling. Content information does not represent anything but itself—that which is sensed and discriminated.

Symbolic content involves information in the form of signs that have no significance in and of themselves. Letters, numbers, musical notations, and other code elements are examples of symbolic content. Objects, figures, and shapes are also examples of this type of content.

Semantic content is information in the form of meanings to which words commonly become attached. Semantic material is the major element in verbal thinking and in verbal communication (writing and speaking).

Behavioral content consists of essentially nonverbal information that is involved in human interactions, such as the awareness of attitudes, needs, desires, moods, intentions, perceptions, and thoughts of other persons and of ourselves. The identification of abilities involving this type of content has not been as precisely defined as those abilities involved in figural, symbolic, and semantic content.

(3) Products

The product dimension of the Structure of the Intellect Model consists of the organization or form that information takes when it is processed by the human mind. The following six products, as defined by Guilford, are the result of interaction between our senses and the world around us:

Units are relatively segregated or circumscribed items of information that have singular character. For example, one chair would constitute a unit.

Classes are recognized sets of items of information grouped together by virtue of their common properties. Thus several chairs would form a class.

Relations are recognized connections between units of information based on variables or points of contact that apply to them. For example, a chair and a desk would constitute a relation.

Systems are organized or structured aggregates of items of information that are grouped together because of the interrelatedness or interaction of their respective parts. Systems are combinations of units, classes, and relations that have some total function. An example of this category is a "school system."

Transformations are changes of various kinds of existing or known information. Transformations involve the redefinition or modification of existing ideas, products, or materials.

Implications and *elaborations* consist of extrapolations of information in the form of expectancies, predictions, known or suspected antecedents, commitments, or consequences. Asking questions, the answers to which should help people see a particular problem more clearly, suggests implications from known information.

The *New Directions in Creativity* program deals primarily with the divergent production operation of the Structure of the Intellect Model. Within this "slab" of the model, eight of the twenty-four factors have not yet been completely identified by Guilford (see Figure 3); thus only a few experimental activities have been developed in these areas. The program does, however, include activities that sample all of the divergent production factors that

involve semantics, as well as some selected activities that use symbolic and figural information. None of the exercises in the program are offered as "pure" exercises in the development of a given factor. For example, Guilford (1967) has stated that "memory storage" underlies all problem solving and creative production, and other researchers (Pollert et al., 1969) have found that memory abilities play an important role in divergent production. Guilford's factor-analytic data also have shown that certain activities are related in varying degrees to more than one factor. Thus abilities from other areas such as cognition and memory are brought to bear on the operation of divergent production; and within the area of divergent production, certain abilities seem to act as contributory factors to the development of other abilities. For this reason, the classification of activities according to the Guilford structure is intended to point out the major focus of the respective activities in the program, but these classifications should not be interpreted to mean that other abilities are not involved in a given exercise.

The main purpose of this brief overview of Guilford's Structure of the Intellect Model is to underscore the relationship between the focus on divergent production presented by the *New Directions in Creativity* program and the overall dimensions of the Guilford model. Teachers who are interested in delving further into the various dimensions of the model should refer to Guilford's major work in this area, *The Nature of Human Intelligence* (1967). Another excellent interpretation of the model is presented in Meeker's book entitled *The Structure of Intellect: Its Interpretation and Uses* (1969).

PRODUCT:
Units
Classes
Relations
Systems
Transformations
Implications

CONTENT:
Figural
Symbolic
Semantic
Behavioral

* Factors not yet identified

Figure 3. Factors in divergent production.

PART IV

LESSON GUIDES FOR *MARK A*

The activities in this book are presented in the order indicated below. As noted earlier, this sequence is offered only as a suggestion, and you should feel free to alter this sequence to serve the interests and preferences of a particular class. The activity number has been printed in the upper left-hand margin of each activity sheet to help you keep the sheets in order after each use.

A schematic overview of these activities, based on Guilford's classification system, is presented in Figure 4. For a description of this system, see pages 16-19.

As you use these activities in your class, you may find it helpful to keep a record to which you can refer when you use the activities with other classes. For your convenience, a chart for this purpose is provided on the first four duplicating masters at the back of this manual. This chart contains spaces for you to record the date a particular activity sheet was used and to make notes on the class reaction and on how you used the follow-up activities.

Suggested Sequence for *Mark A* Activities

Activity	Type of Activity	Activity	Type of Activity
1 Thinking about Things	Semantic and/or Figural Units	12 What Do You Think Of?	Semantic and/or Figural Units
2 Dot to Dot	Figural Systems	13 Fun with Figures	Figural Elaborations
3 A Tale Retold	Semantic Transformations	14 If I Wrote the Book	Figural Transformations
4 Cut and Create	Figural Relations	15 Fun with Letters	Figural Units
5 Feelings	Symbolic and/or Figural Units	16 Room to Fill	Figural Systems
6 Let's Celebrate	Symbolic Implications and Elaborations	17 Recycling	Figural Elaborations
7 Pictures Tell Stories	Semantic Implications and Elaborations	18 Building Blocks	Figural Systems
		19 Rhyme Time	Semantic Relations
8 What Do You See?	Figural Elaborations	20 Far Out Letters	Figural Transformations
9 How does Your Garden Grow?	Symbolic Units	21 Letter Look-Alikes	Figural Elaborations
10 Making Faces	Symbolic Elaborations	22 For Children Only	Figural and/or Semantic Classes
11 Clues from Clothes	Figural Implications and Elaborations	23 Make a Creature	Figural Systems
		24 The Magic Door	Semantic and/or Figural Systems

Figure 4. Mark A Activities

	SEMANTIC	SYMBOLIC	FIGURAL
UNITS	Thinking about Things [1] What Do You Think Of? [1]	How Does Your Garden Grow? Feelings [1]	Thinking about Things
CLASSES			For Children Only [2]
RELATIONS	Rhyme Time		Cut and Create
SYSTEMS	The Magic Door [3]		Make a Creature Dot-to-Dot Building Blocks Room to Fill
TRANSFORMATIONS	A Tale Retold		If I Wrote the Book Far Out Letters
IMPLICATIONS AND ELABORATIONS	Pictures Tell Stories	Let's Celebrate Making Faces	Fun with Figures What Do You See? Letter Look-Alikes Clues from Clothes Recycling

[1] May also be Figural Units
[2] May also be Semantic Classes
[3] May also be Figural Systems

1 Thinking about Things

Type of Activity
Semantic and/or Figural Units

Objectives
To develop the ability to respond in various ways.
To develop understanding that different people have different responses to a given situation.

Teaching Suggestions

Explain to students that one word may bring various thoughts to their minds. Say the word *noise* and ask each child to tell what he or she is thinking when he or she hears the word. List the responses on the board. Do the same for the word *quiet*. Point out that different people think of different things when they hear the same word.

Distribute the activity sheets, and ask the children to look at activity "a." Tell them to think about the word *cold*, and ask them to draw or list all the things that they think of when they hear the word. Suggest that they use the back of the activity sheet if they need more space. Present activity "b" in a similar manner.

After the class has completed the activity sheets, allow them to share their responses. Prepare two bulletin boards—one labeled *Hot*, the other *Cold* —and display individual pictures from the activities under these captions.

If there are children in the class from different areas of the country or from different backgrounds, it might be interesting to point out how their responses differ. Also, if appropriate, mention how responses vary according to the season of the year in which this activity is introduced.

Follow-up Activities

• Take one word that a student has suggested (for example, *mittens* under the topic *Cold*) and use that as a base word. See how many things the class can think of that are associated with the new word.

• Put a topic such as *Hot* or *Cold* on the chalkboard and ask students to search through magazines and cut out as many pictures as they can find that are associated with the topic word. Have the children paste the pictures on individual papers, or on a classroom mural labeled with the topic. You might select topic words from a social studies unit (for example, *City*, *Country*, *Homes*, *Factories*, *Sports*) for this activity.

2 Dot to Dot

Type of Activity
Figural Systems

Objectives
To develop the ability to create a meaningful design within given restraints.
To develop flexibility in viewing figural information.

Teaching Suggestions

Primary children often enjoy making dot to dot pictures in which they connect numbered dots to make a picture which they can then color. If there is not an example of this type of activity readily available, place the following example on the chalkboard. Ask a member of the class to connect the dots. Ask the class what they see.

Place four rows of four dots each arranged in a square on the chalkboard. Choose one student to come to the board. Tell him or her to place his or her chalk on the second dot in the top line. Tell the student to make a straight line from one dot to another. Tell him or her to do this ten times without taking the chalk off of the board so that the dots will be connected. When the student has finished, shade in a portion of the picture. Ask the class what they see. Label the picture.

Repeat this activity using another dot pattern (below) is an example) and choose another student to connect the dots.
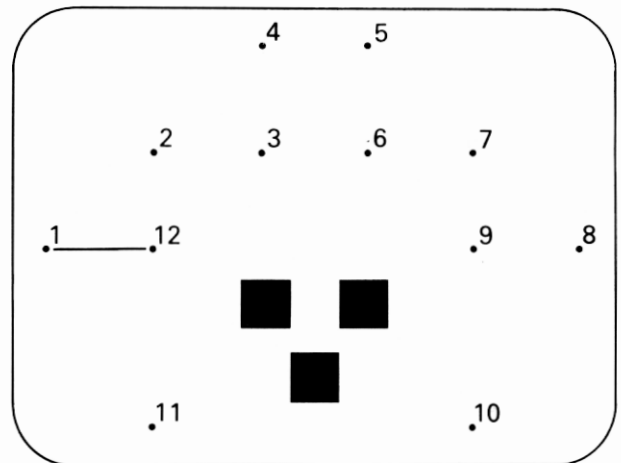
Allow the child to choose any starting point, and do not limit the number of lines. Emphasize that the student should not have a picture in mind at the beginning. State that no two pictures will be alike.

Have the students turn to the activity sheets. Tell them to place their pencils on the dot numbered "1" in

activity "a." Tell them to draw a line from "1" to another dot and to draw a line from that dot to another one, connecting dots until a pattern emerges. They should stop when they see a pattern. They need not draw a specified number of lines. Tell them to label the picture and then color it.

Present activity "b" in a similar manner, but point out that the students do not have a special starting point in this activity. State that they should not make the same pattern twice. Have the class compare their results.

Follow-up Activity

- On a 9" x 12" piece of wall board or plywood, place four rows of four 1.5" nails to form a square, with the nails spaced about one inch apart. The square should look like the ones in activity "a." Have students make designs by connecting the nails with colored yarns or elastic bands.

3 A Tale Retold

Type of Activity

Semantic Transformations

Objectives

To develop verbal fluency.
To develop the ability to create alternative endings to stories.

Teaching Suggestions

Introduce activity "a" by reading or telling the story "The Three Little Pigs" to the class. Ask the children if they liked the ending to the story or if they would have preferred a different one. Discuss other possible endings. Ask, for example, what might have happened if the wolf had blown down the house of bricks or if the boiling water had been a magical potion. Ask what such a magical potion might be and what it might be able to do. Suggest some other "what if" situations. To stimulate fanciful thinking, ask children to create an ending that is funny or one that is sad. Encourage them to add to or modify some of the more imaginative ideas of their classmates.

Provide scissors, crayons, and paste (or glue) as you hand out the activity sheets. Give the children time to color their puppets and then demonstrate how to cut them out. Be sure they understand how to cut. Younger children may have trouble cutting around the tabs. (If this is the case, dispense with the tabs and staple either a Popsicle stick or a tongue depressor to the back of each figure as an alternate way of making the puppets.) Show

the children how to form the tabs into a circle behind the figure and how to glue the two edges together. After the glue dries, the puppets will be ready to be slipped over their fingers.

Encourage the children to change puppets when it is appropriate to their story. Tell them to change voice for the different characters and to move the puppets as they talk. Remind them that the idea is to have a new and different ending for their tale. Students could work in pairs to present their stories to the class. You might encourage older students to write a script and to use music to accompany their presentations. Follow a similar procedure for activity "b" after reading or telling the story of "Little Red Riding Hood."

Follow-up Activities

- If the children are enthusiastic about puppetry, consider making a puppet theater as a class project. You could call a local appliance dealer and request that he or she set aside a large cardboard box in which a major appliance had been packaged. Bring this carton to class and discuss with the class some ways of converting it into a puppet theater. Agree on the best approach and list on the board the steps involved. Select a few children to work together on each of the various steps and plan times during the week when the groups can work on the project. A diagram of one possible theater design is offered below.

front   back
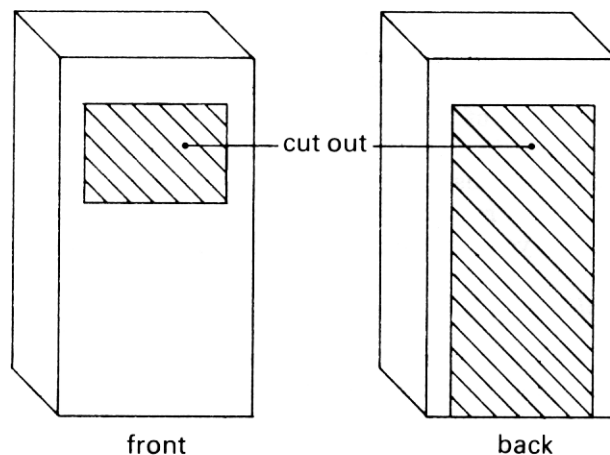
- Bring to class books about puppets and puppet making and encourage students to create their own characters. Provide paper, crayons, pieces of material, yarn, buttons, and any other odds and ends you can collect. Paper-bag and sock puppets are old favorites that are simple to make, requiring only a minimum of instruction. Show the class how the puppet "comes alive" by slipping the sock or paper

bag over your hand and moving your fingers how the puppet "comes alive." Ask the children for their ideas about puppet design and construction. Make a collection of these puppets which the children can share in their free time.

Resources

Most Excellent Book of How to Be a Puppeteer by Roger Lude. 1996. Published by Copper Beech Books: Brookfield, CT.

Puppets and Masks: Stagecraft and Storytelling by Nan Rump. 1996. Published by Davis Publications, Inc.: Wocester, MA.

4 Cut and Create

Type of Activity
Figural Relations

Objectives
To develop the ability to construct new images from given elements.
To develop figural flexibility.

Teaching Suggestions

Preface this activity with an introduction to some of the basic shapes. The students probably already have developed conceptions of *circle*, *square*, *oblong*, and *triangle*. Show them some three-dimensional objects, such as blocks and balls, that include these shapes. Have the children find things in the classroom that have the same shapes as the blocks and balls. Encourage them to discover various things in the room that are made of combinations of shapes. (For example, a chair might consist of a square and several oblongs.)

The children can make shapes like those in the activity sheets from felt and combine them on the feltboard in a variety of ways. They might cut the basic felt shapes into two or three pieces. Point out that the square could make two triangles and that the circle could take a variety of shapes ranging from two half-circles to three pie-shaped pieces. Suggest that the youngsters arrange and rearrange these parts in many ways.

After distributing the activity sheets, ask the children to cut out the shapes and place them on another piece of paper in a variety of combinations. Some students might wish to work with the basic shapes provided. Other students might like to cut the shapes into several parts prior to arranging them. Tell the students that each person should find a grouping that he or she

likes and then paste it and color it. Suggest that they label their pictures.

Follow-up Activities

• Have the children draw on colored paper all four of the shapes included in this lesson. You could provide a pattern, have the students find and trace three-dimensional objects of these shapes, or ask them to draw something freehand. Spools, jar lids, and small box-tops are excellent objects for tracing and will show a relationship to concrete objects. Tell the children to combine their four shapes in various ways on a large piece of colored paper. Have them paste and title each combination.

• Show the children how to combine Styrofoam or wooden three-dimensional objects to make sculptures. Have them paint their creations and display them. Suggest that they title their work. *Note: In working with three-dimensional figures, you may wish to substitute a cone for the triangle.*

5 Feelings

Type of Activity:
Symbolic and/or Figural Units

Objectives

To develop the ability to respond in various ways.
To develop the ability to see that a variety of situations can produce a given mood.

Teaching Suggestions

To introduce this activity, select short paragraphs or stories that create the mood under consideration. Explain that people feel differently about different things and ask the students to listen carefully to see if the story is happy or sad. It is conceivable that a story which seems sad or happy to the teacher may not seem so to every child. Discuss each story, but let the students decide individually whether it is happy or sad. List some of the events from the story which make it either happy or sad.

You might contrast nursery rhymes such as "Humpty Dumpty" and "Old Mother Hubbard," which promote a sad theme, with "Mary, Mary Quite Contrary" and "Little Jack Horner," which are happy rhymes.

Tell the children to draw or list on the activity sheet all the things that make them either happy or sad. Suggest that they use the back of the sheet if they need more space.

Follow-up Activities

- If a tape recorder or a teacher's aid is available for taking dictation, allow students to expand upon some of the things which make them happy or sad by composing a story.

- Have students mime some of the things that make them happy or sad while class members try to guess what they are doing.

- If the class is mature enough to work with papier-mâché, have each student choose an emotion and make a puppet or mask that displays that mood.

- Ask students to see how many synonyms they can list for happy-sad, angry-calm, or serious-silly moods.

6 Let's Celebrate

Type of Activity

Symbolic Implications and Elaborations

Objectives

To develop the ability to elaborate on given objects to ascribe additional meaning.
To develop symbolic fluency and flexibility.

Teaching Suggestions

You could introduce this activity after a class celebration of a holiday or birthday. On such occasions, many classes share decorated cakes or cupcakes. Discuss the decorations that the children have seen on birthday cakes. List other occasions on the board for which one might make a cake and other refreshments. Ask "How might the cake be decorated?" and "Are there other special days we might celebrate with a cake?" List them on the chalkboard.

To get original responses, suggest that the children might celebrate the purchase of a puppy with a cake decorated with dog bones made of candy. Or, they might celebrate the first day of spring with a cake decorated with flowers. Ask students to think of ways they could wrap gifts for these occasions. You could suggest that they might wrap a gift for a new puppy with a leash and a bow made of dog biscuits. The class might look at examples of wrapping paper and discuss how the designs make it appropriate for a particular occasion.

Distribute the activity sheets. Tell students to decorate the cakes or boxes for the special days shown under the pictures. Tell them to pick out some special days of their own and decorate cakes or boxes for those days. Ask them to label these cakes or boxes.

When doing the activity sheets, the children need not include in activity "b" the same occasions represented in activity "a." Encourage variation. You might suggest that they celebrate the first day of spring with a cake, but not exchange gifts. Encourage the children to think of original reasons for celebrations and have them share their responses.

Follow-up Activities

- Choose a day that is special for your class. Provide undecorated sugar cookies for each child. If a kitchen is available, have the class make the cookies early in the day. (Making cookies affords an opportunity for measuring and sharing.) To make decorating easier, the cookies should be larger than three inches in diameter. Seat the children in small groups. For each group, provide a bowl of icing (or peanut butter), raisins, nuts, chocolate chips, licorice strips, and cake decorator items. Distribute tongue depressors or plastic knives for spreading the icing.

- Students could decorate gifts that they have made for Mother's Day or Father's Day, Christmas, Hannukah, or Kwanzaa, create their own wrapping paper, and/or make cards with original poetry for some of the special occasions given in activity "b."

7 Pictures Tell Stories

Type of Activity:

Semantic Implications and Elaborations

Objectives

To develop imagination and verbal originality.
To develop the ability to give antecedents and to predict consequences to a given situation.
To develop the ability to use sequence in story writing.

Teaching Suggestions

Before introducing this activity, cut out short cartoons and comic strips. Use an overhead projector to enlarge them. Cut out or black out the words or captions so that the pictures alone tell the story. Ask the class to dictate an original class story about one of the cartoons and write it on chart paper. In classes that are slower in grasping this activity, you may wish to have the class write several stories based on different cartoons.

After distributing the activity sheets, ask the children to look at the cartoons on the sheets. Suggest that they tell the stories of the cartoons either by dictating to you (or an aid) or by writing on the back of the sheet. Ask the students to present their original stories to the class and encourage them to notice how many different kinds of stories will result from the same pictures. Encourage students who can write to fill in captions for the cartoons or to place words on the cartoons to make the characters talk.

Follow-up Activities

- A classroom scrapbook of cartoons and comics with words blacked out will serve as an excellent resource for students who want to write additional original stories. This scrapbook might consist of ten or twelve 8" x 10" envelopes stapled together (to form the backbone of the book) so that each one will be a page of the book. To make this scrapbook, pile the envelopes on top of one another with the sealed ends together. Fasten the staples through the sealed ends. The open ends should be on the right hand side so that each envelope forms a "page" that opens. Place a cartoon on the front of each envelope.

   When a student wishes to write a story, he or she should look through the scrapbook and select a cartoon as subject matter for a story. Permit the student to take the scrapbook to his or her desk to write the story. Upon completion of the story, have the student file it in the envelope to which that particular cartoon is attached. As the story collection begins to build, choose one cartoon from the scrapbook, display it, and read all the stories that are in its envelope. Help students perceive and compare the variety in story line.

- For a lesson in sequence, cut the cartoon strips on the activity sheets into three separate pictures and change their order so that they will tell different stories.

8 What Do You See?

Type of Activity
Figural Elaborations

Objectives
To develop nonverbal elaboration and originality.
To develop the ability to construct a meaningful picture by elaborating on given objects.

Teaching Suggestions

To introduce this lesson, place a small square with a large circle below it on a felt board. Have a variety of shapes made of felt lying on a table in front of the felt board. The shapes should range from large round, square, and triangular pieces to very thin strips of various lengths. (You might also use pieces of yarn.) Ask a student to add some pieces of felt or yarn to make the circle and square form a picture. Have the student place his or her additions on or around the figures. Ask him or her to tell about the picture. Clear the board. Using the same circle and square in the same arrangement, ask another student to create a new picture with additional pieces of felt or yarn and then explain the creation.

Distribute the activity sheets and tell the children to look at the figures carefully. Suggest that these figures could be part of a picture. Instruct the children to add some lines of their own to make a picture. Ask them to color the picture and then tell about it. Suggest that some of them might like to write about the pictures on the activity sheets.

Display the children's work with the figures in activity "b" on a bulletin board. Have students duplicate these creations with pieces of felt arranged on a felt board.

Follow-up Activities

- Make a collection of scraps of fabric. Have the class make collages with these scraps on pieces of heavy paper or tag board. Begin this collage activity by cutting several basic shapes for the students. Then ask them to add their own cut-out shapes. Tell them that yarn, buttons, and other sewing notions are useful in making collages. Ask children who can write to give their work a title.

- If a large classroom collage is feasible, have each student contribute one shape to a series of shapes that you have already pasted on a piece of mural paper or heavy cardboard. You could even pin pieces to a bulletin board backed with colorful cloth or wallpaper.

9 How Does Your Garden Grow?

Type of Activity
Symbolic Units

Objective
To develop verbal fluency by producing words that conform to simple specifications.

These activities should follow lessons on the consonant sounds. Have students play a game such as "My father owns a grocery store." Say to the children, "My father owns a grocery store, and in it he sells . . ." Make a beginning sound such as hard *c*. Think of the word cake, and ask the children to guess what you are thinking. They will call out many hard *c* words. When someone correctly calls out "cake," he or she will become the next leader. The new leader must think of a new grocery store item beginning with a different consonant, and the class must guess what it is.

Distribute the activity sheets and invite students to look at the gardens on them. Point out that the flowers are make-believe flowers. Ask the children how all the flowers in activity "a" are alike. When they become aware that the names all begin with the same sound, ask them to think of other items that have names beginning with that sound. Draw several of the suggestions on the board as pictures with stems. Then have the children complete the flowers in activity "a." Tell them that they may use the backs of their papers if they need more space. Have the children who can write label each picture. Suggest that the others might like to write just the beginning sound. You might ask certain students to look for words in the dictionary.

Follow the same procedure for activity "b." You could suggest that the children first think of all the three-letter words that rhyme with bat and cat. Then have them try adding one or two letters to the -at ending (*brat*, *beat*, *heat*, *cheat*, *meat*, *seat*). Use the most original words for a bulletin board display.

Follow-up Activities

• You could use the make-believe garden in various ways for any beginning or ending consonant or vowel sound. You might, for example, make a large tree with many branches for the bulletin board. Label it a *c* tree, a *d* tree, or with any other beginning sound that the class may be working on. Have the children cut out pictures of objects with names that begin with that sound and place them on the branches of the tree.

10 Making Faces

Type of Activity
Symbolic Elaborations

Objectives
To develop the ability to construct significant objects by elaborating on given structures.
To develop symbolic fluency and flexibility.

Teaching Suggestions

Cut out and mount pictures of faces that portray various moods. Display these pictures in front of the class. Ask the class to describe the faces in the pictures. Ask if the faces are pretty or homely, happy or sad, old or young. Display a face with a happy expression. Ask the class how they would change it to make it sad. Point out that the eyes and eyebrows as well as the contours of the mouth can change a facial expression. On pieces of 9" x 12" paper, print the words *happy*, *sad*, and *mad* in large letters. Give one student the *happy* label. Ask him or her to stand in front of the class and dramatize this mood. Repeat this process with the other words. If a mirror is available, have students observe their own facial expressions as they depict different moods. Point out that different students have different ways of expressing the various moods.

Distribute the activity sheets. In Activity A, tell the students to make a face that looks like the word under the blank circle. Tell them to add a new label under each of the other blank circles and then make a face to go with the label. Suggest that they use the back of the sheet if they need more space.

For activity "b," ask the students to write or tell what the person in each picture is feeling. Ask them to add eyebrows, eyes, or mouth in any way they want to complete the faces. If they need further motivation for this activity, hide part of your face with a scarf and ask the children to guess your mood from the part left showing. (For example, hide your mouth and display a happy face with your eyes.) After the children have expressed their guesses, remove the scarf so they can see if they have guessed correctly. Point out that the angles of your eyebrows, eyes, and mouth all help to create an expression. Display some of the more original drawings on the bulletin board.

Follow-up Activities

• The students might dramatize some of the original expressions which they created on the activity sheets. They could also play a guessing game in

which one student portrays a mood and the others guess what it is.

- After completing the activity sheets, some students might wish to draw cartoon bubbles to make each of their characters say something appropriate to the expression. Students might also label the pictures with an appropriate caption.
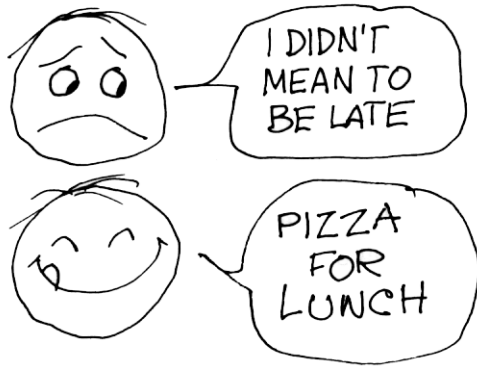
11 Clues from Clothes

Type of Activity

Figural Implications and Elaborations

Objectives

To develop the ability to elaborate on a given form.
To increase observational skills and the ability to draw conclusions from given information.

Teaching Suggestions

Besides being a good stimulus for the imagination, this activity helps children see the great variety and flexibility of human physical characteristics and clothing combinations. Introduce the activity by talking about Halloween and the practice of wearing costumes or disguises on that holiday. Explain that a disguise, like a costume, is used to make a person look different from his or her normal self. Have students give examples of their costumes and disguises. Discuss the use of costumes and disguises by clowns in the circus or by actors in television programs and in movies. You might tell the story of Snow White, in which the wicked queen takes on the disguise of a sweet old lady to fool Snow White. In addition, talk about how many different occupations require special costumes or working clothes and equipment.

Distribute the activity sheets and ask students to look at activity "a." Tell them that the person on the activity sheet has a special job. Tell them that he or she must wear special clothes for that job. Ask them to think

of a job for this person and then draw the clothes that he or she will need for that job.

For activity "b," ask the students to pretend that they are famous detectives who must follow a suspicious looking person. Tell them that to keep that person from suspecting he or she is being followed, the detective must wear a disguise. Ask them to draw that disguise on the figure. Suggest that, before drawing the disguise, students first think of a reason for wearing that particular item (false beard or eyebrows, dark glasses, long coat, and so on).

Pairs of students could work together on the two activity sheets. In activity "a" the first person could suggest a job for the figure on the activity sheet, after which his or her partner creates the appropriate costume. In activity "b," the first person could create a fanciful reason for a disguise, after which the partner dresses the figure on the sheet. The partners should then reverse roles so that each person has a chance to make up a situation and also a disguise.

After students have completed the activity sheets, have them show their work and discuss the occupational clothes and disguises they drew.

Follow-up Activities

- Let students attempt to make disguises for themselves from paper and old scraps of felt, yarn, or other materials you have collected. Suggest that they might make masks from paper bags, or papier-mâché. Since young children like to play "dress-up," provide them with materials for this game and set aside a corner of the room for it. Collect old clothes, hats, shoes, and jewelry, and if possible, provide a full-length mirror to encourage the children to make the most of the clothing at their disposal. Have the children use their costumes in role playing or charade activities.

- The class could also make a large dummy out of old material (a sheet or pillow case, perhaps), stuff it with rags or newspapers, and use it as a dress-up dummy. The children could change its costume whenever they wished. They might use puppets in a similar manner and, with a change of clothes, have these puppets play new characters.

12 What Do You Think Of?

Type of Activity
Semantic and/or Figural Units

Objectives
To develop verbal fluency and flexibility.
To develop understanding that given information may have different meanings to different individuals.

Teaching Suggestions

Several days before taking up this activity, begin keeping a weather chart in the classroom. On a piece of chart paper, record the temperature and note if it is sunny or rainy. On the same paper, list the things that the class might do each day. Before beginning the activities, look back at the weather chart and point out the various things that the class did on sunny days and those they did on rainy days. Compare and contrast sunny-day and rainy-day activities.

Distribute the activity sheets and tell the class to turn to activity "a." If necessary, ask the students to pretend that it is a sunny day. Ask them what things they might do on a sunny day. Ask them to imagine that it is any season they prefer and any hour of the day. Have them to list or draw the things that they might do at that imagined time. Present activity "b" in a similar manner.

Follow-up Activities

- Continue keeping a classroom record of the weather. Carry out some of the sunny- or rainy-day activities suggested by the children in activities "a" and "b" that the class as a whole can do. (For example, if a boy suggests that on a sunny day he can play kickball, point this out to the class and include it in a sunny-day's plan.)

- Have students discuss how they feel on a sunny day as compared to how they feel on a rainy day. Do not assume that all children feel happy in sunshine or sad in rain.

13 Fun with Figures

Type of Activity
Figural Elaborations

Objectives
To develop the ability to manipulate given objects in a variety of ways.

To develop the ability to construct a distinct unit from several elements that have no independent significance.

Teaching Suggestions

To introduce this activity, place a round piece of felt and three or four long, thin, straight pieces of felt on a felt board. Arrange the straight pieces in several patterns close to the circular piece. Below are two examples:
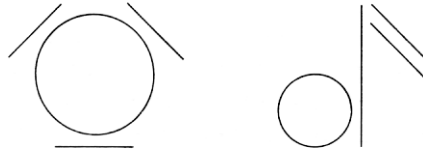
After presenting each example, ask students what they see. Accept any answer, and encourage a variety of responses. Repeat this procedure using the chalkboard. Draw a circle and add four straight lines. Ask the children what they see. After doing this several times, draw a circle and allow several children to take turns adding four lines at the board. The lines may be of any length. After each child has added his or her lines, ask the class to describe what they see.

Distribute the activity sheets and then ask the children to add four straight lines to each circle in activity "a" so that each example forms a different picture. Encourage the children to make pictures other than the ones you have used as examples. Have those children who can write add titles to their own pictures. Allow some of the children to duplicate their pictures on a felt board or chalkboard. If they need more space, have them use the backs of the activity sheets.

Follow-up Activities

- Have the class play a guessing game in which one person creates a figure on the felt board and the other class members guess what it is. They could also play this game at the chalkboard. You could turn this activity into a team game by dividing the class into five teams. Mark off five sections of the chalkboard and give each team a section. Have the first member of the team make a figure, such as a circle or a square. Then ask each succeeding member to add a line. Finally, have the first member title the picture. Then rotate the teams so that each person has a chance to begin the activity and to title the picture.

14 If I Wrote the Book

Type of Activity

Figural Transformations

Objectives

To develop the ability to alter characteristics of known objects.
To increase nonverbal originality and flexibility.

Teaching Suggestions

Introduce this activity by reading the poem "The Purple Cow" by Gelett Burgess aloud.

"I never saw a purple cow,
I never hope to see one;
But I can tell you anyhow,
I'd rather see than be one!"[1]

The poem will probably provoke giggles from the students; ham it up if you wish. The children will be more likely to be creative on this exercise if they are feeling a bit silly. Explain how the authors of children's books often take ordinary animals and make them unusual and/or funny in some way to make the animal character more outstanding and memorable. Good examples of such characters that children may be familiar with include Walt Disney's Dumbo (an elephant that can fly) and any of Dr. Seuss' strange animals.

Draw a very simple dog on the chalkboard and have the class suggest alterations that would make it funny, different looking, or able to do a special thing. Give it strange colors or patterns, funny features, or strange clothes.

Distribute the activity sheets. Tell the students to imagine that they are writers of stories about animals that are very different. Tell them to change the animals on the sheets to make them unusual. Point out that their animals should be able to do different things and ask them to label the animals and then talk about them. Suggest that they may wish to give their animals names relevant to their special characteristics.

Allow students to show their work to the class and encourage them to talk about their ideas for funny animals. Be sure to praise their drawings, pointing out particularly unusual or clever ideas. Exposure to the ideas of others may provoke additional responses. It is

important, therefore, to give students an opportunity to add new responses after discussing the pictures. Display the activity sheets on the bulletin board—or out in the hallways—if your students do not object. This type of exercise is one that other students in the school will enjoy sharing.

Follow-up Activities

- Encourage your students to think up their own animals to alter in an original way. Or have them play a musical art game in which each student draws an animal while music plays. Stop the music at intervals and ask them to pass their papers to the person behind or beside them. That person then adds on to his or her neighbor's drawing as the music plays once again. When the music stops, the students pass their papers on as before. The animals resulting from this joint effort are sure to be unusual.

- The class might also enjoy working on one large, mural-sized picture of an animal. Or two teams might compete in drawing two huge animals. Students could also construct three-dimensional animals out of found materials, fabric scraps, or papier-mâché.

- Have the class discuss the problems such an animal might experience (such as the social ostracism Dumbo encountered because of his ability to fly). Considering the special abilities of such animals will lead students to a better understanding of their attitudes toward others who are different.

15 Fun with Letters

Type of Activity

Figural Units

Objectives

To develop nonverbal flexibility and originality.
To develop skill in constructing a variety of meaningful figures based on the manipulation of given elements.
To demonstrate nonverbal application of creativity skills.

Teaching Suggestions

This activity will help students understand that they can apply the skills of creative thinking to nonverbal as well as verbal information. Hand out the first activity sheet and point out the way that the "C" has been rotated in the example. Suggest that they can also turn the "H" in any direction they wish. Provide crayons, scissors, and paste (or glue) and ask the students to

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[1]From *The Burgess Nonsense Book* by Gelett Burgess. ©1901, renewed 1929 by Gelett Burgess. Reprinted by permission of J. B. Lippincott Company.

color the letters at the bottom of the paper. Remind them not to color so heavily that they will be unable to see the outlines. Have them cut out the letters, and invite them to take one "C" and one "H" and experiment with combining these letters in different ways.

When the students have arrangements they are pleased with, suggest that they glue them into one of the boxes provided on the activity sheet. Then have them select a second pair of letters and repeat the process of experimentation and gluing. If students have more ideas, but have used up all of the letters they have cut out, show them how to make additional designs by printing the letters in the arrangements they have in mind (for example ⊞ or ⊎). They should do this activity on the back of the paper. Proceed in the same way with activity "b."

After the students have completed as many designs as possible, ask some of them to put their most original figure on the chalkboard. Ask the class, "How many had that one?" It will be interesting to see which arrangements are unique. Suggest that students rotate their papers in different directions to see if they can come up with any more ideas for combining the two letters.

Follow-up Activities

• Ask students to cut geometric figures out of paper and combine them in various ways. Students could make attractive bulletin board displays by cutting out large numbers of given shapes in various colors and pasting them on sheets of paper to form geometric collages. They could make other interesting collages by cutting out objects in a given category from magazines (faces, automobiles, and so on) and combining them in interesting ways.

16 Room to Fill

Type of Activity
Figural Systems

Objectives
To increase figural fluency.
To develop the ability to group items into categories.
To encourage planning and organization when approaching tasks.

Teaching Suggestions
Introduce activity "a" by asking students to imagine themselves at home in their kitchens. Explain that you want them to use different senses to learn what is in this room. Begin with the sense of smell. List on the board all the things the children say they can identify by the sense of smell. Certain foods, such as vinegar, have a very distinctive odor. Compare these foods to items such as water or corn starch that are very bland. Next, ask what sorts of sounds might be heard in the kitchen. Oven doors closing, beaters whirring, water bubbling, and dishes rattling are but a few examples of the variety of responses that are possible. Continue this questioning, asking for things that they can touch and things that they can taste in the kitchen. Leave consideration of the fifth sense (sight) to the students to think about on their own. Hand out the activity sheet and tell students to draw the things they might see in a kitchen. Stress the importance of planning the placement and the size of the items they want to include. Point out that drawing an oven or a cabinet too large will limit the total number of items that can fit into the room.

For activity "b," discuss how different occupations require different kinds of tools. A landscape gardener, for example, would use a hoe, rake, and shovel. A carpenter would need a hammer, drill, saw, level, and sander. A plumber might use a wrench, screwdriver, and wire snake. Have students draw as many tools as they can fit into the space provided on the activity sheet. Once again, stress the importance of planning the placement and size of items.

Allow ample time for the work. Then ask some of the children to show the class their drawings. Keep count of the number of ideas they come up with and ask the remaining students to share any ideas they may have thought of that no one else mentioned. If someone includes an unusual tool, have her or him describe its function and tell who would use it.

Follow-up Activities

• Ask students to describe a variety of environments in terms of what each of their senses can tell them. Students could generate lists of things that they might smell, hear, taste, touch, and see in the park, at the zoo, or on a picnic.

• Invite students to bring to school a variety of foods and other objects for a game of identification. Put all of the items in a "mystery box." Then select a child to be blindfolded and seat him or her up front facing the class. A great deal of excitement will evolve as you have the blindfolded child pull an item from the mystery box. Ask the child to try to identify the object by using any of the senses except sight. If this person is successful, select a new contestant to be blindfolded and seated up front. If

the contestant is unable to guess what the object is within an appropriate amount of time, allow him or her to take off the blindfold and see the item. Allow this contestant one more attempt to identify an object from the mystery box.

- Still another game of the senses might involve riddling. The class could make up riddles with clues based on the five senses. For example:

  > It's red and round (sight)
  > Juicy (taste) but makes no
  > sound (hearing)
  > What is it? (APPLE)

  Encourage students to use as many senses as possible in describing objects.

- A mathematics activity that would coordinate with activity "a" might be to have students make scale models of kitchens or other rooms in the house. They could construct these models from boxes and make items used in these rooms from heavy paper, pipe cleaners, and scrap materials.

- If students seemed to enjoy the discussion on occupations, try some pantomime with them. Call on one student at a time to pantomime the actions of an individual in a particular occupation. Ask the rest of the class to guess what the occupation is.

- Another approach to studying occupations is to look at the differences in dress. The class could discuss the purposes and characteristics of different uniforms. They might note that some are very useful, providing pockets for tools, while others are more decorative than anything else. Have students keep a folder of pictures of special or unique uniforms or ask them to decorate a bulletin board with photographs cut out from magazines and newspapers and/or drawings of occupational dress.

17 Recycling

Type of Activity
Figural Elaborations

Objectives
To develop the ability to think of alternate uses for common objects.
To develop the ability to combine given elements into a new whole.

Teaching Suggestions

To introduce this activity, have the class brainstorm a list of things that might be used for something practical or fanciful instead of being thrown away. Items such as paper towel tubes, plastic bread bags, bottle caps, or jar lids might be a part of such a list. Talk about ecology and how we often waste things. Mention how our society has begun to place an emphasis on recycling glass, paper, cardboard, plastic and cans, introducing the term recycling to the class. Show the students some recycled paper or artwork made from throwaway objects. Emphasize the possibilities of altering the shape of something or combining it with other things to create a useful or decorative object. When students have grasped the concept and can think of alternate uses for things fairly easily, introduce the activity sheets.

Tell the children to look at the pictures on the activity sheets. (The pictures are of things that the children might recycle.) Tell them either to write or to draw ways in which they could change these objects by putting them together or by changing their shapes. Suggest that they add things of their own. If they need more space, tell them to use the backs of their papers.

When you see that students have completed the activity sheets, encourage them to share their ideas with the class. Suggest that by discussing their ideas they will probably think of more uses for the objects they have been considering.

Follow-up Activities

- Keep a large box in the room as a receptacle for old used objects and for scraps (such as paper and string), boxes, cans, and bottle caps. Students could use the materials for construction, collage, or other arts and crafts activities.

- Find out how to make new paper from used paper. You might be able to make a crude example of recycled paper in your classroom by soaking, bleaching, and mashing up old used paper and then pressing it into a "sheet" on a cookie sheet or on a large, flat pan. The pressed, dried paper will probably resemble crude cardboard. If the students are interested, you might have them start a recycling project at your school to reclaim glass containers, cans, and/or paper.

- Have students build a tin-can castle out of recycled materials. Bring a glass cutter and (with you doing the cutting and fire polishing) help students make vases, pencil holders, cups, and similar objects out

of old bottles and jars. (It is necessary to fire-polish the sharp edges of newly cut glass to protect against cuts. To do this, hold the newly-cut edge briefly in the flame of a Bunsen burner or gas stove. The sharp edge will become smooth.)

- The class can discuss the types of materials rust or break down and those that do not. You could keep a list of both categories on the bulletin board.

- The class might enjoy a game about recycling. To initiate play, choose two teams and have each group think of five things that would ordinarily be thrown away. Ask them to write the names of these things on strips of paper. Team A gives a strip to Team B, and if Team B can think of something to do with an item on the strip rather than throw it away, the team gets one point. Team B then gives a strip to Team A, and so on alternately until all strips are used up. The team with the most points at the end of the game wins.

18 Building Blocks

Type of Activity
Figural Systems

Objectives

To develop the ability to combine given units into a functional object.
To develop flexibility in creating new objects from given units.

Teaching Suggestions

You could introduce this activity in several ways. If some class members have collected matchbox cars and trucks, invite them to bring them so the class can see them. Discuss the size, shape, and function of the vehicles. Have the class listen to stories about machinery and then discuss the shapes, sizes, and functions of the vehicles in the stories. If there is a construction site near the school, visit it with the class and observe the machinery. Conduct a discussion of machines and how they work.

Have building blocks and/or Lego® blocks available in the classroom. Ask students to make machines from the blocks. The machines may be like those that they observed, or they may be totally original. When you first present the activity, provide a purpose for which the machines should be made—for example, "Let's make a machine to dig a big hole." You may wish to present this activity several days before you present the activity sheets so that students can create machines in their free time.

If no classroom blocks or Lego® blocks are available, the class could devise a simple set of building materials consisting of shoe boxes, cans (without sharp edges), pie plates, and wood scraps.

When you distribute the activity sheets, provide scissors and paste (or glue) as well as colored paper on which to place the students' creations. Tell them that the figures on the activity sheets are building blocks. Tell them to cut out the figures and arrange them and rearrange them until they make a machine. Tell them that the machine may be like a real machine or it may be an original one. You might also show the children how to make movable parts for their machines by using page fasteners to hold parts together. If they use this approach, the students may wish to transfer the shapes to heavier material, such as tag board or colored construction paper.

Have youngsters describe their machines orally, write about them, or dictate stories about them. Display the finished pictures, objects, and stories.

Follow-up Activities

- After completing the activity sheets, use any of the activities listed under "Teaching Suggestions" that were not used as an introduction.

- Have the class create a mural centered around a building theme. Ask each member contribute one original machine made out of colored paper. Then write a class story on chart paper about the mural. Display original machines made from blocks in an area set aside for that purpose.

19 Rhyme Time

Type of Activity
Semantic Relations

Objectives

To develop the ability to create simple rhymes.
To develop verbal flexibility.

Teaching Suggestions

Introduce this lesson after exposing the class to poetry. Read selections that you feel are appropriate to the age group. If the poems relate to units of work that you are doing in the classroom, so much the better. Poetry that deals with the season at hand, special events

that the children have celebrated, or that is just for fun would be especially suitable. Common nursery rhymes work well. Because of the nature of the activity sheets, choose only rhyming poetry. Point out the words that rhyme in each poem and list them on the chalkboard. Emphasize that rhyming words have the same ending sounds.

Distribute the activity sheets. In activity "a," ask students to think of all the words they know that rhyme with the last word in the first line. They should write the words or draw pictures of them in the blank spaces. On the second activity sheet, have the class finish the first and second lines using words that rhyme. Point out that the poems will change meaning if the children change the rhyming words. It may be necessary to read the couplets to the class as they work. After they have finished the work, have them share some of their responses and display the activity sheets.

If individual students have difficulty thinking of rhyming words, have the class as a whole work together on the activities. List on the board (with students' help) all the words that rhyme in each couplet. Then have students choose words from this list to complete their couplets. If this procedure is followed, be sure to emphasize that there is no correct answer and that you will accept any new word that rhymes with the last word in the first line.

Some students may want to create new, original rhyming words. If so, read some Dr. Seuss poems in which he makes up his own words, or read the following poem, "Eletelephony," by Laura E. Richards.

ELETELEPHONY
Once there was an elephant,
Who tried to use the telephant—
No! no! I mean an elephone
Who tried to use the telephone—
(DEAR ME! I am not certain quite
That even now I've got it right.)

Howe'er it was, he got his trunk
Entangled in the telephunk;
The more he tried to get it free,
The louder buzzed the telephee—
I fear I'd better drop the song
Of elephop and telephong!)[2]

[2]From *Tirra Lirra: Rhymes Old and New* by Laura E. Richards (Little Brown and Company, 1955). Reprinted by permission of John Richards and of Little Brown and Company.

Follow-up Activities

• You might follow work on these activity sheets with a unit on poetry writing. If you feel that the class is ready, introduce other forms of poetry. Read a short story to the class, and ask students to summarize it in simple poetic form. In some classes, this activity works best when the entire class participates (with the teacher writing suggestions on the chalkboard) to produce a final poem on a large piece of chart paper.

• Invite students, individual or as a class, to add verses to poems you read by the teacher.

Resources

Word Weavings by Shelley Tucker. 1997. Published by Good Year Books: Glenview, IL.

20 Far Out Letters

Type of Activity

Figural Transformations

Objectives

To develop figural fluency.
To develop the ability to generate action words beginning with a given letter.
To develop figural skills by representing action words with characters.

Teaching Suggestions

This activity should follow lessons on consonant sounds, and it works well after a lesson on action words. Introduce it by organizing a pantomime game. Place the letter *s* on the chalkboard. Pretend that you are sewing and ask the class, "What am I doing?" When a student guesses that you are sewing, say "Now I will do something else that begins with *s*." (If no one guesses that you are sewing, tell the class that you are sewing.) Pretend that you are sawing a log. Ask students what you are doing. When a student guesses that you are sawing, ask that student to come to the front of the class and do something that begins with *s*. Continue this activity with the letters *t* and *w*.

Distribute the activity sheets. Then ask students to think of action words that begin with *l*. Point out the examples (*lean* and *leap*) on the first sheet. Pointing out the artistic variations used in the examples, ask the students to add similar details to the letters on this page to make them look as if they are performing actions

beginning with *l*. Have the children write the action words under the pictures, or have them dictate the words to you. Present activity "b" in a similar manner. Make a parade of action characters from these activities on the bulletin board.

Follow-up Activities

• The class could use any of the consonant sounds to play the pantomime game. Conduct this game in the same manner as before, but with the students guessing ending, rather than beginning, sounds. (For example, you could jump and then ask the students what you are doing that ends in a *p* sound.)

• Have students look through magazines to find pictures of people performing acts that begin with a letter you suggest. Discuss each picture individually in class and bring out how it relates to the letter. Later, arrange the pictures around a large representation of the letter on a bulletin board. Use pieces of string or yarn to connect the central letter to the action depicted.

21 Letter Look-Alikes

Type of Activity

Figural Elaborations

Objectives

To develop the ability to generate a list of words beginning with a given consonant.
To develop the ability to elaborate on a given consonant to make it represent a meaningful object.

Teaching Suggestions

You could present this lesson during or after teaching consonant sounds. Present the consonant *d*. Ask the class how many objects they can think of that begin with the *d* sound. List them on the board. Place a capital *D* with curved side down on the board. Add eyes, nose, ears, and whiskers. Say that you have made a dog and that its name begins with a *D*. Label it *Dog*. Place another *D* on the board. Ask if anyone can make a duck. Label it *Duck*.

Pointing to the list on the board, ask for volunteers to come to the board and make a picture of one of the objects listed using the letter *d*. Have the children name their pictures. If someone draws a figure that is not on the list, have the class guess what it is.

Distribute the activity sheets and ask the class to look at activity "a." Point out that there are many *P*'s in many positions on this sheet. Ask them to add some lines to make pictures of objects that begin with a *p* sound. Suggest that they write names under the pictures. Have the children use the backs of the activity sheets for additional drawings. Present activity "b" in a similar manner.

Follow-up Activities

• Place the entire list of consonants on the board. Have the class draw a picture of an original object for each consonant.

• After you have introduced the vowel sounds, have the children draw pictures of objects whose names begin with the vowel sounds.

• Some students may wish to create pictures of objects from the entire group of letters that spell an object's name.
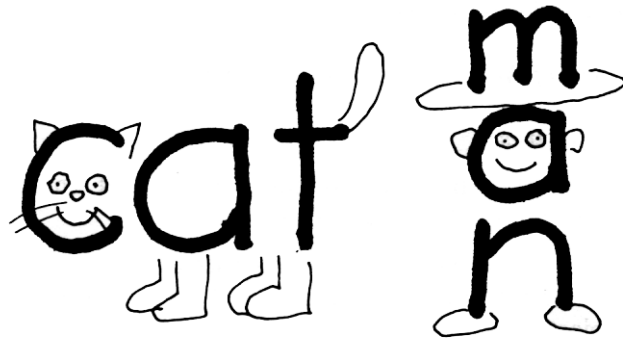
22 For Children Only

Type of Activity

Figural and/or Semantic Classes

Objectives

To develop the ability to classify activities and objects according to given specifications.
To develop the ability to represent thoughts in structured form.
To develop verbal fluency and flexibility.

