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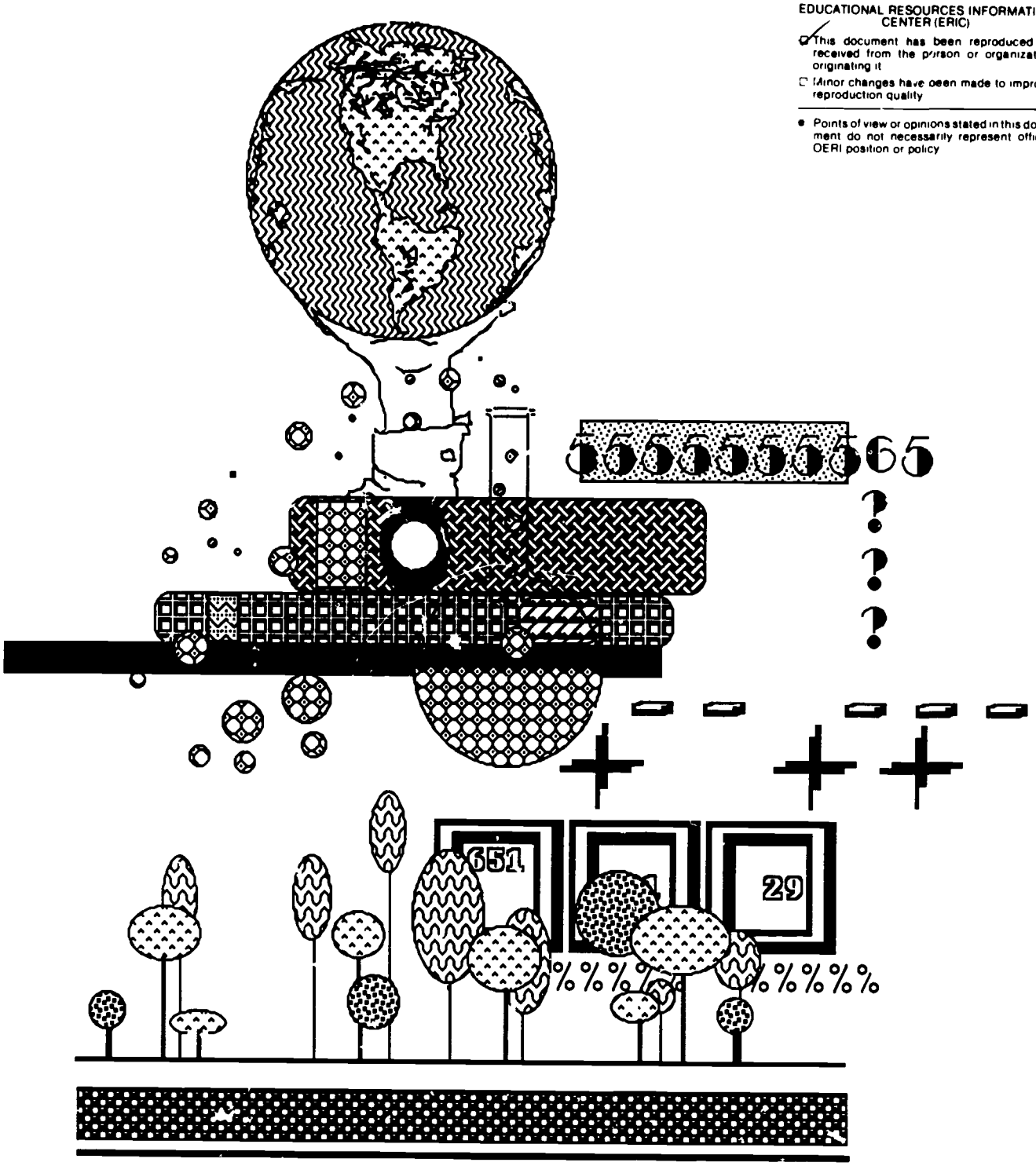
ABSTRACT