Teaching Suggestions

To introduce this activity, ask students to close their eyes and imagine a faraway planet on which only children live. On this world, all activities, objects, and games are made just for children. Ask students to describe some things they might find on this planet. Responses might include movie theaters that show only cartoons, miniature furniture, children's zoos, and shops selling just children's clothes and toys. Then you might list on the board all the things they would not find on this planet because these things are unique to adults. This list might include automobiles, voting booths, colleges, and insurance policies.

Distribute the activity sheets and then point out how the illustration on this sheet is just one example of things that happen only to children. Before handing out activity "b," discuss some television shows which have been developed especially for children. Identify the qualities that make these shows particularly enjoyable for children. Then tell students to think of a story for a new television show for children only. Have the students draw or write their story on the activity sheet. Encourage them to give the show a title.

After completing the assignment, display the pictures on a bulletin board. Allow students to add other ideas and pictures as they think of them. You could make a giant composite list of all the responses from the activity sheets and have the class categorize the responses into different groupings such as "games," "clothing," "work," etc. If any one category is especially lacking in responses, encourage the class to think of more ideas for that category.

Follow-up Activities

• Suggest that the children scan the amusement section of the newspaper to find more ideas about local entertainment geared toward specific age groups. Have them make collages of pictures showing activities for children only and for adults only.

• Discuss various activities that more than one age group would enjoy. The class could also discuss the changes that would take place if a child ran the world.

• With younger children, a pantomime of various activities could be fun. Teams could compete to guess each other's charade and decide for what age group the activity is appropriate. Exploring the various types of activities open to different age

groups and discovering those shared by more than one group could help build the child's concept of the future and how roles and expectations change with age.

23 Make a Creature

Type of Activity

Figural Systems

Objectives

To develop the ability to create an original character by combining given figural information.
To develop imaginative thinking.

Teaching Suggestions

Read Dr. Seuss' *If I Ran the Zoo* (Random House, 1989) to the class. Discuss the imaginary characters that McGrew brought to the zoo. Ask students to imagine that they will be allowed to contribute just one animal to the zoo. It can be as strange as they wish. Discuss their possible choices. Provide scissors, paste, and paper on which to paste cutouts for this activity, and distribute the activity sheets. Encourage the students to cut out the figures and arrange them in several ways before pasting them down and coloring them. Have the students either discuss their new figures, write or dictate stories about them, or mount them as a zoo display on a bulletin board.

Follow-up Activities

• Ask the class to create new zoo characters. Have each child draw one on heavy paper and then color it. Each child should then cut out and paste one character inside the cover of a shoe box. Have the children make bars out of yarn or paper and then paste these bars in front of the animal so that it appears to be in a cage. Display the new zoo collection on the bulletin board. The class could also make a background mural painted on large mural paper.

• Some students may wish to work with three separate animals. They should first name them and draw each one separately. They should then cut all three into three parts and combine the parts from different animals to make three new animals. They could also exchange with those seated near them new animals or parts of animals before combining them into new animals. The class members could work alone or in small groups to make up names for their new animals.

24 The Magic Door

Type of Activity
Semantic and/or Figural Systems

Objectives
To develop imaginative thinking skills.
To develop planning skills.
To increase ability to elaborate on a theme.

Teaching Suggestions

This activity is a good exercise in planning and developing details of an imaginary environment. Begin by reading the first few pages of Lewis Carroll's *Alice's Adventures in Wonderland* (Dutton, 1999) to the class. Include Alice's entrance into the fantasy world down the rabbit hole and then skip to the section that concerns her true entrance to Wonderland through the tiny door. Call the children's attention to the bizarre appearance of the White Rabbit and to other unusual characteristics of this strange environment (landscape, inhabitants and their dress and personality traits, weather conditions, etc.). You may wish to read other sections of the story if the children are interested—for example, chapter five, which describes the caterpillar, or the part about the Mad Hatter's tea party. Keep a list on the chalkboard or make an experience chart of the strange and funny details of Wonderland.

Some children may be familiar with *Charlie and the Chocolate Factory* by Roald Dahl (Knopf, 1985) or *The Lion, the Witch, and the Wardrobe* by C. S. Lewis (Harpercollins Juvenile Books, 1997). Both books contain accounts of heroes and heroines entering another world. In the first book, Charlie enters the factory and finds a unique and wonderful group of people in a fairy-tale environment. In the second book, four children enter the mythical legend-inhabited land of Narnia via the back of an old wardrobe. Emphasize the differences between those magical worlds and our everyday world. When the children are aware of the variety of contrasts, distribute the activity sheets. If possible, urge the students to include both illustrations and written explanations of their ideas.

This activity may generate much imaginative energy. The amount of energy and enthusiasm generated will depend on how much excitement and wonder you can communicate and how much you can reinforce the students' responses. Encourage the children to share their magical worlds with the class. You might list the many details of all of their worlds and see if any are mentioned more than once, or if any are

especially unique. You could show the frequency of various responses very concretely with a graph on the chalkboard. You might also categorize the responses. Did, for example, most of the ideas concern strange animals or characters? What category was least frequently mentioned? Display drawings and written descriptions on a bulletin board with an appropriate title or eye-catching border, or compile the work into a soft-cover book for display in the room.

Follow-up Activities

- Give students large paper and colored chalk or watercolors and have them make full-color pictures of their fantasy worlds. They might wish to work together on a wall-sized mural with each child adding her or his own unique details to the scene.

- Students can make puppets to represent the various characters of their fantastic worlds; and the class, or small groups, could produce plays in which the characters express their unusual personalities, habits, interests, or magical abilities. The children themselves could dramatize their worlds, using pantomime or vocal drama. If a holiday is close, the play could incorporate the holiday in its plot. For example, the characters might show how or why they would (or would not) celebrate such a holiday.

- The magical world stimulus could generate a variety of creative writing as extra work, to be done individually or in groups. Stories, poetry, mysteries, or comedies might readily grow out of this theme.

- For social studies, reverse the theme. What if a creature from the magic land accidentally came through a door into our world? What problems might it encounter (social interaction, fulfillment of basic needs, communication, etc.)? Would it have some advantages? This type of discussion draws attention not only to the details of everyday existence, but also to the problems and solutions a foreigner encounters in a world such as ours.

- Since science seems magical in many of its aspects, you could emphasize the wonder of life and its harmony and do (or have students do) simple experiments to show that our world does contain magic in many ways. One just has to dare to go through that Magic Door.

BIBLIOGRAPHY

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writing. *Journal of Personality and Social Psychology, 48,* 393-399.

Amabile, T. M. (1996). *Creativity in context.* Boulder, CO: Westview Press.

Anderson, Harold H. (Ed.). (1959). *Creativity and its cultivation.* New York: Harper & Brothers.

Archambault, Francis X. (1970, March). *A computerized approach to scoring the Torrance tests of creative thinking.* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Arnold, John E. (1962). Useful creative techniques. In Sidney J. Parnes and Harold F. Harding (Eds.), *A Source Book for Creative Thinking.* New York: Charles Scribner's Sons.

Baer, J. (1993). *Creativity and divergent thinking.* Hillsdale, NJ: Erlbaum.

Baer, J. (1996). The effects of task-specific divergent thinking training. *Journal of Creative Behavior, 18* (1), 11-22.

Davis, G. A. (1999). *Creativity is forever* (4th ed.). Dubuque, IA: Kendall/Hunt Publishing.

Eberle, Robert F. (1966). *Teaching for creative productive thinking through subject matter content.* Unpublished. State of Illinois Bulletin to Edwardsville, Illinois, Community Schools, Community District 7.

Feldhusen, John F., Bahlke, Susan J., & Treffinger, Donald J. (1969). Teaching creative thinking. *Elementary School Journal, 70,* 48-53.

Gretzels, J. W., & Jackson, P. W. (1962). *Creativity and intelligence.* New York: John Wiley & Sons.

Guilford, J. P. (1967) *The nature of human intelligence.* New York: McGraw-Hill.

Jaben, T. H. (1980). *The impact of creativity training on learning disabled students' creative thinking abilities and problem solving skills.* Paper presented at the Annual International Convention of the Council for Exceptional Children. (ERIC Reproduction No. ED192481).

Lepper, M., Greene, D., & Nisbet, R. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28,* 129-137.

Li, A. K. F. (1985). Correlates and effects of training in make-believe play in preschool children. *Alberta Journal of Educational Research, 31* (1) 70-79.

Meeker, Mary Nicol. (1969) *The structure of intellect: Its interpretation and uses.* Columbus, OH: Charles E. Merrill.

Mellou. E. (1995). Review of the relationship between dramatic play and creativity in young children. *Early Child Development and Care, 112,* 85-107.

Osborn, Alex F. (1963). *Applied imagination* (3rd ed.). New York: Charles Scribner's Sons.

Paulus, Dieter H. (1970, March) *Are sub-tests of the Torrance test independent?* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Pollert, Leslie H., Feldhusen, John F., Von Mondfrans, Adrian P., & Treffinger, Donald J. (1969). Role of memory in divergent thinking. *Psychological Reports, 25,* 151-56.

Rogers, Carl. (1969). *Freedom to learn.* Columbus, OH: Charles E. Merrill.

Rose, L. H., & Lin, H. T. (1984). A meta-analysis of long-term creativity training programs. *Journal of Creative Behavior, 18* (1), 11-22.

Russ, S. W. (1996). Development of creative processes in children. *New Directions in Child Development, 72,* 31-42.

Simonton, D. K. (1988). Creativity, leadership, and choice. In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 386-426). New York: Cambridge University Press.

Starko, A. J. (1995). *Creativity in the classroom: Schools of curious delight.* While Plains, NY: Longman Publishers.

Taylor, Calnn W., & Williams, Frank E., (Eds.). (1966). *Instructional media and creativity.* New York: John Wiley & Sons.

Torrance, E. P. (1965). *Rewarding creative behavior: Experiments in classroom creativity.* Englewood Cliffs, N.J.: PrenticeHall.

Torrance, E. P. (1987). Teaching creative and gifted learnings. In S. G. Isaksen (Ed.). *Frontiers of creativity research: Beyond the basics* (pp. 189-215). Buffalo, NY: Bearly Limited.

Walberg, H. J., & Zeiser, S. (1997). Productivity, accomplishment, and eminence. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed.) (pp. 328-334). Boston: Allyn & Bacon.

Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children.* New York: Holt.

Watts, A. (1964). A psychedelic experience: Factor fantasy." In David Soloman (Ed.), *LSD: The Consciousness Expanding Drug.* New York: G. P. Putnam's Sons.

Williams, Frank E. (1964). *Reinforcement in classroom learning,* Washington, D.C.: U.S. Office of Education (Department of Health, Education, and Welfare).

Name _____ Date _____

1   Thinking About Things (a)

Cold makes me think of . . .

1   Thinking About Things (b)

Hot makes me think of . . .
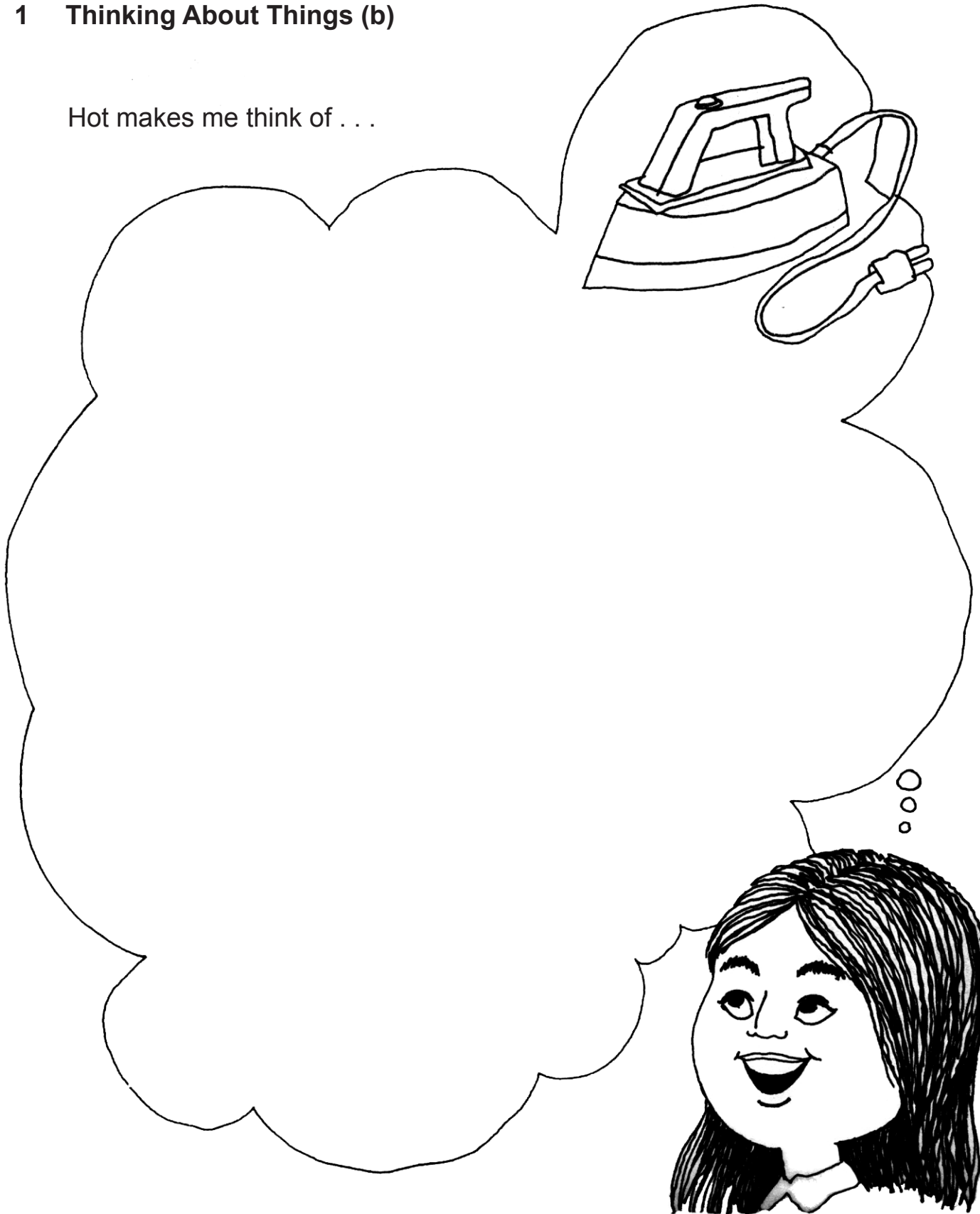
2   Dot to Dot (a)

Connect the dots to make a picture.
Give it a name.

boat
_____

_____

_____   _____
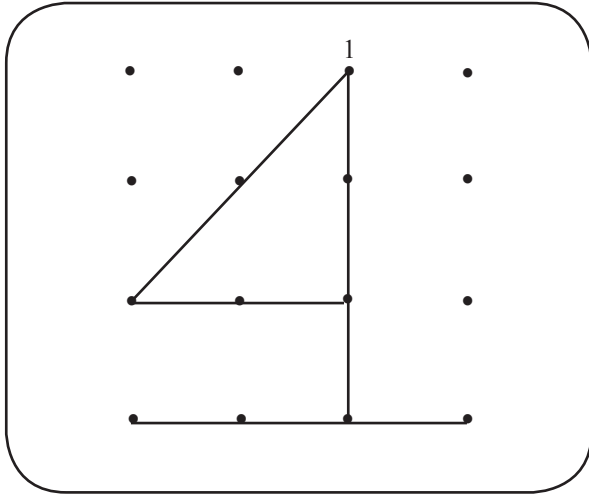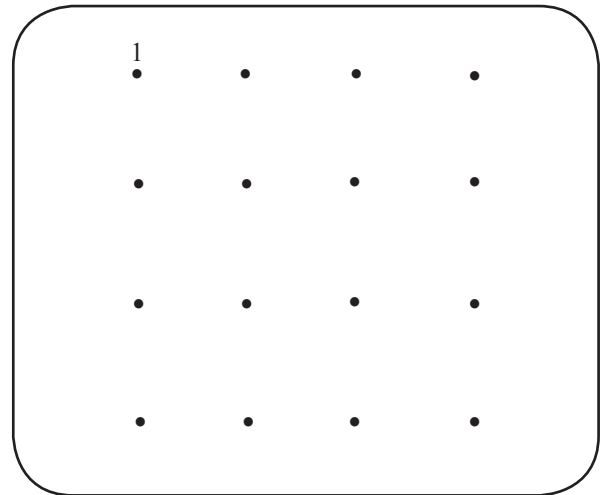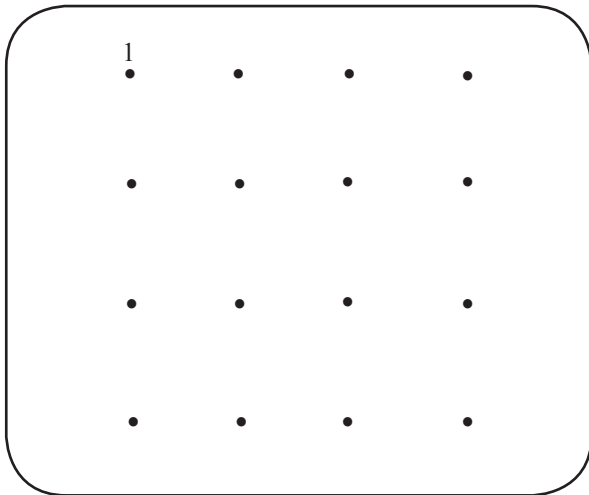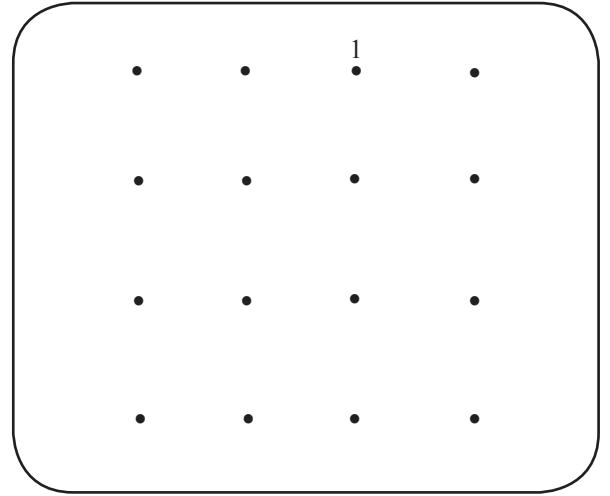
2   Dot to Dot (b)

Connect the dots to make a picture.
Give it a name.
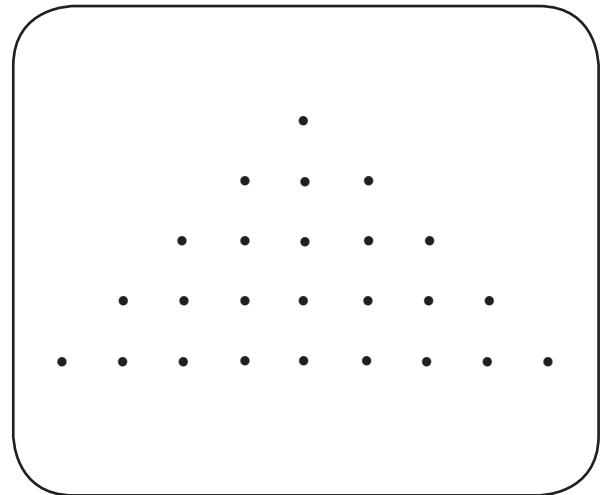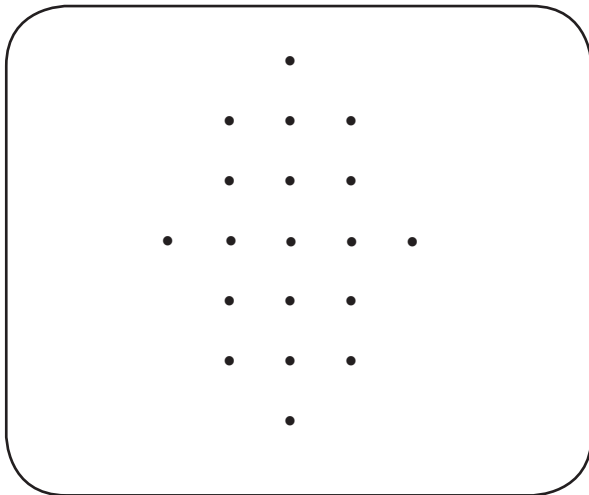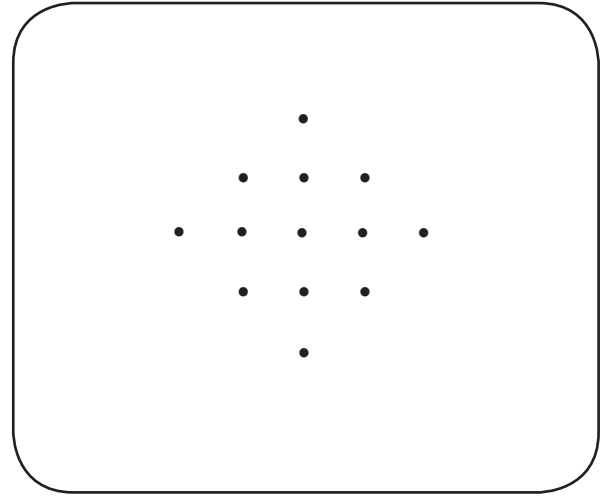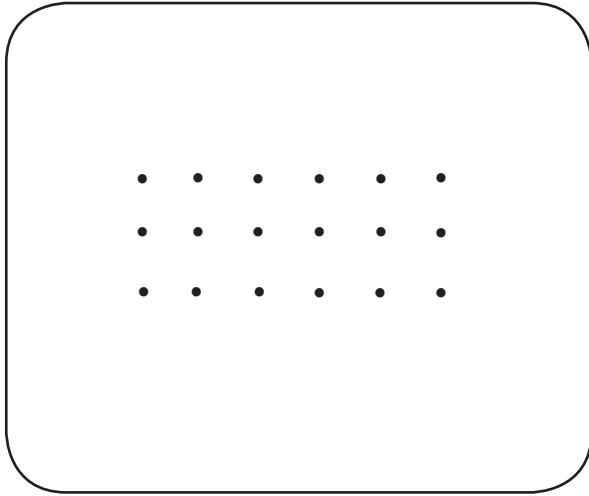
3   A Tale Retold (a)

Can you change the story?
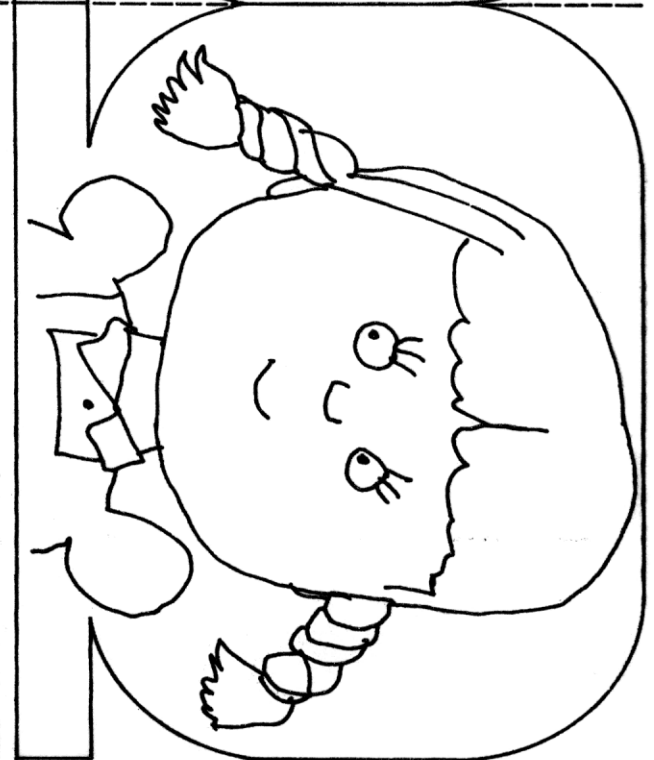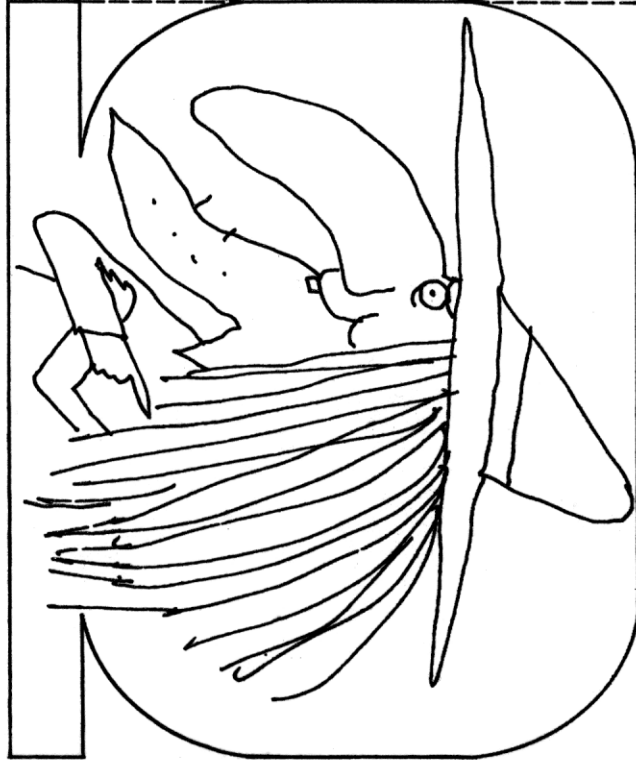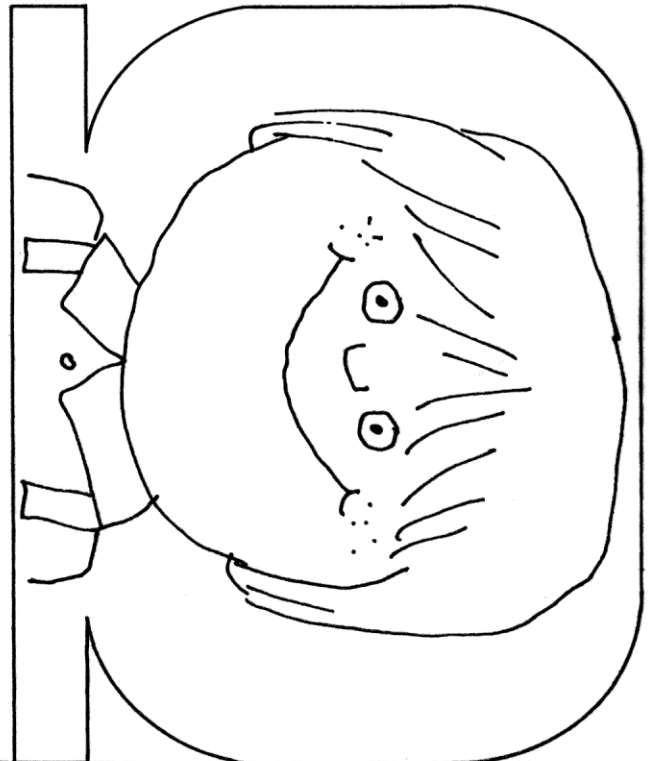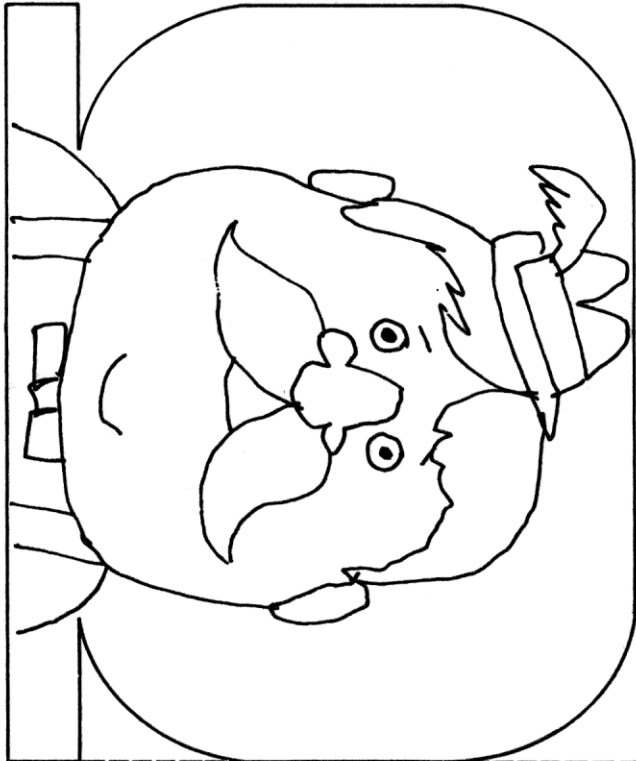
3   A Tale Retold (b)

Can you change the story?
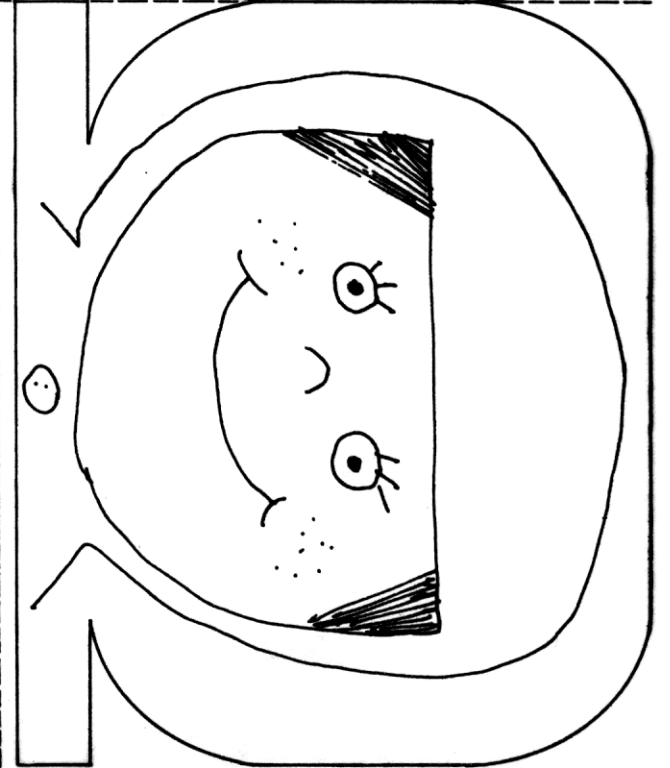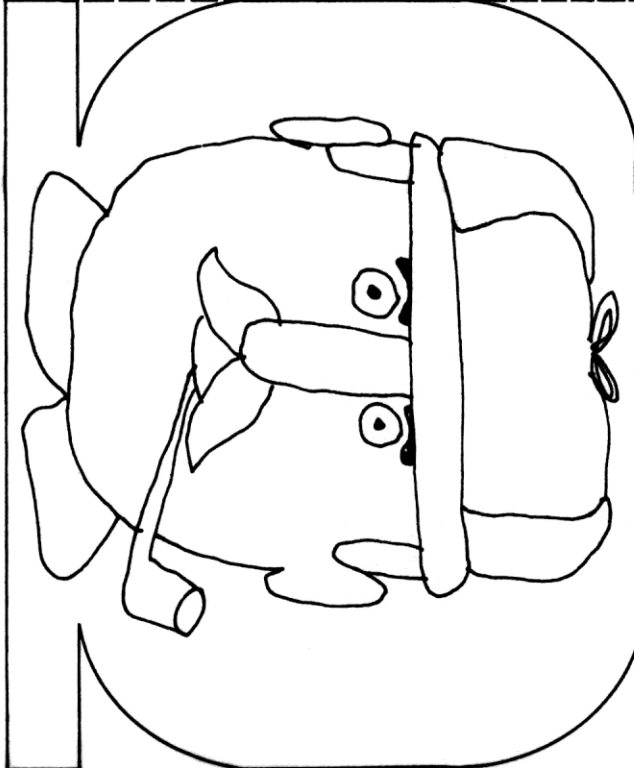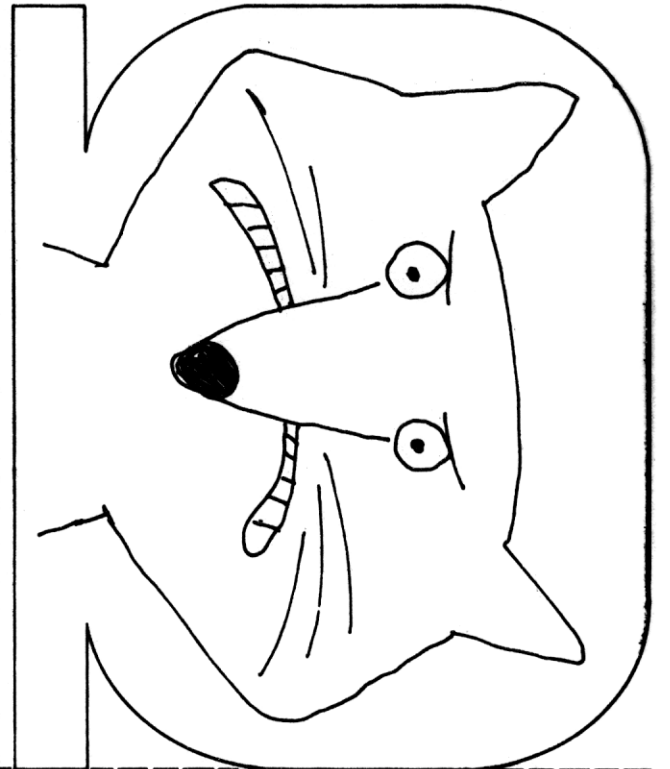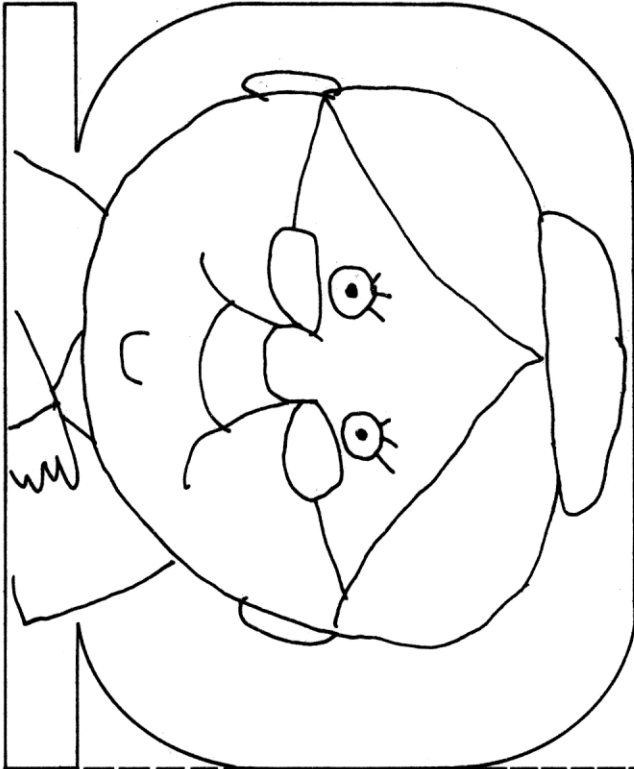
4   Cut and Create (a)

Can you make something new?
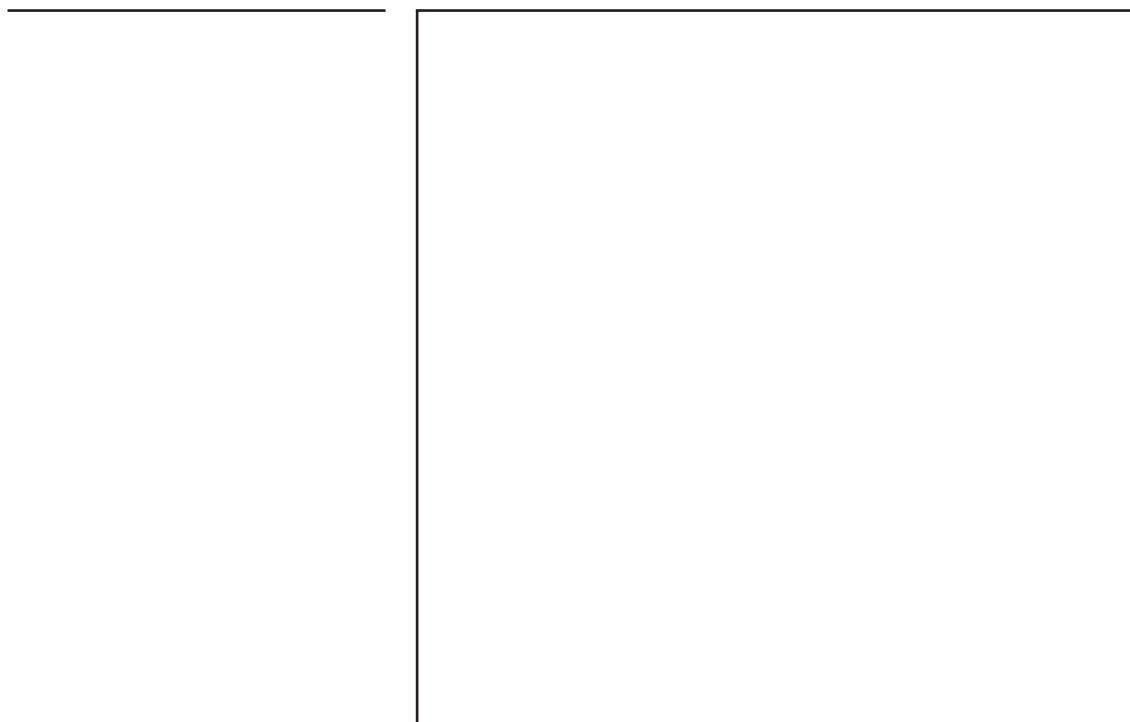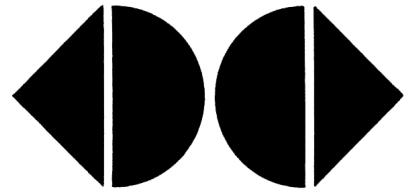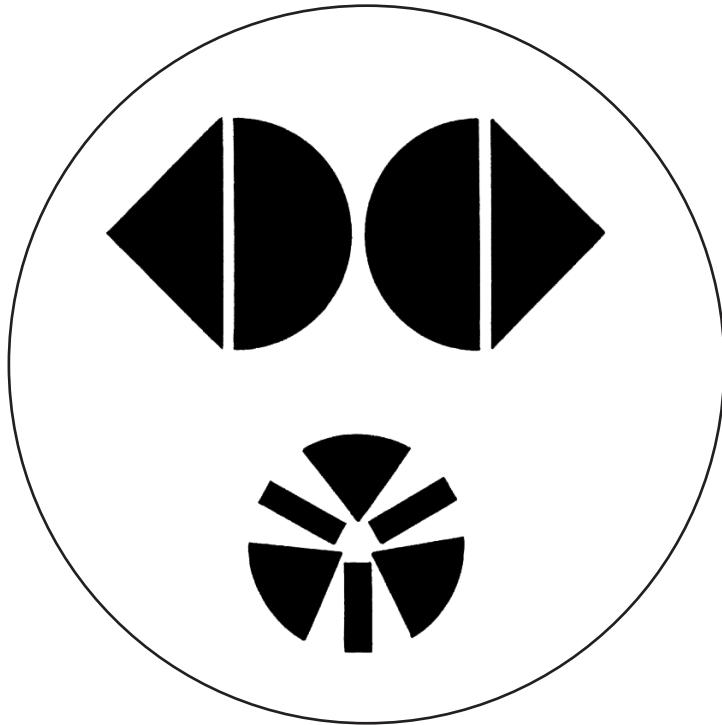
4   Cut and Create (b)

Can you make something different?
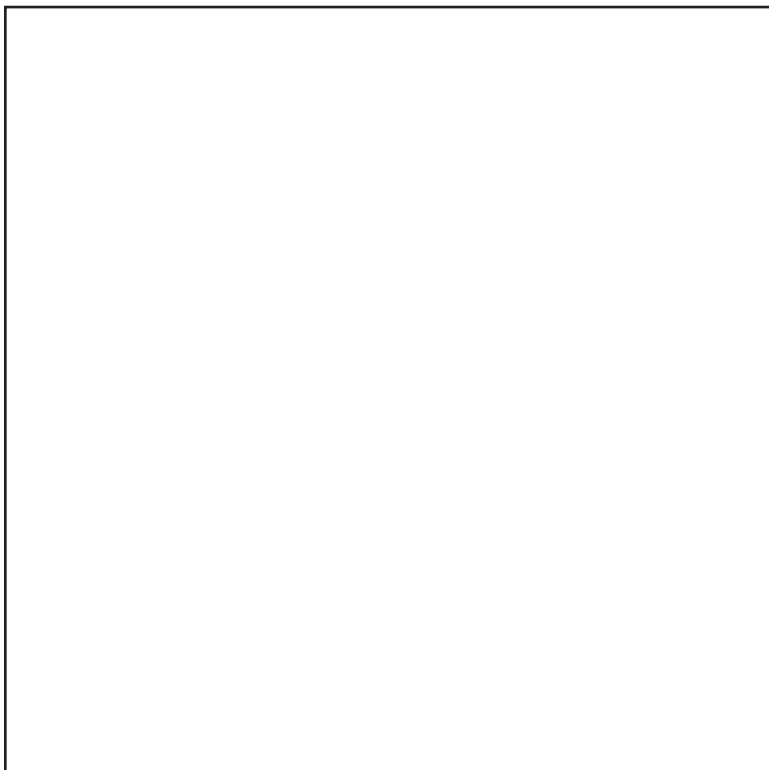
5   Feelings (a)

What things make you happy?

5   Feelings (b)

What things make you sad?

6   Let's Celebrate (a)

Decorate some special cakes.
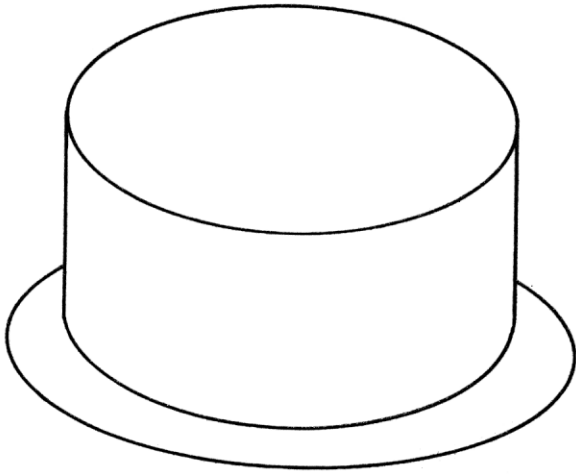
Mother's Day
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pet's birthday
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_____

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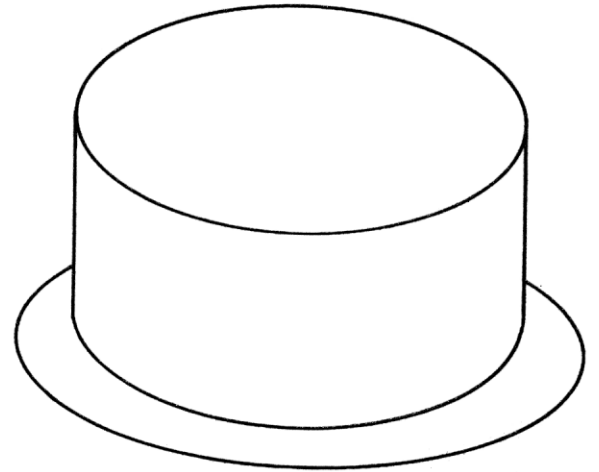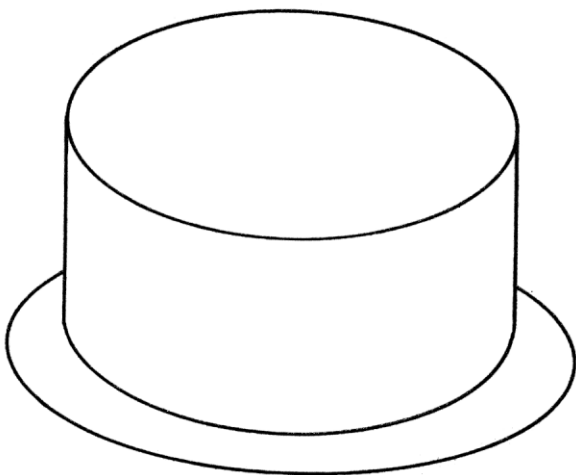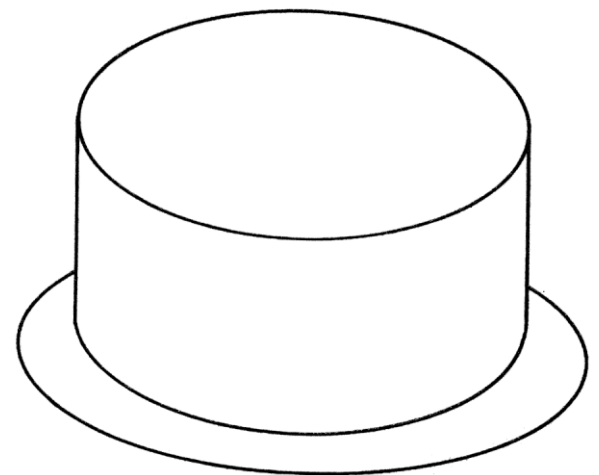
6   Let's Celebrate (b)

Decorate some special boxes.
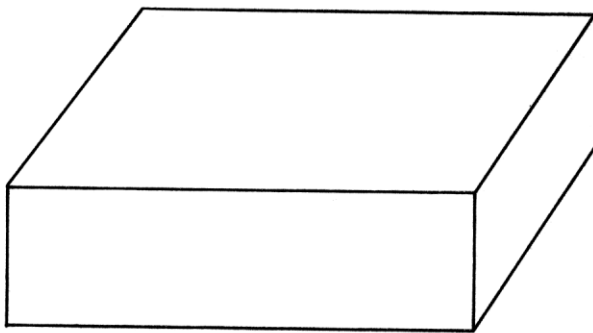
birthday
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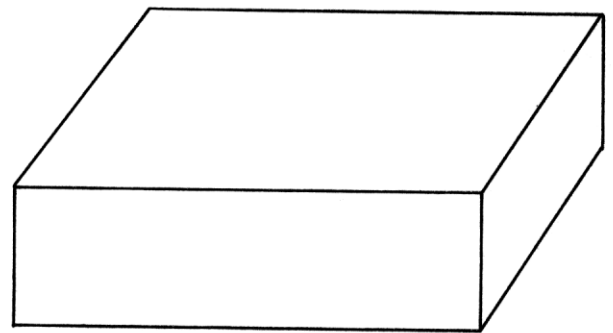
first day of school
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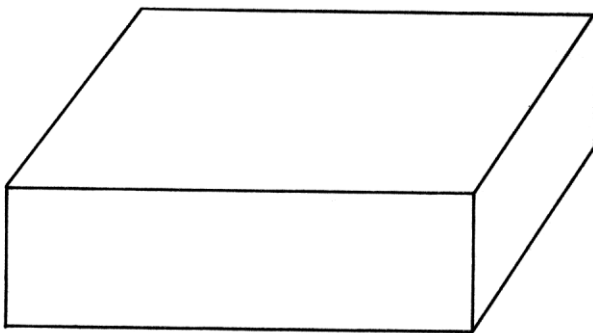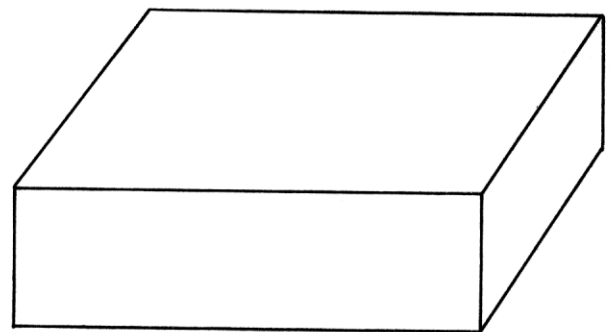
7   Pictures Tell Stories (a)

Can you tell our story?
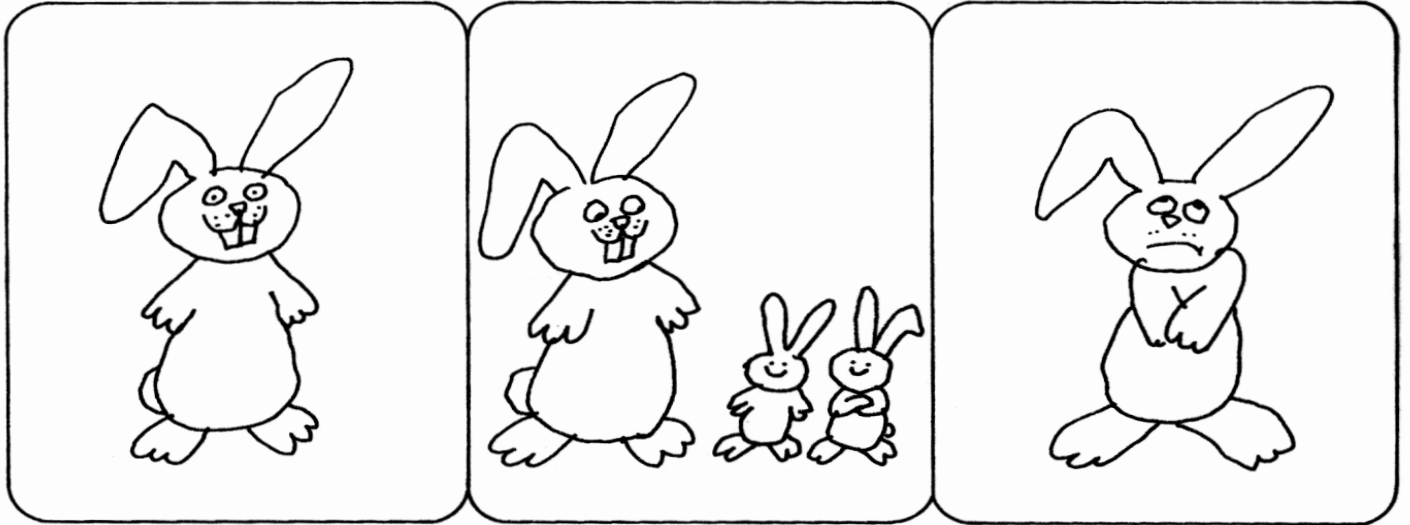
7   Pictures Tell Stories (b)

Can you tell our story?
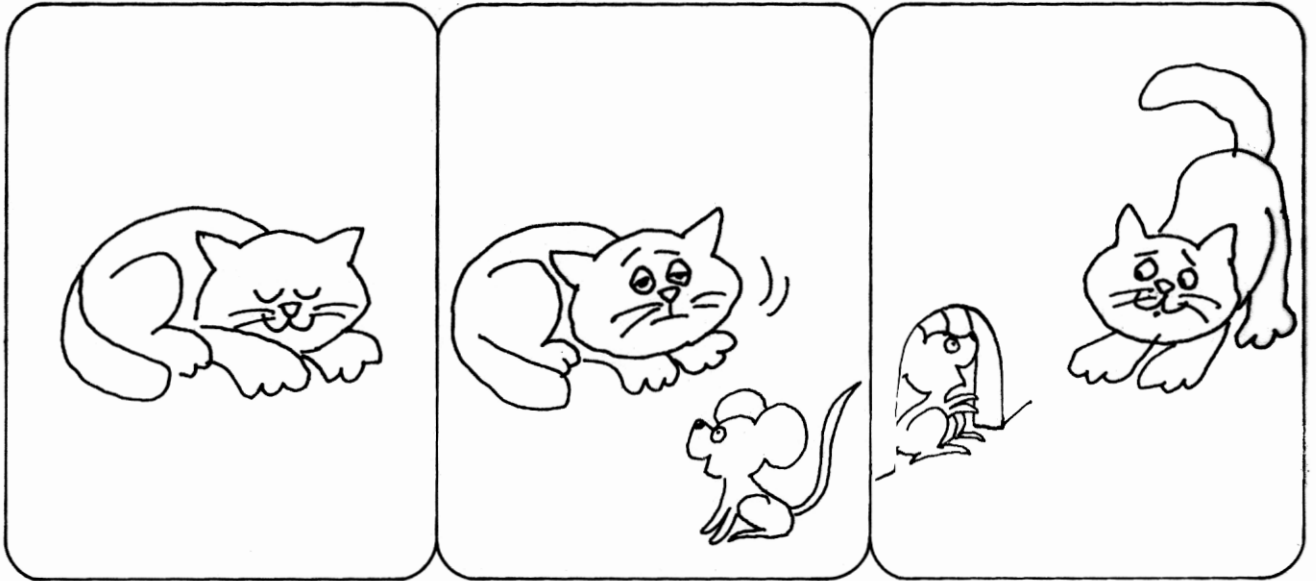
8   What Do You See? (a)

Add some lines to make a picture.
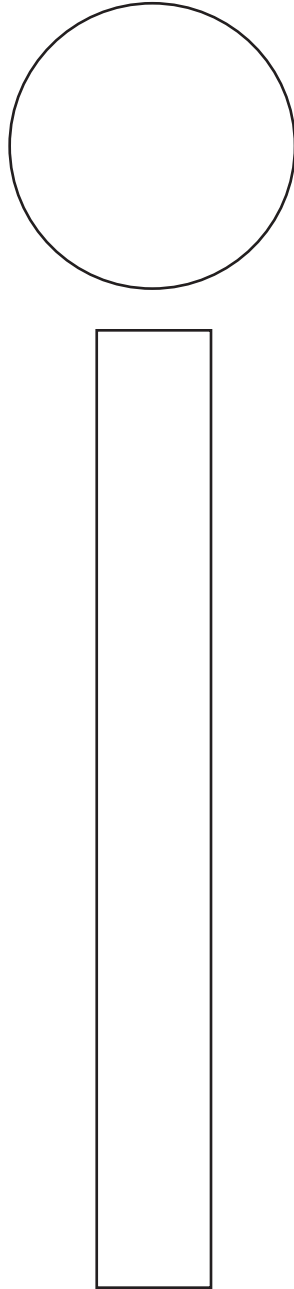
8   What Do You See? (b)

Add some lines to make a picture.
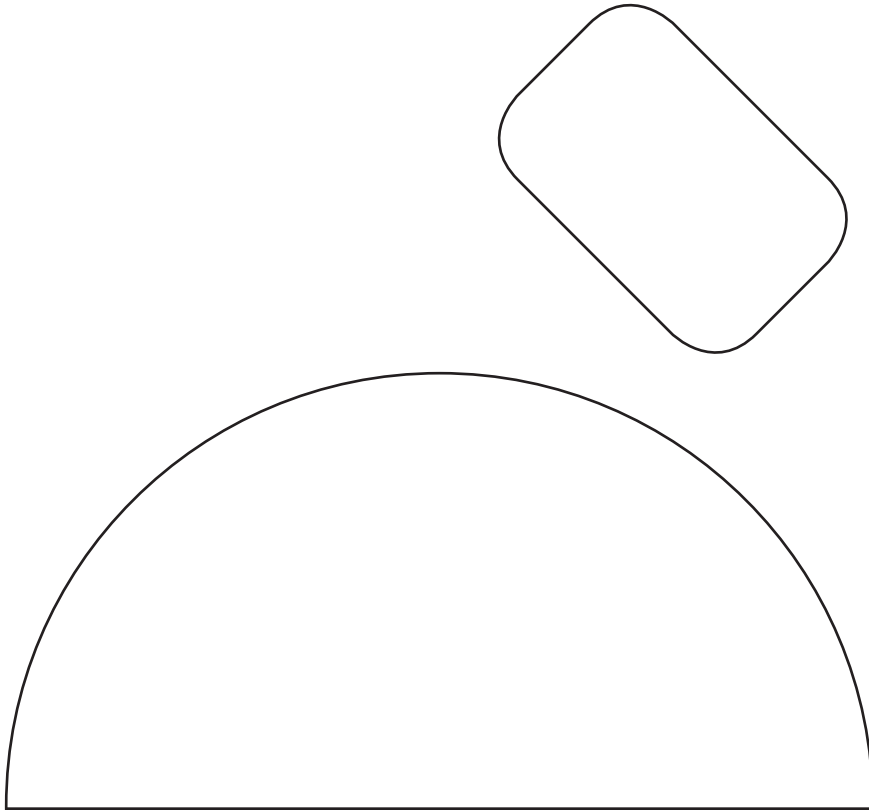
9   How Does Your Garden Grow? (a)

Make some new and different c flowers.
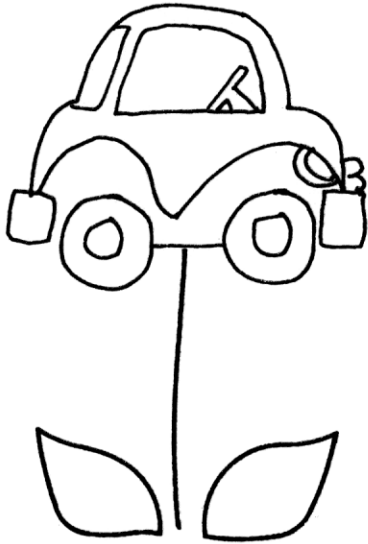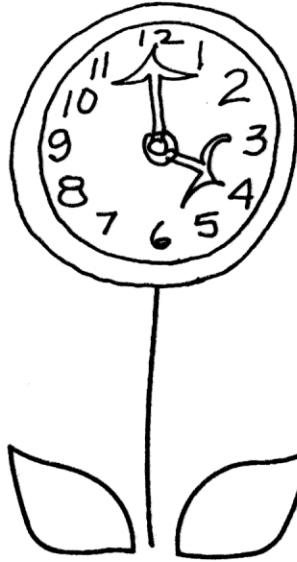
car   clock

9   How Does Your Garden Grow? (b)

Make some new and different flowers.
Make their names end alike.
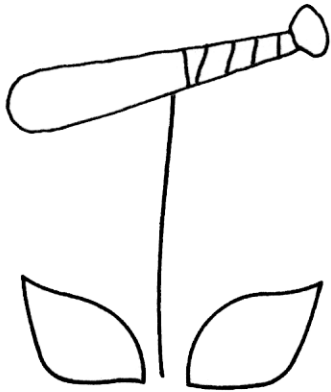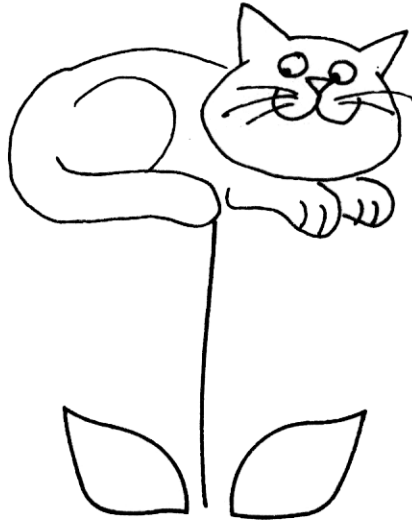
bat   cat

Name _____ Date _____

10 Making Faces (a)

Can you show different moods?
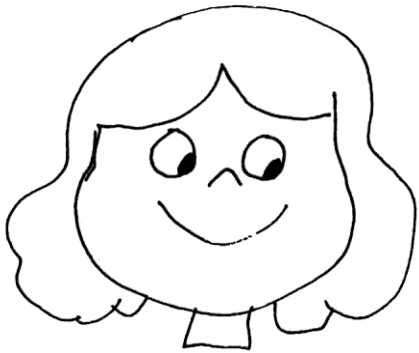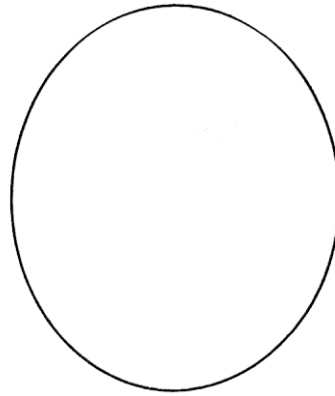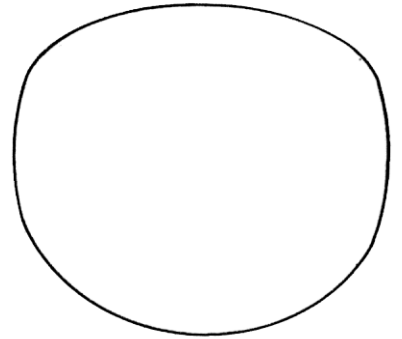
happy _____ angry _____ sad _____

_____ _____ _____
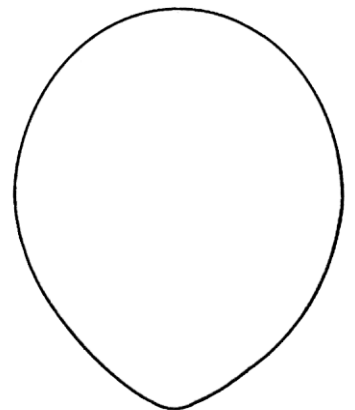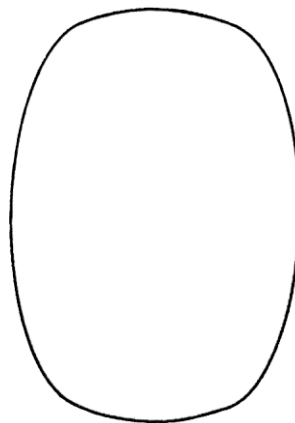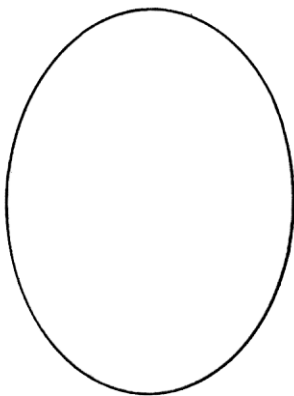
10 Making Faces (b)

Can you show different moods?

11   Clues from Clothes (a)

Dress this person for a special job.
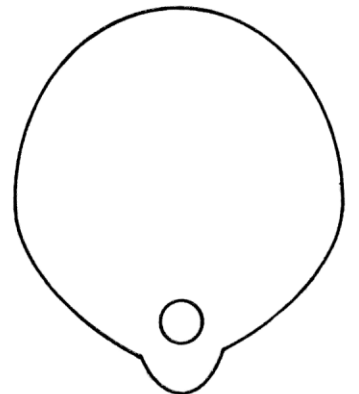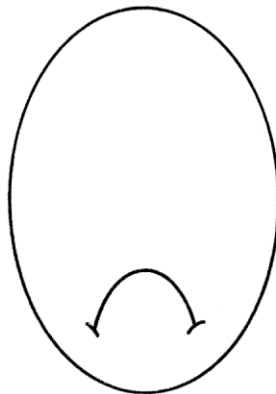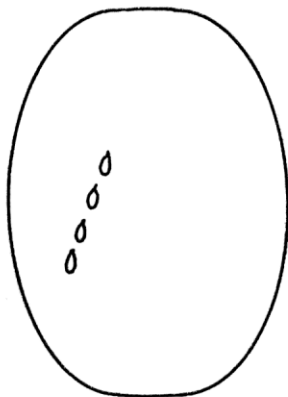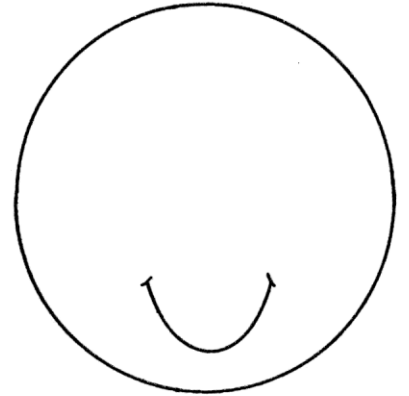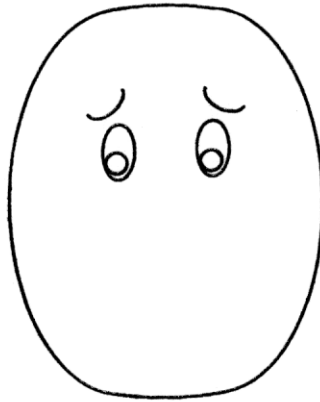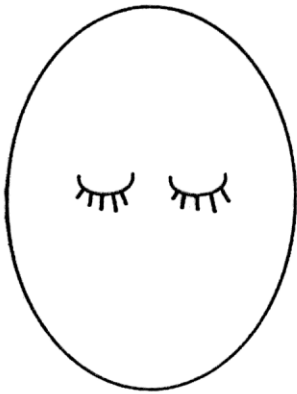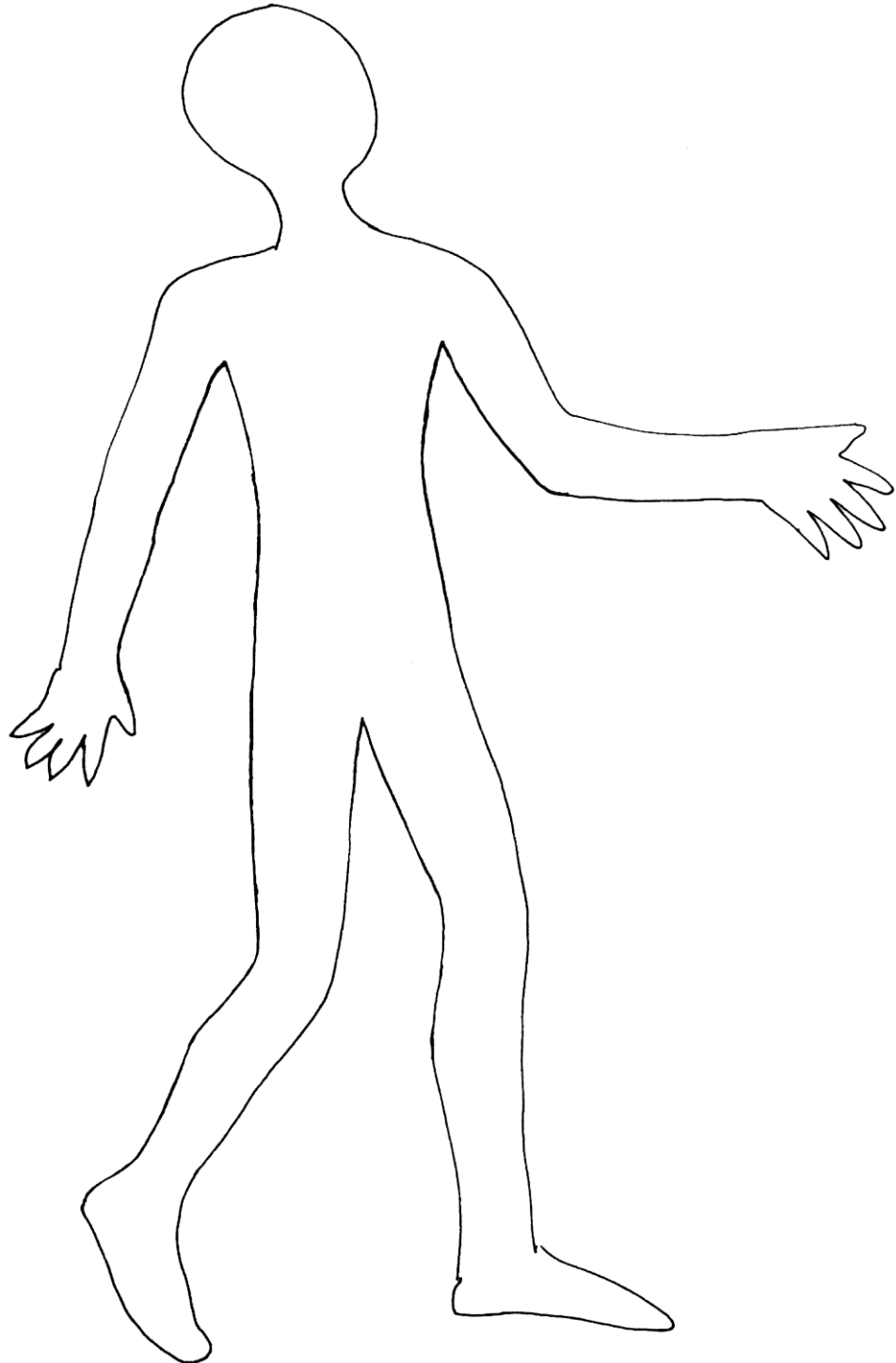
Name ——————————————————— Date ———————————————

11   Clues from Clothes (b)

Draw a disguise for this person.
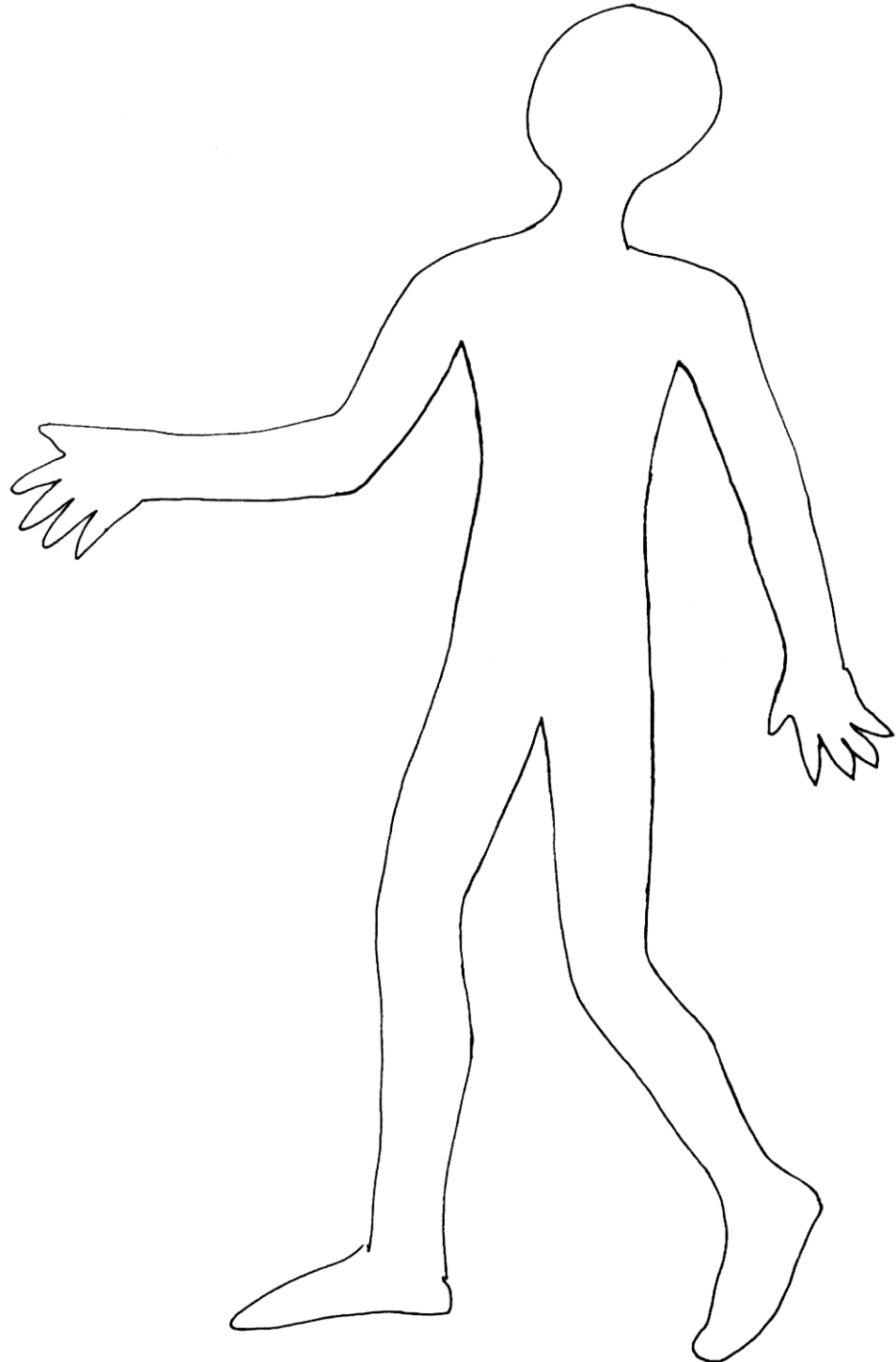
12 What Do You Think Of? (a)

Sunny days make me think of . . .
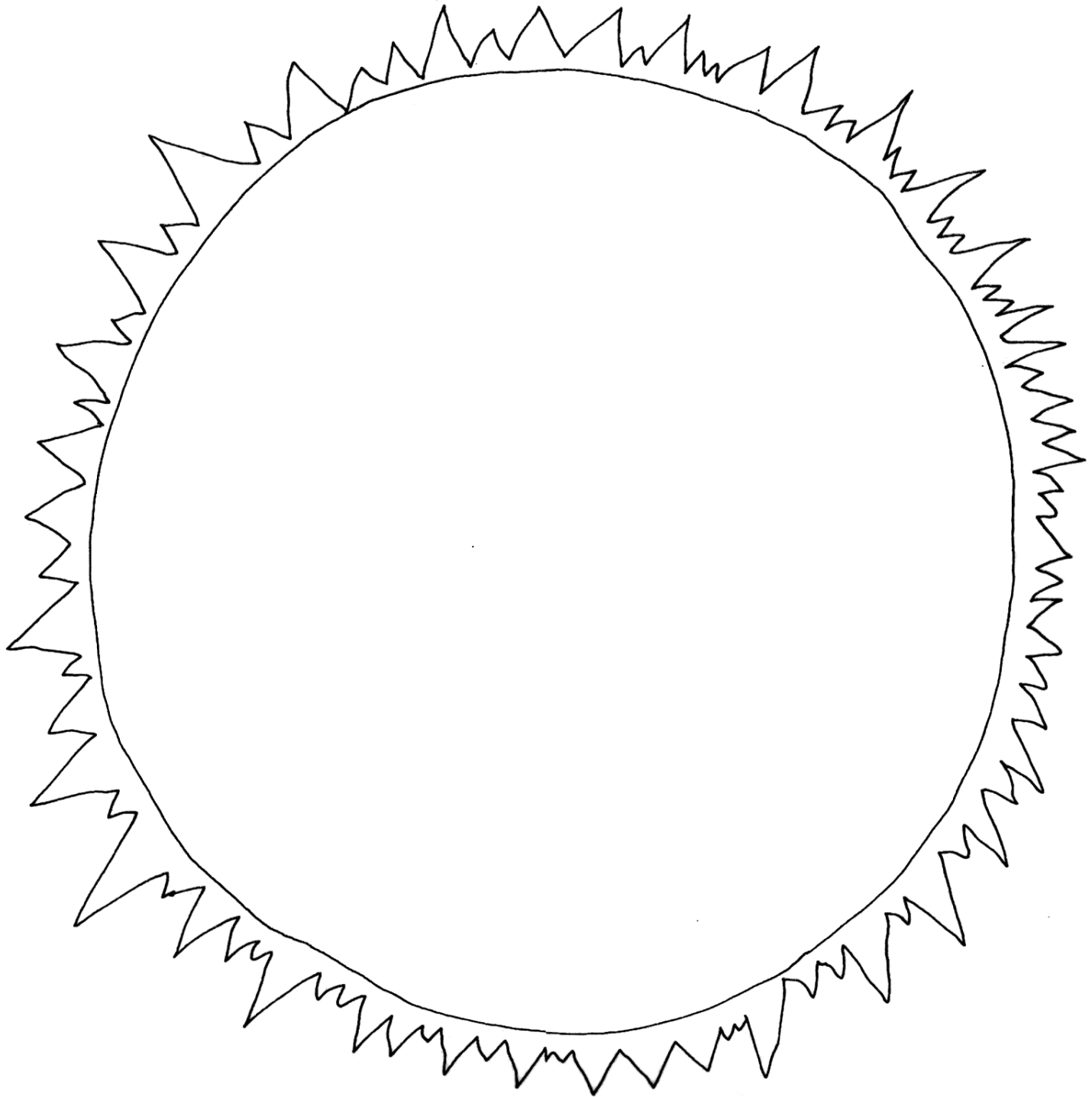
12 What Do You Think Of? (b)

Rainy days make me think of . . .
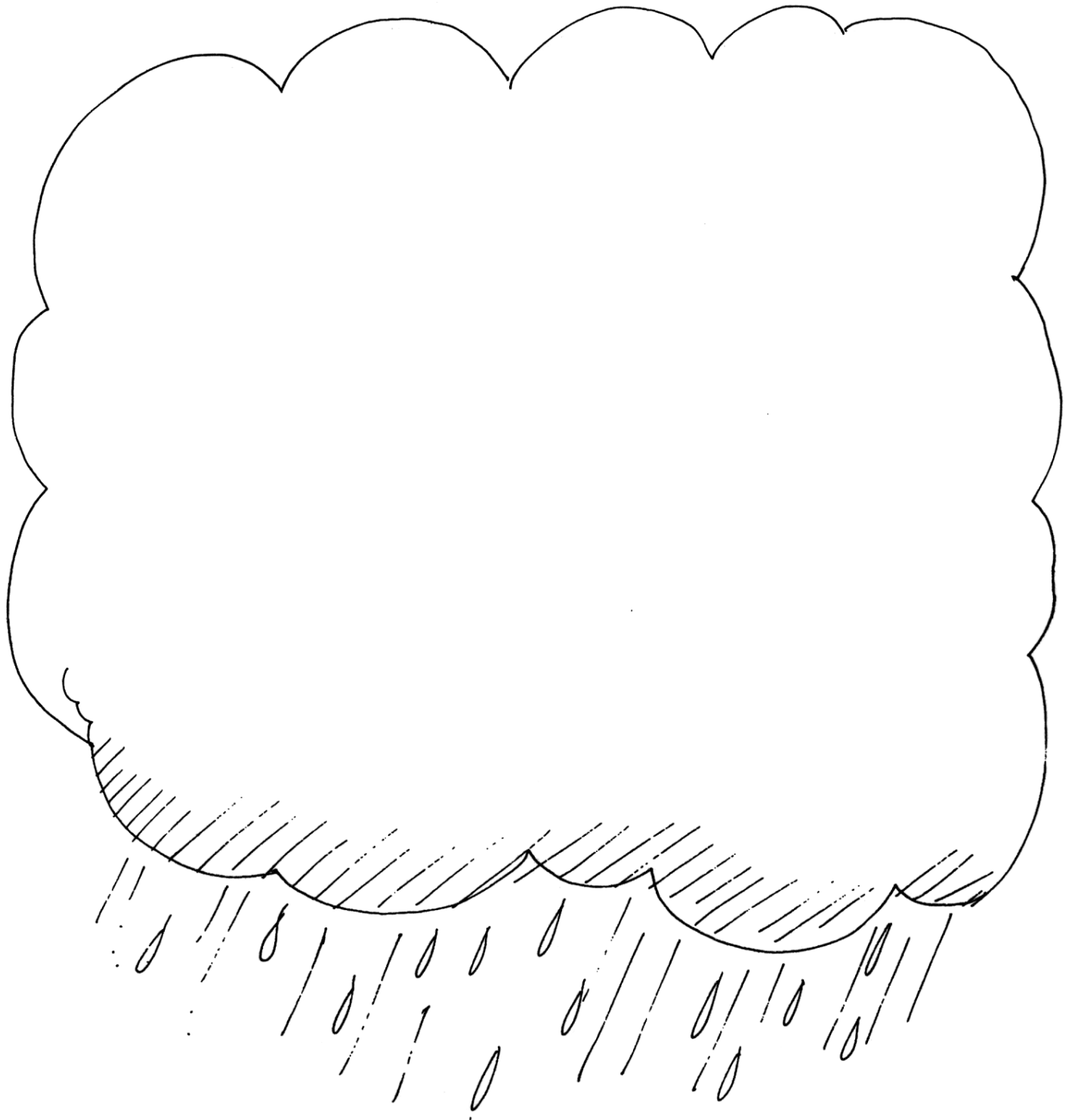
13 Fun with Figures (a)
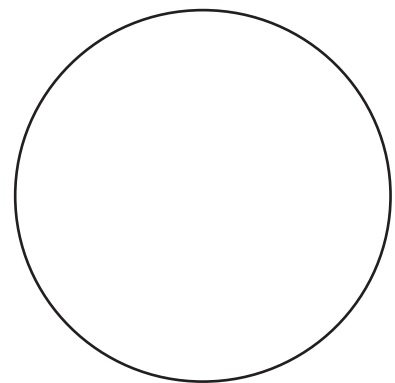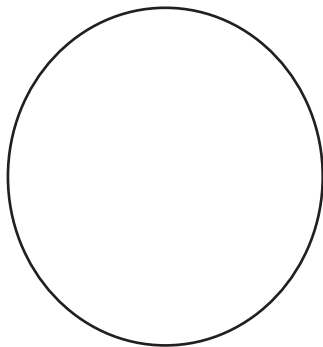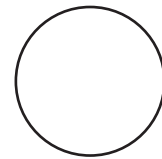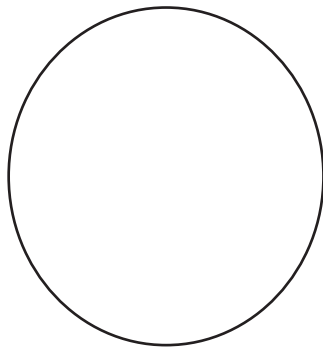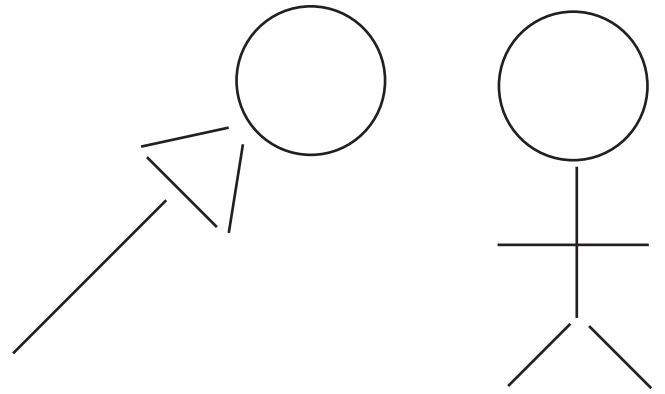
Add four straight lines.
What do you see?

13 Fun with Figures (b)

Add four straight lines.
What do you see?
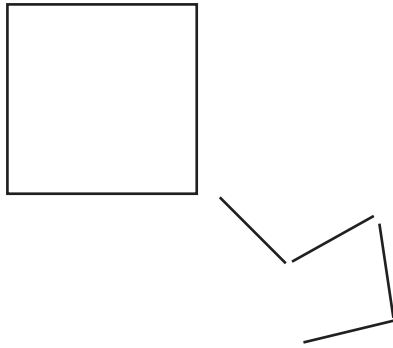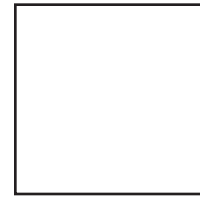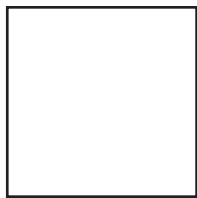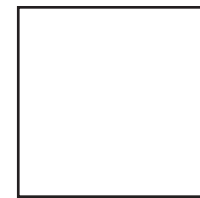
14 If I Wrote the Book (a)

How can you change them?
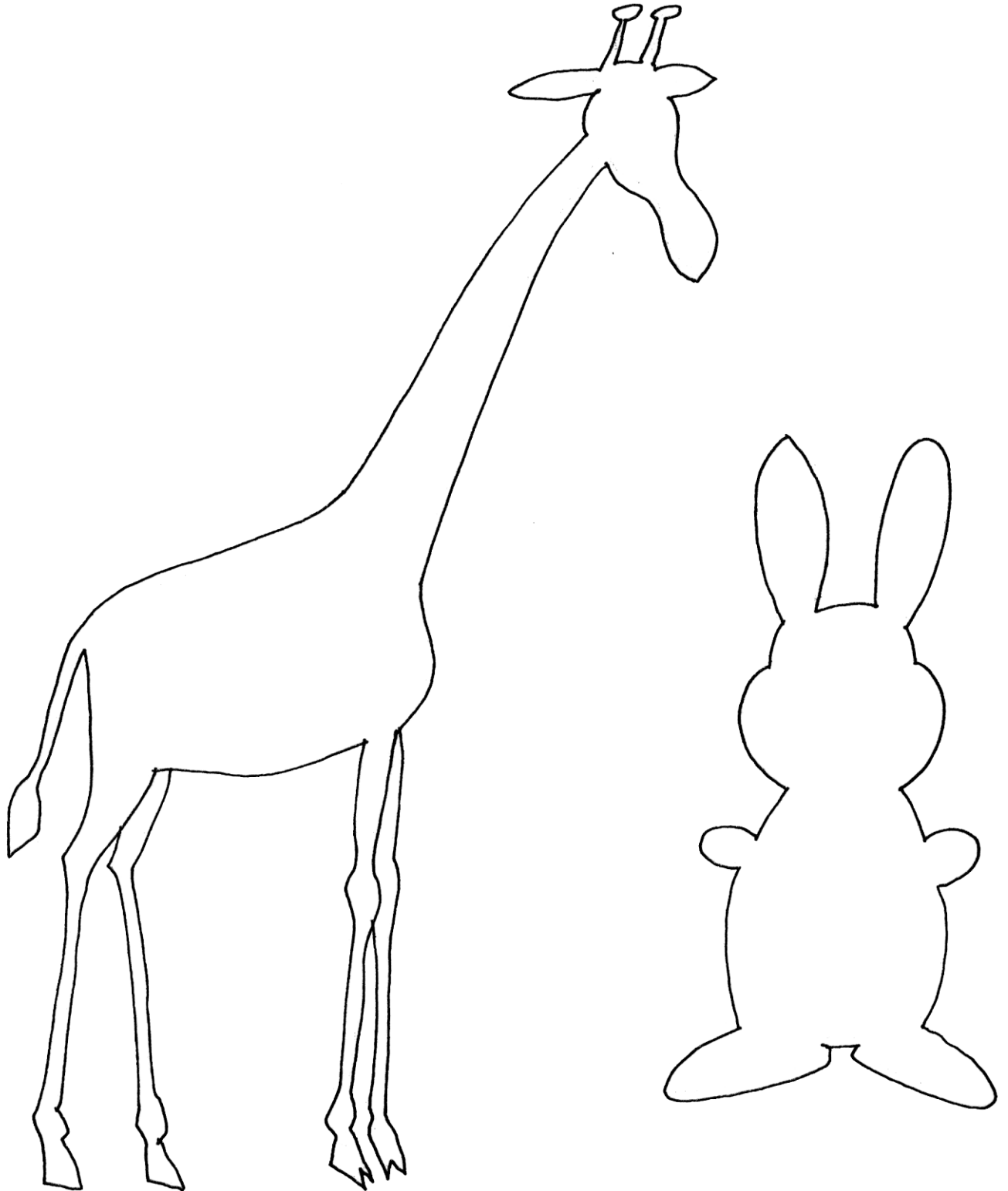
14 If I Wrote the Book (b)

How can you change them?
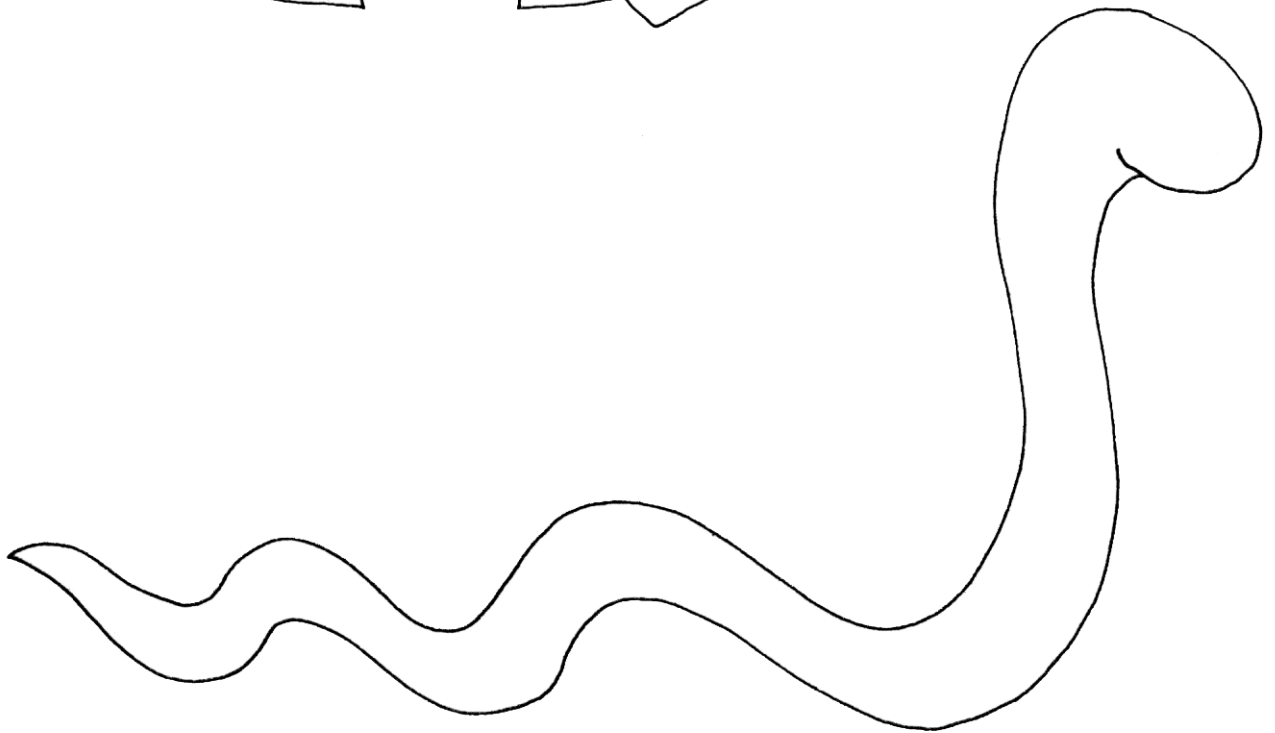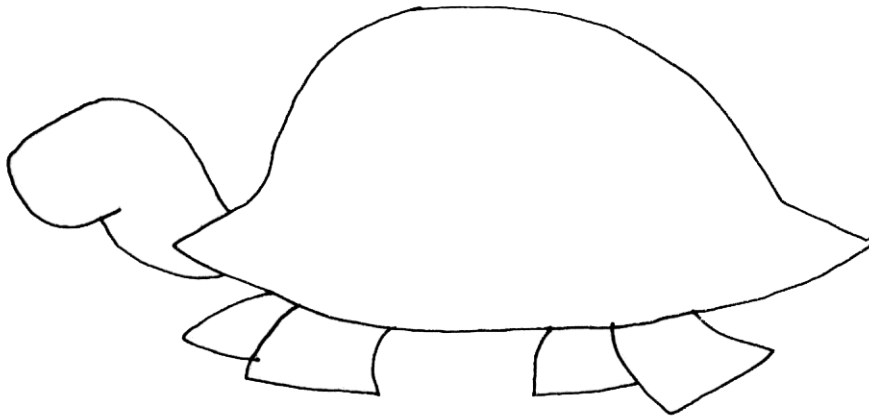
15 Fun with Letters (a)

What can you make?

C C C C C C C

H H H H H H H
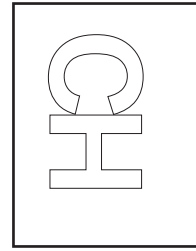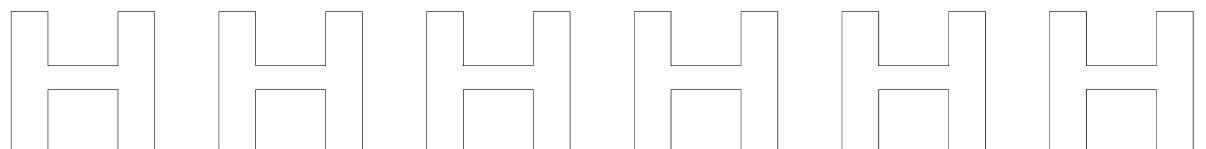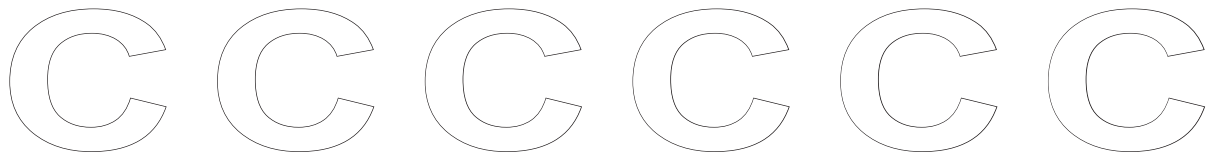
15 Fun with Letters (b)

What can you make?