The manual was developed as part of the Gifted Curriculum Project, an effort to improve gifted education in Radford (Virginia) and Giles County (Virginia) schools. The manual contains modifications which elementary teachers can use as models in designing appropriate activities for gifted elementary students. The introduction explains the four guidelines for the included curriculum modifications: (1) each example would be tied to one subject of the regular curriculum; (2) activities would conform to the National/State Leadership Training Institute's "Principles of Differentiated Curriculum for the Gifted and Talented"; (3) modifications would be planned as units rather than as single activities; (4) activities would be practical for the classroom teacher to implement. Science modifications cover areas such as the following: magnetism, light and sound, seeing and hearing, the seasons and the weather, animals, plants. Among language arts are: nursery rhymes, language usage through the writing process, biographies, leisure time reading, poetry and word play, letter writing, and oral communication expression. Social studies modifications include local history, the United States in the Twentieth Century, Canada, and the Middle Ages. Mathematics modifications cover such areas as set theory, numeration, problem solving, and graphing and predicting. Appendixes explain the Standards of Learning objective system and list principles of a differentiated curriculum for the gifted/talented. (DB)



CURRICULUM MODIFICATIONS FOR THE GIFTED IN THE ELEMENTARY SCHOOL

1987

CURRICULUM MODIFICATIONS FOR THE GIFTED IN THE ELEMENTARY SCHOOL

Sample Units for Staff Development

A Cooperative Project
of
Radford City Schools, Radford, VA
and
Giles County Schools, Pearisburg, VA

JULY 1987

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Virginia Department of Education

GIFTED CURRICULUM PROJECT

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The Gifted Curriculum Project is a three-phase effort to improve gifted education in the Radford City Schools and the Giles County Schools. The project began in the fall of 1983 and continues through the 1987-88 year. Phase I of the project focused on developing a model for training elementary classroom teachers to serve gifted students in the regular classroom. Phase II of the project - CURRICULUM MODIFICATIONS FOR THE GIFTED IN THE ELEMENTARY SCHOOL - had as its purpose the development of this collection of modifications which elementary teachers could use as models in designing appropriate activities for gifted elementary students. The third phase of the Gifted Curriculum Project is in progress and has as its objective the development of an evaluation procedure which school divisions in Virginia can use to measure program effectiveness.

Phase II Participants

Robert Austin - Teacher - Giles County Schools
Sarah Doss - Teacher - Pittsylvania County Schools
Lorraine Durrill - Teacher - Radford City Schools
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John McPhail - Chairman, Radford City School Board
Ed Sutphin - Elementary Service - Va. Dept. of Education
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Acknowledgments

Any curriculum activity demands time and energy commitments from its participants. This project required such commitment and cooperation among all parties involved with the summer workshop, the piloting of materials, and the final revision of the document.

A special thanks goes to:

* Marty Aylesworth - whose vision for the project sustained us.

* The 13 writers of these materials - who worked literally day and night for one week to help other teachers provide for gifted students.

* Fred Thayer (and his Mac) - for generating the artwork.

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* Brenda Walker - for maintaining excellent records of this project.

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* Dr. Charles B. Franklin and the Radford City School Board - for supporting the project.

* The Giles and Radford teachers - for piloting the materials.

* And, lastly, thanks to Dr. Mary F. Lovern, who, prior to her retirement, was Associate Director of Research and Program Development at the Virginia Department of Education. D . Lovern showed great interest in this and other innovative projects developed by the Radford City Schools. Without her support, this project would not have been possible.

YVT
Project Director

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INTRODUCTION
or *READ THIS FIRST!*

Background and purpose of the project

During the summer of 1986 and the subsequent school year, a group of educators participated in a Block Grant project through which the materials in this booklet were developed. These educators were selected by the project director because of their knowledge of appropriate curriculum modifications for gifted students, their creativity and resourcefulness as classroom teachers, or their expertise in a particular content area. Many of the participants brought all three of these to the project.