UL

U U U U U U U

L L L L L L L
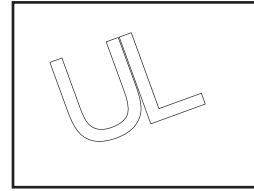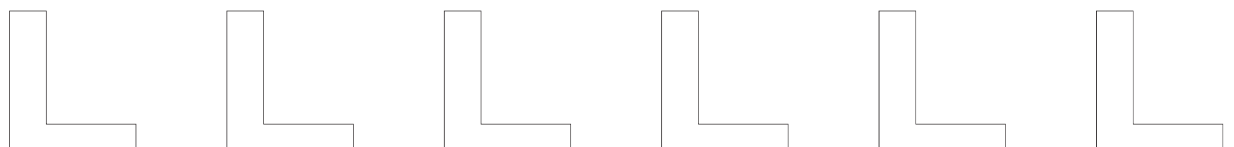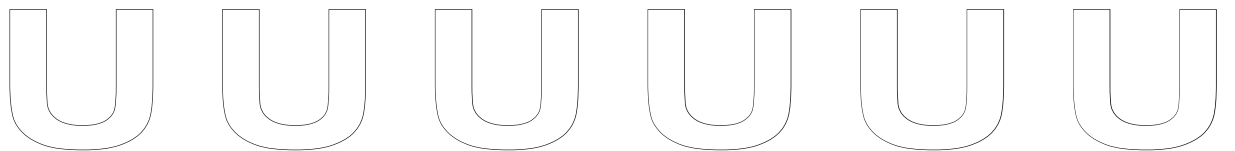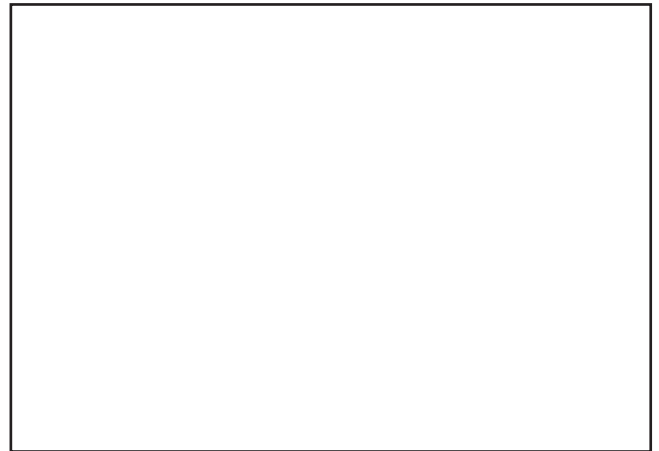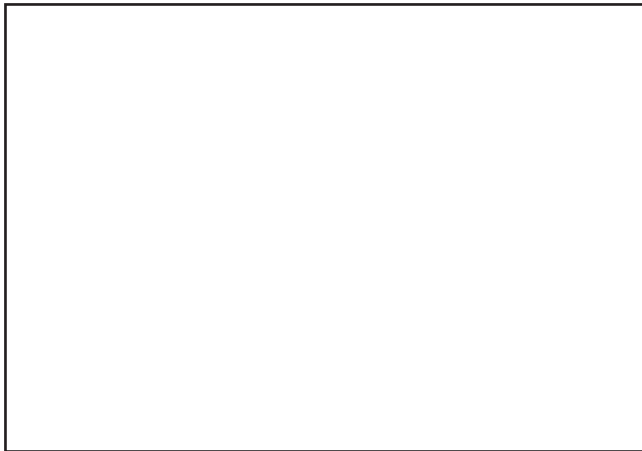
16 Room to Fill (a)

What can you put in this kitchen?
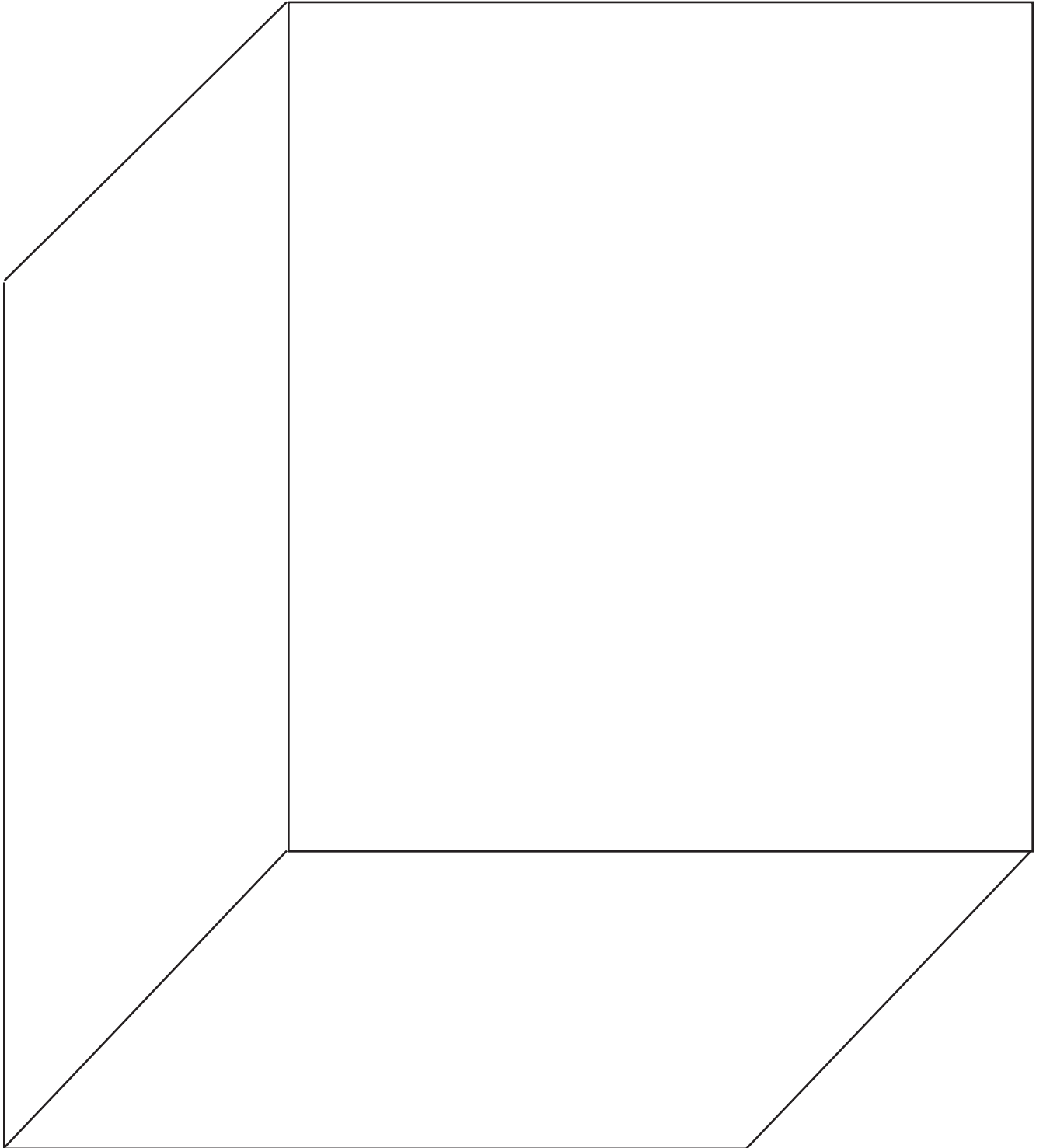
16 Room to Fill (b)

What can you put in this shed?
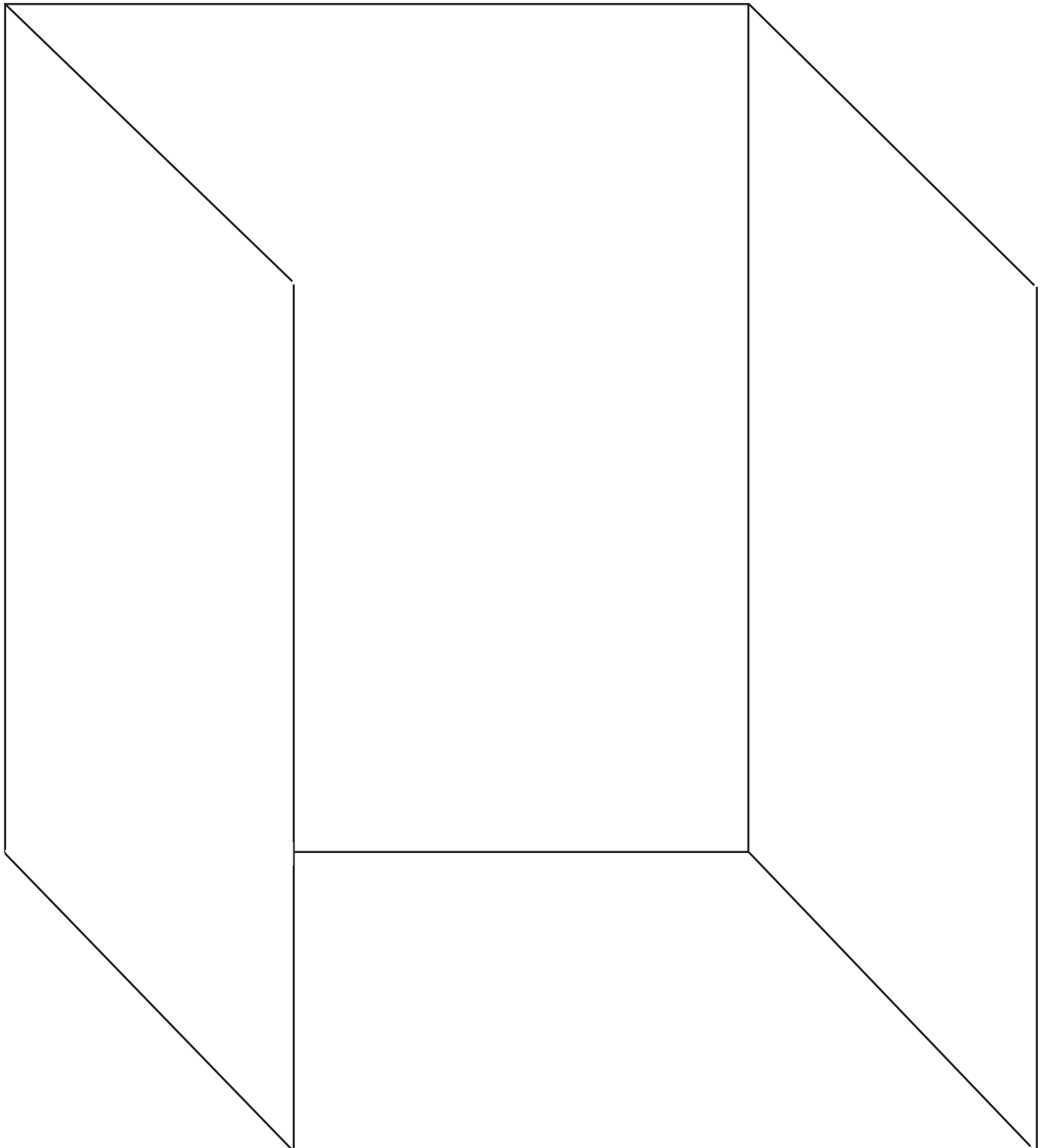
17 Recycling (a)
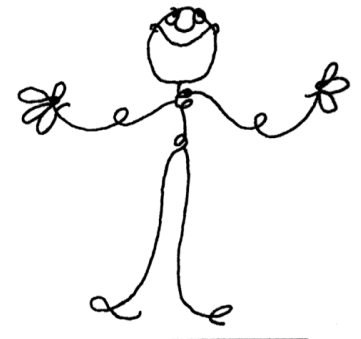
Draw or tell how you could use these items to make something new.
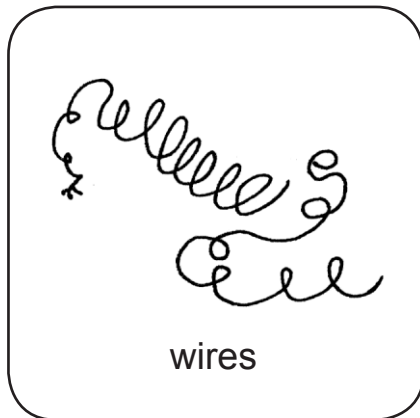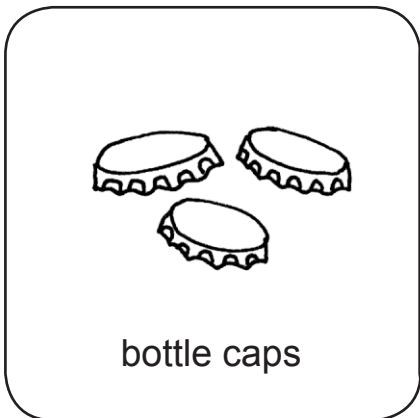
wires

bottle caps

old socks

17 Recycling (b)

What could you make out of these items?
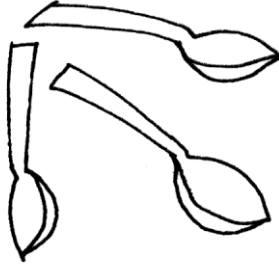
cans	
bags	
old spoons	

18 Building Blocks (a)

Use these shapes to make a machine.
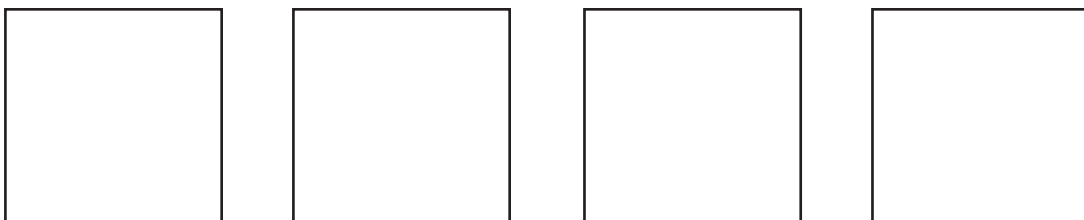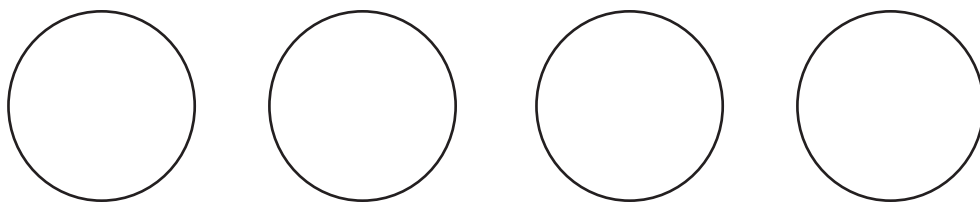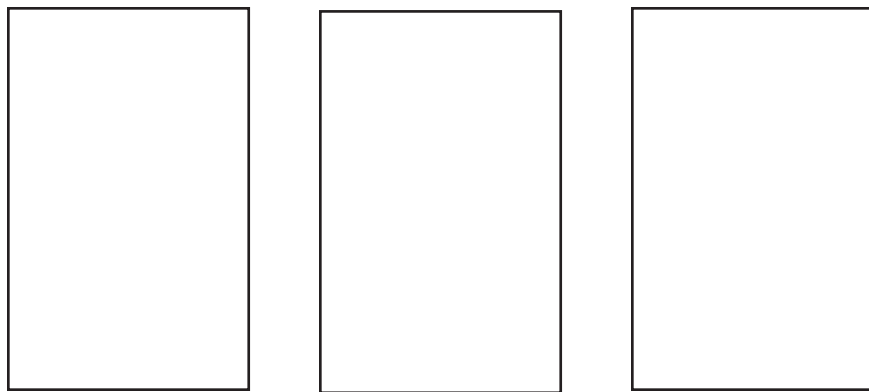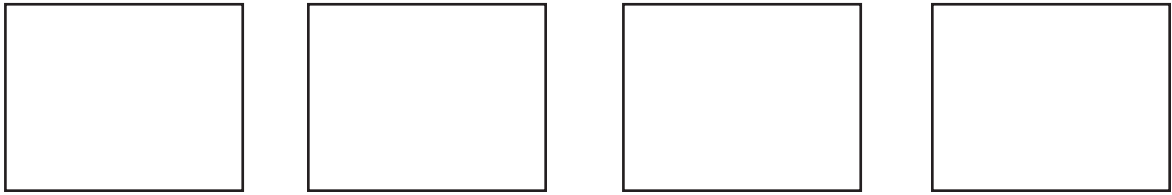
18   Building Blocks (b)

Use these shapes to make a new machine.
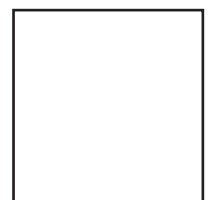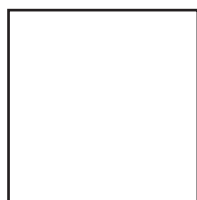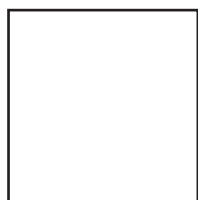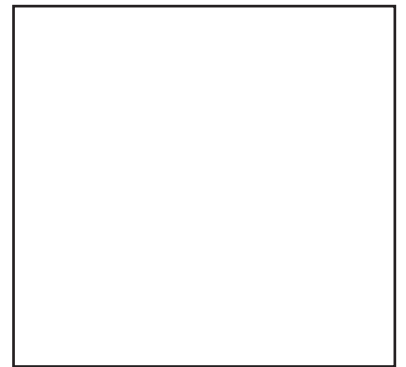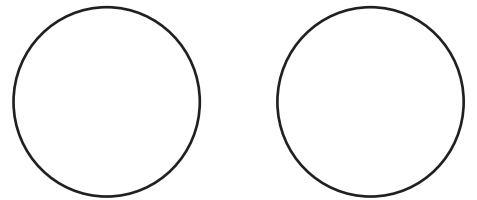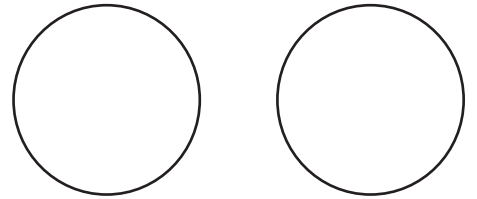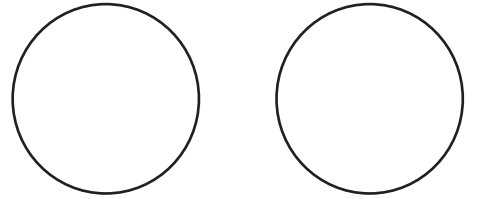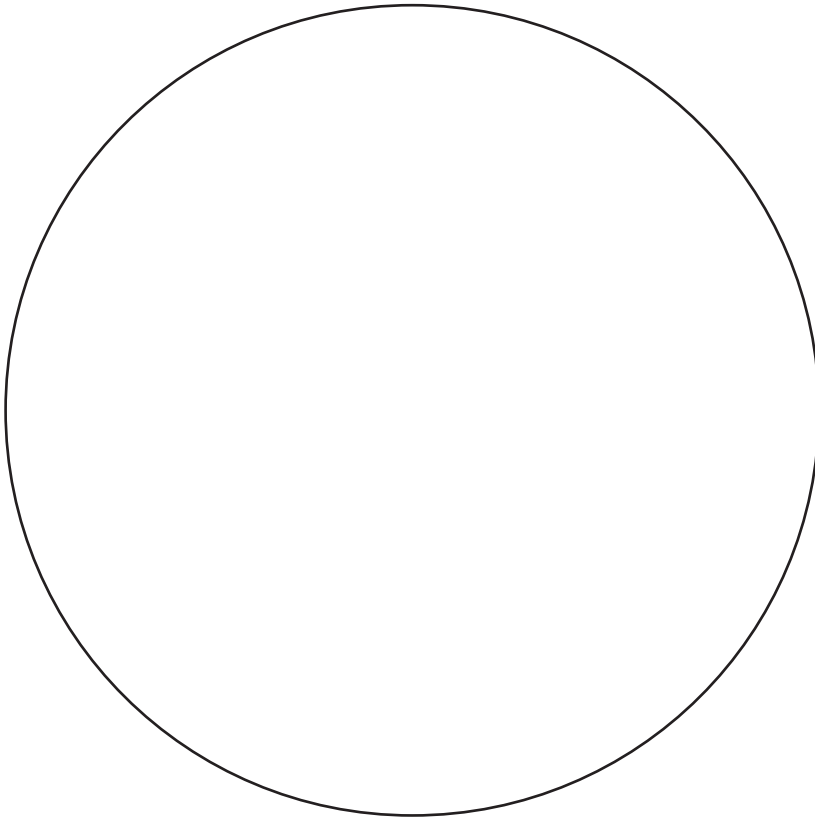
19 Rhyme Time (a)

Can you finish these rhymes?

The rain was falling down.

It covered all of my_____.

This morning it was cold.

I put on a hat that was_____.
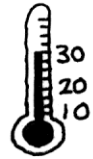
You gave me a baseball bat.

Now hand me my new_____.

I opened the door and ran.

After I saw the_____.
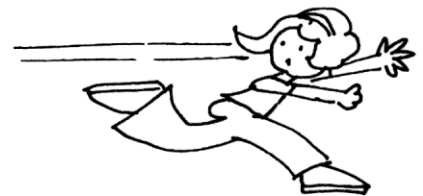
19 Rhyme Time (b)

Can you make new rhymes?

While I was looking **down**
I saw a funny **clown**.
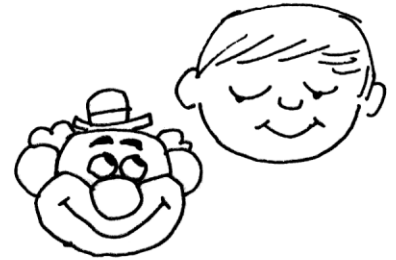
Please fill the _____.
With something that is_____.

Here is a big_____.
I'll take it into the_____.

While deading for the_____.
I found a red_____.

20 Far Out Letters (a)

What things can Miss L do?
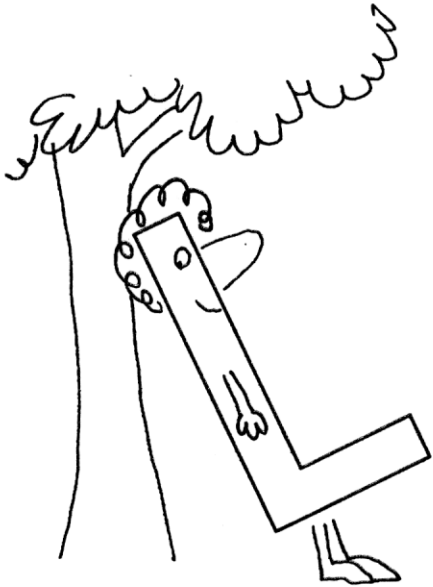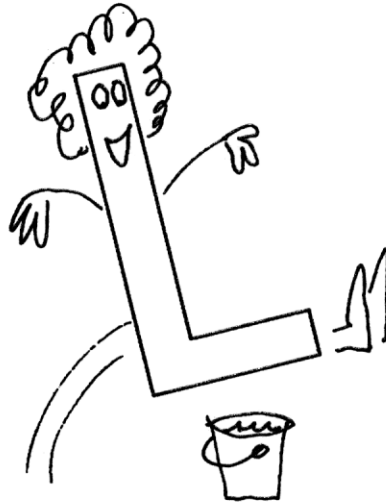
| Lean | Leap | ——————— |
| ——————— | ——————— | ——————— |

| ——————— | ——————— | ——————— |
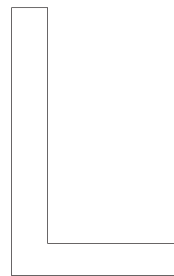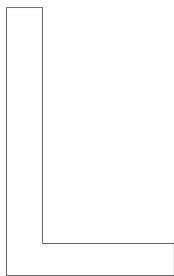
20 Far Out Letters (b)

What things can Mr. D do?

Dig

Dash
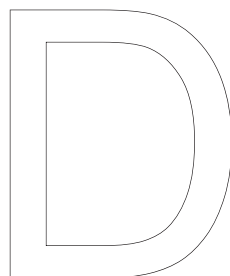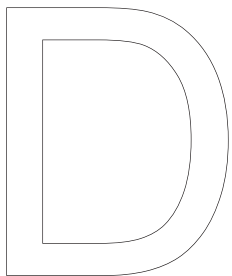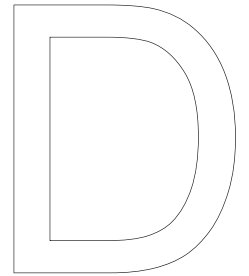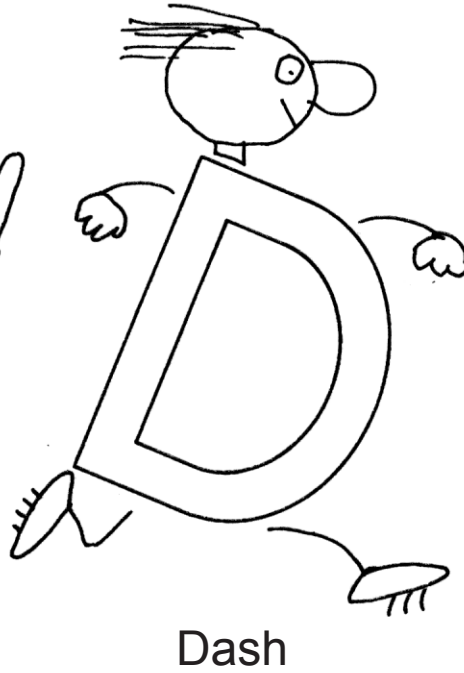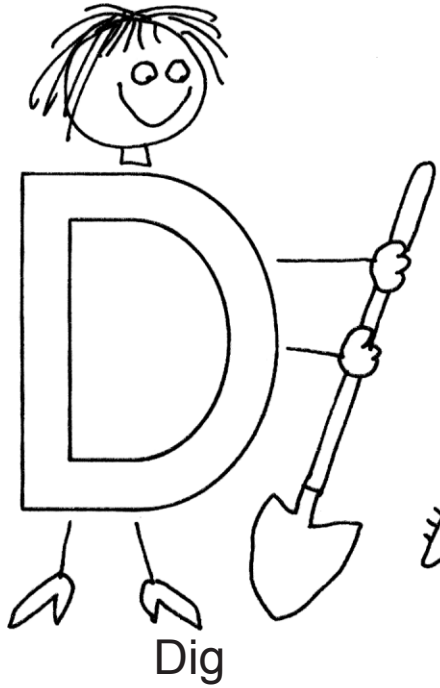
21 Letter Look-alikes (a)

What can you make from the letter P?
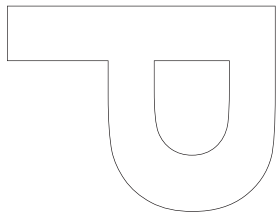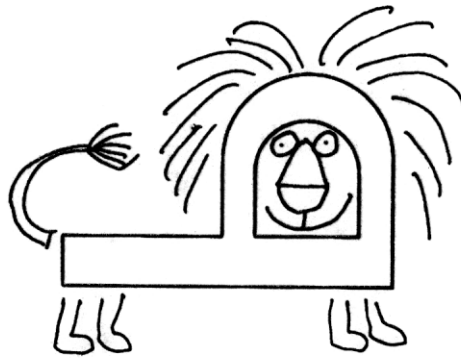
Pan   Pet

_____   _____   _____

_____   _____   _____
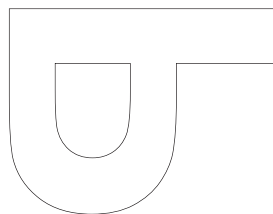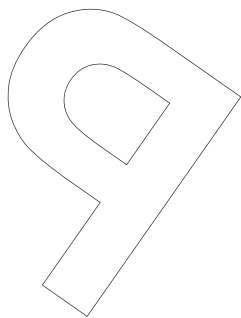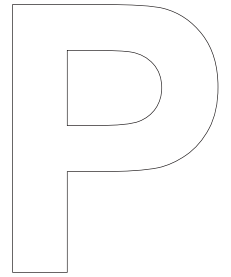
21 Letter Look-alikes (b)

What can you make from the letter B?

Bug

Bunny

_____   _____   _____

_____   _____   _____

22 For Children Only (a)
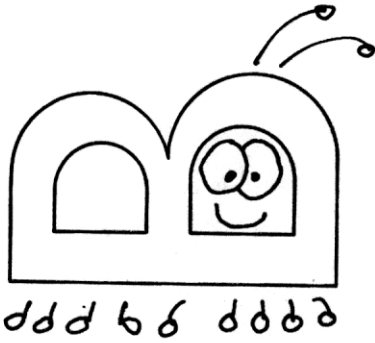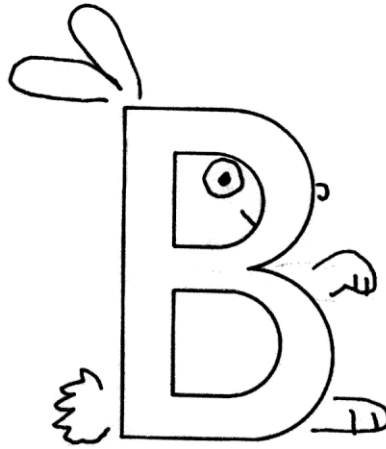
What things happen to children only?
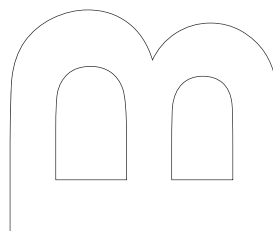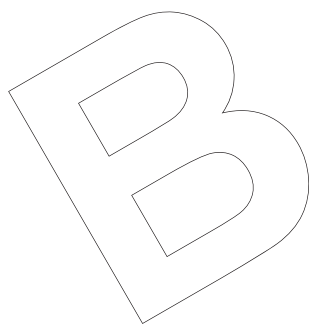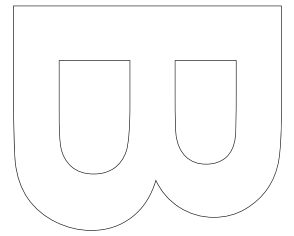
Name ——————————————— Date ———————————————

22 For Children Only (b)

Think of a story for a new show for children only.
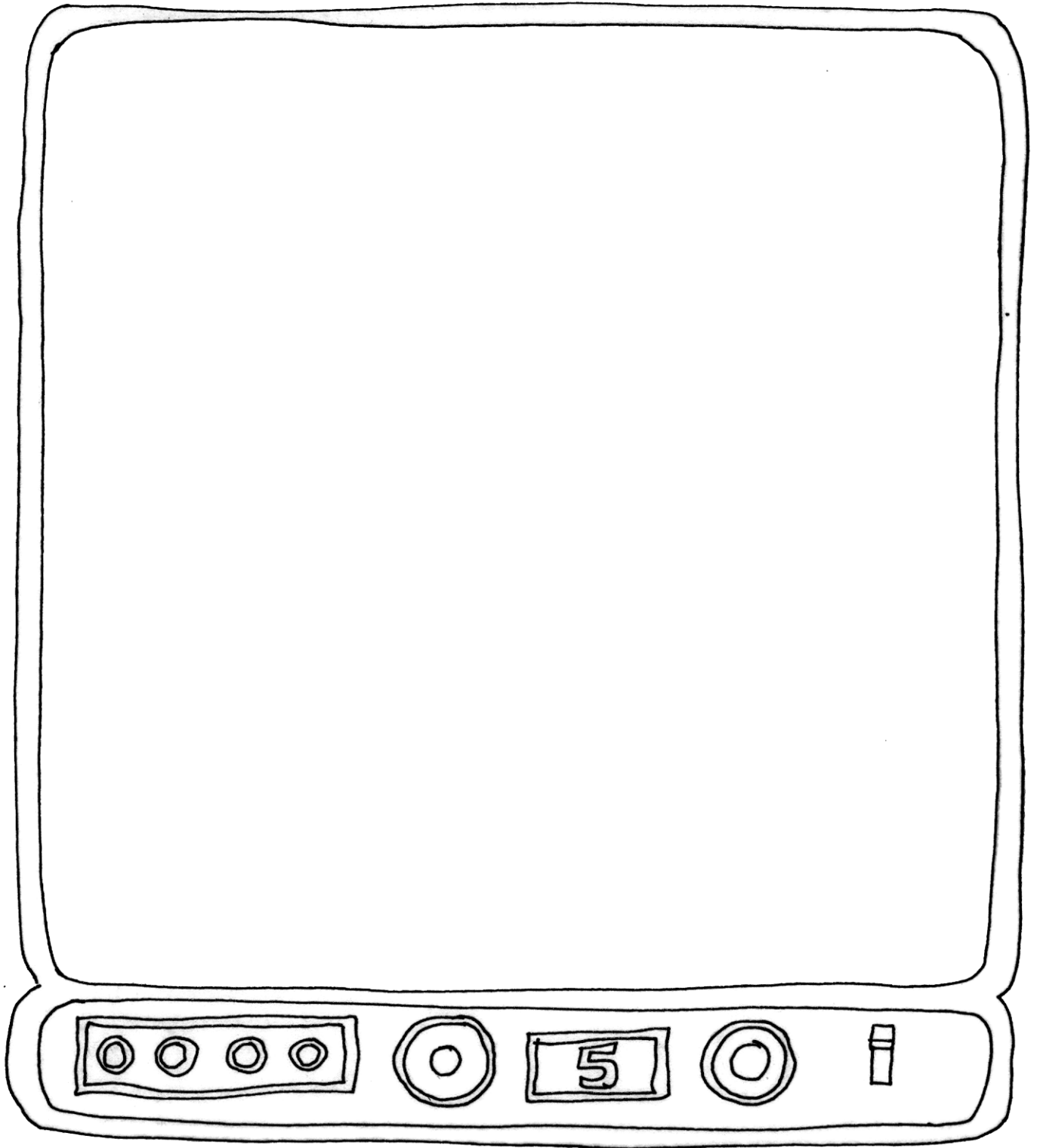
23 Make a Creature (a)

Can you make some new creatures?
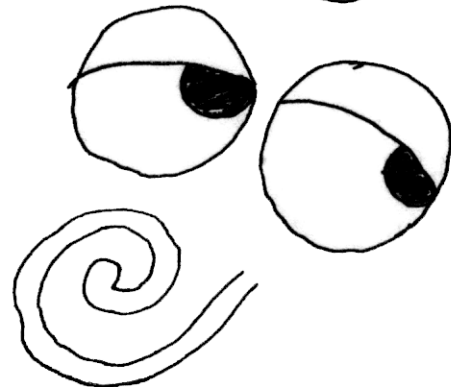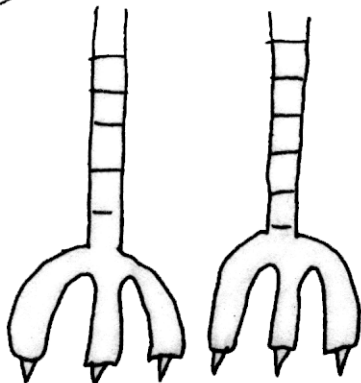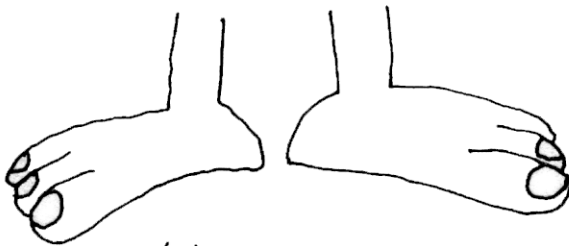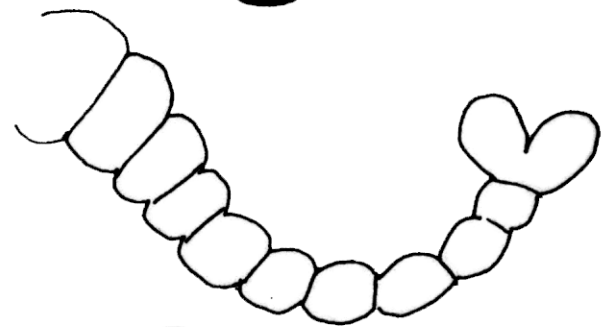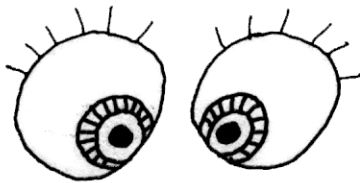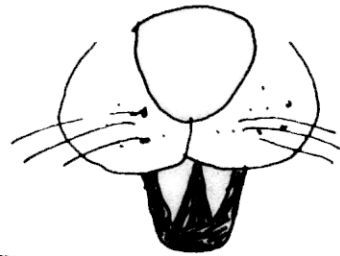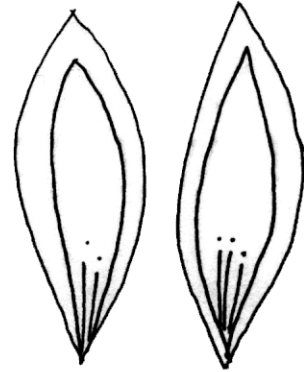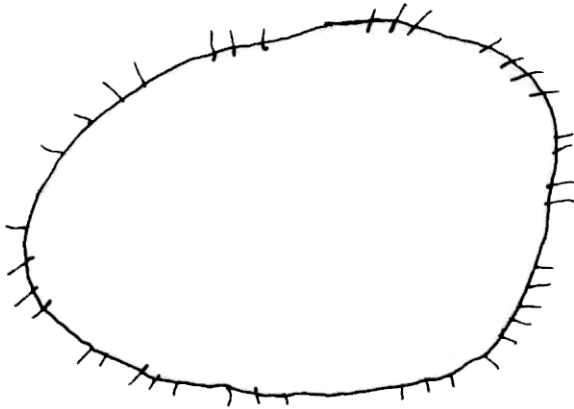
23 Make a Creature (b)

Can you make some new creatures?

Name _____ Date _____
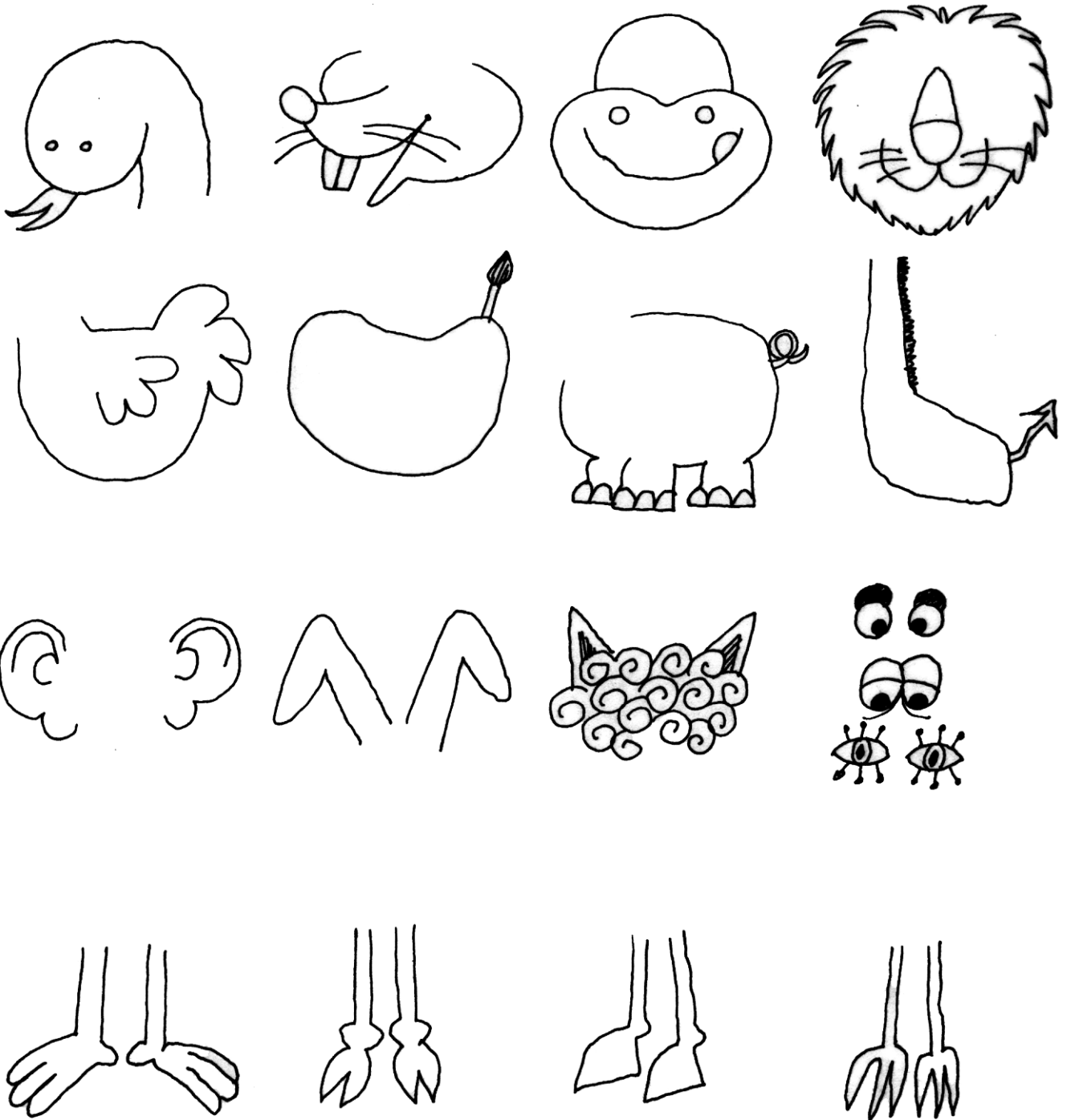
24 The Magic Door (a)

There is a magic land behind this magic door.
Draw or write what you might find there.
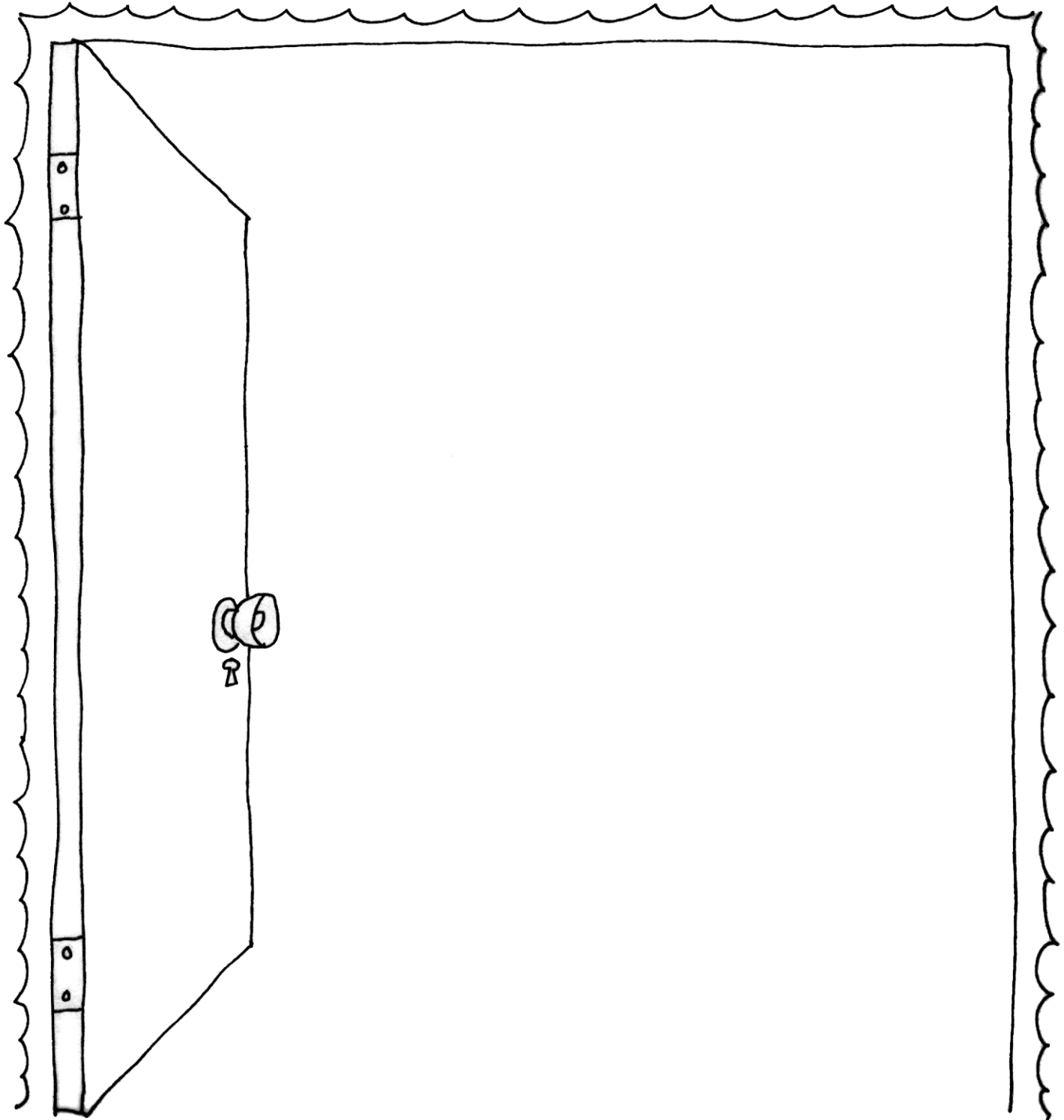
24 The Magic Door (b)

This is the door to a magic school.
Draw or write what you might find there?
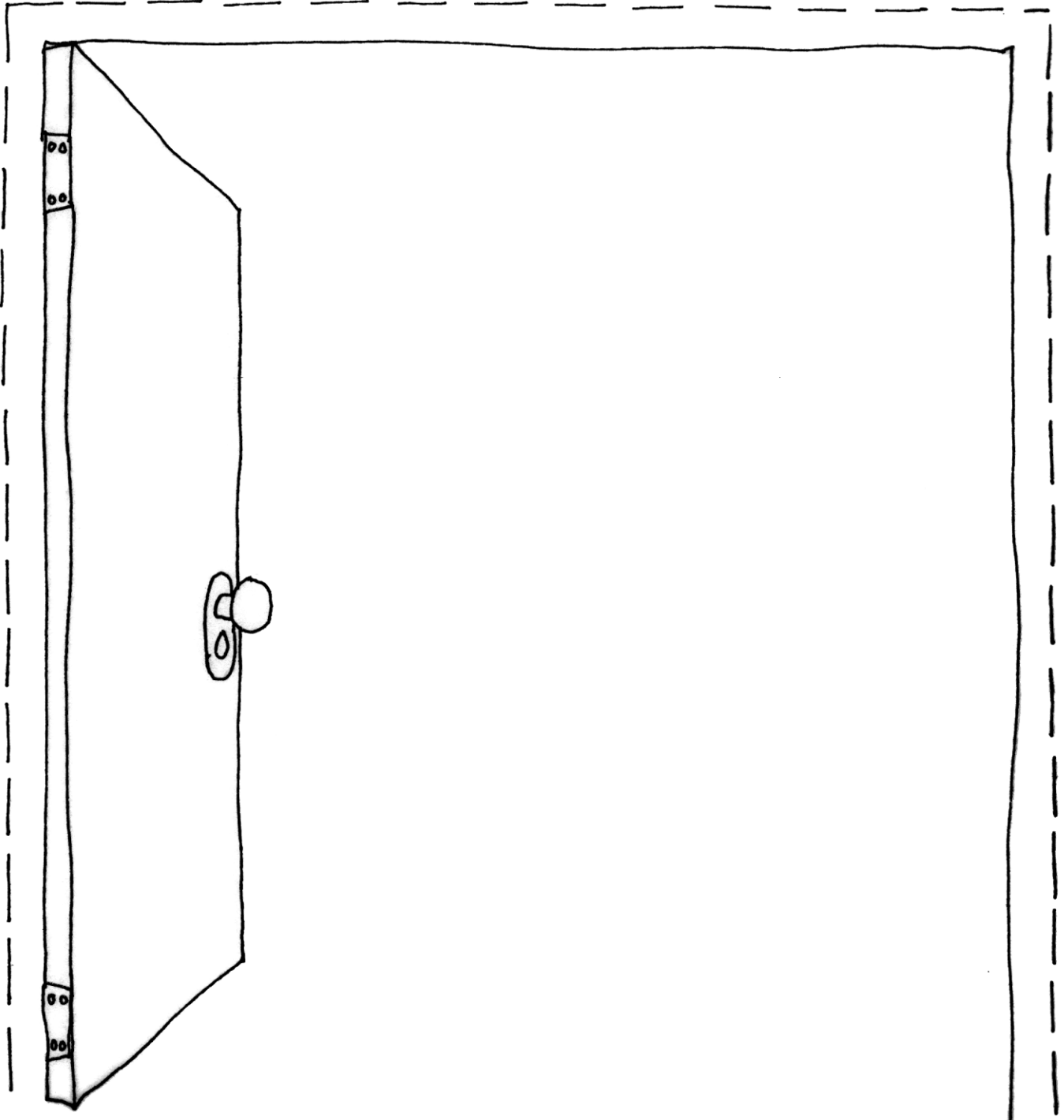
MARK A: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
1 Thinking About Things	(a)			
Thinking About Things	(b)			
2 Dot to Dot	(a)			
Dot to Dot	(b)			
3 A Tale Retold	(a)			
A Tale Retold	(b)			
4 Cut and Create	(a)			
Cut and Create	(b)			
5 Feelings	(a)			
Feelings	(b)			
6 Let's Celebrate	(a)			
Let's Celebrate	(b)			

MARK A: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
7 Pictures Tell Stories	(a)			
Pictures Tell Stories	(b)			
8 What Do You See?	(a)			
What Do You See?	(b)			
9 How Does Your Garden Grow?	(a)			
How Does Your Garden Grow?	(b)			
10 Making Faces	(a)			
Making Faces	(b)			
11 Clues from Clothes	(a)			
Clues from Clothes	(b)			
12 What Do You Think Of?	(a)			
What Do You Think Of?	(b)			

MARK A: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
13 Fun with Figures	(a)			
Fun with Figures	(b)			
14 If I Wrote the Book	(a)			
If I Wrote the Book	(b)			
15 Fun with Letters	(a)			
Fun with Letters	(b)			
16 Room to Fill	(a)			
Room to Fill	(b)			
17 Recycling	(a)			
Recycling	(b)			
18 Building Blocks	(a)			
Building Blocks	(b)			

MARK A: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
19 Rhyme Time	(a)			
Rhyme Time	(b)			
20 Far Out Letters	(a)			
Far Out Letters	(b)			
21 Letter Look-alikes	(a)			
Letter Look-alikes	(b)			
22 For Children Only	(a)			
For Children Only	(b)			
23 Make a Creature	(a)			
Make a Creature	(b)			
24 The Magic Door	(a)			
The Magic Door	(b)			

NEW DIRECTIONS IN CREATIVITY   **MARK B**

The *NEW DIRECTIONS IN CREATIVITY* program,
under the direction of Joseph S. Renzulli,
includes the following manuals:
MARK A
MARK B
MARK 1
MARK 2
MARK 3

NEW DIRECTIONS IN CREATIVITY

MARK B

LINDA SMITH
BARBARA GAY FORD
MARY JO SCOTT
JOSEPH S. RENZULLI

CONTENTS

In children creativity is a universal. Among adults it is almost nonexistent. The great question is: What has happened to this enormous and universal human resource? This is the question of the age and the quest of our research.

—from Harold H. Anderson, ed., *Creativity and Its Cultivation* (New York: Harper & Brothers, 1959), p. xii.

"The main thing is not to take it personal."

"What I liked best about school this year was the teachers' strike."

A PERSONAL NOTE TO TEACHERS

Whenever teachers ask me how I became interested in creativity and why I developed a creativity training program for children, I often answer by referring to the quotation and the two cartoons on page vi. The quotation from Harold Anderson's book points out the great loss in human potential for creative development that takes place between childhood and adulthood. Although this loss no doubt takes its toll by limiting the number of people who make creative contributions to our society, a much more serious and far-reaching consequence is that many adults never have the opportunity to experience the satisfaction and enjoyment that results from the act of creating. Somehow the joys that were associated with childhood fantasy and imaginary excursions into the world of the improbable seem to disappear as we engage in the business of growing up. Although growing up is indeed a serious business, I often wonder if the emphasis that our culture places on the practical and the utilitarian causes most people to arrive at adulthood without the creative ability that they possessed as children.

The first cartoon illustrates the emphasis that our educational system places on the process of conformity. Most learning experiences are designed in a way that causes all youngsters to arrive at the same solutions to problems; thus it is not surprising to see a very homogenized group emerging from "the system." A quick glance at most workbooks or exercises in textbooks reveals that only rarely do these materials purposefully encourage youngsters to be as original as possible in their answers to given problems and questions.

The second cartoon presents a sad but essentially valid picture of most children's perception of school. Our preoccupation with order, control, routine, and conformity has made schools into dreary and often oppressive places for many children. The supposedly exciting act of learning has frequently been a coercive and sometimes even punitive process.

Many writers have summarized problems that have made schools such unfriendly places and have pointed out some of the ways that these problems can be overcome. One suggestion common to many writers is that classrooms need to be more engaging, creative, and interactive places and that youngsters need to be given greater opportunities to imagine, create, and express themselves.

The creativity training program described in this manual represents one attempt to provide both teachers and students with a set of materials that will help them learn a variety of ways for expressing their creative potential. Creativity is a dynamic process that involves "a way of looking at things"; therefore the activities included in this program are designed to broaden the way that youngsters look at their world. The program is not an end in itself, but rather a series of first steps that will provide teachers and students with the basic skills involved in creative production. Over the past few years, I have worked with hundreds of teachers in courses and workshops dealing with creativity. These experiences have shown me that a minimum amount of instruction and a maximum amount of actual involvement with the materials have effected the biggest changes in teachers' understanding and application of creativity training activities. The old saying "The best way to learn how to do it is to do it" is a guiding principle in my approach to teaching teachers the skills of creative production. Once these skills have been assimilated, they can be applied to all areas of the curriculum and to most of the learning experiences that take place in the classroom.

Joseph S. Renzulli
Storrs, Connecticut

1

PART I

PURPOSE AND DESCRIPTION OF THE PROGRAM

The *New Directions in Creativity* program consists of five volumes: *Mark A*, *Mark B*, *Mark 1*, *Mark 2*, and *Mark 3*. The program is designed to help teachers develop the creative thinking abilities of primary and middle-grade youngsters. Research has shown that almost all children have the potential to think creatively and that creative production can be improved by providing systematic learning experiences that foster use of imagination.

Purpose of the Program

The general purpose of this creativity training program can best be explained by contrasting the creative or *divergent* production abilities with the *convergent* production abilities emphasized in most elementary school classrooms. In most traditional teaching-learning situations, major emphasis is placed on locating or converging upon correct answers. Teachers raise questions and present problems with a predetermined response in mind, and student performance is usually evaluated in terms of the correctness of a particular answer and the speed and accuracy with which youngsters respond to verbal or written exercises. Thus the types of problems raised by the teacher or textbook and the system of rewards used to evaluate student progress cause most youngsters to develop a learning style that is oriented toward zeroing in on the "right" answer as quickly and as efficiently as possible. Although this ability has its place in the overall development of the learner, most teachers would agree that impressionable young minds also need opportunities to develop their rare and precious creative thinking abilities.

Divergent production is a kind of thinking that is characterized by breaking away from conventional restrictions on thinking and letting one's mind flow across a broad range of ideas and possible solutions to a problem. The real problems humanity confronts do not have the kinds of predetermined or "pat" answers that a great deal of instruction focuses on in the convergent-oriented classrooms. Yet we give our children very few opportunities to practice letting their minds range far and wide over a broad spectrum of solutions. The philosopher Alan Watts (1964) has talked about these two kinds of thinking in terms of what he calls the "spotlight mind" and the "floodlight mind." The spotlight mind focuses on a clearly defined area and cannot see the many alternative possibilities or solutions to a problem that may exist outside that area. Floodlight thinking, on the other hand, reaches upward and outward without clearly defined borders or limitations. The floodlight thinker is free to let his or her imagination wander without the confinements or limitations that usually lead to conformity. Both types of thinking are valuable, and to pursue one at the expense of the other is clearly a disservice to the children for whose development we are responsible.

This description of divergent thinking should not lead teachers to believe it is undisciplined or disorderly. Mary Nicol Meeker (1969) has pointed out that "divergent generation does not proceed willy-nilly; the divergent thinker is not a scatterbrain; the worthwhile generation of information requires discipline and guidance." Following Meeker's suggestion, the *New Directions in Creativity* program has attempted to provide youngsters with an opportunity to break away from conventional restrictions on their thinking. Yet an effort has been made to generate responses that are relevant to particular kinds of problems and that fall within reasonable bounds.

Specific Abilities Developed by the Program

The *New Directions in Creativity* program is designed to develop each of the following creative thinking abilities:

1. *Fluency*—the ability to generate a ready flow of ideas, possibilities, consequences, and objects

2. *Flexibility*—the ability to use many different approaches or strategies in solving a problem; the

3

willingness to change direction and modify given information

3. *Originality*—the ability to produce clever, unique, and unusual responses

4. *Elaboration*—the ability to expand, develop, particularize, and embellish one's ideas, stories, and illustrations

Each activity in the program is designed to promote one or more of these four general abilities. The activities are also classified according to (1) the types of information involved in each exercise (semantic, symbolic, figural) and (2) the ways that information is organized in each exercise (units, classes, relations, systems, transformations, implications, elaborations). These two dimensions are described in detail in Part III of this manual. The activity-by-activity lesson guides presented in Part IV include the specific objectives for each activity and suggestions for follow-up activities designed to develop further the specific abilities toward which the respective exercises are directed. Although many of the objectives and suggestions for follow-up activity are directed toward the development of traditional skills in language arts, these skills are always "piggybacked" on the four major creative thinking skills. Field testing has shown that students are more motivated to pursue traditional language arts skills when such skills are based upon activities that make use of their own creative products.

Although the purpose of each manual in this program is to provide teachers with a systematic set of activities aimed at promoting creativity in children, a second and equally important objective is to help teachers unlock their own potential for more creative teaching. In almost every school where these activities were field tested, participating teachers began to develop their own materials and activities for creativity training. In many cases, the teacher-made activities were highly original and skillfully integrated with various aspects of the regular curriculum. Once teachers understood the general nature of the creative process, they were quickly able to apply the same basic strategies to other areas of the curriculum. Therefore, teachers should view this creativity training program as a starting point that will eventually lead to the development of a "creativity orientation" on the part of teachers. This orientation will assist teachers in finding numerous opportunities for creativity training in a wide variety of learning situations.

Description of the Program

Each manual in the *New Directions in Creativity* program consists of twenty-four types of creativity training activities. Two activity sheets, both containing one or more exercises, are provided for each type of activity, and each type is classified according to the kinds of information involved in the exercises and the ways that information is organized. Each activity is further classified according to the level of response required. This classification scheme is based on Guilford's model of the structure of human abilities. Teachers who wish to know more about this model should refer to Part III of this manual. (An overview of the activities in this manual, listing the types of activities according to Guilford's classification scheme appears on page 22.)

Mark A and *Mark B* : Most of the activities in the primary volumes have been designed so that children can respond with either words or pictures. This approach allows children who cannot yet express themselves in writing to communicate their creative ideas through pictures. Suggestions for alternative modes of expression, such as dictating responses to a teacher's aid or to a tape recorder are also included. The primary volumes are also designed to develop the psychomotor abilities of younger children through manipulative and dramatic activities, and the teaching suggestions present ideas for using primary teaching aids such as flannel boards, chart paper, scissors, and paste.

The format of the primary activities attempts to take account of the developmental level of the young child. Illustrations on the exercise sheets are generally larger and less complicated than the drawings in the middle-grade books, and fewer responses are required to allow for the gross motor coordination of the primary-aged youngster. Page directions are simpler, and greater reliance is placed on illustrations than on written directions. The lesson guides for the primary volumes contain more detailed suggestions for introducing activities and emphasize using concrete examples to get children started on exercises that are more easily demonstrated than described.

Mark 1, Mark 2, and Mark 3 : Most of the activities in the middle-grade volumes deal with semantic information. Some symbolic activities that involve the use of words have been included, and a few figural activities have also been included to help students understand that creativity skills can be applied to both verbal and nonverbal information.

Activities dealing with information that is organized into units, classes, or relations generally require students to (1) fill in blanks with unspecified words, (2) manipulate given words and figures, or (3) complete short statements. These activities are considered warm- ups for higher level activities, and they are generally directed toward giving students practice in the basic creativity skill of brainstorming. Brainstorming activities help students free their thinking processes from the restraints that usually hinder creativity and provide an effective means for promoting a free and open classroom atmosphere.

The higher level activities deal with information that is organized into systems, transformations, implications, or elaborations. The major difference between the two levels of activities is that fewer specifications are given for the kinds of responses required in the higher level activities. These responses are generally more open-ended, and fewer restrictions are placed on the nature of the products developed by students. Although all activities provide youngsters with opportunities to express themselves in a relatively free and unrestricted manner, the program will be most effective if students pursue a balanced combination of the various types of activities. Each type is designed to develop and give practice in the use of certain creativity skills, and the skills developed by the warm-up activities are necessary for maximum development of the more advanced kinds of creative thinking necessary for the higher level activities. Suggestions for the most effective sequencing of activities are included in Part II of this manual.

Grade and Ability Levels

Although no specific grade level has been assigned to the respective volumes, field tests have shown that *Mark A* is most successful with children in kindergarten and first grade and that *Mark B* works best with second- and third-grade youngsters. An attempt was made to separate activities in the primary volumes so that the first book would contain exercises for children who have not yet developed reading and writing abilities or who are in the beginning stages of development in these areas. The exercises in *Mark B* were designed in accordance with the level of communication skills that typically are taught in second and third grades.

Field tests have shown that *Mark 1*, *Mark 2*, and *Mark 3* are most successful with students in grades four through eight. The open-ended nature of creativity training activities has provided an opportunity to develop a truly nongraded program, and many of the exercises have been used successfully with students at several grade levels. When there are no "right" or "wrong" answers, each student sets his or her own level of response. The responses of bright youngsters are often characterized by higher degrees of fluency, flexibility, originality, and elaboration, but even the slowest child is able to respond in a way that is appropriate to his or her own developmental level. It may be necessary for teachers to read some of the directions to students and to supervise their work more closely until they catch on to the nature of the various tasks. To help both younger and slower students grasp the main idea, most of the introductory exercises include illustrative examples. These examples are useful in helping students who have some trouble reading the directions or getting started on some of the more difficult exercises. Most of the exercises are not too difficult for younger or slower students, but because of the open-ended nature of the exercises, teachers must carefully explain directions, and they may have to provide a few examples of their own in order to start students off on the right track.

An important feature of this creativity training program is that a youngster can respond to each activity in terms of his or her own background and experience. Because the program is not based on the student's ability to recall factual information, each student can express his or her creativity by drawing on his or her own knowledge and experiences. Many writers have pointed out that the child's own experiences and activities are the principal agents of his or her development and that no matter how "primitive" a child's level of development, he or she can extend his or her mental abilities by probing, manipulating, and applying his or her own experiences to new kinds of materials and situations. This idea is one of the fundamental principles on which the constructivist learning is based, and field tests with the *New Directions in Creativity* program have shown that students from so-called disadvantaged backgrounds are able to use their own experiences to complete most of the activities in the program.

Insofar as individualized programming is concerned, it is important for teachers to carefully consider each child's preferences. Some students may show a preference for semantic activities, whereas others may prefer to respond figurally or symbolically. Similarly, certain children may like exercises with a less complicated response format (units, classes, relations), whereas others may show a preference for more complicated modes of expression such as poetry or story writing. The classification system which underlies the *New Direction in Creativity* program provides a unique opportunity for teachers to study children's learning

style preferences and to adapt accordingly. The program will be most successful if teachers respect children's preferences and avoid forcing every child to complete every activity.

PART II

GENERAL STRATEGIES FOR USING THE PROGRAM

Although a great deal has been written about fostering creativity in the classroom, relatively few basic teaching strategies have been effective in encouraging creative development. This section of the manual will describe the basic strategies that teachers have found most helpful in using the *New Directions in Creativity* program. Although the materials have been designed to require minimum preparation time, the importance of the teacher's role cannot be overemphasized. In describing the role of teachers in this regard, Starko (1995) emphasized the distinction between teaching for the development of creativity versus creative teaching. She concluded that effective teachers who develop students' creative thinking know how to teach techniques that "facilitate creative thinking across disciplines and provide a classroom atmosphere that is supportive of creativity" (p. 17). Other studies, including a meta-analysis study by Rose & Lin (1984) and a research synthesis by Torrance (1987), indicate that creativity training is associated with increased creativity, involvement in creative activities, and positive feelings toward school.

Brainstorming and the Fluency Principle

In most cases, the first thought that comes to mind in seeking the solution to a difficult problem is seldom the most original idea. Therefore, *fluency,* defined as the ability to produce several ideas or possible solutions to a problem situation, is an important condition for creative production. The fluency principle, which underlies the development of this creativity training program, maintains that fluency is a necessary, though not sufficient, condition for originality. Although there are some cases on record of highly creative products that have resulted from sudden inspirations, research on creativity in both children and adults strongly supports the fluency principle. Studies by Archambault (1970), Paulus (1970), and Baer (1993) have shown that initial responses to a given problem tend to be the more common ones and that the greater the number

of answers generated, the higher the probability of producing an original response (*original* in the sense that fewer students come up with that response). Therefore, a hypothetical curve of creativity for a given task or activity (see Figure 1) would show a gently sloping gradient with an increase in originality being related to an increase in the number of responses. For example, if we asked a group of students to list all of the utensils that people *might* use to eat with, their initial responses would no doubt include common utensils such as forks, spoons, and knives. But if we encouraged them to increase their lists by using their imaginations ("Suppose you didn't have any forks or spoons. What *could* you use?"), students would begin to explore some possible alternatives. They might suggest such items as sharpened sticks, shells, and bottle caps. If we compared the lists of several youngsters, we would find that most of the initial answers are quite common—that most of the students have given the same responses. As the lists grow longer, we would find more divergence occurring, and the probability of a youngster's producing an original response increases. In other words, quantity

Figure 1. Hypothetical curve of creativity.

breeds quality, and research has shown that individuals who produce a large number of ideas are more likely to produce ideas that are more original.

Each manual in this program attempts to capitalize on the fluency principle by including a number of exercises that generate a large number of responses. In opposition to the techniques of convergent production discussed earlier, these exercises have no right answers. Rather, they are designed to encourage the student to produce a large quantity of responses, and, hopefully, practice in this mode of thinking will help free the learner from previously acquired habits which predispose him or her to rely mainly upon recall and convergent thinking.

The basic technique for increasing fluency of expression is called *brainstorming*. The first step in this process is to provide students with a problem that has many possible alternative solutions. Brainstorming can be carried out individually or in group sessions. During the early stages of a brainstorming activity, students should write or verbalize *all* thoughts and ideas that come to mind, no matter how silly, way-out, or wild the ideas may be. The best way to promote free-wheeling and offbeat thinking is to value quantity and withhold criticism and evaluation until students have exhausted their total supply of ideas related to a given problem. This principle, known as the principle of unevaluated practice, is further discussed in the section dealing with evaluation (pp. 10-12).

The following is a list of general questions (adapted from Arnold (1962)) that can be used to spur students' thinking during brainstorming sessions:

Other Uses

Can it be put to other uses as is?
Can it be put to other uses if it is modified?

Adaptation

What else is like it?
What other ideas does it suggest?
What could you copy?
Whom could you imitate?

Modification

What new twist can you make?
Can you change the color, size, shape, motion, sound, form, odor?

Magnification

What could you add?
Can you add more time, strength, height, length, thickness, value?
Can you duplicate or exaggerate it?

Minification

Can you make it smaller, shorter, lighter, lower?
Can you divide it up or omit certain parts?

Substitution

Who else can do it?
What can be used instead?
Can you use other ingredients or materials?
Can you use another source of power, another place, another process?
Can you use another tone of voice?

Rearrangement

Can you interchange parts?
Can you use a different plan, pattern, or sequence?
Can you change the schedule or rearrange cause and effect?

Reversibility

Can you turn it backward or upside down?
Can you reverse roles or do the opposite?

Combination

Can you combine parts or ideas?
Can you blend things together?
Can you combine purposes?

These are only some of the questions that teachers and students can use to stimulate creative thinking during the brainstorming activities included in the program. Once students have learned the basic brainstorming technique, you should encourage students to approach each activity with an idea-finding frame of reference. The section "Introducing the Primary Activities" (pages 12-14) is especially designed to teach the brainstorming process through active involvement in both group and individual brainstorming activities. As a general rule, you should always encourage students to go as far as they can in completing the exercises on the activity

8

sheets and the follow-up activities. Students may need to go beyond the spaces provided or you may need to extend time limits when youngsters are engaged in a highly productive activity. Keep in mind that brainstorming is a skill that grows through practice, and students will develop this skill if they know you place major value on the quantity rather than the quality of their responses.

The Principle of Mild Competition

Although a great deal has been written about the dangers of high-pressure competition in the classroom, research with various curricular materials has shown that *mild* competition is a positive nutrient in motivating students to become involved in learning activities. The use of simulation and learning games to promote learning is based on the finding that gamelike activity is one of the child's preferred ways of learning. Several researchers have investigated the relationship between children's play and creativity. For example, Li (1985) found significant gains in preschool children's creativity after being exposed to play training. Mellou (1995) examined the literature on the relationship between dramatic play and creativity and concluded that most of the research supports a positive relationship between them, noting the alternative symbolic constructions and flexibility common to both. In a research synthesis on creativity processes in children that are predictive of adult creativity, Russ (1996) also concluded that the relationship between children's play and creativity is strong.

We have made an attempt to capitalize on the motivational benefits of gamelike activity by suggesting that certain exercises be carried out under mildly competitive conditions. This approach will introduce an element of excitement into the program and give youngsters an opportunity to pursue classroom activities in their preferred manner of learning.

To avoid the dangers associated with high-pressure competition, you should use caution when employing the mildly competitive mode. You should observe the following general rules whenever you introduce competition into creativity training activities.

1. Group competition should be used rather than individual competition.

2. Grades or other material rewards should never be associated with competitive activities. Students will derive satisfaction from the competitiveness itself and the excitement of winning or trying to win.

3. Teams should continually be rearranged in a way that allows all youngsters an opportunity to be on a winning team.

There are several ways of arranging teams for competitive classroom activities—row against row, boys against girls, or everybody wearing a certain color on one team, to name a few. If some youngsters find it difficult to perform under competitive conditions or if some put undue pressure on others who slow the team down, it may be wise to ask these students to serve as moderators or scorekeepers because "you need their help." A good way to help build up enthusiasm is to get involved in competitive activities on an equal basis with students. When you join a given team, the students will no doubt look to you for leadership, but you should try to be just another member of the team and avoid contributing more than a proportionate share of the responses. You will, of course, have to experiment to determine the best ways for operating in the mildly competitive mode. A good deal of the art of teaching is involved in knowing your students and in using classroom management procedures that are especially applicable to a given group.

A general strategy that you can use in follow-up discussions of the exercises is intergroup competition. Prior to assigning a particular exercise or after an exercise has been completed, divide the class into several small groups which can then compete with each other on the basis of (1) the greatest number of team responses and (2) the most original responses (i.e., responses that other teams did not think of). A team's score would consist of one point for the total number of responses generated by all team members (including duplications) minus a given number of points for each response that appears on another team's list. Slowly increasing the number of points deducted for responses that are common among teams will encourage the students to strive for originality, as well as quantity, of responses. Students might like to keep a score card on the bulletin board to record team progress. Competitive follow-up activity of this type is probably most appropriate for exercises that emphasize the quantity of responses rather than the production of a story or single product.

The Principle of Cooperation

Researchers have found that activities involving team collaboration help youngsters increase their creative productivity. You should allow students to work on some activities in pairs or in small groups,

and students should direct their efforts toward the production of group responses, as well as individual responses. Group activities provide an opportunity for youngsters to learn cooperation and the benefits of bringing several minds to bear on a particular problem. They also provide opportunities for you to develop leadership skills and help less creative youngsters experience success by working cooperatively with more highly creative individuals. Since you can use many of the activities for both individual and group work, it is important for you to review each activity sheet before using it with students. Field tests have shown that the classroom teacher is the best judge of the conditions under which the class works best, and therefore the activities have not been classified as individual or group activities.

The best way to maximize the effectiveness of the *New Directions in Creativity* program is to vary continually the strategies for using the activities in the classroom. You should use competitive and cooperative modes as alternatives to the individual mode and use students as a guide in selecting the approach for a given activity. Part IV of this manual includes activity-by-activity lesson guides and suggestions for alternative ways of using the activities and follow-up activities. You should, of course, employ your own creative teaching strategies and develop new strategies by combining, modifying, and adapting suggested approaches.

Evaluation: The All-lmportant Classroom Atmosphere

The success of any creativity training program depends on the amount of freedom and flexibility that exists in the classroom. The very nature of creativity requires that students be allowed to express their thoughts and ideas in a warm and open atmosphere. Teachers should encourage their students to play with ideas, laugh, and have fun without worrying about being graded and evaluated when they are engaged in creativity training activities. Rogers (1969) emphasized the importance of freedom from the threat of evaluation and asserted that creativity can be fostered by establishing psychological safety through the unconditional acceptance of each individual's worth. When you encourage youngsters to express themselves in an uninhibited manner, it is extremely important that you also provide them with a climate that is free from external evaluation and the critical judgments so often associated with schoolwork. The importance of providing this free climate is supported by the research of Amabile (1996) and Lepper, Greene, and Nisbet

(1973) who found that extrinsic motivation undermines students' creativity, and Amabile identified factors of intrinsic motivation that impact students' performance on creative tasks. Since no right answers are prescribed for this creativity training program, students have the opportunity to work in an open atmosphere without the constant threat of failure hanging over their heads.

The most effective way to open up the classroom atmosphere is to minimize formal evaluation and lead students in the direction of self-evaluation. In the real world, people often judge things in terms of self-satisfaction and the degree to which they, as individuals, like or dislike the things they do or the products they produce. The only way that we can teach students to become self-evaluators is to give them numerous opportunities to judge their own work and to modify their work when they are not satisfied with it. Thus, this program does not include a formal grading system, and the suggestions that follow are designed to help develop strategies for (1) valuing students' original products and (2) teaching youngsters the techniques of self-assessment.

The principle of unevaluated practice simply means that judgment is deferred until the individual has had an opportunity to explore several possible answers or solutions to a given problem. The principle of deferred adjustment, first espoused by Osborn (1963), has consistently been shown to be an essential ingredient for creative thinking. Several researchers, such as Amabile (1985) and Baer (1993), have found evidence to support this claim. The main purpose of unevaluated practice is to free children from the fear of making mistakes.

Creating such an atmosphere in the classroom is far easier said than done, but there are some specific strategies that teachers can use to help promote an environment that is more supportive of creativity. The most important strategy is to be tolerant and respectful of children's ideas, questions, and products. You should show interest, acceptance, and excitement toward student responses and avoid expressions of shock, surprise, annoyance, or disinterest. Above all, never laugh at or make light of a youngster's responses and try to discourage teasing and laughter from other students. Healthy amusement and friendly competition will help promote a supportive atmosphere, but ridicule and scowls will have a negative effect. Each student must come to believe that his or her ideas are as valuable as the ideas of others.

One of the hardest things to control in the classroom is the spontaneous laughter that may arise when a student says something that is somewhat unusual. A good way to overcome this problem is to legitimatize

laughter by showing students that you also have some way-out ideas and that you do not mind if the students laugh when you express them. You will note that in the section "Introducing the Primary Activities" the teacher is asked to demonstrate use of a pogo stick. This activity has been found to be an extremely effective way to legitimatize laughter and show students that you are not afraid to express unusual ideas or actions. Whenever possible, participate in written and oral activities and set the pace by contributing your own unusual responses. Your contributions will help students realize that you are a human being and that you are not afraid to express yourself freely. Remember, you set the limits on student behavior. If you actually participate in creative activities, students will learn that you value creative behavior, and they will quickly begin to display their own creative thoughts.

Another strategy aimed at promoting an environment that encourages students to be creative involves the principle of rewarding desired types of responses. If you show generous praise for quantity and unusualness of responses, students will quickly recognize the types of behavior that you value and they will strive to achieve these types of behaviors.

You can increase creative production by combining the fluency principle with the reward principle and the principle of unevaluated practice. In follow-up discussions to the activities, you should praise individual responses and give generous praise to the sheer quantity of response. Remember that an increase in fluency will almost always result in a corresponding increase in originality. Consequently, you should develop a repertoire of fluency-producing, enthusiastic comments, such as "That's really good. Can you think of a few more?" and "Let's see who can come up with five more possible titles for Bill's picture." Don't be afraid to make up a few new words (for example, "fantabulous," "super-great") to show your enthusiasm. Gently probing youngsters for more and more responses will help them develop a fluency set; and, hopefully, practice in this mode of thinking will carry over to other areas of learning and experience.

You should make every effort to avoid using phrases or expressions that are natural killers of creativity. Examples of such phrases include:

Don't be silly.
Let's be serious.
That's ridiculous.
Quiet down.
The principal won't like it.
Let's be practical.

You should know better.
What's the matter with you?
That's not our problem.
We've tried that before.
That's not part of your assignment.
That's childish.
A good idea but . . .
It won't work.
Don't be so sloppy.

One of the underlying purposes of the *New Directions in Creativity* program is to help youngsters learn how to evaluate their own creative products. One of the great tragedies of traditional school instruction is that students almost always look to the teacher for evaluation and approval. By so doing, they fail to develop a system of internal self-evaluation. And yet, psychological studies have revealed that each person has a need to be his or her own primary evaluator. The nature of creativity is such that the individual produces something that is new, unique, or novel for him or her at a particular time. To break away from social pressure toward ordinary and common production, a person must place his or her own opinions and feelings above those of others. He or she must be satisfied with his or her products and feel that they express a part of his or her feeling, thoughts, and ideas.

One of the primary tasks for teachers using this program is to help youngsters learn how to make judgments about their own work. This task is undoubtedly one of the most difficult of teaching, but there are a few simple guides that you can use to help students evaluate their own work. When students look to you for judgment, you might ask:

What do *you* think about it?
Do you feel good about it?
Would you like to work on it some more?
Why do you like (or dislike) it?
What things (criteria) are important to you?
How would you compare it to the work you did last time?

Encourage students to compare their own products by ranking them and selecting the ones they like best. Students should learn that you respect their judgment and will not overrule that judgment by placing your evaluation above their own. This behavior does not mean that you should not comment and make suggestions, but students should understand that you are stating your opinion and there is no reason to assume that it is more important than theirs. Since there

are no right answers to creativity exercises, and since students will not be graded on their creativity or creative products, the program provides a real opportunity for students to develop self-evaluation techniques. The key word in this process is *trust*. If students think that you will consider their creative activities in their final grades, they will constantly look to you as the ultimate source of judgment.

Peer evaluation can also provide students with a source of feedback. This feedback should always be informal, and it should be related to the type of product involved. For example, in writing a humorous ending for an unfinished story activity, if a student elicits laughter from the class, he or she will know that his or her efforts have been effective. You should encourage students to add their own praise to other children's responses, and their spontaneous reactions should be a regular part of all follow-up discussions.

A final consideration in the creation of a free and open classroom atmosphere is the acceptance of humor and playfulness. When you purposefully ask youngsters to strive for clever and unusual responses, a good deal of healthy noise and whimsical behavior is likely to result. The creative adult has the same uninhibited expressiveness and spontaneity found in happy and secure children. Creativity time should be a fun time, and playfulness, impulsiveness, humor, and spontaneity are all part of having fun.

How to Use the Primary Activities

Although many of the primary activities are most effective when used with groups, they can also serve as independent studies or as supplementary classroom activities. Field tests have shown that the program can be used continuously for a given period of time or on a one- or two-day-a-week basis throughout the school year. The suggested follow-up activities are an important part of the program. Together with the activity sheets, they provide a year-long supply of creativity training exercises. As indicated in Part I, the program is not intended to be an end in itself. Rather, it is designed to assist teachers in learning the nature of creative problem solving and in developing their own creativity activities. The program will yield maximum benefits if you follow a plan that uses a balanced combination of activity sheets and suggested follow-up activities.

Because of variations in the needs of various age and ability groups and because of differences in individual and group preferences, the "Suggested Sequence for *Mark A* Activities" (p. 21) should not be considered a rigid lesson-by-lesson sequence. It is intended to serve as a broad guide, and you should feel free to modify the sequence to serve the individual interests and learning preferences of particular groups.

After students have become familiar with the various types of activities, you should give them opportunities to decide which activities they would like to pursue. Student interests should also guide you in determining which type of follow-up activities to use in future training sessions.

As students progress, you should encourage them to use the skills they have developed in previous activities. For example, you might introduce an unfinished story activity by suggesting the first sentence of a possible ending to the story and asking students to suggest synonyms for specific words that would make the sentence more precise, colorful, and imaginative. When students are working on advertising or promotion activities, you should make them aware of the use of homonyms and rhyming words in slogans and jingles and remind them of the rhyming exercises they completed earlier.

The general plan for sequencing primary activities takes account of (1) a balance between semantic, symbolic, and figural material, (2) a balance between units, classes, relations, systems, transformations, and implications and elaborations, and (3) the level of difficulty and logical relationships between certain activities. Since there are two activity sheets for each type of activity, you can work through the suggested sequence twice. In each set of exercises, comprehensive directions and sample responses (when applicable) are always included on the first activity sheet. Therefore, for any given exercise, you should always use the activity sheet lettered "a" before the activity sheet lettered "b." By the time students get to the second activity sheet, they will have caught on to the nature of the exercise, and you can refresh their memory by referring to the first activity sheet. Occasionally, examples have been included on the second activity sheet to help provoke new ideas.

Each exercise should take approximately one class period, although some of the exercises that involve creative writing may require more time. You may want to assign for homework exercises that cannot be completed in class. However, it is necessary to have group discussions of all material that is completed outside of class as an important part of the creative process involves sharing creative products with others.

You can use the suggested follow-up activities included in the lesson guides any time after the students have completed the first activity sheet for each activity.

Whenever students show a preference for a particular type of activity, capitalize on their enthusiasm by developing similar activities of the type suggested in the follow-up sections of the lesson guides.

Introducing the Primary Activities

The basic strategy for introducing primary activities consists of freeing the classroom atmosphere from the usual constraints often associated with convergent production. Allow approximately one class period for the introductory session. It is extremely important for students to learn to appreciate questions and activities for which there are no right answers. You can introduce this concept by contrasting a convergent type of question with a divergent one. Before distributing the first activity sheet, you might say something like the following (but do not read it verbatim or sound too rehearsed):

Today we are going to begin practicing a new kind of thinking. This kind of thinking will help us learn how to explore many different kinds of solutions to a given problem. Some problems and questions have only one right answer, but there are also many problems and questions that have hundreds of possible answers.

Suppose I asked you, "In what year did Columbus discover America?" (Wait for an answer and write it on the chalkboard.)

Are there any other possible answers to this question? (General conclusion should be negative.)

Now suppose I were to ask you, "What are *all* of the possible ways that you *might* have come to school this morning?" (Call on youngsters and list responses on the chalkboard.)

Students will probably give some fairly common responses ("walk," "bus," "car," "bicycle"). At this point, you might say:

Remember, I said all of the possible ways that you might have come. Use your imagination. Let your mind wander, even if you think the method for coming to school is silly or way-out. How about by donkey or pogo stick? (Add these to the list on the chalkboard.)

This point is extremely crucial to introducing the creativity training program. By suggesting the donkey and the pogo stick, you have accomplished three very important objectives. First, you have conveyed the idea that answers need not be feasible, practical, or realistic. Second, you have let youngsters know that you will accept these kinds of answers. Third and perhaps most important, you have let the youngsters know that you are capable of some way-out ideas. You can be emphasize this point by grabbing a yardstick (conveniently placed nearby beforehand) and improvising with a few hops to demonstrate a pogo stick. Students will no doubt become a little noisy, but it is very important to tolerate this reaction. If you hush them, the whole atmosphere of freedom will be lost, and they will subjectively think that this new kind of thinking is the same old game—the teacher questions and students answer.

After your examples, students may give a wide variety of answers. Let them call out their answers (rather than raising hands) as you write them on the chalkboard. Prompt students if necessary:

Any other animals that you might come to school on? How about an airplane or a rocket? Or being dropped from a plane with a parachute?

A second crucial factor at this point is the generous use of praise on your part. Enthusiastic comments such as "good," "great," and "fantastic" will help youngsters open up. Do not call on students who are not taking part. It takes some youngsters longer than others to trust the teacher and his or her classmates in this type of situation. The main idea is to let students know that you like what is going on and that you are having fun. When the flow of responses begins to slow down, say:

Let's go one step farther. Suppose you could change your size or shape. Can you think of some other ways that you might possibly come to school?

If no one responds, say:

Could you make yourself very tiny and come in your brother's lunch box? Or, could you change to a drop of water and come in through the drinking fountain?

Continue to fill the chalkboard as long as the youngsters are generating responses. When you finally call a halt, say:

I guess there really are many questions and problems that have several possible answers. Do you think this kind of thinking is fun?

From time to time, we are going to be working on some activities like the one we just did. The main purpose of these activities will be to practice answering questions and solving problems that have many possible answers. We will be using our imaginations to come up with some clever new ideas.

At this point, distribute the first activity sheet for "Thinking about Things" and read the directions in the manual to the students. If you have any doubts about youngsters' understanding the directions, ask if there are any questions. Then ask the students to complete the first exercise.

After they have finished, allow some students to discuss their responses. Ask, "How many had that idea?" and after a few students have shared their entire lists, ask if anyone has any responses that have not yet been mentioned. Praise unusual responses from individuals, and praise the entire group for catching on.

Follow the same procedure for the second exercise. It is especially important to be tolerant of unusual responses, increased noise levels, and occasional bursts of laughter. A comment such as "Let's be serious" could destroy the entire atmosphere of freedom to express oneself. If time permits, you may wish to pursue one of the follow-up activities suggested in the lesson guide.

RATIONALE UNDERLYING THE PROGRAM

The Need for Creativity Training Programs

Although interest in the identification and development of creativity has become one of the vital concerns of teachers, curriculum developers, and leaders in education, the actual effectiveness of schools in helping children realize their creative potential can be judged, at very best, as questionable. More than forty years of intensive research into the nature of creativity has yielded enough understanding about this dynamic process to enable educators to begin translating some of the research findings into classroom practice. The sad fact remains that in spite of dozens of books about creativity, hundreds of research studies, and thousands of training programs and workshops, the development of creative potential is still a largely ignored aspect of a child's total repertoire of acquired behaviors. At least three major problems seem to account for the failure to translate existing knowledge and understanding about the creative process into meaningful classroom practice.

The first problem is a lack of agreement among educators about the definition of creativity and its distinctiveness from other cognitive behaviors. A great deal of research devoted to this issue has led to conflicting conceptions of creativity, such that Davis (1999) concluded, "There are about as many definitions, theories, and ideas about creativity as there are people who have set their opinions on paper" (p. 40). Despite different views, however, most theorists agree with at least two generalizations about creativity. First, several research studies have supported the threshold concept of creativity, namely, a low to moderate relationship between creativity and intelligence (Getzels & Jackson, 1962; Simonton, 1988; Walberg & Zeiser, 1997; Wallach & Kogan, 1965). Highly creative individuals have generally been found to be above average in intelligence, but high intelligence does not necessarily insure high creativity. In addition, a number of studies (Jaben (1980), for example) have found that children of *all* ability levels, including students with special needs, are capable of creative thinking. In summarizing

this issue, Davis (1999) said, "It is absolutely true that despite genetic differences in our cognitive and affective gifts, everyone can become a more flexible, imaginative, and productive thinker" (p. ix). Thus, we can conclude that *all* children can benefit from systematic programming in this area.

The second generalization relating to defining creativity is that, rather than being an independent process, creativity consists of multidimensional processes involving interactions between the individual and his or her environment. These processes may differ from one another to such a degree that we must consider verbal creativity, creativity in problem solving, and creativity in the nonverbal arts as essentially different psychological phenomena. In other words, scientific creativity and creative problem solving may require different explanations than creativity in areas such as painting, music, and writing. And because of differences between individuals and their respective environments, what is a routine task for one person may very well be a creative experience for another. Since one of the basic assumptions underlying the development of the *New Directions in Creativity* program is that all people possess the ability to think creatively in varying degrees, the main purpose of the program is to assist youngsters in generating responses that are creative for the individual student at his or her present level of mental functioning. It is of course hoped that such experiences in creative thinking will help students develop a characteristic way of looking at things that will ultimately result in the creation of ideas and products that are truly original and useful for the culture at large. A good deal of research evidence that shows that people who have engaged in systematic creativity training exercises can increase their capacity for creative thinking in a variety of fields (Baer, 1996; Rose & Lin, 1984; Torrance, 1987).

Although this approach to the definition of creativity is relativistic rather than absolute, it is in keeping with Guilford's (1967) conception of divergent thinking (discussed on pages 16-19) and Torrance's

(1965) analytic description of the process which places creativity in the realm of daily living experiences rather than reserving it for the rarely achieved heights of creation:

> I have tried to describe creative thinking as taking place in the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing these guesses and possibly revising and retesting them; and finally in communicating the results. I like this definition because it describes such a natural process. Strong human needs appear to be at the basis of each of its stages. If we sense any incompleteness, something missing or out of place, tension is aroused. We are uncomfortable and want to do something to relieve the tension. As a result, we begin investigating, asking questions, manipulating things, making guesses, and the like. Until the guesses or hypotheses have been tested, modified, and retested, we are still uncomfortable. Then, even when this has been accomplished, the tension is usually unrelieved until we tell somebody what we have discovered. Throughout the process there is an element of responding constructively to existing or new situations, rather than merely adapting to them. (Torrance, 1965)

For the purposes of this program, creativity is defined as follows

> Creativity is the production of an idea or product that is new, original, and satisfying to the creator or to someone else at a particular point in time, even if the idea or product has been previously discovered by someone else or if the idea or product will not be considered new, original, and satisfying at a later time or under different circumstances.

The second problem that has hampered efforts to promote creative thinking in the classroom has been the shortage of validated curriculum materials in this area. This shortage was the basis for one of the research challenges that emerged from the Sixth Utah Creativity Research Conference (Taylor and Williams, 1966), and was reemphasized in a study by Feldhusen, Bahlke, and Treffinger (1969). Among the many suggestions offered by theorists and researchers who have devoted attention to this problem has been a call for instructional materials that give youngsters practice in opening up their minds and using modes of thought

that are not characteristically developed in traditional curricular materials. An overwhelming proportion of existing curricular material places major emphasis on the acquisition of factual information and a kind of thinking that focuses on locating the one right solution to a problem. Although these activities are valuable in the total development of the learner, they often dominate the curriculum and are usually pursued at the expense of other aspects of development. Thus the development of higher level thought processes such as creativity simply does not take place or is an accidental by-product of instruction.

The third major inhibitor to the development of creativity in children has been a lack of understanding about the nature of creativity on the part of many classroom teachers (Williams, 1964; Eberle, 1966; Guilford, 1967). In some cases, this lack of understanding has resulted in the severe inhibition of creative thinking in the classroom and even discrimination against students who display creative behavior.

Although the development of an effective program of teacher training is beyond the scope of this manual, Part II presents a number of practical suggestions for teaching strategies. These suggestions are not intended to serve as a substitute for a course or workshop in creativity, nor will they provide the teacher with the breadth of information that they could gained through intensive reading in this area. Rather, the main purpose is to call attention to the characteristics of creative teachers and to point out a number of widely accepted principles for rewarding creative behavior.

Each manual in the *New Directions in Creativity* program provides a set of experiences that are systematically and purposefully directed toward developing certain creative thinking abilities. The program is not offered as the only approach to this problem, nor is it maintained that the program will develop all of the many dimensions of creativity that seem to exist. Rather, it is one possible approach to creativity training that has been developed within a specified framework. This framework is described in the following section.

The Structure of the Intellect Model

The *New Directions in Creativity* program represents an attempt to translate one aspect of Guilford's Structure of the Intellect Model (1967) of human abilities into classroom practice. This model, developed through factor-analytic methods at the University of Southern California Psychological Laboratory, has been viewed by many educators as a potentially powerful tool for

bringing about needed changes in the curriculum. Although the program focuses on only one dimension of the model, a brief overview of the entire system will provide teachers with the necessary frame of reference for understanding the approach used in this curriculum package.

The Structure of the Intellect Model (see Figure 2) is a three-dimensional classification system that is designed to encompass and organize 120 possible abilities according to (1) the types of mental *operations* employed in the act of thinking, (2) the types of *contents* involved in the thinking process, and (3) the types of *products* that result from the act of thinking.

(1) Operations

The operation dimension of Guilford's model consists of five major types of intellectual activities or processes of mind—the things that the organism does with the raw materials of information. These five categories represent the mental operations that we as human beings can learn to use in processing the information with which we come into contact as we go about living and learning.

Cognition is the mental process involving immediate discovery, awareness, rediscovery, or recognition of information in various forms. *Understanding* and *comprehension* are terms that are commonly used to describe the act of cognition.

Memory is the process that deals with the retention or storage of information. It is accompanied by an ability to bring the information out of storage in response to cues or stimuli that bear some relationship to the stimuli presented when the information was originally stored.

Convergent production is the process of generating information from given information, where the emphasis is on achieving the conventionally accepted outcome. It is quite likely that the given information (cue) fully determines the response. Convergent production involves finding the correct solution to a problem by manipulating given information rather than

Figure 2. Guilford's Structure of the Intellect Model.

merely retrieving information from memory; however, both memory and cognition are involved in convergent production.

Evaluation is the mental operation that refers to reaching decisions or making judgments concerning the criterion satisfaction (correctness, suitability, adequacy, desirability, etc.) of information. This operation implies a sensitivity to error and a judgment of the relative nearness of things to points on a continuum or set of standards.

Divergent production, the operation upon which this creativity training program focuses, involves the generation of information from given information, but here the emphasis is on variety and quantity of output from the same source. This operation is most clearly involved in aptitudes of creative potential and will be discussed in greater detail later in this section.

(2) Contents

The content dimension consists of the following four broad classes of information that are discriminable by the organism:

Figural content consists of information in concrete form, as perceived or recalled in the form of images. The term *figural* implies some degree of organization or structuring. Different sense modalities may be involved, such as seeing, touching, hearing, and smelling. Content information does not represent anything but itself—that which is sensed and discriminated.

Symbolic content involves information in the form of signs that have no significance in and of themselves. Letters, numbers, musical notations, and other code elements are examples of symbolic content. Objects, figures, and shapes are also examples of this type of content.

Semantic content is information in the form of meanings to which words commonly become attached. Semantic material is the major element in verbal thinking and in verbal communication (writing and speaking).

Behavioral content consists of essentially nonverbal information that is involved in human interactions, such as the awareness of attitudes, needs, desires, moods, intentions, perceptions, and thoughts of other persons and of ourselves. The identification of abilities involving this type of content has not been as precisely

defined as those abilities involved in figural, symbolic, and semantic content.

(3) Products

The product dimension of the Structure of the Intellect Model consists of the organization or form that information takes when it is processed by the human mind. The following six products, as defined by Guilford, are the result of interaction between our senses and the world around us:

Units are relatively segregated or circumscribed items of information that have singular character. For example, one chair would constitute a unit.

Classes are recognized sets of items of information grouped together by virtue of their common properties. Thus several chairs would form a class.

Relations are recognized connections between units of information based on variables or points of contact that apply to them. For example, a chair and a desk would constitute a relation.

Systems are organized or structured aggregates of items of information that are grouped together because of the interrelatedness or interaction of their respective parts. Systems are combinations of units, classes, and relations that have some total function. An example of this category is a "school system."

Transformations are changes of various kinds of existing or known information. Transformations involve the redefinition or modification of existing ideas, products, or materials.

Implications and *elaborations* consist of extrapolations of information in the form of expectancies, predictions, known or suspected antecedents, commitments, or consequences. Asking questions, the answers to which should help people see a particular problem more clearly, suggests implications from known information.

The *New Directions in Creativity* program deals primarily with the divergent production operation of the Structure of the Intellect Model. Within this "slab" of the model, eight of the twenty-four factors have not yet been completely identified by Guilford (see Figure 3); thus only a few experimental activities have been developed in these areas. The program does, however, include activities that sample all of the divergent

production factors that involve semantics, as well as some selected activities that use symbolic and figural information. None of the exercises in the program are offered as "pure" exercises in the development of a given factor. For example, Guilford (1967) has stated that "memory storage" underlies all problem solving and creative production, and other researchers (Pollert et al., 1969) have found that memory abilities play an important role in divergent production. Guilford's factor-analytic data also have shown that certain activities are related in varying degrees to more than one factor. Thus abilities from other areas such as cognition and memory are brought to bear on the operation of divergent production; and within the area of divergent production, certain abilities seem to act as contributory factors to the development of other abilities. For this reason, the classification of activities according to the Guilford structure is intended to point out the major focus of the respective activities in the program, but these classifications should not be interpreted to mean that other abilities are not involved in a given exercise.

The main purpose of this brief overview of Guilford's Structure of the Intellect Model is to underscore the relationship between the focus on divergent production presented by the *New Directions in Creativity* program and the overall dimensions of the Guilford model. Teachers who are interested in delving further into the various dimensions of the model should refer to Guilford's major work in this area, *The Nature of Human Intelligence* (1967). Another excellent interpretation of the model is presented in Meeker's book entitled *The Structure of Intellect: Its Interpretation and Uses* (1969).

PRODUCT:
Units
Classes
Relations
Systems
Transformations
Implications

CONTENT:
Figural
Symbolic
Semantic
Behavioral

* Factors not yet identified

Figure 3. Factors in divergent production.

Adapted from *The Nature of Human Intelligence* by J. P. Guilford. Copyright ©1967 by McGraw Hill, Inc., New York. Reprinted by permission of McGraw-Hill Book Company.

PART IV

No printed word nor spoken plea
Can teach young minds what men should be,
Nor all the books on all the shelves
But what the teachers are themselves.
Anonymous

LESSON GUIDES FOR *MARK B*

The activities in this book are presented in the order indicated below. As noted earlier, this sequence is offered only as a suggestion, and you should feel free to alter this sequence to serve the interests and preferences of a particular class. The activity number has been printed in the upper left-hand margin of each activity sheet to help you keep the sheets in order after each use.

A schematic overview of these activities, based on Guilford's classification system, is presented in Figure 4. For a description of this system, see pages 16-19.

As you use these activities in your class, you may find it helpful to keep a record to which you can refer when you use the activities with other classes. For your convenience, a chart for this purpose is provided on the first four duplicating masters at the back of this manual. This chart contains spaces for you to record the date a particular activity sheet was used and to make notes on the class reaction and on how you used the follow-up activities.

Suggested Sequence for *Mark B* Activities

Activity	Type of Activity	Activity	Type of Activity
1 Thinking about Things	Semantic and/or Figural Units	13 You Design It	Figural Elaborations
2 Shape Shuffle	Figural Systems	14 Eye Spy	Semantic Relations
3 What Would Happen If . . .?	Symbolic Relations	15 Trademarks	Symbolic Relations
4 The Hat Shop	Symbolic Elaborations	16 Famous Filmstrips	Figural Systems
5 Picture Writing	Symbolic Units	17 Shape Up	Figural Units
6 Fun with Words	Symbolic Units	18 Tall Tales	Semantic Elaborations
7 The Doodler	Figural Transformations	19 Figure Families	Figural Classes
8 What's Happening?	Semantic Implications	20 Spin a Story	Semantic Elaborations
9 Content Characters		21 I Saw It on the Highway	Figural Elaborations
10 Word Games	Figural Transformations	22 Let's Pretend	Semantic Elaborations
	Semantic Transformation	23 Word Makers	Symbolic Transformations
11 Secret Codes	Symbolic Systems	24 The Advertising Game	Figural Relations
12 That Reminds Me	Figural Classes		

Figure 4. Mark B Activities

	SEMANTIC	SYMBOLIC	FIGURAL
UNITS	Thinking about Things	Picture Writing Fun with Words	Shape Up
CLASSES			That Reminds Me Figure Families
RELATIONS		What Would Happen If? Trademarks	The Advertising Game
SYSTEMS		Secret Codes	Shape Shuffle Famous Filmstrips
TRANSFORMATIONS	Word Games	Word Makers	The Doodler Content Characters
IMPLICATIONS AND ELABORATIONS	What's Happening? Eye Spy Tall Tales Spin a Story Let's Pretend	The Hat Shop	You Design It I Saw It on the Highway

[1] May also be Figural Units

1 Thinking about Things

Type of Activity

Semantic and/or Figural Units

Objectives

To develop ideational fluency.
To develop the ability to group things according to a common attribute.

Teaching Suggestions

Introduce this activity by asking your students whether they have ever noticed that a supermarket has all foods of a certain type grouped in one place. Tell them that they will find all the cookies in one place and all the breakfast cereals in another place. With the help of your students, generate a list of other items that are grouped together in supermarkets. If possible, take your class on a trip to a hardware store or variety shop to reinforce that, for convenience, people group things that have certain characteristics in common.

For additional practice in listing things, ask students to name as many objects as they can think of that are made of metal. Cover the chalkboard with the children's ideas. If they give debatable responses, encourage them to explain why they think their answers are legitimate. This activity will help them develop logical organization.

Distribute activity sheets. Point out that the things the students are now going to think about belong to two groups. The first group includes only objects that could fit in one's pocket (not necessarily all at one time). The other group includes only things that have wheels. Discuss the examples given on the sheets. Direct students to write, or draw, their answers in the space provided.

Follow-up Activities

• Develop additional exercises by specifying different attributes or characteristics to which children can respond. For example, ask students to list things that are soft, or things that are both long and round. Point out that this latter example requires them to think of objects that possess a combination of attributes. You could print the attribute at the top of a piece of chart paper and tack the paper to a bulletin board in the room. You can raise the level of challenge of this activity by increasing the number of common attributes required. For example, you might ask students to list things that

are long *and* round *and* made of metal. Keep the chart up for an entire week and encourage students to put their responses on this chart. An adaptation of this activity would be to let students specify the attributes to be considered. Each week a different child could choose a topic for a new chart. After a few months, assemble the charts into a large book. Make the book available to the class and permit students to look through it during free time.

2 Shape Shuffle

Type of Activity

Figural Systems

Objectives

To develop the ability to integrate parts into a whole.
To develop elaboration skills.

Teaching Suggestions

Before beginning this activity, draw a triangle on the chalkboard. Discuss all the things that could be triangle-shaped and write a list of these things. Do the same with a circle, a rectangle, and a square. Be sure to point out that we see many things every day that are made of these basic shapes. Discuss the practicality of certain shapes (such as the triangle and square) for buildings (i.e., how easily these shapes fit together, shed water, and so on). Discuss how doors that swing open and shut consist of just one shape—a rectangle. Be sure the children understand that many small shapes can work together to form one big object or structure, or they can function separately in many small structures.

Distribute the activity sheets and tell the children to look at activity "a." Read the directions aloud with them and explain that they should arrange the cut-out shapes in the space provided to form the basis for a picture. When they are satisfied with their arrangements, have the children glue their shapes in place and then draw a picture which incorporates the shapes. Tell them that they may add more shapes to the picture if they wish. Encourage students to make pictures that no one else might make and have them title their pictures.

When presenting activity "b," explain that the class will not cut out the shapes this time. Instead, they will draw the shapes. Tell them to draw a picture made of shapes like those on the work sheet. Emphasize that they must make their entire picture out of the shapes illustrated. Tell them that they may make as many copies of these shapes as they like and that the shapes

may be of any size. Point out the example at the top of the page. Ask students to give their pictures titles and suggest that they may wish to color them.

Display the finished work sheets so that the children may see the range of possible combinations of the basic shapes. Discuss different ways students got the shapes to work together to produce various designs.

Follow-up Activities

• Make collages with the class, incorporating basic shapes of paper, cardboard, fabric, and so on into abstract or representative designs.

• Have a shape race with magazines. Give each child a magazine and a pair of scissors and ask the class to wait for the "Go" signal. The first child who finds and cuts out pictures of three (or four) basic shapes is the winner.

• Cut shapes out of cardboard or balsa wood and ask students to see what kind of sculpture, toys, or other creations they can construct from these shapes with the help of glue, tape, or string.

3 What Would Happen If?

Type of Activity

Symbolic Relations

Objectives

To stimulate imaginative thinking.
To develop the concept of relative size.
To establish familiarity with a variety of stories.

Teaching Suggestions

You can use this activity as a means of exercising students' imagination and developing their understanding of relative size. Read a book such as *Is a Blue Whale the Biggest Thing There Is?* (Albert Whitman &Co., 1993) or *What's Smaller Than a Pygmy Shrew?* (Albert Whitman & Co., 1995) by Robert E. Wells to the class. Point out that people use comparisons to indicate the size of objects. For instance, someone might say a cow is large when compared to a dog, but small when compared to an elephant. Similarly, in relation to an ant, a blade of grass is big; but compared to a tree, a blade of grass is small. Have students think of other size comparisons.

Read the sections of *Gulliver's Travels* by Jonathan Swift (Price Stern Sloan Publishers, 1989) that recount Gulliver's experiences in Lilliput or show a portion of the video, *Gulliver's Travels* (directed by Charles Sturridge, 1996). The story will help the students appreciate contrasting sizes and will help them realize the problems inherent in such differences in size. Point out that when Gulliver was in Lilliput, the people could not produce enough food to keep up with his gigantic—as they saw it—appetite. See if the students can remember some of the other problems Gulliver and the Lilliputians experienced.

Distribute the activity sheets and ask the children to look at activity "a." Have them pretend that they are only three inches tall. (Most pencils would be bigger than they are!) Remind them that they could no longer use their present clothes or toy and that they would need to find new things to replace them. Direct students to draw or write all of the things they might now use as substitutes for each item listed on the activity sheet. Draw attention to the example shown (hat substitute). Tell them that this "hat" is the top of a toothpaste tube. Let them generate some other possibilities before proceeding with the activity. If they think of other things they might need that are not listed, have them draw pictures of them on the back of the worksheet.

In activity "b" students will pretend that they are twenty feet tall. Tell them that most buses are now smaller than they are. Remind them that their old clothes and toys are no longer usable and that they must think of things to replace them. Have the children draw or write in the boxes provided what they might use as substitutes for the items on the activity sheet. Have them illustrate any additional ideas on the back of the work sheet. Encourage students to be original in their choices and to think of several responses for each item. Suggest that they label some of the pictures, even if they are only able to approximate the spelling.

After completing the activity, have students read their ideas aloud to the class and display their drawings on a bulletin board. A good deal of humor and possibly some silliness may result from this activity, but it is important to be supportive of students' responses. Classmates' comments will provide immediate peer evaluation of students' work. Creativity will flourish when the children feel that you value some of their highly imaginative and not-too-serious ideas.

Follow-up Activities

• Have the class discuss problems that could result from changes in size. Such problems might involve difficulties in communication, making friends, improvising clothes, acquiring enough food, and

so on. You could read portions of *The Borrowers* by Mary Norton (Harcourt Brace, 1998) and *Stuart Little* by E. B. White (HarperTrophy, 1999) to the class and discuss some of the adaptations the characters had to make in order to survive in their respective environments.