The **purpose** of the project was to develop examples of appropriate curriculum modifications for gifted students in the primary and elementary grades. When one surveys the many examples of activities for gifted students that are available commercially, one finds that they are often lacking in quality. Few of the activities provide any real depth or any appropriate focus on major concepts of skills. While the better texts on education of the gifted provide good examples of curriculum modifications, the examples are generally limited in number and used to illustrate a particular technique. Consequently, there are few good examples of appropriate curriculum modifications which can be used in staff development. A second intent of the project was that the examples presented here could be used as models from which trained teachers could develop other activities. It had been our experience that teachers are better able to generate appropriate activities if they are given good examples from which to work. When teachers are given only general guidelines, principles, or abstract models, the generation of appropriate activities is more difficult and more time consuming. Our ultimate goal was that these materials would facilitate staff development so that classroom teachers would be better able to design appropriate enrichment for their own classes.

The project set four guidelines for developing the examples of curriculum modifications that are given here. First, each example would be tied to one subject of the regular curriculum. This was not meant to keep activities from being interdisciplinary; in fact, interdisciplinary activities were encouraged. However, the project sought to produce examples of activities that integrate enrichment for the gifted with the regular curriculum and, for better or for worse, the regular curriculum is typically organized by subjects. While some schools may encourage interdisciplinary instruction, the majority of teachers plan by subject areas

The second guideline was that the activities would conform to the National/State Leadership Training Institute's *Principles of Differentiated Curriculum for the Gifted and Talented.* This set of principles was chosen because it is generalizable to a variety of instructional models and represents as clear a concensus as is available regarding what is

appropriate for the gifted. These principles were reviewed and discussed at the project orientation meeting and then were used later by the project evaluator to review the first drafts.

The third guideline was that the modifications would be planned as units rather than as single activities. Single activities do not provide the depth that is needed to develop appropriate modifications for gifted students. In addition, teachers typically plan instruction by units. Thus, by using units to plan curriculum modifications, there appears to be more opportunity to integrate the planning of enrichment with the planning of the regular curriculum.

A fourth guideline was that the activities would be practical for the classroom teacher to implement. In this regard, the project was aided greatly by the practicing teachers who participated. They were encouraged from the beginning of the project to steer us clear of grandiose ideas which looked impressive on paper but were impractical.

The project began during the 1985-86 school year when these guidelines were formulated, examples were developed, and participants were selected. During the summer of 1986, the participants worked intensely at a retreat brainstorming ideas, writing drafts, and critiquing each other's work. Following this, the participants continued work on the activities based on he feedback from others in the group. During the fall, the activities were distributed to classroom teachers in the two project sites, Giles County Schools and Radford City Schools . Teachers were asked to try to implement the activities, to develop additional activities based on the examples, and to give feedback to the project director. At the same time, the project evaluator reviewed each activity using the N/SLTI principles. In the spring of 1987, the teachers' comments and the evaluator's recommendations were reviewed, and the activities were changed as needed to reflect their suggestions.

Using these materials

A few points need to be made concerning appropriate use of these materials. First and foremost, the materials are not intended to provide one more booklet of activities for untrained classroom teachers. These materials do not replace the need for training all teachers who work with gifted students. Giving these materials to teachers in answer to the question, "What should I do with the gifted students?" would be far from the intent of the project. **The materials require a basic understanding of education of the gifted in order to be used appropriately.** Without some prior staff development focusing on the characteristics, the educational needs, and appropriate instructional techniques, the materials will not be useful to a teacher, a school division, or the students to be served.