• Read excerpts from *The Guinness Book of World Records 1999* by Mark C. Young (Bantam, 1999). Sections concerning the tallest and shortest persons, the oldest, and so on might spark some interesting discussions or serve as stimuli for art ideas.

• Invite students to come up with creative drama situations in which they act out encounters with very tall or very short people or in which they are an unusual size. This activity could be a springboard for lessons on values and tolerance as students discuss how a person who is different in some way might feel and how others can help that person feel more comfortable and accepted.

4 The Hat Shop

Type of Activity

Symbolic Elaborations

Objectives

To develop the ability to make a common object obtain different meanings by adding new symbols.
To develop imagination.

Teaching Suggestions

This activity emphasizes nonverbal visual clues as a way of deducing a person's role in the community or his or her interests and hobbies. To introduce the activity, have students give examples of community helpers. List their suggestions on the chalkboard. If you have any available, show some pictures of community helpers. Draw attention to the fact that these people often wear certain articles of clothing or uniforms that are associated with their occupations. Ask students whether any of these community helpers wear special hats which let people know what their jobs are. Have students describe these hats and draw them on the chalkboard if they can. Choose one of the hats on the board and ask the children if they can think of how they might change this hat to make it a better indicator of what its owner does. Suggest that, when working on a nurse's cap, they could decorate it with a thermometer,

hypodermic needle, bandages, and so on. Encourage students to be as imaginative and fanciful as possible.

Discuss the many materials that have hat-making possibilities. These items might include various fabrics, plastic, wood, metal, or even edible decorations. Emphasize that a person could elaborate endlessly on a basic hat to suit his or her preference.

Distribute the activity sheets and ask the students to look at activity "a." Tell them that they can often tell what a person likes to do just by looking at that person's hat. Have them draw a hat for each of the people named in the sections of the activity sheet. Tell them to make each hat as strange or different as they can and to make sure the hat reminds them of what its owner does. Encourage students to alter freely the size or shape of any hat that comes to mind. Encourage them also to decorate the hat with outlandish and/or improbable objects and materials.

To introduce activity "b," remind students again that a hat can also show a lot about a person's interests. A hat can also show the kind of job a person has. Ask the children to think of some jobs for which they could draw hats. Have them draw those hats in the spaces on the activity sheet. Encourage them to make the hats as fancy or funny as they wish and suggest that they draw on the back of the page if they need more space. If students have trouble thinking of occupations for activity "b," remind them of the people they see on the way to school and in the school building.

After completing the activity sheets, invite students to show their drawings to the class. Ask the class to guess which occupation these hats are for. Invite students to display their drawings in the room.

Follow-up Activities

• This activity might lead to a study of occupations and community helpers. It could also prompt discussions about the purpose of different types of clothing. The class could also discuss differences in personal taste and choice. If students want to find out more about certain occupations, you might invite different guests in to describe their jobs. You could also provide books describing various occupations.

• Invite students to create their own hats. Ask them to bring in objects to use as decorations and/or old hats to decorate. Direct them to first design hats on paper and then make them with actual materials. The children could make beanies from several triangles of felt or old fabric (you could provide

the pattern for the beanie on a stencil) or they could make them from paper plates and ribbon or string ties. Have the class play a guessing game in which one student dons his or her hat and the others guess the occupation or interests expressed by the clues on the hat.

• Younger students might enjoy making paper dolls which are either original or cut from magazine illustrations. They could dress these dolls for various occupations, providing them with original hats.

5 Picture Writing

Type of Activity

Symbolic Units

Objectives

To develop the ability to assign meanings to abstract symbols.
To construct a system of symbols that creates units of thought.

Teaching Suggestions

Write the word *rain* on the chalkboard and put a drawing of raindrops under the word. Explain the concept of having a picture represent a word or part of a word. Show examples of Native American picture writing, such as stick figure men or ripple lines for water, and explain how different Indian tribes could use picture writing as a means of communication. Point out how picture writing on tepees depicted whole stories of warriors' exploits. If you are familiar with the game *Concentration*, use it to build comprehension of picture writing. Be sure to emphasize that the picture must remind the viewer of the word it represents. Then introduce the exercise sheet.

For activity "a," have students pretend they are among strangers who do not speak their language. Tell them that they must communicate using only pictures. Have them make pictures for the words listed on the activity sheet. Then ask them to form a message on the bottom portion of the page using only the pictures they drew.

When giving directions for activity "b," instruct students to pretend they are in a strange country where the people speak a foreign language. They must "talk" to the people by using picture writing. Have them make pictures for the words given and then have them try to use most of the word-pictures to compose a story at the bottom of the page. Suggest that they use the back of the page if they need more space.

After completing the activity sheets, the children might go to the library to look up information about the Egyptians and their use of hieroglyphics, or about Native Americans and their picture writing. Have the children draw examples for class discussion. Display this work on a bulletin board.

Follow-up Activities

• The class could work together to develop a code for telling stories they wrote in a creative writing exercise. Then they could make up stories in picture form and have the class try to "read" them. This code could also be used for art projects and crafts. The children could use symbolic designs for cards to give to their parents on different holidays.

• Have students do Indian picture designs for art projects relating to a unit of study on Indians. You could make a tepee for a reading corner by hanging an old sheet over a frame and have the class decorate it with picture writing.

• Invite interested students to compile a book or folder of examples of picture writing done by the class. Have them incorporate stories, if feasible, and display the book at an activity table or learning center. Choose a recent class experience such as a play, field trip, or guest speaker. Direct the children to tell their stories in picture writing on an experience chart or have them draw their own interpretations of the event.

6 Fun with Words

Type of Activity

Symbolic Units

Objectives

To develop verbal fluency by producing words that conform to specification.
To experience brainstorming.

Teaching Suggestions

Introduce this activity by writing the word *lip* on the chalkboard. Ask students how the letters in this word differ from one another. Emphasize the differences in

size by drawing a box around each letter. You should now have on the board:
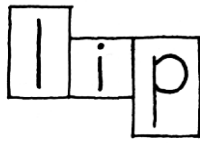
Next, erase the letters so that only the boxes remain. Ask students if there are any other lowercase letters that would fit in the first box. Answers should include b, d, f, h, k, and t. Repeat this process for the second and third boxes. Note that it is possible to represent every lowercase letter in the alphabet by these three shapes. If a set of alphabet letters is available, you can reinforce this concept by drawing a box around each letter. As an alternative, write the lowercase alphabet on chart paper and call on students to draw boxes around the letters. (Keep this set of letters in front of the class for reference when students work on the activity sheets.)

Now return to the empty-box configuration on the chalkboard. Ask if someone can think of a word other than lip that fits this configuration. Answers could include fig, hug, tug, hip, and lap. If your students need additional practice before beginning the activity sheets, draw this pattern on the board:
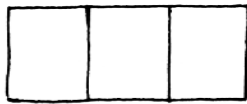
Brainstorm a list of words that would match this configuration.

Distribute the activity sheets and discuss the directions on the top of each page. If the class is now using cursive writing, emphasize that in this activity they will use printed letters such as those found in reading materials. Suggest that the children use the back of the sheet if they need more space.

When the students have finished working on the activity sheets, give them an opportunity to share their responses with the rest of the class. Find out who thought of the most words and who came up with words that no one else listed.

Follow-up Activities

• You could develop additional exercises by drawing different word patterns and present them under mildly competitive conditions. Have the students work in pairs or as teams. Record their scores on a scoreboard, giving one point for each word on their lists and a one-point bonus for any word no one else thought of. Set time limits according to the difficulty of the word patterns.

• Invite the class to play a game of charades with this activity. Divide the class into two teams. Have one member from the first team place the configuration of an action word on the board and then perform the action. Have the opposing team try to guess what the word is and fill in the configuration on the board. For younger children, you might use the names of class members instead of action words. For example, a girl might draw the following pattern and then clap her hands:
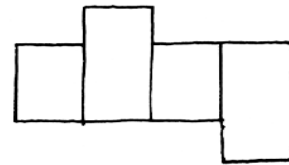
After the action clue, someone from the opposing team must come to the board and fill in the correct letters:
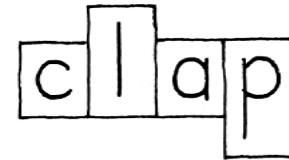
Have the teams take turns drawing the patterns and giving the clues. Give one point for each correct answer.

• Students could also make up configurations of the names of nursery rhyme characters. For example, you could hold up a sheet that shows this configuration:

It spells "Old Mother Hubbard." Have the students try to guess who the character is. If no one guesses correctly, fill in the first letter of each word as a hint. Keep adding letters until someone guesses the correct answer. The class divided into two or pairs of students could play this game.

7 The Doodler

Type of Activity

Figural Transformations

Objectives

To increase elaboration skills.
To increase the ability to integrate parts into a whole.

Teaching Suggestions

Following is an example of a droodle. (A droodle is a doodle that is also a riddle.)

Place the droodle on the chalkboard and ask, "What could this be?" List the responses. Say that all the responses are good and that the droodle could be any of them; however, *your* idea was that it was the neck of a very tall giraffe. Now draw several droodles on the chalkboard and say that each droodle represents only *part* of a picture. Ask individual students to come to the board and draw additions on the droodles that will change them. Have the children label their chalkboard droodles. Then talk to the class about *doodles*, which are aimless drawings. Put four doodles on the chalkboard and present them in a manner similar to your presentation of the droodles.

Distribute the activity sheets. Call attention to activity "a" and tell the children to make the doodle a part of a picture. Encourage them to elaborate on their drawing, suggesting that they put in as many details as possible. Have them give their picture a name. Some students may wish to discuss their pictures with the class, explaining what the doodle made them think of and how they incorporated the doodle into the final picture.

Activity "b" presents several doodles. Direct students to make each of the doodles a part of a separate picture. Again, encourage elaboration and have students give their pictures titles. Display the activity sheets of volunteers. You may also wish to design a bulletin board with a large central doodle and arrange student worksheets around that figure.

Follow-up Activities

• Have students close their eyes and then start doodling. Have them doodle to music and encourage them to have a good time with the bizarre results. Hold a doodling contest and select the strangest doodles as the winners. Have the class play a doodling game in which each person draws for five minutes (or less) until the sound of a bell (or a clap of your hands). All doodlers must immediately pass their drawings on to the person behind or at one side, and that person must then continue drawing on the same sheet to elaborate on the picture. For interesting results, have the class pass the drawings four or five times. Be sure to display the doodles.

• Make string paintings. Give each child a piece of manila or white paper and a twelve-inch string. Place metal pie plates containing mixed powder paints or poster paints on a table at the front of the room. Ask the children to come forward one at a time and dip their strings into the color they prefer. Tell them to place the wet string on one-half of the paper in an interesting pattern and then fold the other half of the paper over the string pattern. Tell them to press down and then open the paper and throw away the string. Point out that this process makes two identical doodles. Have the children complete the pictures with crayons on returning to their seats.

• Glue loose string, yarn, or elbow macaroni to a sheet of paper arranged as part of a picture. Ask students to complete the picture.

8 What's Happening?

Type of Activity

Semantic Implications

Objectives

To experience brainstorming.
To develop the ability to elaborate on given information.
To develop originality and imagination.

Teaching Suggestions

To introduce this activity, paste a stimulating picture on the top of a piece of chart paper and allow students to study it for a short while. Then write three questions on the chart: (1) What is happening right

now? (2) What do you think might have happened right before this scene? (3) What might happen next? Be sure to leave enough writing space after each question for a number of responses. Encourage students to be as colorful and imaginative as possible in their responses. Remind them that there are no right or wrong answers and that anything is possible.

Try to get as many answers to each question as possible, as the responses will probably get more creative as time goes on. Hand out the activity sheets as soon as you feel the students are ready to work alone and are able to produce a variety of responses to these questions.

Follow-up Activities

- As a natural follow-up to this activity have students select their favorite answer to each question. Then have them write a story which integrates the three ideas. You might ask students to select answers on which they could base a story with a surprise, happy, unhappy, or funny ending. For younger students, it might be helpful to introduce this follow-up activity by having the class as a whole write a story based on the responses recorded on your original chart.

- Frames cut from cartoon strips would be effective means for starting progressive stories. Attach a sheet of paper to the bottom of each picture. Then ask a student to begin a story by writing one sentence. Have the student pass the story to another student, who then must add a sentence. Pass the paper around the room until all students have added their ideas. Keep two or three stories going simultaneously and share the composite stories with the whole class.

- Organize an area in the back of the room where you can keep a file of pictures for students to use in spare-time story writing. Encourage students to add their own drawings or pictures from magazines to the collection.

9 Content Characters

Type of Activity

Figural Transformations

Objectives

To develop nonverbal originality.
To develop the ability to elaborate upon figural designs based on given information.

Teaching Suggestions

Introduce this activity by drawing the shape of a book on the board. Ask students to explain how you might show that the book is about astronauts. Discuss how a title and cover design can help. Draw a figure similar to the one shown below using the book you already have on the board. Ask students to describe what you have done and explain how it makes them feel about reading this book.
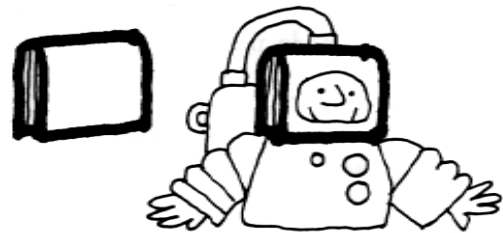
Distribute the activity sheets. Have the children look at the examples given. Discuss how effective the illustrations are in revealing the content of each book. Then have the students draw their own illustrations, incorporating the shape of each book shown on the activity sheets. Remind them that each drawing should reveal the content of the book. After students have completed each exercise, ask them to share their responses. Invite students to comment on the drawings they feel are particularly imaginative.

Follow-up Activities

- When preparing follow-up activities, provide titles of books rather than their subject matter.

- Take your class to the school or community library and have students select a book for which they would like to design a content character. You might also encourage them to draw content characters for library books they have already read and found particularly enjoyable. They could then cut out these characters and staple them to a bulletin

board with the name of the book written below. This display would be especially helpful to those students who have difficulty choosing books from the library.

- For variation, use drawings of film reels, rather than books, for students to elaborate upon. If you have on hand any of the titles in the Mini House Books™ series (such as *Space Station* by Peter Lippman, which is in the shape of space station) show them to the class.

10 Word Game

Type of Activity

Semantic Transformations

Objectives

To develop semantic flexibility.
To develop word fluency.

Teaching Suggestions

Before beginning this activity, remind students that words are made up of letters that are sequenced in a particular way. The very same letters can spell different words depending on the order in which the letters occur. For example, *c-a-t* can become *a-c-t*, and *r-a-t* can become *a-r-t* or *t-a-r* when a person rearranges the letters. Ask students if they can make any other words from *r-a-t* without using all three letters. They should find two—*a* and *at*. Point out that they were able to make five words in all from the letters of a small word like *rat*. Ask the class what they think would happen if they worked with a long word. Emphasize that the more letters a word contains, the more words they can make from it. Write the word *teacher* on the board. Tell the students that you would like to make some small words by using only the letters in this word. Cover the board with their responses.

There is a trick for generating a large list of words that you should share with your class. Recommend that, after they have created a word, they should ask themselves whether they could make any rhyming words by substituting another letter from the original word for the first letter in the word they created. Another approach would be to substitute different letters for the final letter of a word.

Each activity sheet presents a word with a large variety of letters, making many combinations possible. Since the students will be cutting out the letters of the

words, they should be able to rearrange the letters easily in many ways and view the results as they work.

As students are writing their lists, print the word the children are working on in large letters across the top edge of a piece of construction paper. Mount this poster on the chalkboard. When everyone has completed the work, ask someone to volunteer to read his or her list of words. As you write these words on the poster, have the other students make a check next to each word on their papers that duplicates the one being called out. When the first child has finished reading, ask another child to read the words on his or her list that were not already mentioned. Continue this process until you have listed all the words the children have created.

An alternate approach would be to have students take turns reading one word from their lists and writing it on a master list. Continue around the room, more than once if appropriate, until the children have given all the words. Post the master list on the bulletin board. Suggest that, during free periods, they might enjoy trying to create additional words for this list.

Follow-up Activities

- You might introduce simple word boxes if children enjoy this way of working with words. Begin with boxes that intersect at only one point:

Increase the difficulty of these figures as children become proficient with the easy ones. You could also raise the level of challenge by filling in one or two words before handing out the activity. You might try the following example:
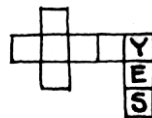
- You might also bring the board game *Scrabble® Crossword Game for Juniors* to class. This game is an excellent means of providing practice in making words from groups of random letters. Introduce the game to a small group of children. Have these students teach others how to play during free time.

- Use the master list of words from each activity as the basis for a mathematics lesson on graphing. Discuss with the class what a bar graph is and show

them an example of one. Then make a bar graph to show how many words on the chart contain two, three, four, five, and six letters. Results will probably indicate that most of the words are three or four letters long, with a few reaching a length of six letters. You might suggest that the children graph their own list of words.

- This activity is particularly well suited to independent work. Students could select their own words to work with or come to you for ideas. Students could graph their results and compare them to their earlier graphs to see if there are any changes in the number or length of words they come up with. The list of words students generate can also be posted so that others may see them and add to them.

11 Secret Codes

Type of Activity

Symbolic Systems

Objective

To develop the ability to manipulate symbolic information to convey a meaningful message.

Teaching Suggestions

Children will most likely associate codes with spies and espionage. Discuss the function of codes in this context, but also point out that codes are also used in everyday situations. The symbols on a road map or along highways are a type of code. The Morse Code used by ships at sea to send messages by radio and the hand signal system used by deaf people are other examples of codes.

To introduce activity "a," draw the following diagram on the chalkboard:

A	B	C	D	E	F
/	//	≤	n	·	:⋮

Point out that one way to create a code is to assign a different number to each letter of the alphabet and use the numbers, rather than letters, to spell words. Write *18-2-7* on the chalkboard. Ask students to figure out what word this code spells. Call on a student to come

to the board, write the appropriate letter under each number, and read the word aloud. Repeat this process for a number of other words. Then have students write some words in code on the chalkboard. Remind them to put a dash between the numbers in each of the code words. Have these students choose a classmate to read the coded words. Hand out the activity sheet and review the directions with the class.

Introduce Activity B by drawing the following diagram on the chalkboard:

A	B	C	D	E	F
2	7	18	5	40	1

Point out that this code uses symbols or designs to represent different letters. Develop a list of words written in this code. Hand out the activity sheet and review the directions with the class. When the students have completed this activity, have them cut out the box that contains their coded message. Then ask them to exchange messages.

Students will probably have great difficulty decoding the messages without the key. Therefore, this experience will help them understand how it can take months for a team of experts to break a new code. Now have students exchange their keys with their partners and ask them to decode the messages. Offer help when needed. Direct students to write a second message using the same code as before and then exchange it with the same partner. Decoding should be much easier this time since they will have prior experience with the codes.

Follow-up Activities

- Introduce your students to a code book and have them make their own code books. For these books, have the children write down whole words and then assign numbers to these words. Certain basic words—such as *the*, *in*, *is*, *to*, and *I*—will need to be included on everyone's list. These code books should also include students' reading and spelling words. Have them work in small groups once or twice a week to develop their code books. The youngsters within each group will have identical books and will be able to send messages to one another. You might like to add to the fun by writing messages to the groups in their own code. Make a bulletin board available for hanging messages.

- Some students might wish to learn Morse Code. They might also construct a telegraph apparatus for sending messages. Various science books have instructions for assembling this apparatus. Other students could make semaphore flags and use them to send messages to one another.

12 That Reminds Me

Type of Activity

Figural Classes

Objectives

To develop skill in word and figure associations.
To develop verbal and figural fluency and flexibility.

Teaching Suggestions

Ask students what a street makes them think of. List their responses on the chalkboard. Point out that there is no one correct answer. Then try another association practice with a book as the stimulus object. Encourage the children to branch out to associations that are unusual and to strive for originality in their responses. Expect that each person's associations will probably be very individual. Mention that a book might mean something serious to one person and something funny to another. Tell the class that the only requirement is that they let their minds jump freely from one thing to the next. Remind them that there are no wrong answers.

Distribute the activity sheets. For activity "a," have the students draw or write all of the items and ideas that the illustrations bring to mind. Encourage them to think of as many things as possible, and emphasize that each item and idea must be associated with the stimulus item. For activity "b," ask the students to draw or write what the pictures remind them of. Tell them to try to come up with things that no one else would think of. Suggest that for both these activities, they may use the back of the page if they need more space.

You may want to conduct this activity under mildly competitive conditions—with the class divided into teams and with varying time limits. Give one point for each response and an additional point for any response that does not appear on other students' papers. Give children the opportunity to show their responses to the class and explain the associations. If a response is debatable, encourage the student to tell why he or she thinks the response is legitimate.

This exercise will help students develop logical association and will give you the opportunity to branch off into discussions of the various emotional or value-centered responses they may have made to various stimuli. Single out the most unusual responses. Allow the children to use crayons or colored pencils to complete their drawings and ask them to display their papers in the room.

Follow-up Activities

- You could conduct this activity in reverse by giving the students magazines and directing them to look for pictures that remind them of a certain theme, such as "spring" or "home." They could cut out pictures and paste them onto individual collages or large class collages. You could set up a bulletin board display which centers around a certain theme, such as "shoes" or "money," and encourage students to draw or bring in pictures which depict the stimulus item or thought.

- To help develop language skills and the use of figurative language, have the children make up poetry from their association ideas. Tell them that rhyming is not necessary. The poems can be of any length and of a simple, free-flowing format such as the following poem by Barbara Gay Ford.

  THAT REMINDS ME

  A postage stamp reminds me of our mailman;
  He whistles down the street,
  And smiles more and more
  As his bundle of mail
  Gets lighter and smaller.

  Composing this type of poem comes very naturally for most children.

- You could also turn this activity into a learning station. Give the children the stimulus (a picture or word) and instruct them to record their associations on audiotape, write, or draw their associations.

13 You Design It

Type of Activity

Figural Elaborations

Objectives

To develop the ability to produce original designs based on given information.
To develop the ability to relate verbal and nonverbal information.
To develop nonverbal elaboration.

Teaching Suggestions

On the day of this lesson, you might wear a button printed with a slogan. If you do not have one available, you can make one by cutting out a circle from a piece of cardboard and taping a safety pin to the back. You might draw a simple smiley face on the front, or perhaps make something like the one shown here. Ask the children what

you are trying to do. Ask them how the button would conveys a message. Discuss buttons that the children have seen and where they have seen them.

Before beginning Activity A, ask students to brainstorm with you a list of things that pollute the environment. Include items such as litter, trash, fumes from factories and cars, noise, and waste of all kinds. Have students talk about how these pollutants endanger the environment. Discuss the problems of overpopulation, extinction of species, and the destruction of land plants and sea life. Lastly, consider what people can do to help alleviate these problems. Point out that some people design buttons that make others aware of the dangers of pollution.

Distribute the activity sheets. Discuss the example given in activity "a," calling attention to the drawing and the slogan. Then direct students to make their own design and write a slogan in the blank button provided on the page.

For activity "b," write *Do Your Own Thing* on the board. Ask students what this particular slogan means. Establish the idea that all people have their own interests, likes, dislikes, hobbies, eccentricities, and values. Then write on the board: *Tell It Like It Is* and *Care about a Friend Today*. Discuss why these slogans reflect personal thoughts and interests. Encourage the children to share their ideas for slogans. Then have them begin work on the activity sheet.

After completing the exercise, have students meet in groups to devise plans for a bulletin board display of their antipollution ecology buttons. Have them discuss their recommendations and agree upon a favorite display idea. Appoint volunteers to arrange the display.

Students might also like to make buttons (which they could wear) from the second activity sheet. Provide scissors, cardboard, paste (or glue), and safety pins. Invite them to cut out the buttons and trace around them onto the cardboard. They should then cut out the cardboard circles and glue them to the backs of the buttons. Have them tape the safety pins to the backs of the completed buttons and then fasten the buttons onto their clothing.

Follow-up Activities

- You could present any number of situations for which the students might design buttons. For example, you could suggest that they design buttons for the campaign of a political candidate. Or, if during the year your school will hold an open school week, or fair, you could ask students to design buttons that call attention to these events.

- You can have original buttons for your class manufactured. The internet and yellow pages are two good sources for finding companies who specialize in making buttons.

14 Eye Spy

Type of Activity

Semantic Elaborations

Objectives

To develop fanciful thinking.
To develop the ability to translate ideas into figural units.

Teaching Suggestions

To introduce activity "a," ask students to imagine that they are able to see into the past. Brainstorm a list of historic places or significant events they would most like to view firsthand. Choices might range from

33

seeing dinosaurs during prehistoric times to watching Neil Armstrong take his first step on the surface of the moon. Ask the children to try to think about things that have not yet happened. Help them understand the meaning of *future*. Ask them to speculate about next Sunday's weather as a future event. Have them name other anticipated events (holidays and vacations, for example).

Distribute the activity sheets. Point out that for activity "a," everyone will try to imagine places and events that might be found if they could see into the future. If possible, have a pair of binoculars in class and permit students to look through them. Discuss what the binoculars do and ask students why the picture on the sheet is drawn inside a double circle. Note that the drawing represents just one person's thoughts on what the future might be like. Point out that just about anything is possible, since no one knows what actually will be. Encourage students to be imaginative in their responses. Bring out that the dates given are the 4th of July and Thanksgiving.

For activity "b," brainstorm a list of questions about space and space travel. The topic of UFOs (unidentified flying objects) should raise a number of questions. Do UFOs really exist? What might they look like? What might be inside them? Whether life exists on other planets and whether the United States will establish communities on the moon in the near future could be other interesting questions. Activity B also provides an opportunity for students to supply imaginative answers to questions about life in the oceans, treasure hunting in ancient sunken vessels, undersea housing for crowded nations, and undersea travel and transportation in nuclear-powered submarines.

When you hand out the activity sheets, point out that students are to draw in the double circles what they saw and then write about what they saw on the lines provided.

Follow-up Activities

- Invite students to retell the events of well-known stories. Introduce this idea by telling students that very often, as time passes, stories change and become more fiction than fact. Their eye-spy binoculars will enable them to take a new look at historic events as they actually might have happened. Ask them to retell famous stories such as the one about George Washington cutting down the cherry tree. Encourage them to be fanciful and humorous in their writing.

- Students could also work in small groups to create a script for a radio show called *Here You Are*. Each group could choose an event, time period, or place from which to report what they see. They could create dialogue by holding interviews with people on the scene. Use tape recorders for rehearsals and for recording the final production. If the children show an interest and appear to be having fun, allow them to dramatize their written scripts. Encourage them to incorporate such items as make-up, costumes, and musical background.

- Younger students might enjoy combining their responses to one of the activities into an eye-spy box. They will need a shoe box, scissors, paper, and paste (or glue). Cut a slot across the top and bottom sides of the shoe box. Cut a one-inch square eye hole in one of the narrow sides and a larger square in the opposite end to allow light to come through. Have the children cut out and then glue all the responses onto a long, narrow strip of paper. Help them put one end of this strip through the slot on the top of the box. Have someone pull the strip down through the bottom slot. Then have the students look through the eye hole, moving the strip to see all the responses. Keep this box to use with Activity 16.

15 Trademarks

Type of Activity

Symbolic Relations

Objectives

To develop the ability to show symbolism in figural information that is based on given requirements.
To develop the ability to produce relations between verbal information and figures.

Teaching Suggestions

Brainstorm a list of store and company names, encouraging your students to think in many categories: supermarkets, department stores, specialty shops, gas stations, airlines, and so on. Point out that each of these companies must advertise its name in order to attract customers. Mention that very often an owner will hire an artist to design a trademark to use in advertisements, on company products, and on signs outside the company's buildings.

Ask children to speculate on why a picture or symbol commonly appears with the company name. Discuss how symbols help make clear what the company's product is and make the name easier to remember. Also, see if your students can explain why companies rarely change their trademark once they have adopted one. Ask any student who knows the trademark of one of the companies listed to draw a picture of it beside the company name on the board. You may want to do the first drawing to get students started.

Have an empty bulletin board titled "Trademarks." Give the children scissors and a pile of old magazines and ask them to see how many trademarks they can cut out and bring to the bulletin board in about ten minutes. Pin the trademarks to the board as they are cut out. Afterward, put away the magazines and scissors and examine and discuss the various trademarks on the board.

Finally, distribute the activity sheets and ask the students to look at the illustrations on them. Discuss the effectiveness of each trademark shown. Focus attention on how the pictures show what each company's product is. Move about the room offering encouragement as the children work on their designs.

After students have completed the activity sheets, invite them to share their responses. Allow them to judge which of the trademarks they like best and explain why they like them.

Follow-up Activities

- Mount students' trademark clippings on paper and encourage them to evaluate and critique the trademarks. Then have them design alternative trademarks for some of these companies.

- Run a trademark contest. Ask the class to help you make a list of all the places they might look to find trademarks (in stores, magazines, billboards, on television, and so on). Have each student (or pairs of students) make a booklet of trademarks. The cover design of the book might be the child's name in trademark form. The object of this contest is to seek out and record as many different trademarks as possible. The person who finds the greatest number of trademarks will be the winner. Set a deadline for submitting the booklets and have the class vote on the best three for display at the learning center or station.

16 Famous Filmstrips

Type of Activity

Figural Systems

Objectives

To develop the ability to break down a whole into its parts.
To develop sequencing ability.
To develop elaboration skills.

Teaching Suggestions

To introduce this lesson, show a filmstrip to the class and point out how the pictures are sequenced to illustrate a story. Then take the filmstrip out of the projector and hold it up before the class, showing its size and visual pattern. Discuss the basic parts of a story: the beginning (introduction), the middle (body), and the end (conclusion). Point out that there are separate pictures on the filmstrip for these different parts of the story. Next, show the class some sequenced story cards, first in the correct order and then mixed up. Have a student come up and put the cards back in order. Then hold up different cards to see if the class can tell whether the picture is from the beginning, the middle, or the end of the story.

Direct students to write a simple four- or five-line class story in filmstrip form. First write the story on chart paper or on the chalkboard. Next paste four or five sheets of white paper together, end to end, numbered sequentially as the boxes are numbered on the activity sheets. You might even punch holes with a paper punch to make this strip of paper look like a giant filmstrip. Now retell the class story by illustrating it sequentially on the giant filmstrip.

Distribute and introduce the activity sheets. For activity "a," ask students to make up a fairy tale. Invite them draw the pictures for this story in the filmstrip boxes shown on the activity sheet. Tell them that they may make more boxes if they like, or they may use fewer than the number given. Encourage them to elaborate on their stories and to show as much action as possible. Remind them that their pictures should show the beginning, the middle, and the end of the story in sequence.

For activity "b," instruct the students to make up two adventure stories. Tell them to draw pictures for the stories in the filmstrip boxes, one strip per story. Remind them that each strip may be lengthened and even continued on the back of the page if they need more room.

After students have completed the work sheets, display them on a bulletin board under headings of "Most Elaborate," "Well-Sequenced," and "Exciting." The children could cut up their filmstrips and mix up the parts and then challenge their friends to put the parts in the proper order. Suggest that students make enlargements of their favorite filmstrips on butcher paper for room decorations.

Follow-up Activities

• Students could cut out the filmstrips on the activity sheets and use them to make "movies" for a shoe box viewer. (See the follow-up activities for Eye Spy (page 34) for instructions on making a shoe box viewer.) They could also use longer paper strips or adding machine paper rolls for lengthier presentations.

• You may wish to have the class collaborate on the plot of a filmstrip, or just to pick a few of the best ideas from the activity sheets, and make videos for the class to enjoy. This activity might lead to many major audiovisual projects or might spin off into picture taking and the study of simple photography.

Resources

KidVid: Fun-damentals of Video Instruction (Revised Edition) by Kaye Black. 2000. Published by Zephyr Press: Tucson, AZ.

The Young Producer's Video Book: How to Write, Direct, and Shoot Your Own Video by Donna Guthrie and Nancy Bentley. 1995. Published by The Millbrook Press: Brookfield, CT.

17 Shape Up

Type of Activity

Figural Units

Objectives

To develop nonverbal flexibility and originality.
To develop the ability to construct a variety of meaningless figures based on the manipulation of given elements.

Teaching Suggestions

This activity will give students an opportunity to be creative and inventive with figures. Distribute the activity sheets and provide students with scissors. Ask them to cut along the dotted line at the bottom of the page for activity "a." Have them cut out the four pattern pieces. Ask the students to try to arrange their pieces to fit the pattern shown in the first box. Walk around the room and offer suggestions if needed. There are numerous other ways that the children could arrange the pieces. Encourage students to try as many combinations as they can think of. Instruct them to trace around each new pattern they make. If a created pattern is larger than the boxes provided, have the children trace it on the back of the page. Remind them to use all four pieces for each pattern. Follow a similar procedure for activity "b."

After students have completed the activity sheets, have them exchange papers and continue working out as many patterns as they can after studying their neighbor's work. Provide time for students to consult with one another on designs that are difficult to duplicate. Have the children return the papers to their owners. Call attention to any designs that only one person created.

Follow-up Activities

• Students might use their designs for an art activity. The shapes they have drawn might suggest an imaginary creature, or perhaps an everyday object. Call upon several students who readily see a possibility for one of their patterns to share their ideas. Provide crayons or felt-tip pens and encourage students to be inventive in transforming their shapes into pictures.

• The children might also make bulletin board displays by cutting out shapes in various colors and pasting them on sheets of paper to form geometric collages. They might make other interesting collages using items as yarn, flannel, pictures cut from magazines, and any other material available in the classroom.

• Students could also produce three-dimensional objects by cutting blocks of Styrofoam or soft modeling clay into four distinct three-dimensional shapes. They could rearrange these shapes into many different combinations. When they find an arrangement that is particularly pleasing, have them fasten it together with glue or toothpicks.

18 Tall Tales

Type of Activity

Semantic Elaborations

Objectives

To develop imaginative and creative writing skills.
To understand how to connect an initial event to a specific conclusion.
To develop ideational fluency.

Teaching Suggestions

The tall tale has been significant in American literature as a vehicle for elaborating on a theme and for exercising the imagination. Read a tale about Paul Bunyan to the class and discuss the use of exaggeration, pointing out specific examples in the story. You may wish to list examples of exaggeration from this tall tale on the chalkboard. Explain to the class that the story is called a tall tale because everyone and everything of any importance in the plot is made to appear greater, smarter, or larger than usual or extreme in some other way. Tell them that the plot of a tall tale need not be true or even possible, but that it should involve unlimited leaps of the imagination.

After reading the directions on the sheets with the class, remind the children that their stories will be tall tales and that they must use their imaginations, exaggerate their descriptions, and make up unreal circumstances. Suggest that they might tell how they got into the situation they are writing about, what they did about it, and what the consequences of their actions were. Encourage them to let their imaginations run wild.

After the students have completed the activities, encourage them to read (or tell) their tales aloud in class. The children may wish to keep track of all the exaggerations they hear. Or they may wish to compare different variations on a major theme. If time permits, have the class write additional tall tales.

Follow-up Activities

• Invite the children to draw pictures of characters from their stories and then decorate a bulletin board with their illustrated stories.

• Have students work in pairs or groups to write a tale and then act it out for another class.

• Invite students to play a start-and-stop elaboration game around a circle. The first child begins a story aloud and stops at a crucial point; the next child picks up where the first left off and adds his or her own details and developments to the plot. Have this activity continue around the circle until the children wish to conclude it or until they run out of ideas.

• Certain children could act out stories in pantomime while the rest of the class guesses what is going on.

• As an art activity, students could draw sequences, murals, or individual cartoons of the characters from the tall tales. Or they could brainstorm characteristics for one super individual and then work as a group to draw and color a huge, mural-sized representation of that character.

19 Figure Families

Type of Activity

Figural Classes

Objectives

To develop the ability to classify figural information in a variety of ways.
To develop figural fluency and flexibility.

Teaching Suggestions

Ask students to look at two classroom objects such as a desk and a chair. Ask them in what way the two are alike. List the responses on the chalkboard. Ask if there is another object in the room that is like these two objects for the same reasons. Now ask the students if, for another reason, one of the objects is like anything else in the room. If the children are slow to grasp this concept, point out that a person might be like a chair in that he or she has a back and legs.

Enlarge the following six drawings on 12" x 18" paper: a pencil with an eraser, a desk, a dog, a ball, an orange, and a candy stick. Examples for simple drawings might be:

A. pencil
B. desk
C. dog
D. ball
E. orange
F. candy stick
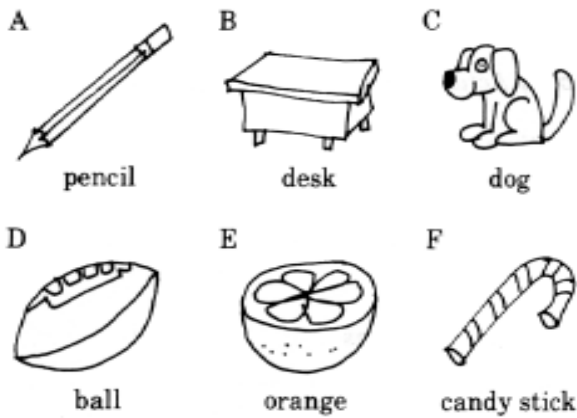
Arrange the six illustrations on the chalkboard ledge or tack them to a bulletin board in full view of the class. Ask individual class members to come to the front of the room and select the pictures he or she would group together. Instruct each student to give his or her reason for forming each group. Return the items to the group of six and call on another person to select a group of pictures and to explain his or her reason for placing these pictures together.

Distribute the activity sheets. Tell the children to group the pictures on each sheet in as many ways as they can, making certain that each group has a common characteristic. Have them list the letters of the pictures that are alike in the column at the left and, in the other column, give the reason they are similar.

Collect the completed activity sheets and compare them. Praise the more original combinations. It might prove interesting to see if any student has created a group that is totally original.

Follow-up Activities

• You could teach grouping in various areas of the curriculum. In learning cursive writing, for example, the children could put together letters having common characteristics. Or they could place together number groups which have common properties (such as all evens or all odds). In the language arts area, the class could list words that have common characteristics—rhyming words, for example.

• Cut out sets of pictures from magazines and make cards with them similar to those shown under "Teaching Suggestions." Number the cards and have one student place on the board the numbers of the items he or she would put together. Ask the class to guess why the student combined those

items. The person who guesses correctly becomes the next presenter.

20 Spin a Story

Type of Activity

Semantic Elaborations

Objectives

To develop verbal fluency.
To develop the ability to produce an original story based on given information.

Teaching Suggestions

With the help of the class, recall the stories of *Red Riding Hood*, *Snow White*, and *Hansel and Gretel*. Ask the children what might have happened if Red Riding Hood had set out for her grandmother's house, met a wicked witch, and was rescued by a handsome prince. Point out that you are combining aspects of three different stories to create a new story. Discuss your new story.

In front of the room, place three boxes: one labeled *People*; one, *Places*; and one, *Actions*. Have each class member write the name of a person from a story on a sheet of paper and place it in the box labeled *People*. Do the same for *Places* and *Actions*. Now mix up the papers in each box. Choose one student to select a paper from the *People* box, then from the *Places* box, and then from the *Actions* box. Make up a class story on the chalkboard from the three selected items. Save the boxes for a follow-up activity.

Before passing out the activity sheets, show the class the spinner they will use in this activity. (Directions for its construction are given after the follow-up activities.) Be sure the children understand its function and operation. Then distribute the activity sheets. Ask each class member to place three different items under each of the three titles on the sheet for activity "a." Emphasize that each person's sheet will be different. Once the students have completed activity "a," have one person come forward and spin the spinner. Call out the number on which the pointer stops. Ask each class member to circle the item following that number in the *Animals* column. Select another person to spin for the *Actions* column and another for *Places*. Next, tell the class members to put the three circled items together and elaborate on them to form a story.

Present activity "b" in a similar manner, sharing the resulting stories.

Follow-up Activities

- Use the three boxes of labeled items that served as an introduction to this activity to create new stories. Each class member could select three items, place them together, and create a story, or you might leave the three boxes in the room and suggest that students make selections and then write stories in their free time. You could have the children file these in a central place and share them at a later date. Change the topics on the boxes periodically to make new story generators. Suggest that the children illustrate their stories and place them in the library corner. If feasible, have students dramatize their stories as plays or puppet shows.

Directions for Making a Spinner

Cut out two figures like those illustrated in this section and paste them on cardboard. The circle should be about six inches in diameter and the arrow should be about five inches long. Trim the cardboard to the shape of the figures and place the arrow on the number wheel. Pass a thumbtack through the bottom of the number wheel and through the arrow so that it passes through the two dots. A paper fastener will serve the same purpose as the tack.
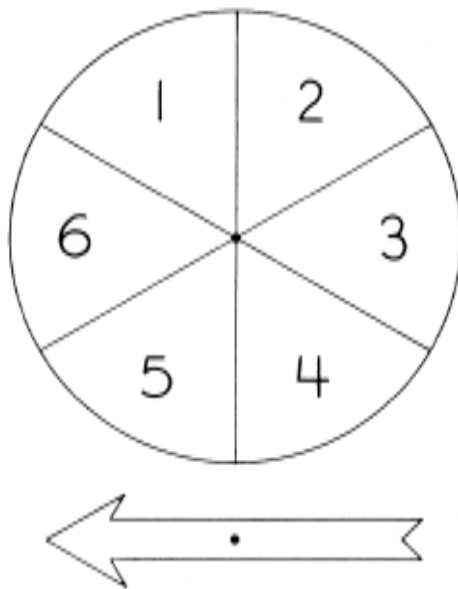
21 I Saw It on the Highway

Type of Activity

Figural Elaborations

Objectives

To learn to construct meaningful drawings by elaborating on given elements.
To understand relationships between figural and verbal material.

Teaching Suggestions

Introduce this activity by discussing billboards as a method for advertising products. Emphasize that the advertisement must be interesting enough to catch the attention of a driver and that the driver must be able to understand its message at a glance. Ask students how they might develop interest and clarity. Discuss how using large lettering, colorful pictures, and a minimum of words helps make the advertisement simple and clear.

Distribute the activity sheets. Point out that at times, a designer's plan calls for part of a picture or a word to extend beyond the standard dimensions of the billboard. The first activity sheets presents an example. Discuss how the advertisement incorporates the billboard extension in a meaningful way, suggesting that there are countless other ways the extension could be used. Brainstorm a list of alternative ideas.

After they have completed work on the activity sheets, invite the children to share their responses. Note the variety of designs that was possible for each billboard. Have the class evaluate whether or not they effectively integrated layouts, slogans, and drawings to produce appealing advertisements.

Follow-up Activities

- Ask students to create their own billboard outlines. Encourage them to develop a number of advertisements for each of these billboards. Suggest that they might place large advertisements on poster paper to publicize school fairs or class elections.

- Students could also make up hypothetical products and attempt to sell them to classmates. Individual students could present different problems to the salesperson. For example, one prospective buyer could claim to have no money at the current time; another could be stubborn and uninterested. This

exercise requires on-the-feet thinking and should be exciting for all involved.

22 Let's Pretend

Type of Activity

Semantic Elaborations

Objectives

To develop the technique of personification by elaborating on given information.
To develop imagination and creative writing skills.

Teaching Suggestions

This activity provides an opportunity to extend the imagination through identification, both physically and emotionally, with inanimate objects. This activity will be most successful if you create an appropriate classroom climate prior to beginning work on the exercises. To achieve such a climate, help the children identify with nonhuman things. Ask them if they have ever visited a zoo and observed animals in a cage. Then ask them how they think animals feel about being put in cages so that people can look at them. Ask the children to suggest what the animals might say if they could talk. It might be worthwhile to have one student play the part of an animal and another take the part of a visitor at the zoo. Have these students make up an imaginary conversation between the animal and the visitor.

To give students practice in identifying with inanimate objects, ask them to pretend that they are light bulbs for sale in a hardware store. On chart paper, write a class story about what the light bulbs are thinking. Ask them how they feel on the shelf: Who would they want to buy them? Where will they go? What will they see? How will they help the people who take them home?

Activity "a" should follow a trip to a nearby laundromat or a discussion of how a washing machine cleans clothes. If such a trip is possible, instruct the children to pay particular attention to the sounds the machine makes during different cycles. Have them imagine how it would feel to be a piece of clothing in a washing machine. Encourage them to share their ideas.

Activity "b" should follow a discussion on how popcorn is made or actual preparation of some popcorn. If possible, bring to class a hot plate, a pot with a lid, some oil, a package of popcorn kernels, and some salt. Pour in enough oil and corn to cover the bottom of the pot. Cover the pot and place it on the hot plate. It will take about five minutes to heat up. Meanwhile, ask the children to listen for the sizzling sound the oil makes when it is hot, and for the sound of the first kernel popping. Be sure to shake the pot. After a short while, the popping should become very rapid. When most of the corn has popped, remove the pot from the heat and show the children how the corn has changed. Salt the popcorn and let everyone have a sample to taste. Then ask some of the students to pretend they are kernels of popping corn. Invite them to dramatize the process of being cooked. Then hand out the activity sheet and review the directions. Read the first line of the story, reminding students they are writing as if they are kernels of popcorn.

Follow-up Activities

• You could develop different activities by suggesting other objects for students to personify. You might suggest items such as baseballs (give the details of a game from a ball's point of view), automobiles, and doorknobs.

• In addition to writing stories about nonliving things, students could attempt to write stories based on an animal's view of a situation. You might suggest that students write a story about their families as seen through the eyes of a pet or about an ant's view of the world. An outstanding example of this kind of story is *Ben and Me* by Robert Lawson (Dell, 1973, paperback), a story about Benjamin Franklin as told by his friend Amos, a mouse.

23 Word Makers

Type of Activity

Symbolic Transformations

Objectives

To develop the ability to produce a variety of words by manipulating given letters.
To develop verbal fluency and flexibility.

Teaching Suggestions

To introduce this lesson, prepare large oaktag strips of letters like those on the activity sheets. Use your own set of letters on these strips, taking care not to duplicate the series on the activity sheets. Show the strips to the class. Call on different children to come up and manipulate the strips to form a word or words when read from the top strip downward. Point out that they could form a great variety of words by moving the strips back and forth and by switching the order

of the strips. You may wish to keep a list of the words the children make from these strips on the chalkboard. When the children understand how to use the strips to make words, hand out Activity A.

Provide each student with a pair of scissors. Ask the children to cut along the dashed line near the bottom of the page and then to cut out the letter strips. Make sure they do not to cut out the individual letters. Ask them to place the strips on their desks in the manner shown at the top of the activity sheet. Point out that by reading down the columns, they should be able to find two words. Call on someone to read these two words to the class. Challenge students to make other words by sliding only the top strip backward and forward. List the additional words formed on the board. Before students begin work on their own, discuss other strategies that they might use to make new words. Encourage them to try moving more than one strip at a time and rearranging the order of the strips to build up the list of words. Direct the children to write each new word they make on a different line. Remind them to use the back of their paper if they need more room.

You might work activity "b" under mildly competitive conditions. Set a time limit and give a point for each word on a student's list. Give a one-point bonus for any word no one else came up with.

Follow-up Activities

• If students show an interest in this activity, you might encourage them to develop their own letter strips. Point out the need to include vowels in each strip and suggest that the students use digraphs and consonant clusters in some of the boxes. The activity will become more difficult as the number of strips increases.

• Add-a-Word Sentences is a team game in which the teacher provides the first word of a sentence. One of the student teams then must add a word that begins with the last letter of the preceding word. For doing this, the team earns one point. Players on the alternate team then add the third word in the same manner. The team that ends the sentence, or that is unable to continue, forfeits a point to the other team. As the game continues, the next sentence begins with the last letter of the last word. Teams may challenge one another at any time if they feel their opponents are bluffing and are not actually able to contribute to a sentence. The team with the most points at the end of the game wins.

• You might try another word game similar to the one just described. In this game, you ask someone to begin spelling a word by naming a letter. As you go around the group, each student adds a letter. The person who completes the spelling of the word, or who is unable to continue, is penalized one point. Individuals may challenge at any time if someone feels the speller is bluffing and does not really have a word in mind. If the challenger is correct, the challenged one receives a point. The winner of this game is the person with the fewest points.

24 The Advertising Game

Type of Activity

Figural Relations

Objectives

To develop the ability to show relations between figures and ideas.
To develop the ability to make clever designs that are directed toward a given purpose.

Teaching Suggestions

During the week you plan to present this lesson, ask students to bring to school empty cereal boxes, cans with labels still on them, and empty food packages. Display these items on a table and give the students an opportunity to examine them. Discuss the appeal of each with respect to general attractiveness, color, lettering, cartoon characters, and layout. Point out the use of dynamic words. Allow students to judge which aspects of each box and can are the most effective. Ask them to speculate about the importance of having an attractive cover or label for a product. Emphasize that if the outside of a box is attractive and interesting, people will want to try what is inside. Tell them that labeling helps people to decide to buy.

Distribute the activity sheets. Call attention to the names of the products and suggest that having a catchy name for a product will also help sell it. Ask students for other examples of cereal names and then brainstorm a list of new and original names for cereals and cookies. Ask students to make selections from these lists of names and proceed with the activity sheets or to think of other names to work with.

After completing each exercise, invite students to display their work on the bulletin board. Ask the class to comment on those designs that they feel are particularly effective.

Follow-up Activities

- Have the children cover empty food boxes with colored paper. The students could cut and paste or color original labeling and advertisements for these boxes.

- Some students might be interested in analyzing television commercials. Consider the many ways writers try to attract attention to their products (clever language and humor, the appeal to values people consider important, hiring well-known people, or creating appealing characters for a specific commercial). Suggest that students write a commercial for each of the products they have named on their activity sheets. Encourage them to dramatize their written scripts.

- Compile a list of products that come packaged in boxes and write these names on the chalkboard. Have each student select one product and compare the approaches used by different companies to sell their brands. Make magazines available for in-class research. (You could also have a student visit a toy store to compare the appeal of various cover designs on children's games put out by different companies.) The project could culminate in considering an alternative box cover for each product. Perhaps a discussion on the need for consumer awareness regarding exaggerated advertising claims would be appropriate at this point. You could also point out some of the safeguards the government places on advertising in television commercials directed toward children. You might also discuss the consumer protection (if any) derived from ingredients lists on food package labels.

BIBLIOGRAPHY

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writing. *Journal of Personality and Social Psychology, 48,* 393-399.

Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.

Anderson, Harold H. (Ed.). (1959). *Creativity and its cultivation*. New York: Harper & Brothers.

Archambault, Francis X. (1970, March). *A computerized approach to scoring the Torrance tests of creative thinking*. Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Arnold, John E. (1962). Useful creative techniques. In Sidney J. Parnes and Harold F. Harding (Eds.), *A Source Book for Creative Thinking*. New York: Charles Scribner's Sons.

Baer, J. (1993). *Creativity and divergent thinking*. Hillsdale, NJ: Erlbaum.

Baer, J. (1996). The effects of task-specific divergent thinking training. *Journal of Creative Behavior, 18* (1), 11-22.

Davis, G. A. (1999). *Creativity is forever* (4th ed.). Dubuque, IA: Kendall/Hunt Publishing.

Eberle, Robert F. (1966). *Teaching for creative productive thinking through subject matter content*. Unpublished. State of Illinois Bulletin to Edwardsville, Illinois, Community Schools, Community District 7.

Feldhusen, John F., Bahlke, Susan J., & Treffinger, Donald J. (1969). Teaching creative thinking. *Elementary School Journal, 70,* 48-53.

Gretzels, J. W., & Jackson, P. W. (1962). *Creativity and intelligence*. New York: John Wiley & Sons.

Guilford, J. P. (1967) *The nature of human intelligence*. New York: McGraw-Hill.

Jaben, T. H. (1980). *The impact of creativity training on learning disabled students' creative thinking abilities and problem solving skills*. Paper presented at the Annual International Convention of the Council for Exceptional Children. (ERIC Reproduction No. ED192481).

Lepper, M., Greene, D., & Nisbet, R. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28,* 129-137.

Li, A. K. F. (1985). Correlates and effects of training in make-believe play in preschool children. *Alberta Journal of Educational Research, 31* (1) 70-79.

Meeker, Mary Nicol. (1969) *The structure of intellect: Its interpretation and uses*. Columbus, OH: Charles E. Merrill.

Mellou. E. (1995). Review of the relationship between dramatic play and creativity in young children. *Early Child Development and Care, 112,* 85-107.

Osborn, Alex F. (1963). *Applied imagination* (3rd ed.). New York: Charles Scribner's Sons.

Paulus, Dieter H. (1970, March) *Are sub-tests of the Torrance test independent?* Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, MN.

Pollert, Leslie H., Feldhusen, John F., Von Mondfrans, Adrian P., & Treffinger, Donald J. (1969). Role of memory in divergent thinking. *Psychological Reports, 25,* 151-56.

Rogers, Carl. (1969). *Freedom to learn*. Columbus, OH: Charles E. Merrill.

Rose, L. H., & Lin, H. T. (1984). A meta-analysis of long-term creativity training programs. *Journal of Creative Behavior, 18* (1), 11-22.

Russ, S. W. (1996). Development of creative processes in children. *New Directions in Child Development, 72,* 31-42.

Simonton, D. K. (1988). Creativity, leadership, and choice. In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 386-426). New York: Cambridge University Press.

Starko, A. J. (1995). *Creativity in the classroom: Schools of curious delight*. While Plains, NY: Longman Publishers.

Taylor, Calnn W., & Williams, Frank E., (Eds.). (1966). *Instructional media and creativity*. New York: John Wiley & Sons.

Torrance, E. P. (1965). *Rewarding creative behavior: Experiments in classroom creativity*. Englewood Cliffs, N.J.: PrenticeHall.

Torrance, E. P. (1987). Teaching creative and gifted learnings. In S. G. Isaksen (Ed.). *Frontiers of creativity research: Beyond the basics* (pp. 189-215). Buffalo, NY: Bearly Limited.

Walberg, H. J., & Zeiser, S. (1997). Productivity, accomplishment, and eminence. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed.) (pp. 328-334). Boston: Allyn & Bacon.

Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children*. New York: Holt.

Watts, A. (1964). A psychedelic experience: Factor fantasy." In David Soloman (Ed.), *LSD: The Consciousness Expanding Drug*. New York: G. P. Putnam's Sons.

Williams, Frank E. (1964). *Reinforcement in classroom learning*, Washington, D.C.: U.S. Office of Education (Department of Health, Education, and Welfare).

Name_____ Date_____

1   Thinking About Things (a)

What   are   all   the   things   that   could   fit   in   your   pocket?
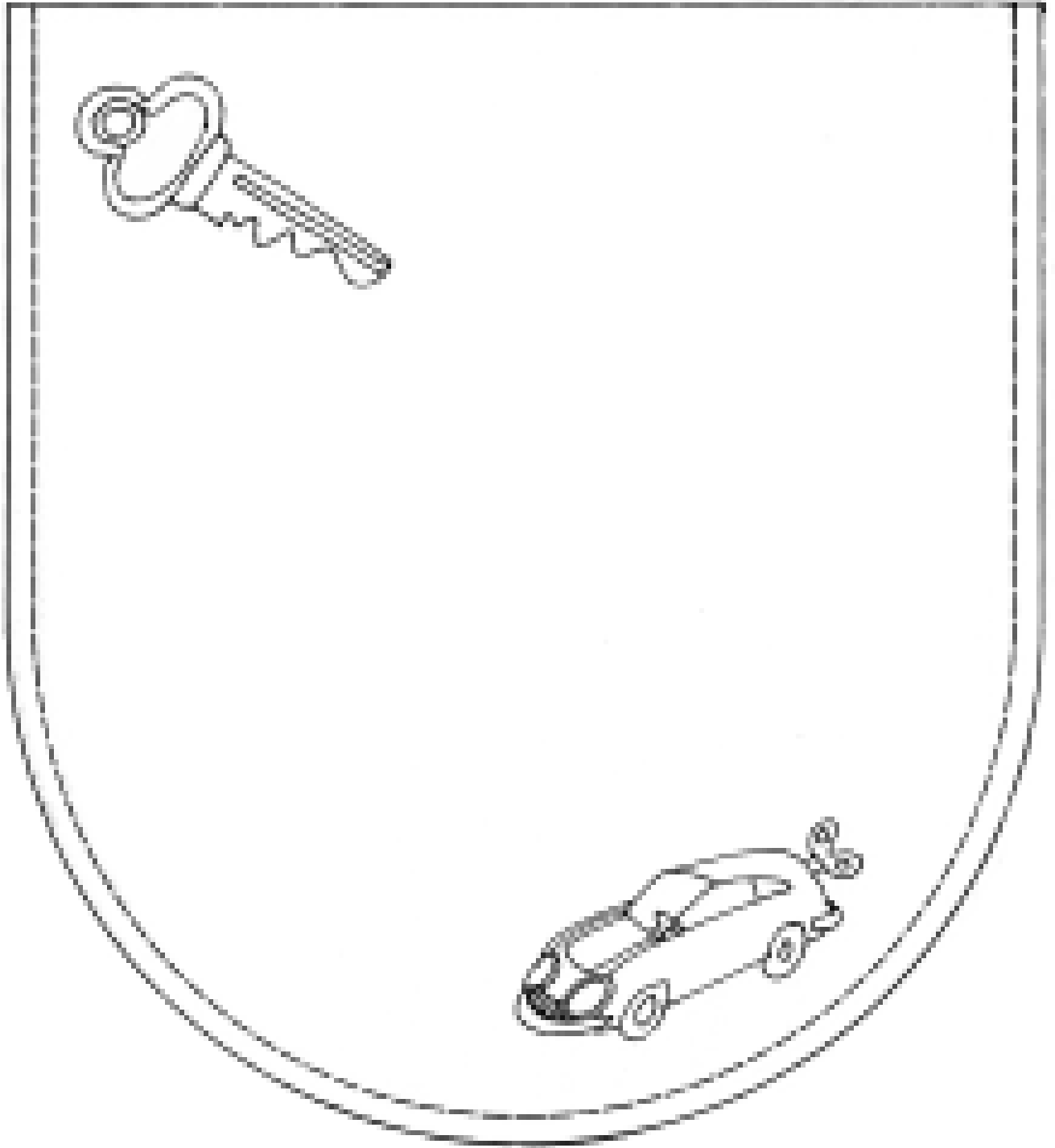
1   Thinking About Things (b)

What   are   all   the   things   that   have   wheels?
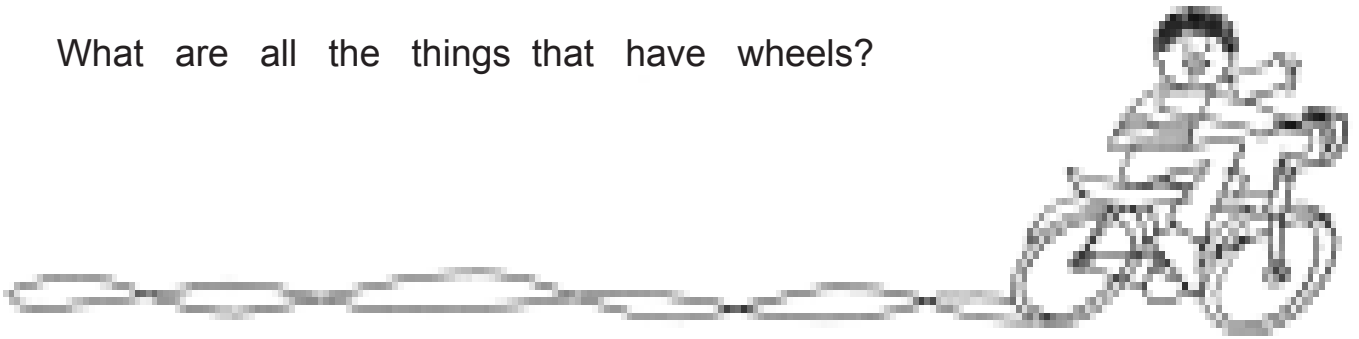
2   Shape Shuffle (a)

Cut out the shapes below. Arrange them
into picture on the rest of this page.
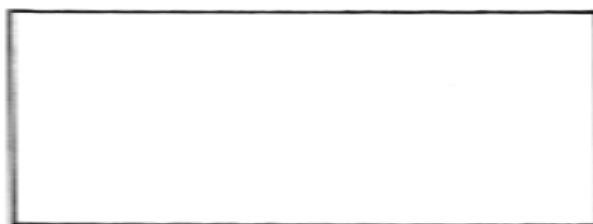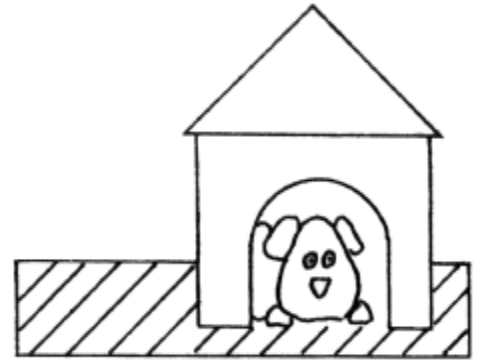
2   Shape Shuffle (b)
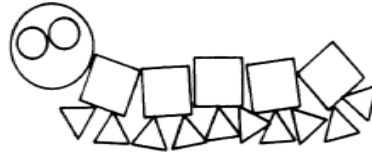
Here are some shapes. See if you can draw a picture using only shapes like these.

Name_____ Date_____
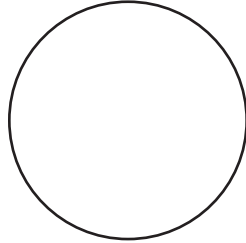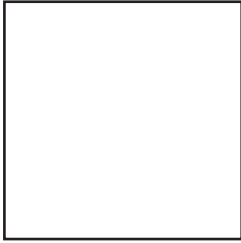
3   **What Would Happen If? (a)**

Pretend that you are only three inches tall.
What would you use . . .
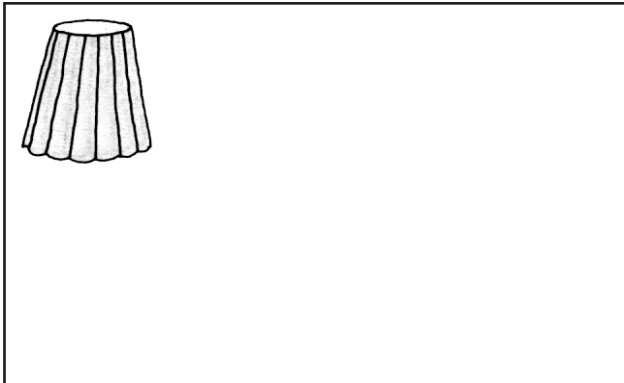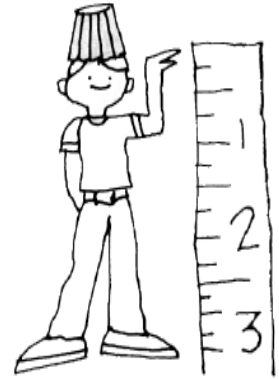
for a hat?

for a bathtub?

for shoes?

for a plate?

for a pet?

for a house?

Name_____ Date_____

3   What Would Happen If? (b)

Pretend that you are twenty feet tall. What would you use . . .
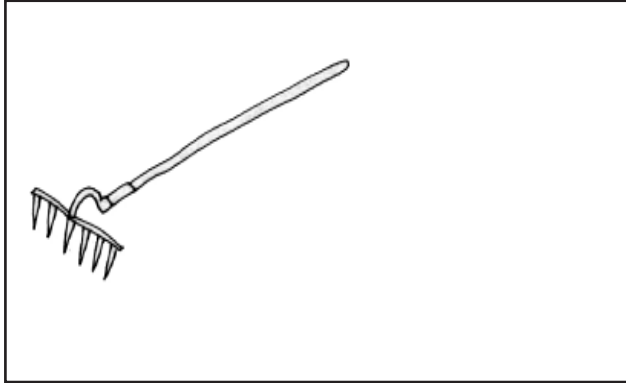
for a fork?

for a lunchbox?
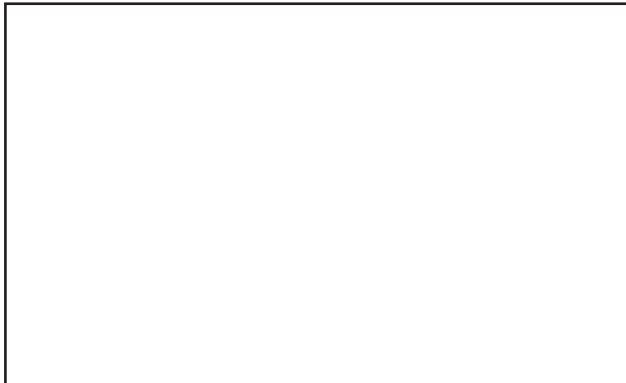
for a toothbrush?
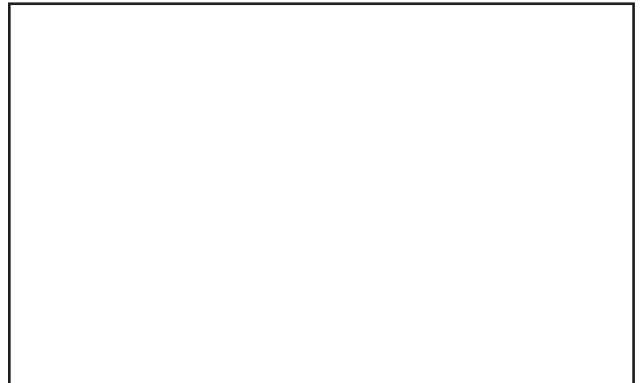
for an umbrella?

for toys?

for a pet?

Name_____ Date_____
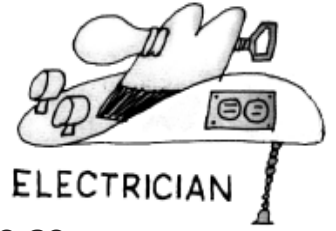
4   The Hat Shop (a)

Draw a hat for each of these people. Try to make the hats as strange or as different as you can.
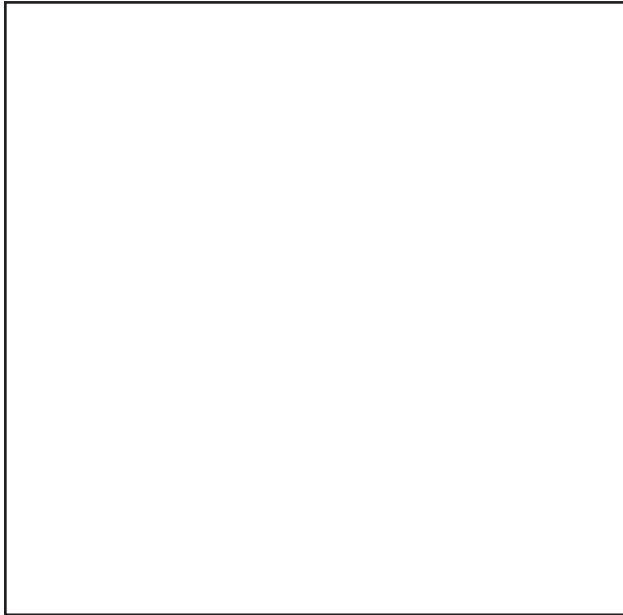
grocery clerk
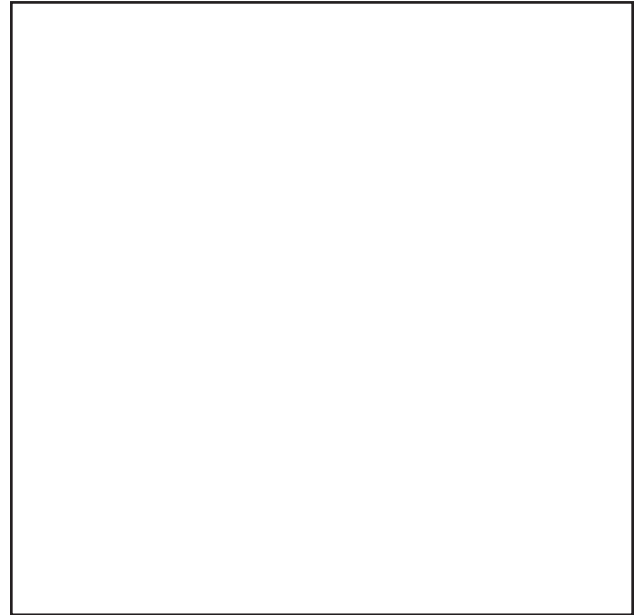
race car driver
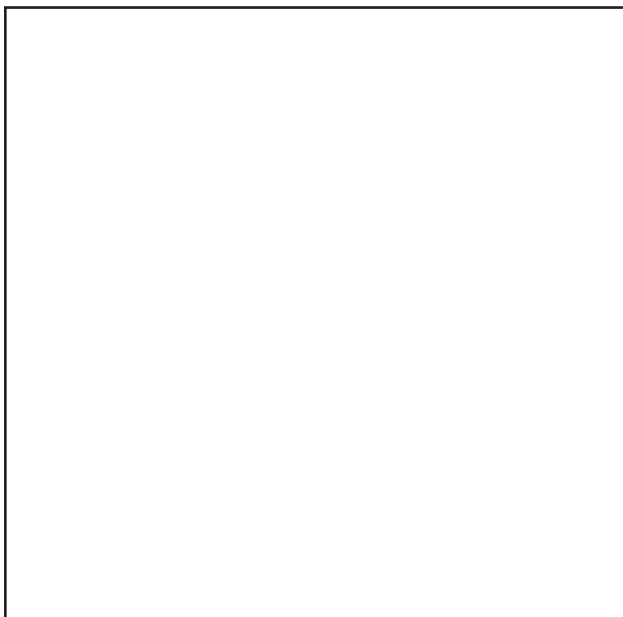
musician
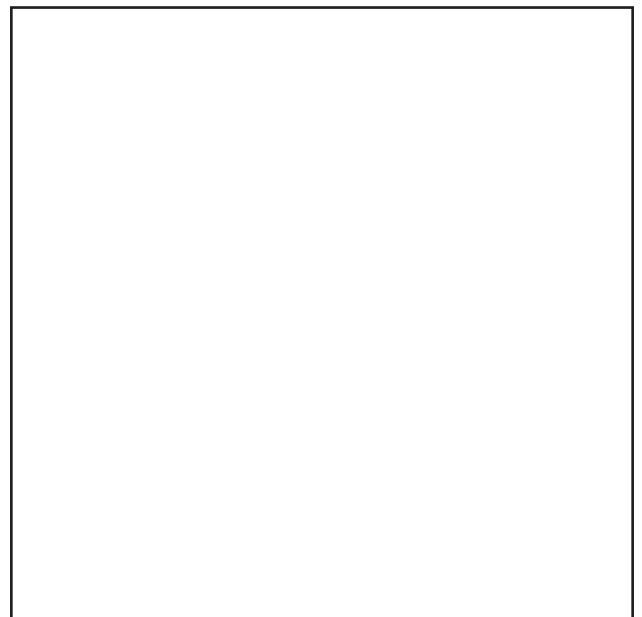
plumber

4   The Hat Shop (b)
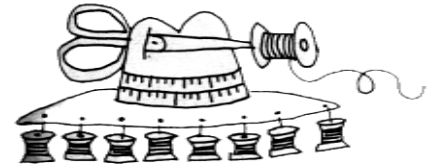
Think of some jobs that have special hats. Draw those hats in the spaces below.

Name_____ Date_____

5   Picture Writing (a)

Draw a picture or symbol for each of these words.
Then write a message using some of these pictures.

under

up	house	cloud

sit	bird	run

Sentence: _____

_____

_____

_____

_____

_____

_____

Name_____ Date_____
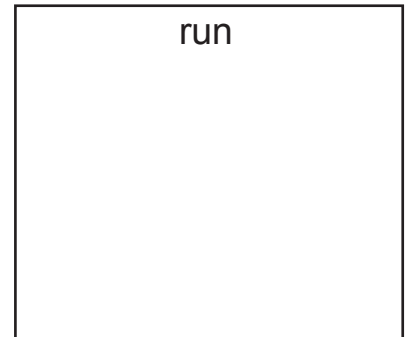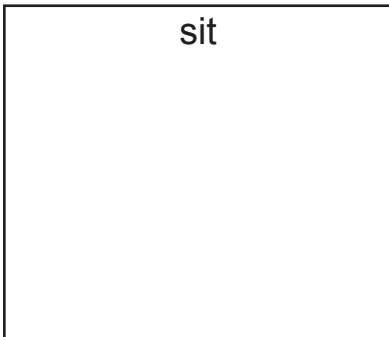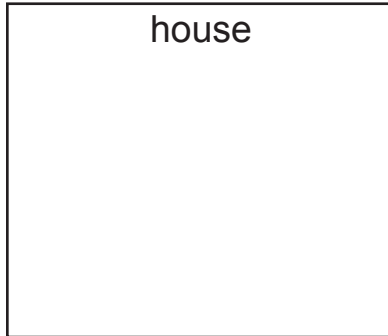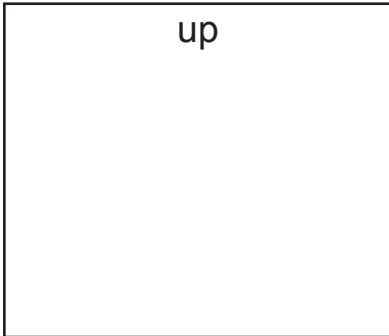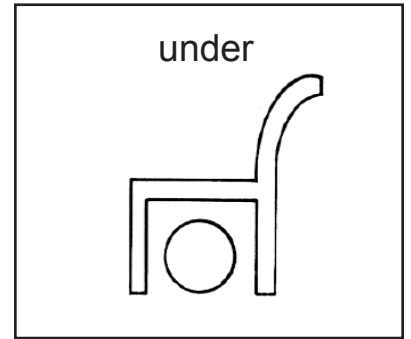
5   Picture Writing (b)

Draw a picture for each of these words. Then write a
story using some of these pictures. Add in as many
other pictures as you need to finish your story.

dog	fall	play
over	day	big
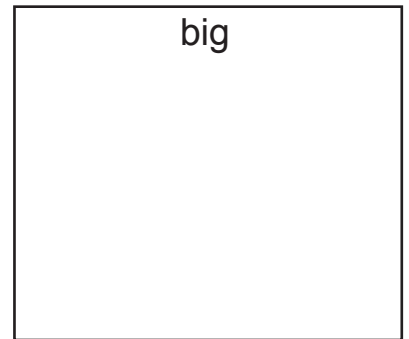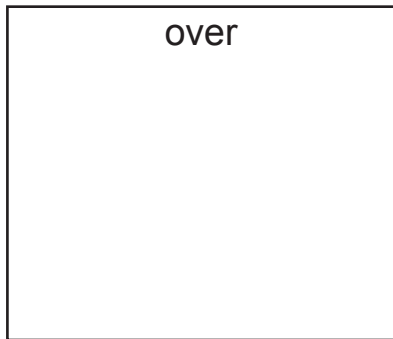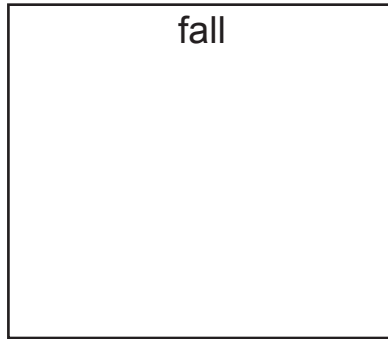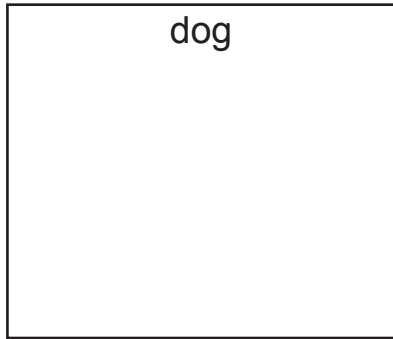
Story: _____

_____

_____

_____

_____

_____

_____

6   Fun with Words (a)

Look at the word patterns below. Write words that are shaped like these patterns. Write as many words as you can.

no
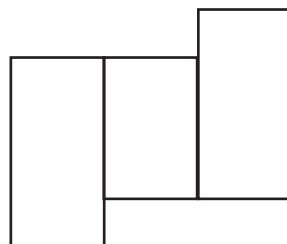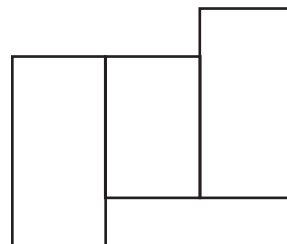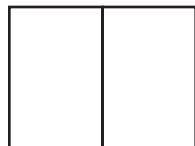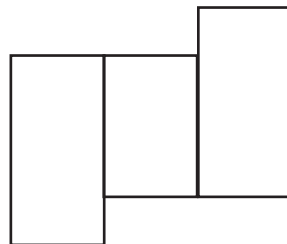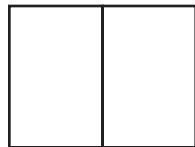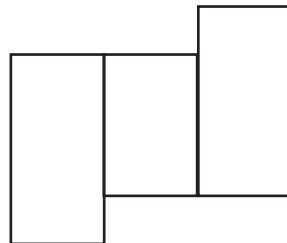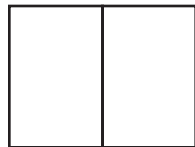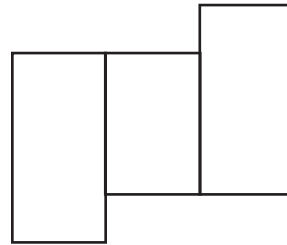
6   Fun with Words (b)

Look at the word patterns below. Write words that are shaped like these patterns. How many words can you write?

c a p
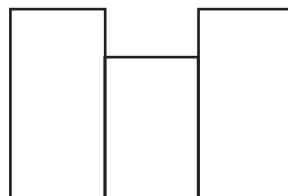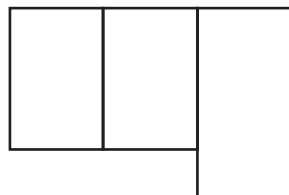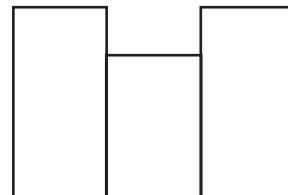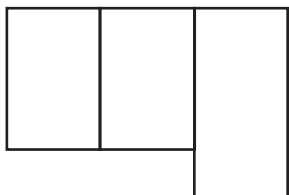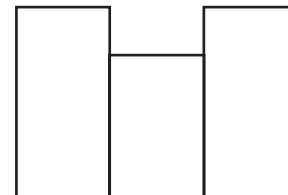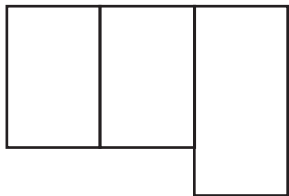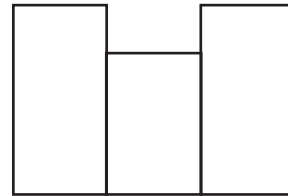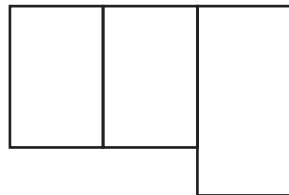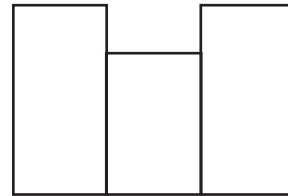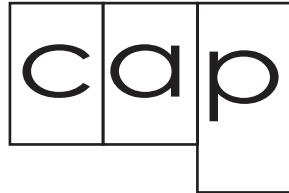
7   The Doodler (a)

Make this doodle part of a picture.
Give your picture a title.
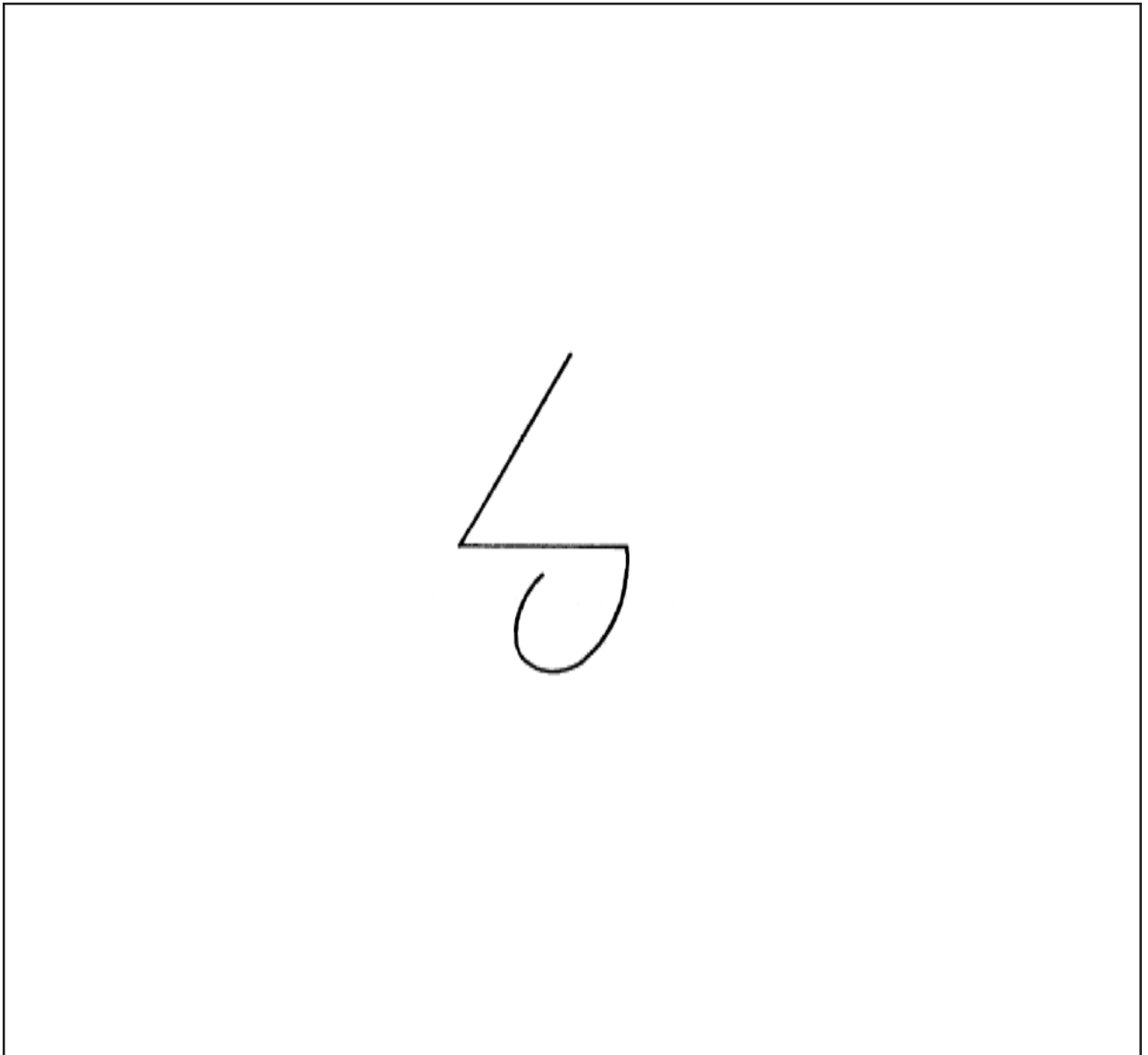
7   The Doodler (b)

Make each of these doodles part of a picture. Give each picture a title.

Name_____ Date_____
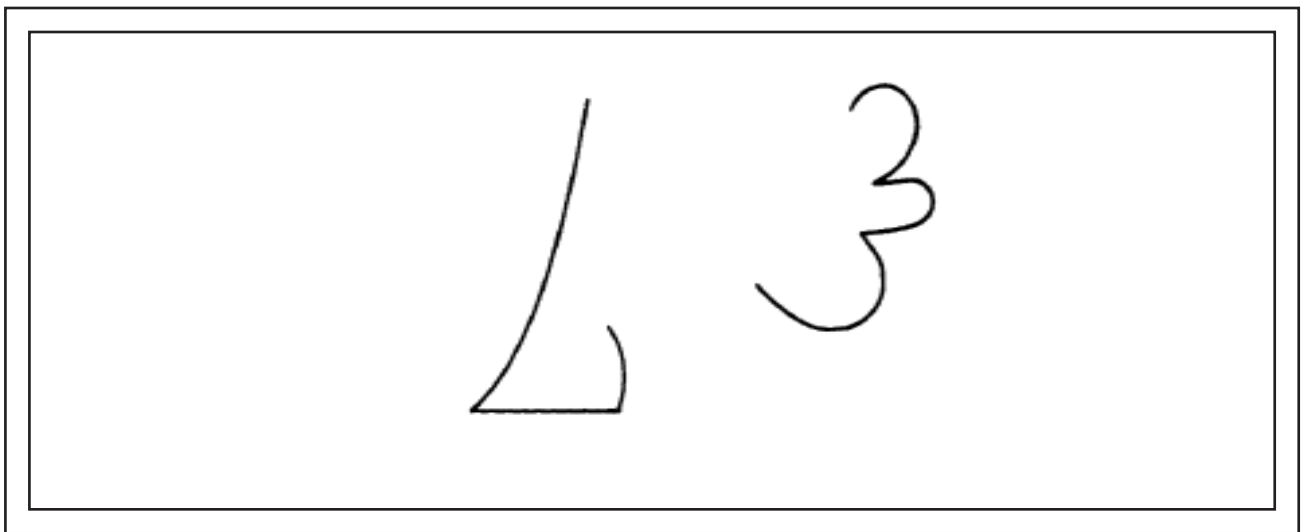
8   What's Happening? (a)

Look carefully at these pictures. See how many different answers you can give for each question listed below.

What do you think is happening? _____

_____

_____

What might have happened right before this scene? _____

_____

_____

What do you think will happen next? _____

_____

_____

Name_____ Date_____

8   What's Happening? (b)

Look carefully at these pictures. See how many different answers you can give for each question listed below.

What do you think is happening? _____

_____

_____

What might have happened right before this scene? _____

_____

_____
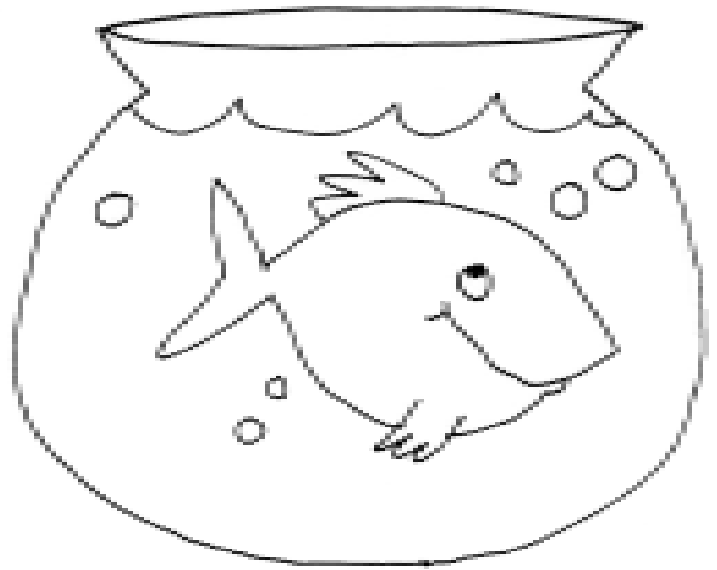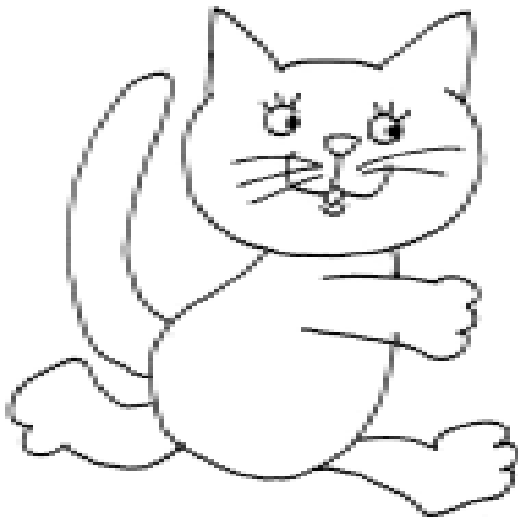
What do you think will happen next? _____

_____

_____

9   Content Characters (a)

Use your imagination to change the books
shown below. Change them into the character
or thing they are about.
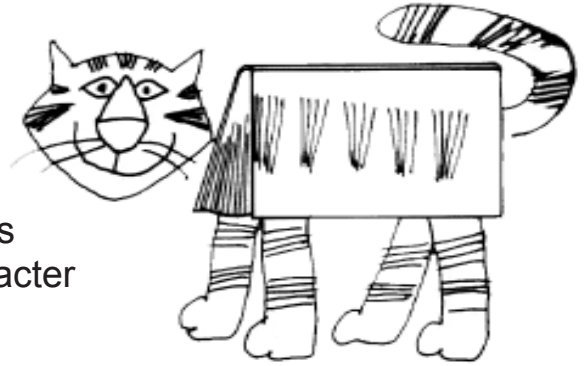
A Jungle Book
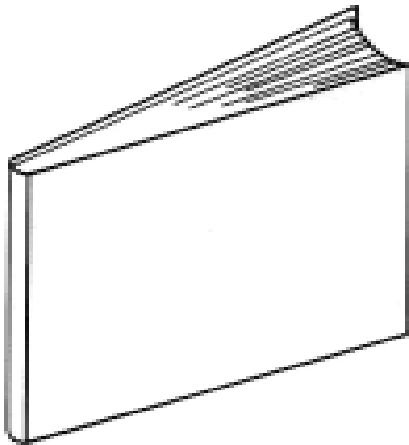
Ghost Stories
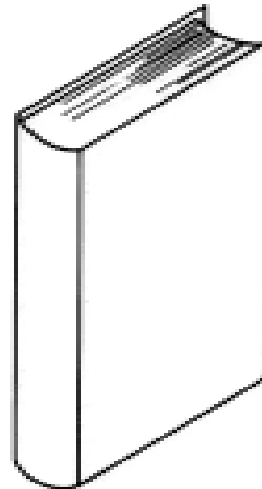
Fairy Tales

9   Content Chararters (b)

See if you can change these books into the character or
thing they are about.

Sports

Magic Tricks

10   Word Game (a)   h a y   t r a y

How many new words can you make from the letters in <u>birthday</u>? Use each letter only one time in each word.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

- -

| b | i | r | t | h | d | a | y |

10   Word Game (b)

h e a t

How many new words can you make from the letters in <u>elephant</u>?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

- -

e l e p h a n t
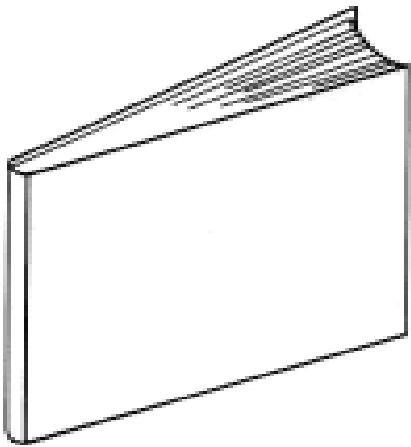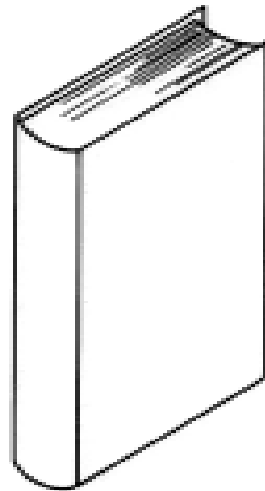
11   Secret Codes (a)

Fill out the chart below. Give a different number to each letter to make a code.

A	B	C	D	E	F	G	H	I	J	K	L	M

N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Now use your code to spell some words.

code
numbers   word

code
numbers   word

_____spells_____   _____spells_____

_____spells_____   _____spells_____

_____spells_____   _____spells_____

_____spells_____   _____spells_____

11   Secret Codes (b)

Fill out the chart below. Give a different symbol to each letter to make a code.

A	B	C	D	E	F	G	H	I	J	K	L	M

N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Now use your code to write a secret message to a friend.

12   That Reminds Me (a)

Draw or write all of the things these pictures make you think of.

picnics

Name_____ Date_____
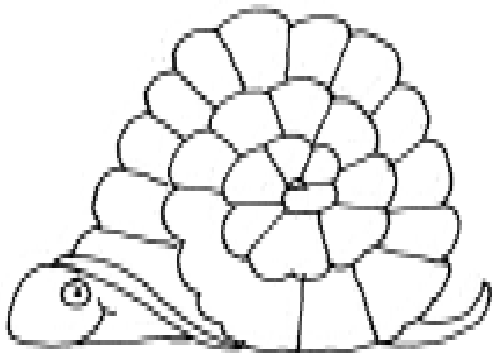
12   That Reminds Me (b)

Draw or write all of the things these pictures make you think of.
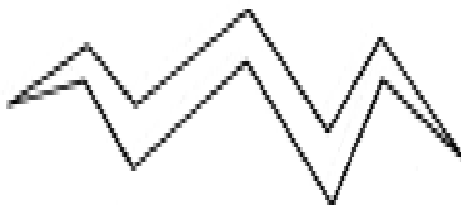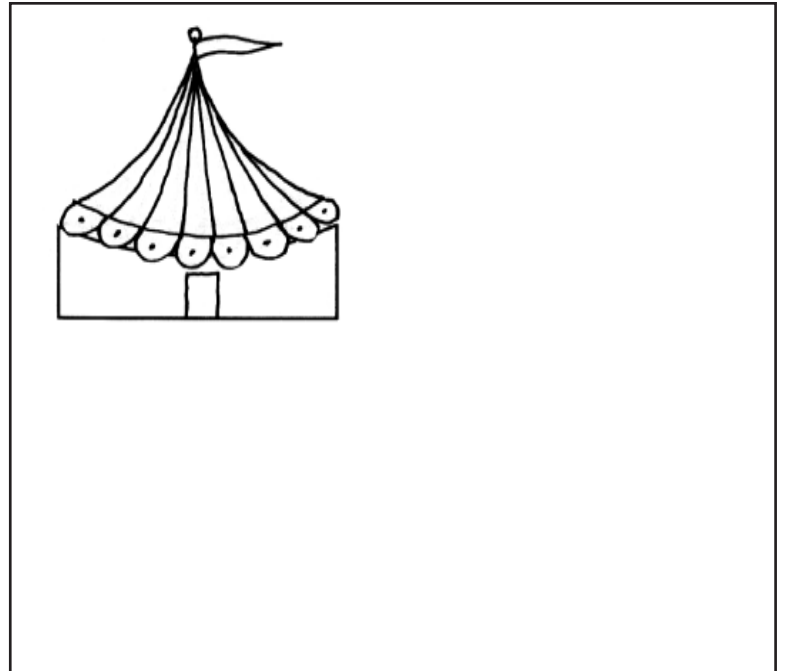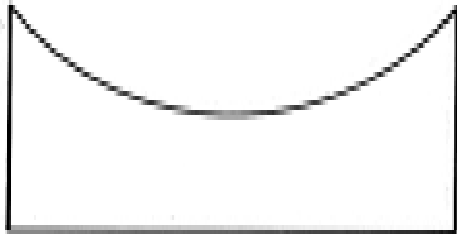
13   You Design It (a)

Design a button about pollution.
Look at the example on the right
to help you to start.

Name_____ Date_____
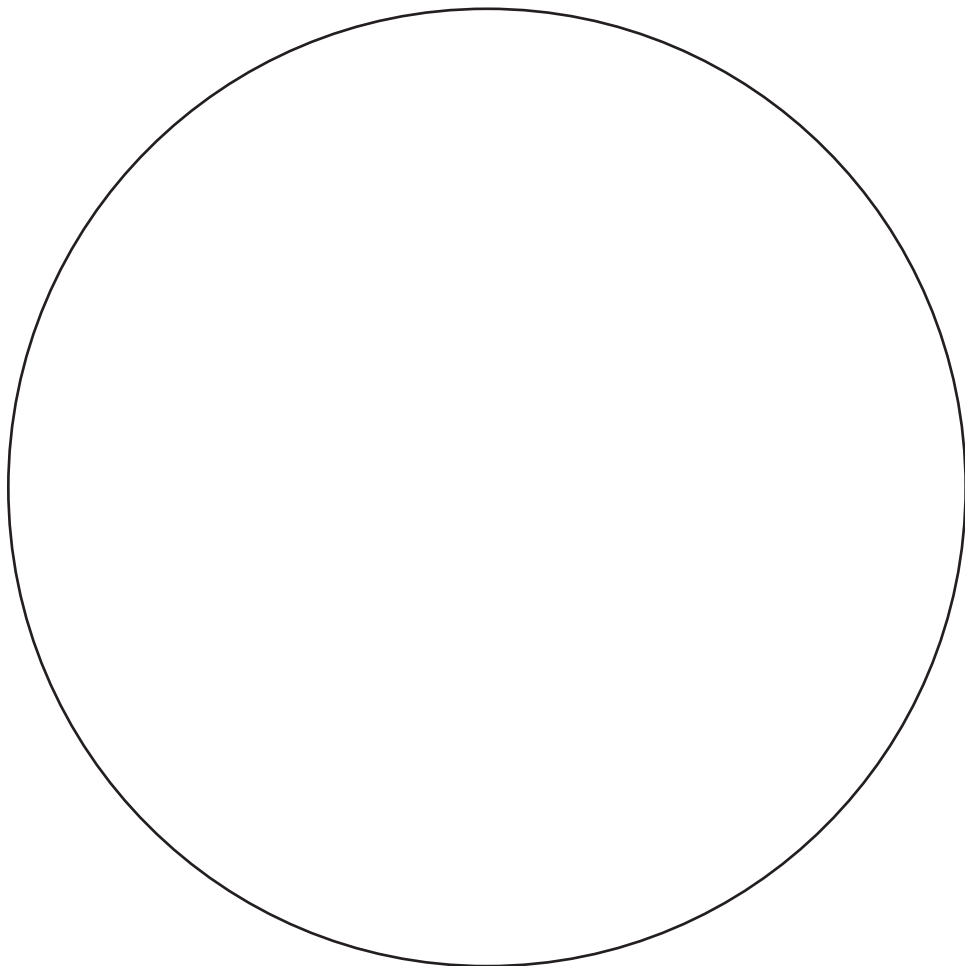
13   You Design It (b)

Design some buttons of your own. Make them show an idea or a feeling that is important to you.