Following basic staff development, the materials may be used in two ways: first, as examples of appropriate curriculum modifications in training teachers to apply instructional techniques for the gifted in the

classroom; and second, as models for the development of additional curriculum modifications by teachers. When used to train teachers to apply appropriate techniques for gifted students in the classroom, certain points need to be emphasized. As noted, integration with the regular curriculum is important. As with any enrichment, this may be achieved through compacting or by teaching the objectives of the regular curriculum through the enrichment. It is expected that curriculum compacting would be introduced in basic staff development before these materials are used. In order to illustrate that objectives of the regular curriculum and enrichment objectives can be taught concurrently, Virginia's *Standards of Learning Objectives* are noted for each modification presented.

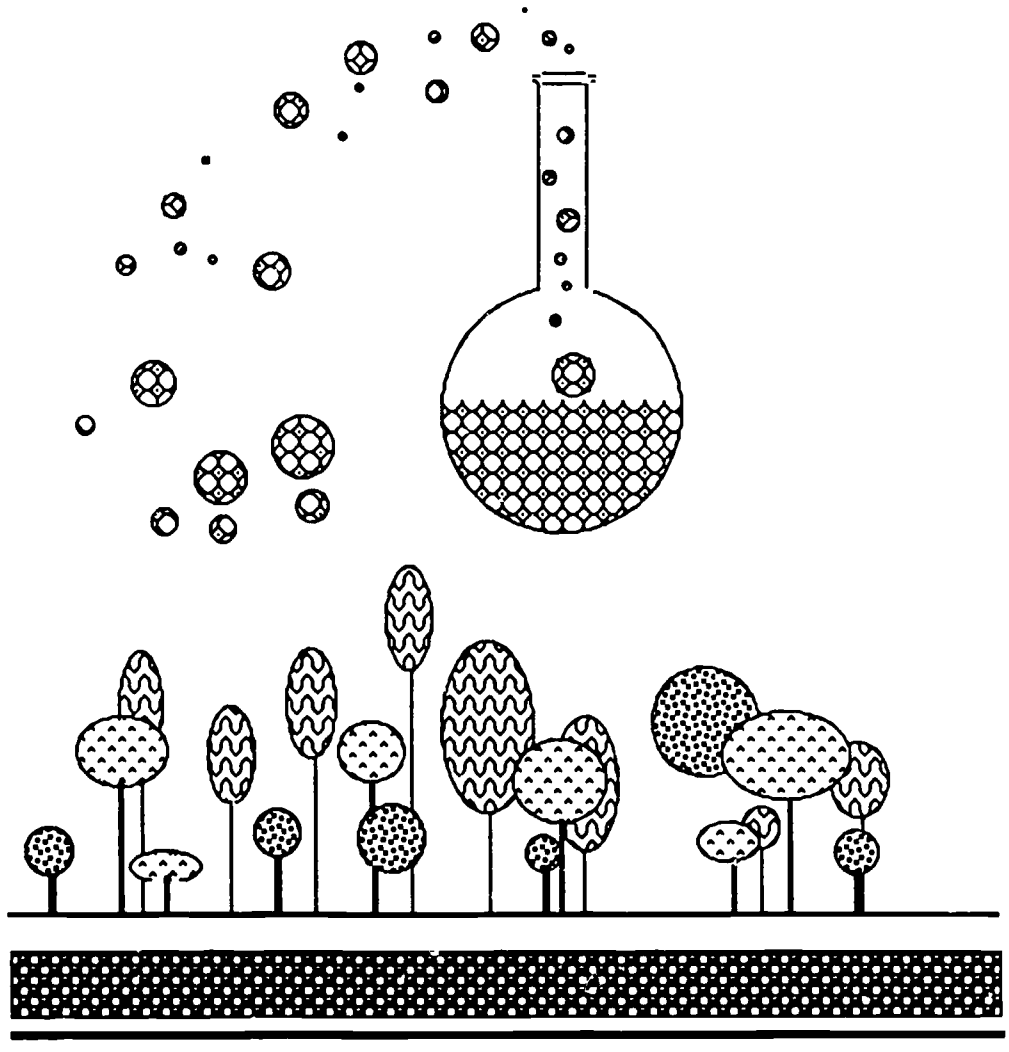
A second point that needs to be emphasized when these materials are used for teacher training is the importance of interaction between the teacher and students. The examples are certainly not intended as assignments to be given to gifted students while the teacher works with other students in the class. As in any instruction, regular feedback from the teacher is essential for meaningful learning to occur. Many of the examples are designed as open-ended activities which may be used with all students. These examples should be noted in staff development, because they represent a means of making classroom management easier for the teacher. However, in order for these examples to be useful, the training needs to emphasize the difference between 1) activities for the gifted which are really not challenging and 2) activities which are open-ended. Teachers must understand that, while both types of activities may be used with all students, only the second type represents appropriate enrichment for the gifted.

Some of the modifications may require specific training related to the techniques used. For example, some of the language arts examples require an understanding of the writing process. Without an understanding of this technique, the teacher cannot implement this activity in an appropriate manner. It was included because this technique is generalizable to many curriculum modifications and because it leads to open-ended activities which include many higher level thinking skills. Similarly, some of the modifications may require specific training relate to the content. This is particularly true of some examples in mathematics which focus on fundamental concepts of that discipline. Without some training related to the concepts that are illustrated, teachers may avoid the activities because they are uncomfortable with the content. In one of the project sites where these materials were tested, a mathematics teacher from the middle school worked with the elementary teachers.

The ultimate goal of the project, however, was not merely to develop examples for teacher training, but to provide models from which trained teachers could develop their own curriculum modifications. To facilitate this, two things are needed. First, teachers need opportunities to discuss these examples with someone who is familiar with the N/SLTI *Principles of Differentiated Curriculum for the Gifted and Talented* so that they understand what makes these examples appropriate. Without this opportunity, the examples could be miseducational. Second, teachers need opportunities to

generate their own examples. Unless the school division provides time designated for this and opportunities for teachers to work in groups so that they can brainstorm ideas and assist each other, this goal is not likely to be met. However, if given this opportunity, we have found that teachers can develop excellent examples of curriculum modifications. Furthermore, since the teachers developed the activities, there is the ownership and confidence necessary to ensure use of the examples in the classroom. That is the real goal of any staff development -- not just teacher training, but carry over to the classroom.

SCIENCE



SUBJECT: Science

GRADE: K-2

UNIT: Magnetism

SOL OBJECTIVES: K.8 1.2 2.4 2.5

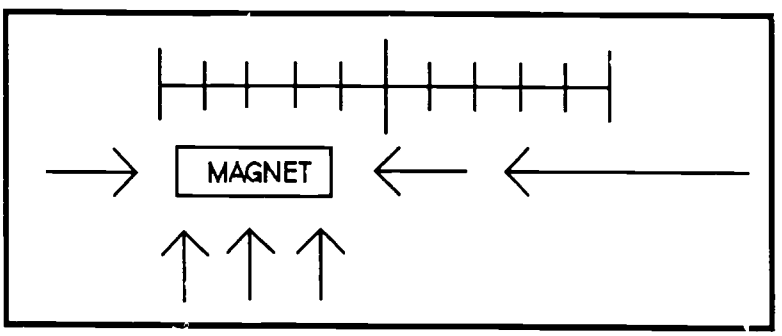
LENGTH OF UNIT: 2 - 3 days

CONCEPTS AND SKILLS: The student will investigate the concepts of magnetic fields.

SPECIAL RESOURCES: Bar magnets, horseshoe magnets, iron filings, paper clips, overhead projector, centimeter ruler.

MAGNETISM

Using the overhead projector, draw a centimeter ruler. Lay a bar magnet on the projector and place a paper clip at the end of the ruler. The child predicts the point at which the magnet attracts the paper clip and then tests his prediction, recording the results.