Name_____ Date_____
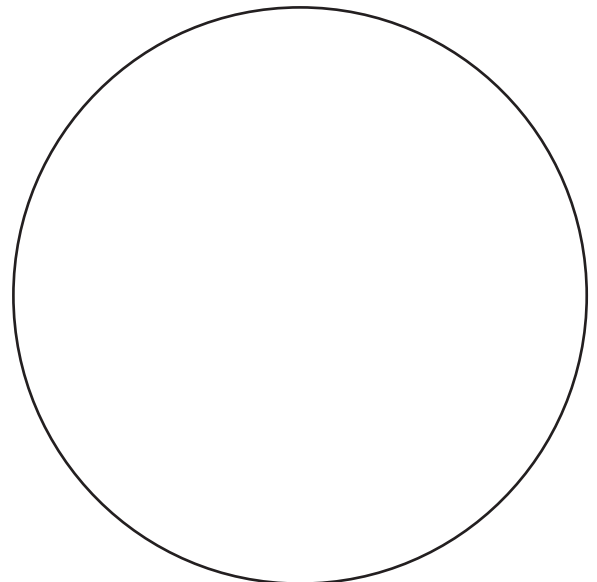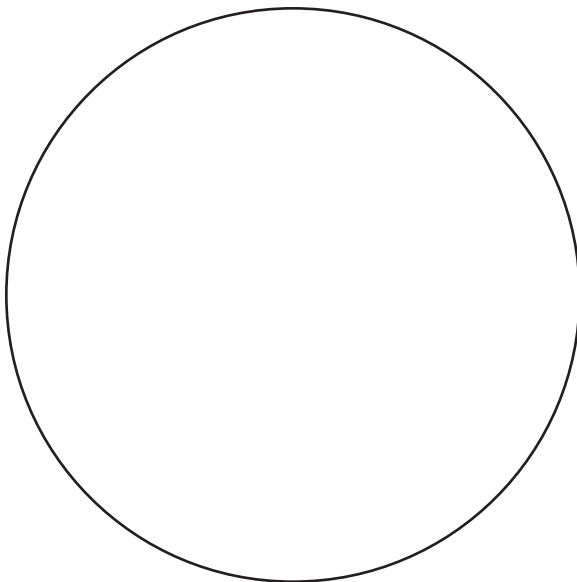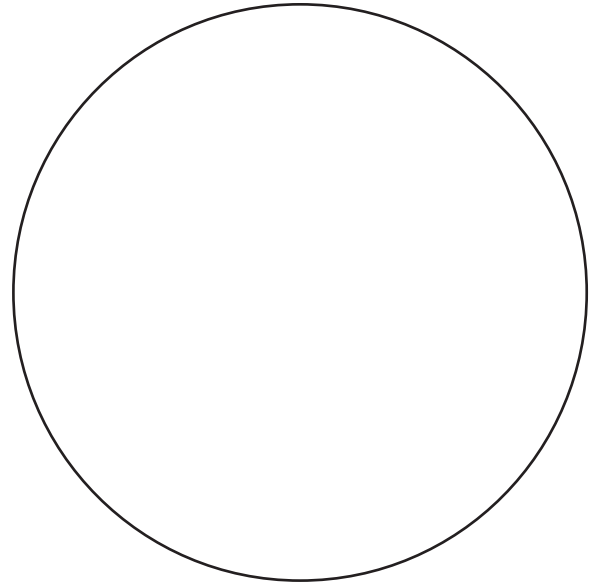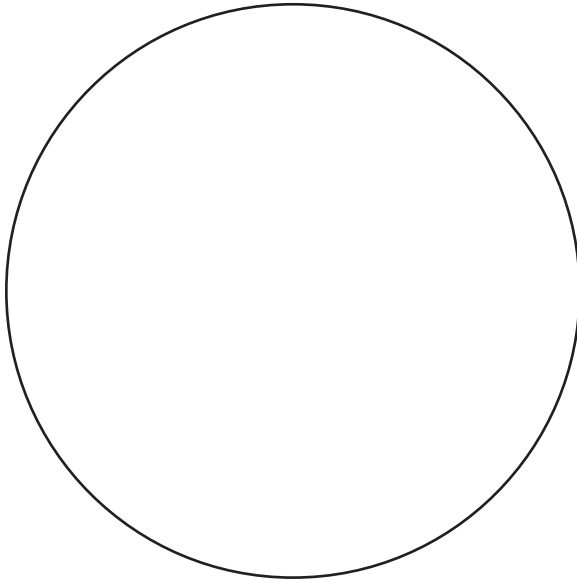
14   Eye Spy (a)

Pretend that you have a very special pair of binoculars. With this spy glass, you can look into the future. What do you see?
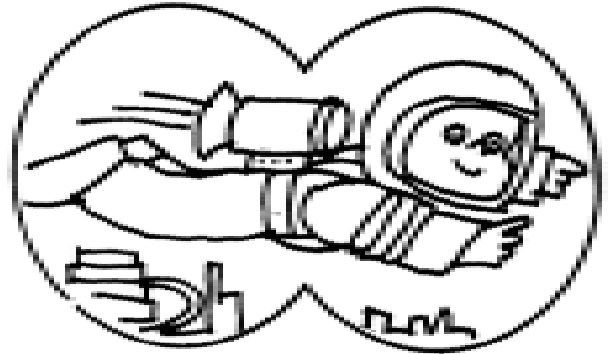
Date: July 4, 2001

_____

_____

_____
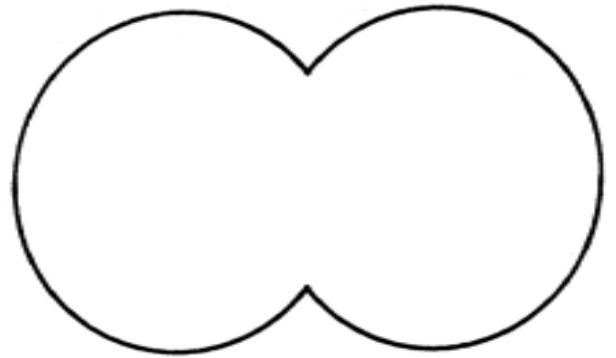
Date: Thanksgiving, 3700

_____

_____

_____
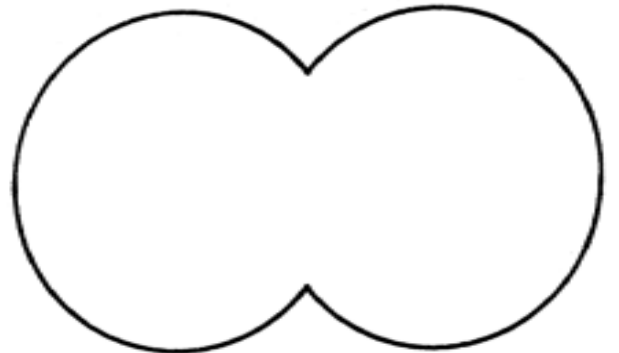
14   Eye Spy (b)

Pretend that you have magic binoculars. They let you see places as no one before has ever seen them. What do you find?

Looking at Mars_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name_____ Date_____
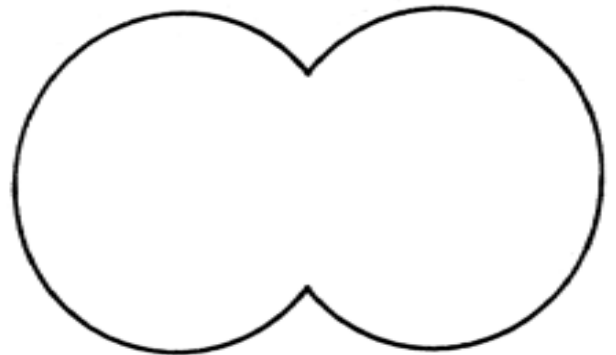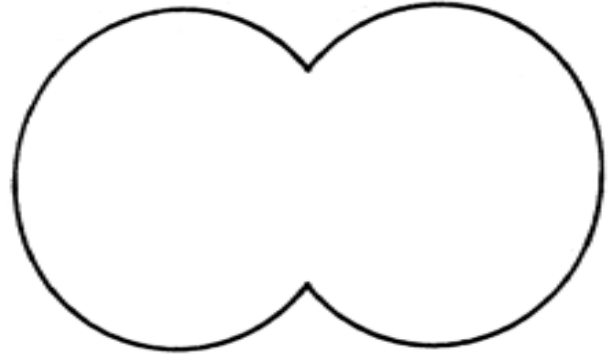
15   Trademarks (a)

See if you can design a trademark for each of the businesses given below.

Toys ' More Toys

Burger Barn

Name_____ Date_____

15   Trademarks (b)

See if you can design a trademark for each of these businesses.
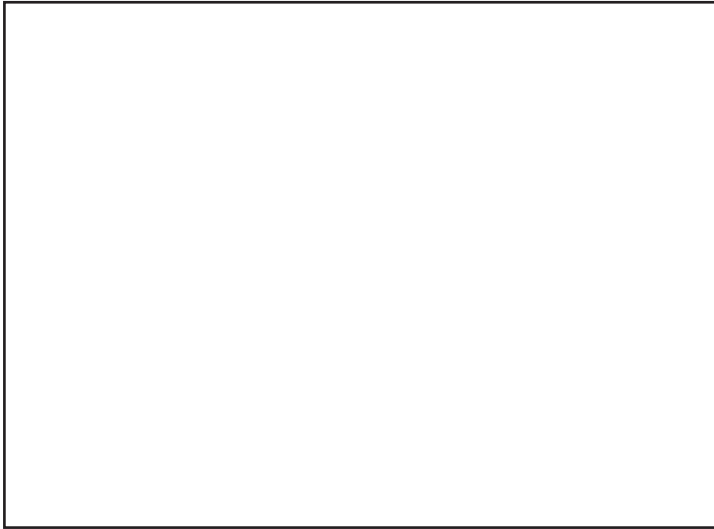
Ice Cream Queen

Happy Hobby Shop

Name_____ Date_____
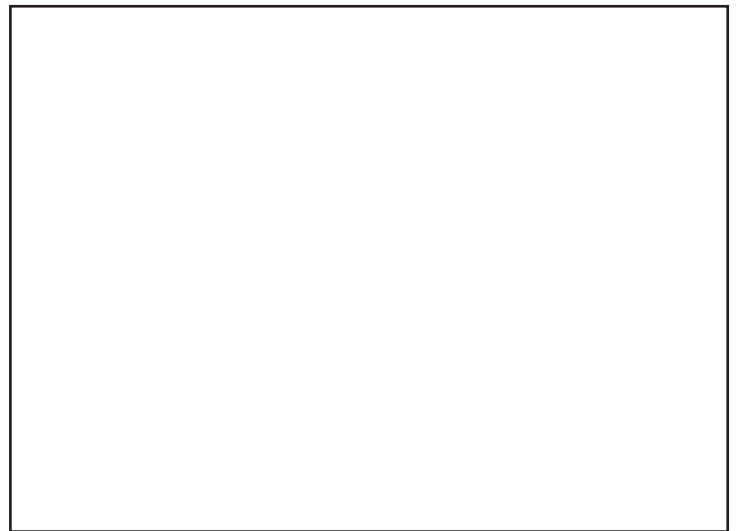
16   Famous Filmstrips (a)

Make up a fairy tale. Draw the pictures for this tale in the filmstrip boxes.
Make more boxes if you like. Give your filmstrip a title.

1.

2.

3.

4.

5.

6.

Title: _____

_____

_____

Name_____ Date_____

16 Famous Filmstrips (b)

Make up an adventure story. Draw the pictures for this story in the filmstrip boxes. Make more boxes if you like. Give your story a title.

1.

2.

3.

4.

5.

6.
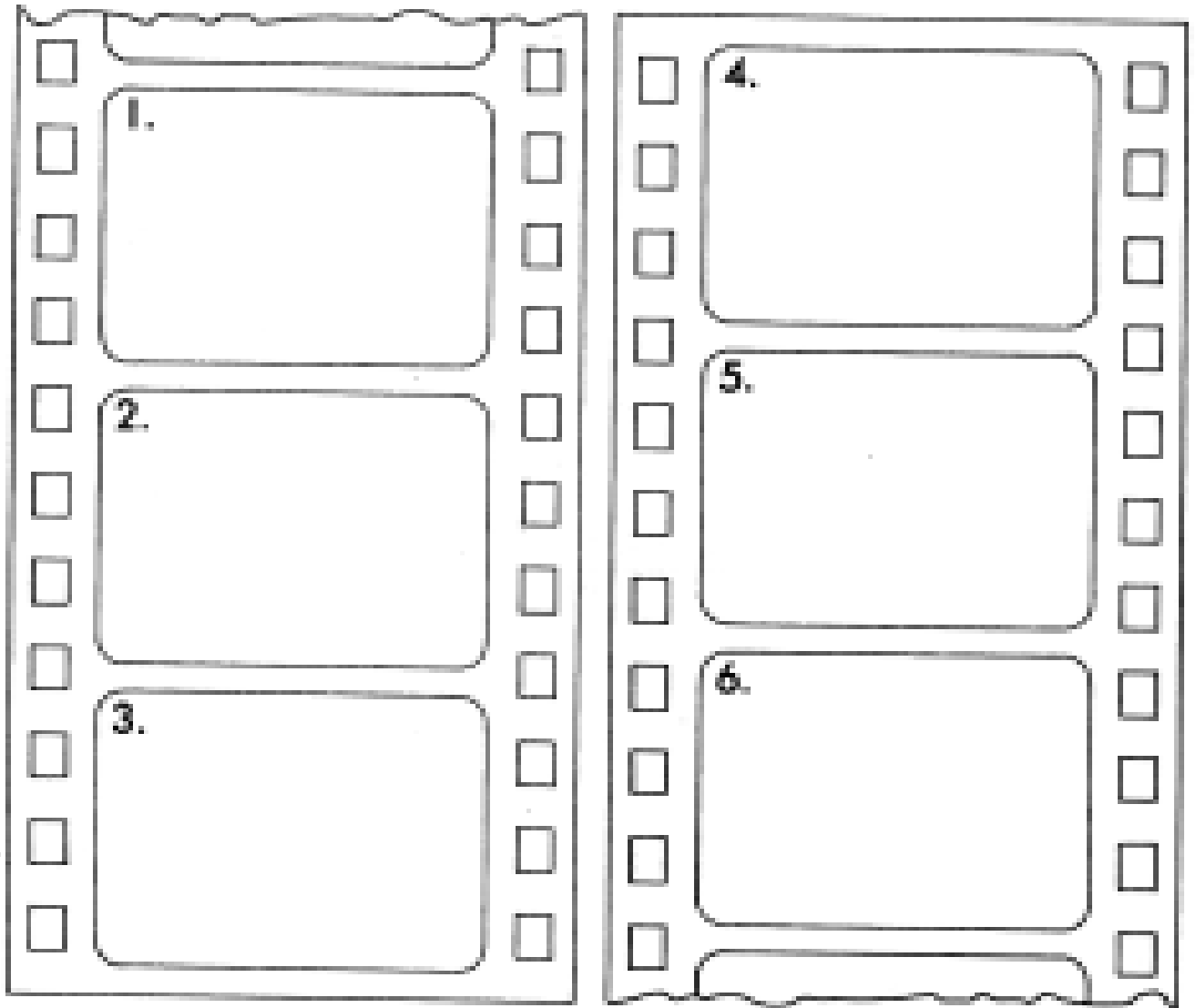
Title: _____

_____

_____

17   Shape Up (a)

Cut out the shapes on the bottom of this page. Arrange these shapes in as many ways as you can. Use all four pieces for each pattern you make.

Name_____ Date_____
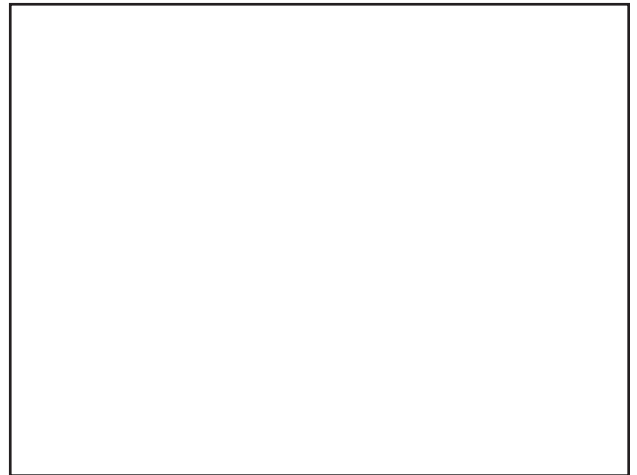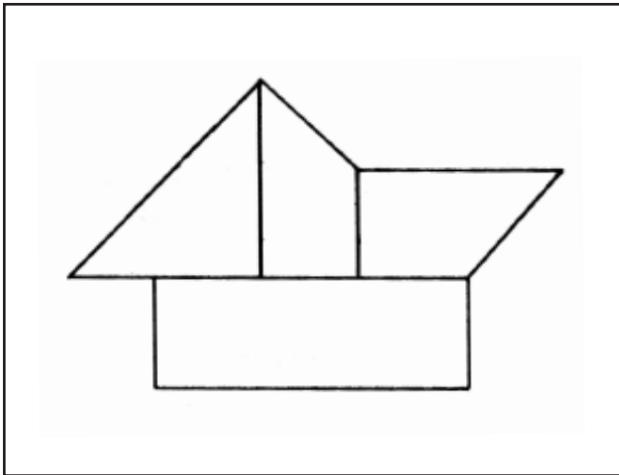
17   Shape Up (b)

Cut out the shapes on the bottom of this page. Arrange these shapes
in as many ways as you can. Use all four pieces for each pattern you make.

18   Tall Tales (a)

You woke up this morning to find you are a king or queen for a day. How did this happen to you? Tell about your adventures.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

18   Tall Tales (b)

You are an astronaut on the way to Mars. How did this happen to you? Tell about your adventures.

_____

_____

_____

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Name_____ Date_____
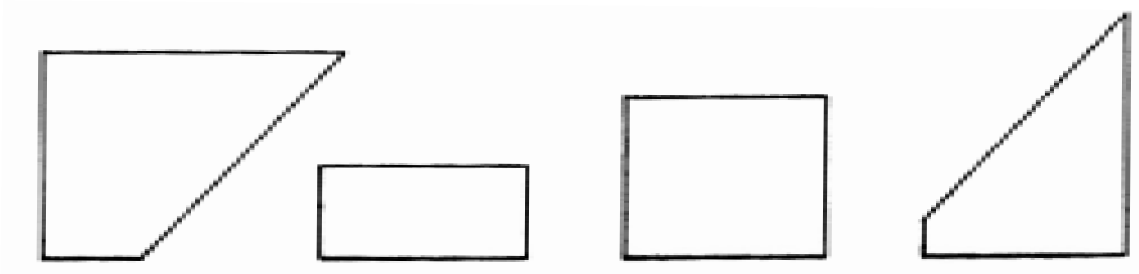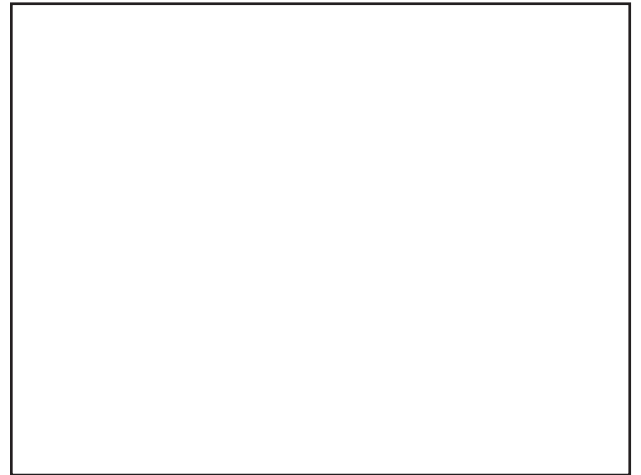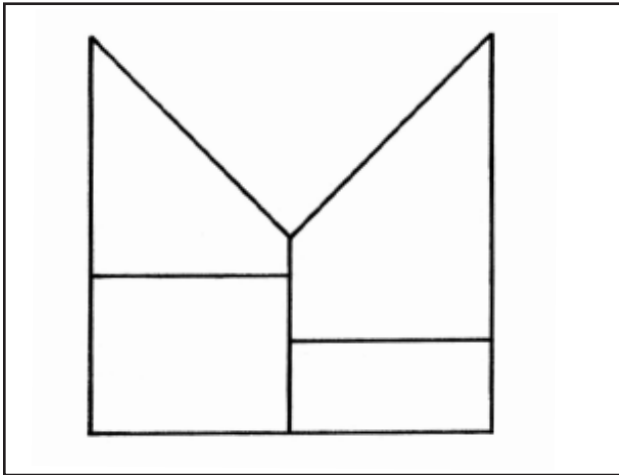
19   Figure Families (a)

How many ways can you put these pictures together? Give a reason for each group you make.

A car	B wagon	C bell
D horn	E tree	F squirrel

Which pictures are alike?

A, B_____

_____

_____

_____

_____

_____

How are they alike?

Can carry things inside them____

_____

_____

_____

_____

_____

19 Figure Families (b)

How many ways can you put these pictures together? Give a reason for each group you make.

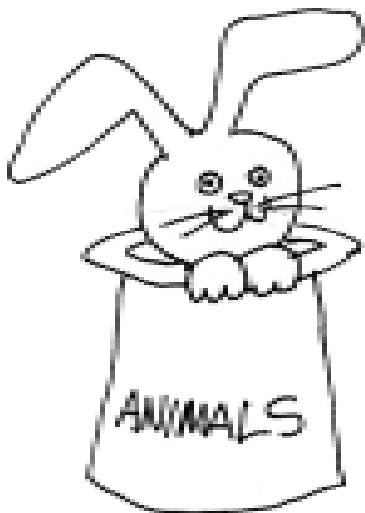|			
A tulip	B balloon	C skate	D basketball
E face	F bicycle	G skunk	H corn
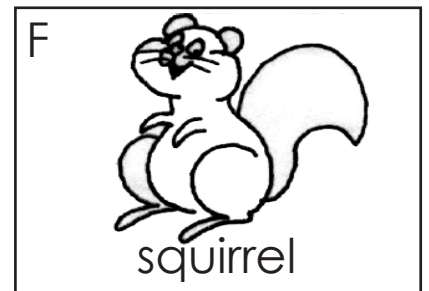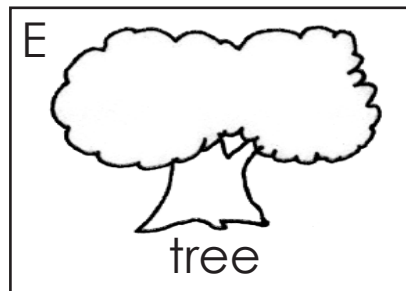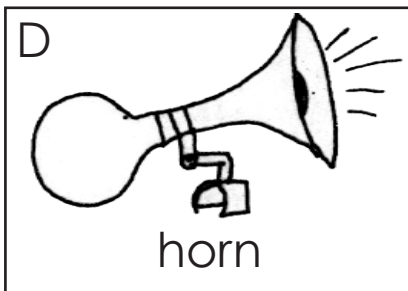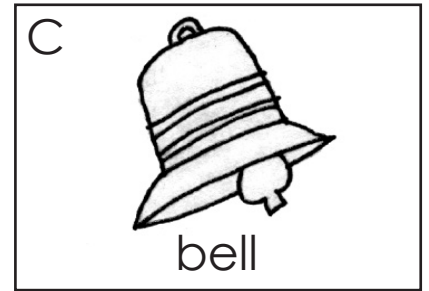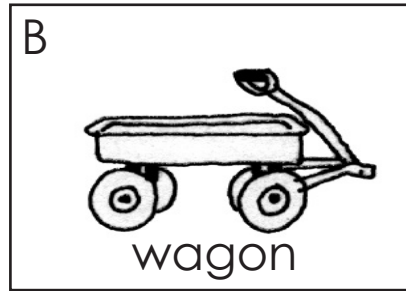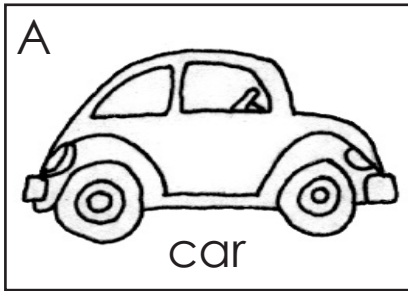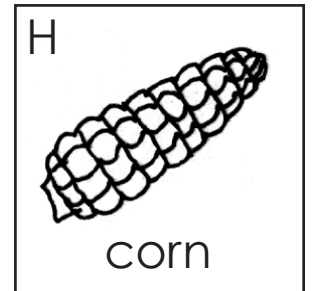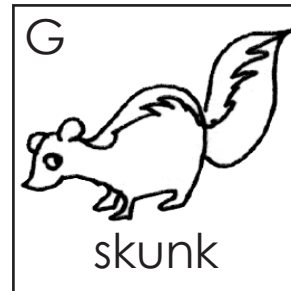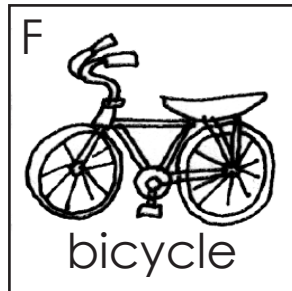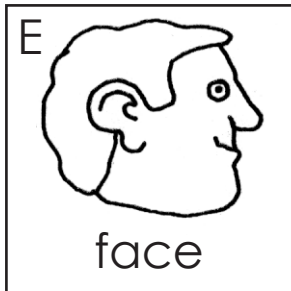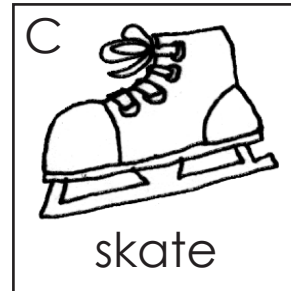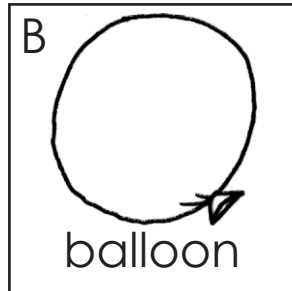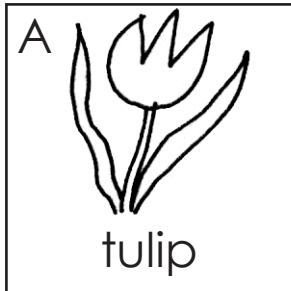
Which pictures are alike?   How are they alike?

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

Name_____ Date_____

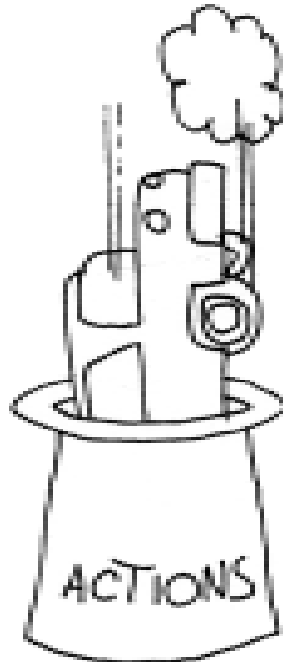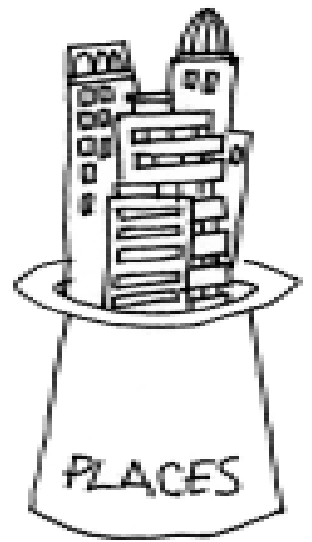**20   Spin a Story (a)**

Write the names of three animals, three actions, and three places. Be sure to put them in the correct box. With the help of a spinner, choose one idea from each box and write a story.

Animals	Actions	Places

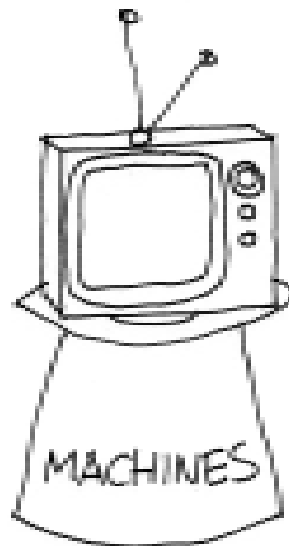|		
1._____	1._____	1._____
2._____	2._____	2._____
3._____	3._____	3._____

Name_____ Date_____

20   Spin a Story (b)

Write the names of three jobs, three machines, and three actions. Be sure to put them in the correct box. With the help of a spinner, choose one idea from each box and write a story.

Jobs	Machines	Actions

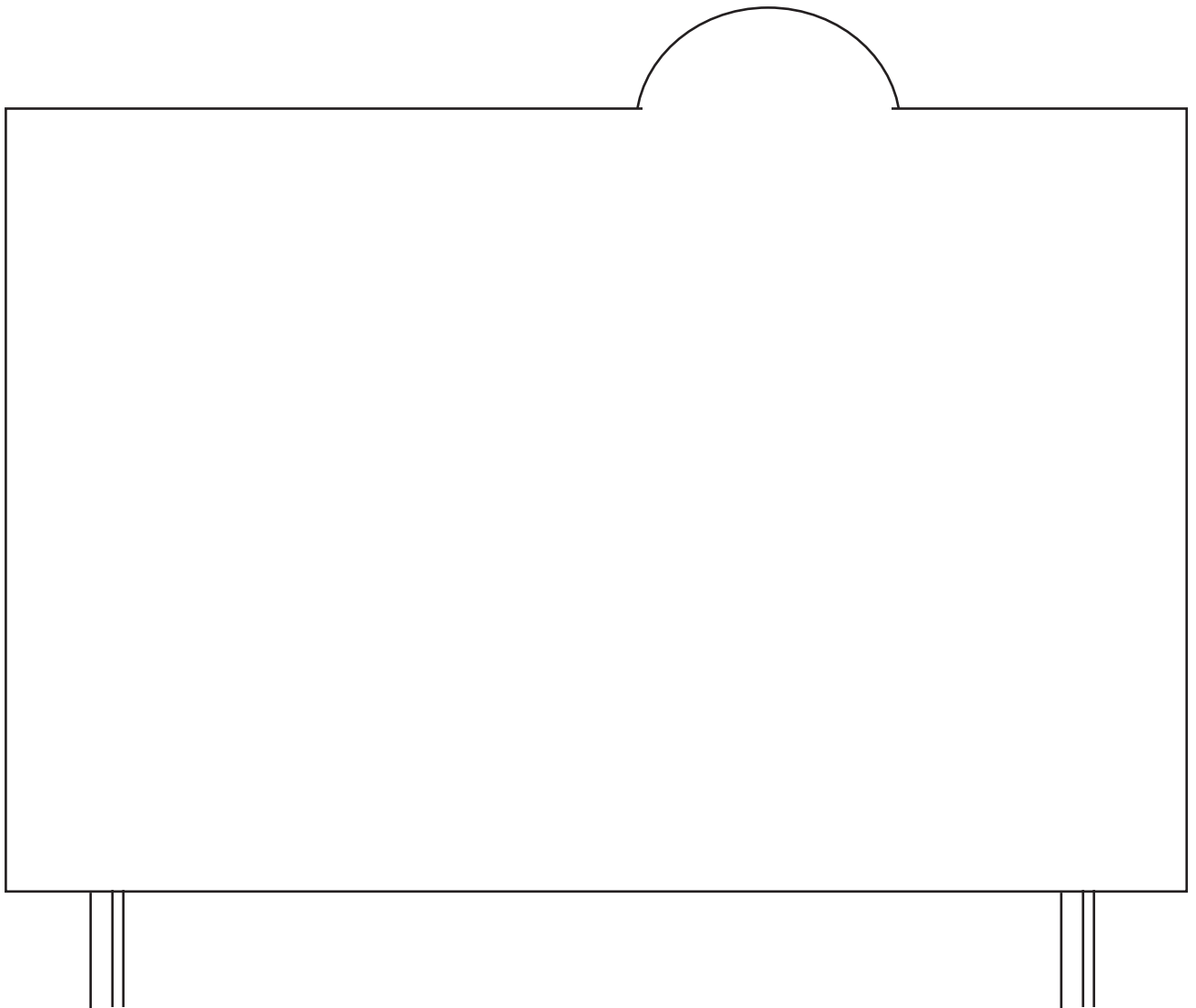1._____   1._____   1._____

2._____   2._____   2._____

3._____   3._____   3._____

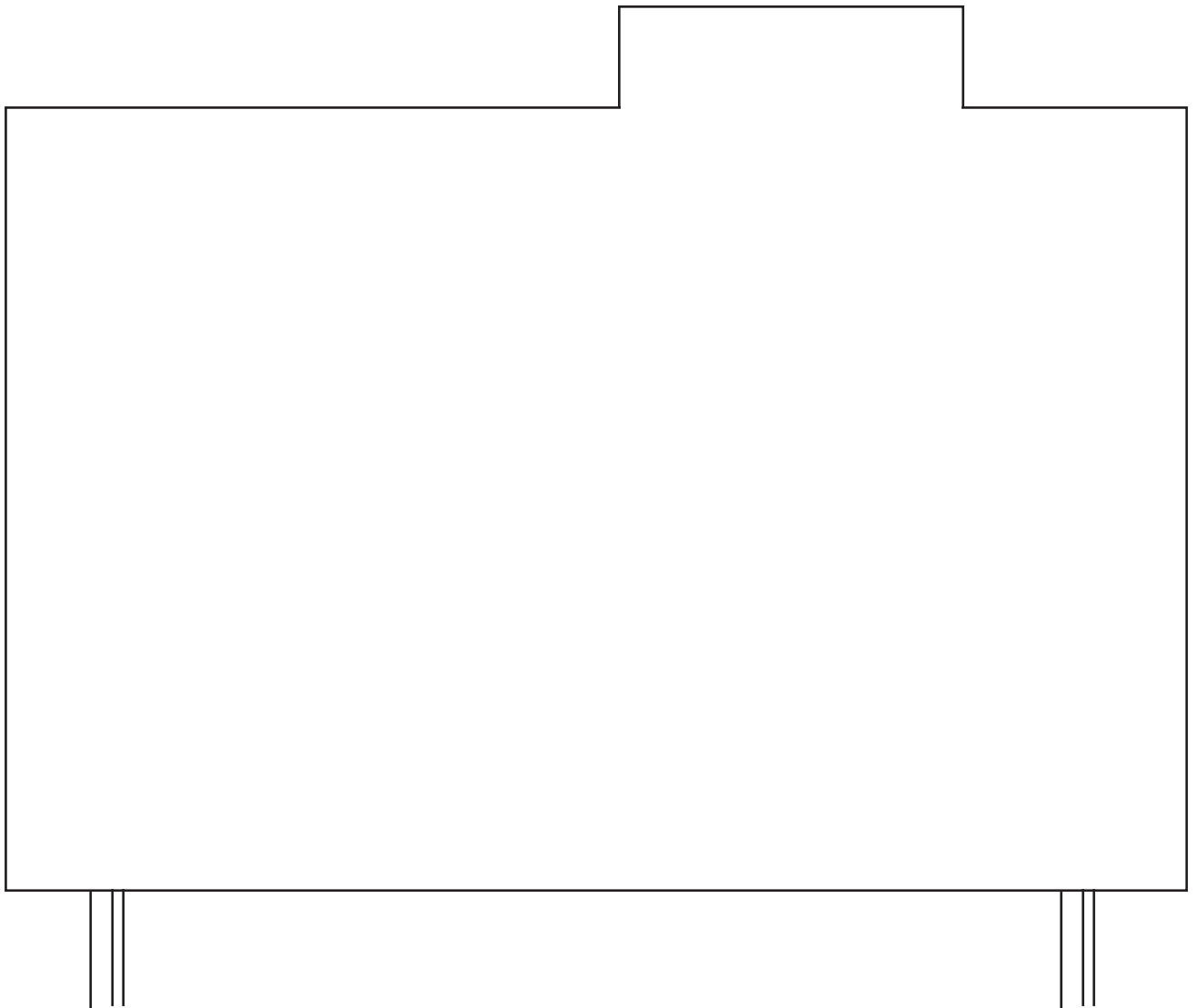**21   I Saw It on the Highway (a)**

Design a billboard about Pucker Pickles.
Be sure to make the rounded shape an
important part of your advertisement.

21   I Saw It on the Highway (b)

Make up your own product. Then draw an advertisement for it on the billboard shown below.

22   Let's Pretend (a)

Pretend that you are a bath towel in this washing machine. Tell a
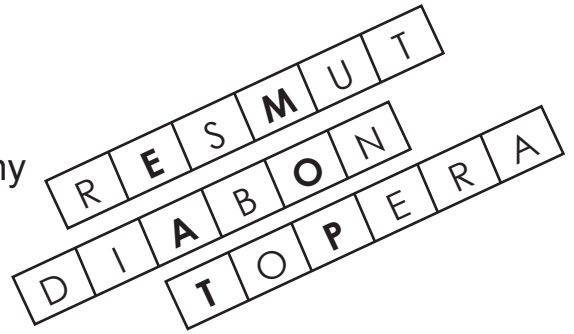story about what happens to you.

Name_____ Date_____
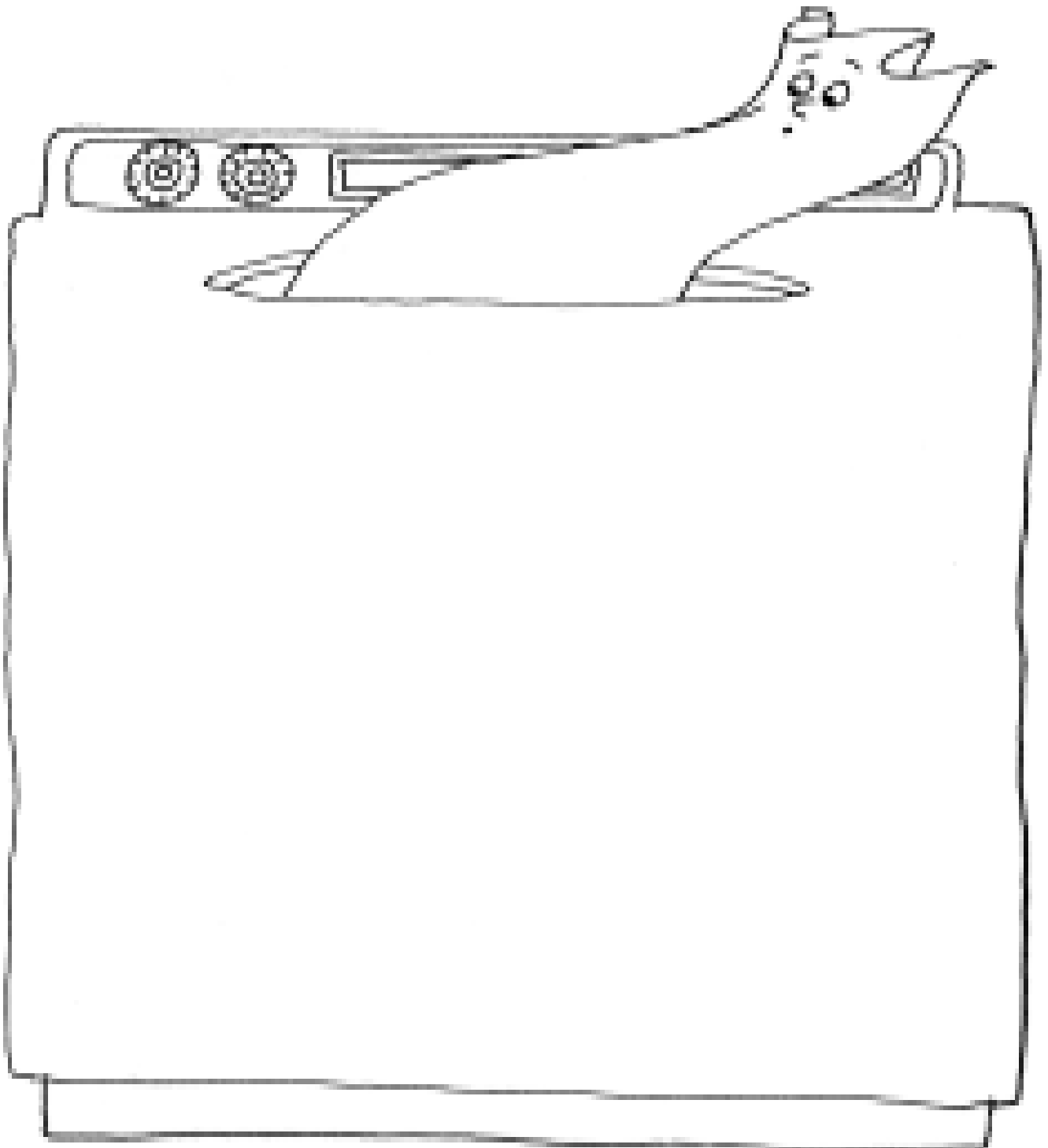
22 **Let's Pretend (b)**

Pretend that you are a kernel of popcorn. You are about to be popped. Write a story about what happens to you.

Wow! It's getting hot in here . . .

Name_____ Date_____

23   Word Makers (a)

Cut out the strips below. See how many words you can make with these strips.

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

- -

R	E	S	M	U	T

D	I	O	B	O	N

T	O	P	E	R	A

23   Word Makers (b)

Cut the strips below. See how many
different words you can make with
these strips.
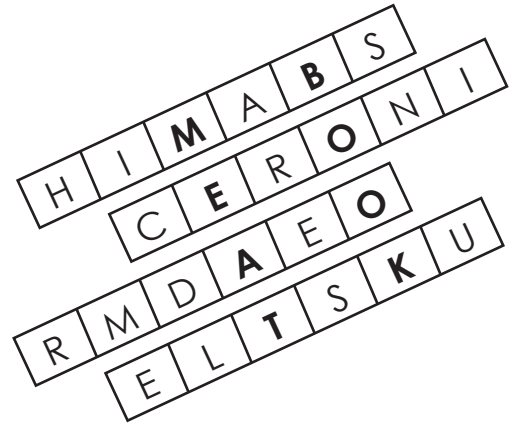
H	I	M	A	B	S
C	E	R	O	N	I
R	M	D	A	E	O
E	L	T	S	K	U

Name_____ Date_____

24   The Advertising Game (a)

Think of a name for a new cereal.
Then design a box cover that will help
sell this cereal.
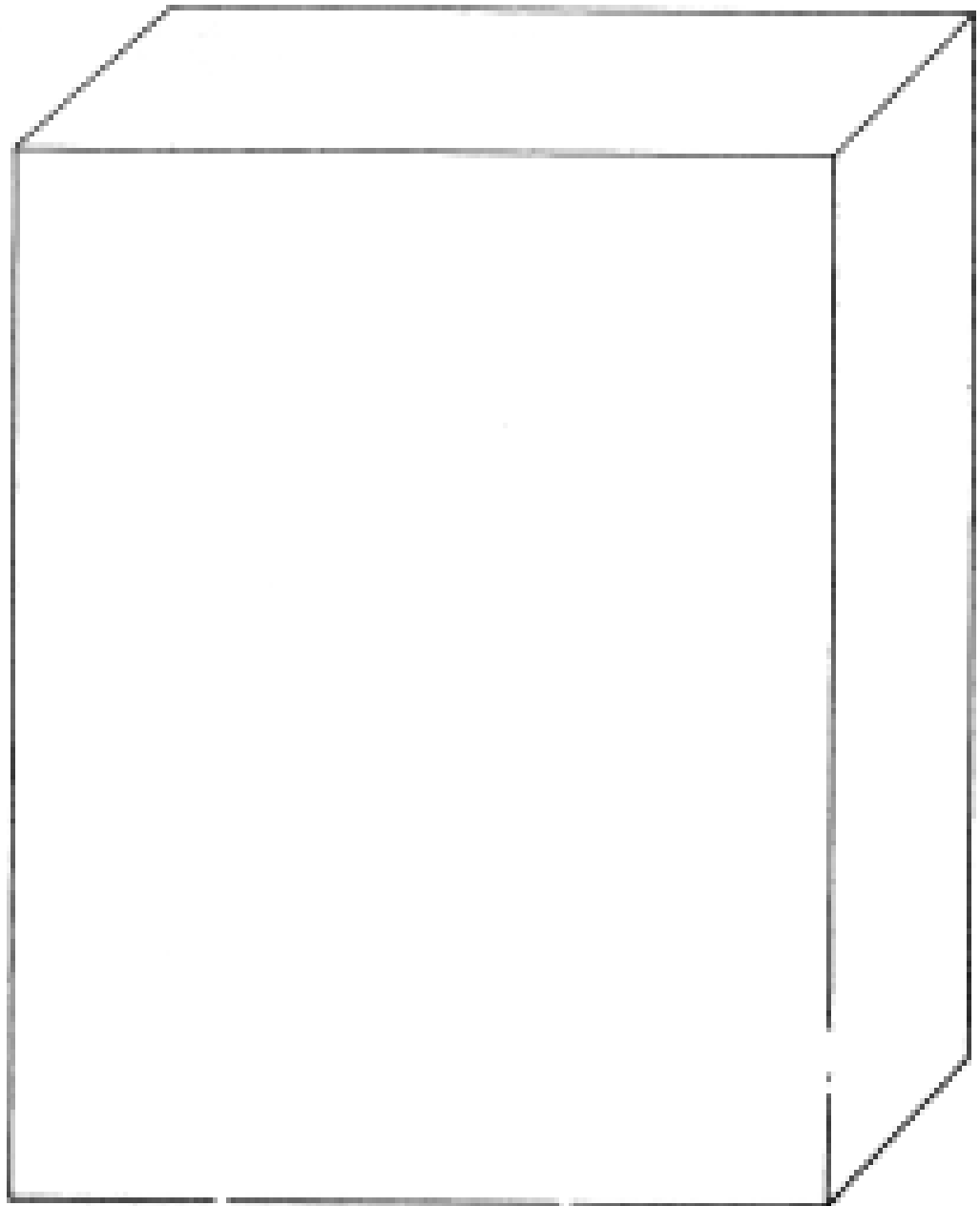
24   The advertising game (b)

Think of a name for a new cookie. Then
design a box cover that will help sell this
cookie.

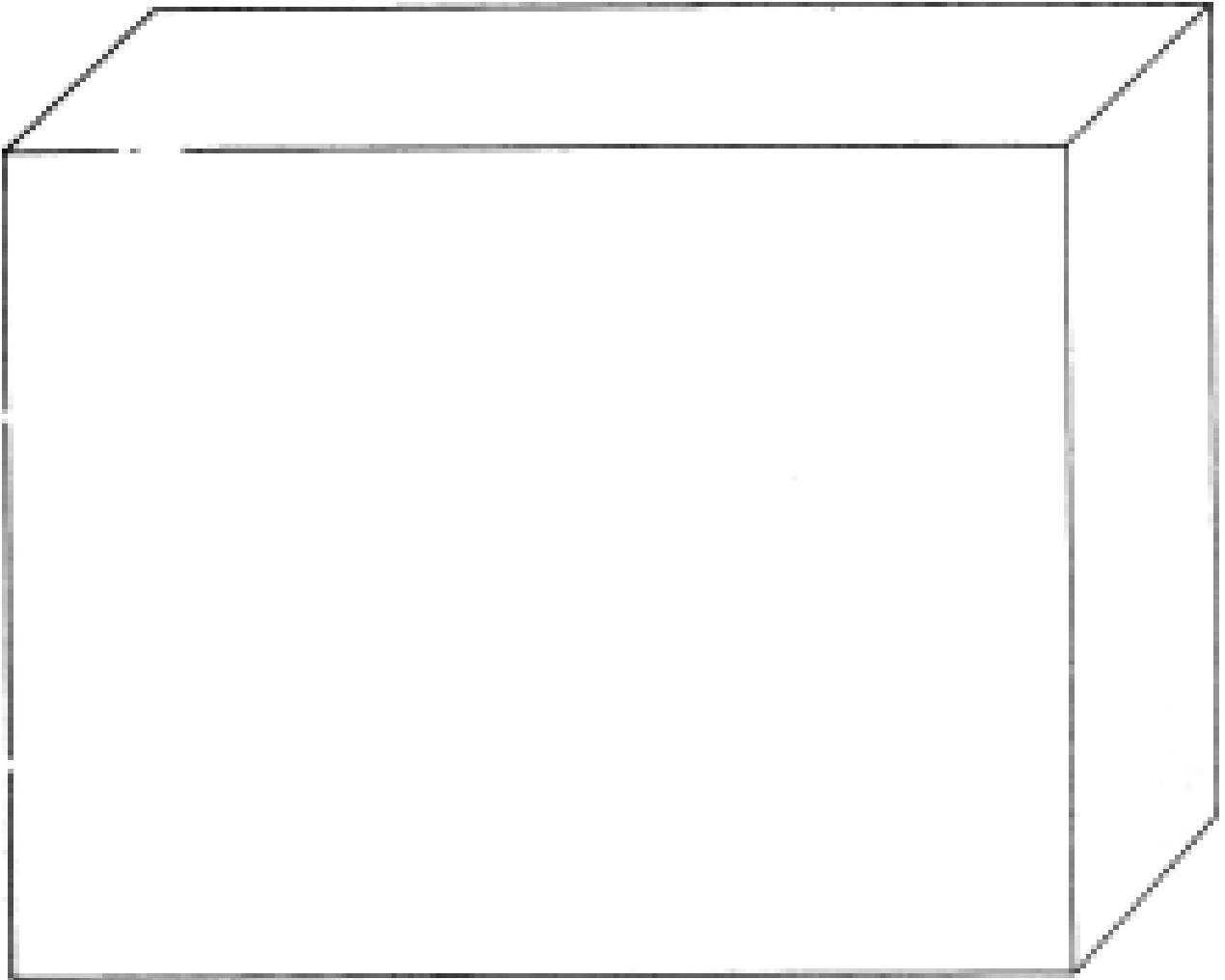**MARK B**: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
1 Thinking about Things	(a)			
Thinking about Things	(b)			
2 Shape Shuffle	(a)			
Shape Shuffle	(b)			
3 What Would Happen If?	(a)			
What Would Happen If?	(b)			
4 The Hat Shop	(a)			
The Hat Shop	(b)			
5 Picture Writing	(a)			
Picture Writing	(b)			
6 Fun with Words	(a)			
Fun with Words	(b)			

MARK B: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
7 The Doodler	(a)			
The Doodler	(b)			
8 What's Happening?	(a)			
What's Happening?	(b)			
9 Content Characters	(a)			
Content Characters	(b)			
10 Word Games	(a)			
Word Games	(b)			
11 Secret Codes	(a)			
Secret Codes	(b)			
12 That Reminds Me	(a)			
That Reminds Me	(b)			

MARK B: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
13 You Design It	(a)			
You Design It	(b)			
14 Eye Spy	(a)			
Eye Spy	(b)			
15 Trademarks	(a)			
Trademarks	(b)			
16 Famous Filmstrips	(a)			
Famous Filmstrips	(b)			
17 Shape Up	(a)			
Shape Up	(b)			
18 Tall Tales	(a)			
Tall Tales	(b)			

MARK B: Activity Sheet Record

ACTIVITY		DATE	CLASS REACTION	FOLLOW-UP ACTIVITIES
19 Figure Families	(a)			
Figure Families	(b)			
20 Spin a Story	(a)			
Spin a Story	(b)			
21 I Saw It on the Highway	(a)			
I Saw It on the Highway	(b)			
22 Let's Pretend	(a)			
Let's Pretend	(b)			
23 Word Makers	(a)			
Word Makers	(b)			
24 The Advertising Game	(a)			
The Advertising Game	(b)			