Then have the child direct the paper clip towards the magnet at different angles, predicting, testing and recording the results of each test on a chart. What happens when the paper clip is directed towards the side of the magnet?

Try a horseshoe magnet and repeat the procedure. How is it the same? How is it different? Place the bar magnet on the overhead projector, sprinkle iron filings onto the glass. What do you see? Add another bar magnet. What happens? What happens if you use a horseshoe magnet? What happens if you use 2 horseshoe magnets? Does the way the magnets are placed on the screen affect the iron filings? How does the pattern of the iron filings match your findings of the magnet and the paper clip experiment?

Students can make their own magnets by rubbing a metal object along a magnet or by making their own electromagnets. Find out which ones are best and why.

Students can research the ways magnets are used - in engines, compasses, etc.

Students can make their own compasses and research why compasses work. How could you make a compass if you were in the wilderness?

Students can feel how strongly opposite poles of 2 magnets attract and like poles repel. Why do opposites attract? Are there other "opposites" that attract each other? Are there other "likes" that repel? Imagine people-size magnets; how would you use your polarity to attract or repel something or someone? Describe the situation. Complete the statement:

I am repelled by_____, but if I could change my polarity.....

NOTES:

SUBJECT: Science

GRADE: K-2

UNIT: Float/Sink

SOL OBJECTIVES: K.7 1.2 2.4 2.5

LENGTH OF UNIT: 1 week

CONCEPTS AND SKILLS: The student will investigate the properties of buoyancy, density, and displacement.

SPECIAL RESOURCES: *Activity 1* - ball from deodorant bottle, salt, food coloring, alcohol, baking soda, soda pop

Activity 2 - aluminum foil, paper clips or washers, clay salt

Activity 3 - plastic soda pop bottle, medicine dropper

FLOAT / SINK

INTRODUCTION:

What is buoyancy? Displacement? Density? Do any of these principles help us understand why some things float and other things sink?

1. Place a ball from the top of a deodorant bottle in a container of tap water. What happens? Time the rate of descent. Slowly add salt to the solution. What happens? Why? Add food coloring. Try other solutions: alcohol, baking soda, soda pop, etc. Predict if the ball will sink or float. Record your predictions. Test your predictions and record the results. Explain why the ball behaved as it did.

2. After conducting initial float-sink experiments with the class, have students construct aluminum foil boats and test their capacity to hold paper clips. Then give each student 1/2 lb. of clay and have each make different numbers of boats, float them with paper clips or weights, and determine which ones will hold the most weight before sinking.

Repeat the experiment in salt water and record results.

What is Archimedes' Principle? How does it relate to this experiment?

3. Fill a plastic soda pop bottle with water. Partially fill a medicine dropper with water. Place the dropper in the bottle. (NOTE: If the dropper sinks it contains too much water.) Cap the bottle. Squeeze the sides of the bottle to make the dropper "dive" to the

bottom and then surface again. Why does the "diver" go down? Can you make it stay in the middle of the bottle? What if you plugged the end of the dropper with a piece of clay or styrofoam?

Investigate how a deep sea diver or submarine dives and surfaces. What are "the bends"?

NOTES:

SUBJECT: Science

GRADE: K-3

UNIT: Light and Sound/Seeing and Hearing

SOL OBJECTIVES: K.6 1.6 1.9 2.4 2.5 2.6 3.4 3.5 3.6

LENGTH OF UNIT: Flexible

CONCEPTS AND SKILLS: These modifications approach the study of light (seeing) and sound (hearing) through art and music. Concepts related to pitch are experienced through experimentation, then generalized to musical instruments. Students will have an opportunity to collect and interpret data, study light and shadow and their relationships to art and visual perspective.

SPECIAL RESOURCES: Rubber bands, tacks, pictures of musical wind instruments, tape recorders and tapes. Optional resources: apple, lamp, still-life or other art reproductions.

INTRODUCTION: Light and sound are a part of our environment; yet, we may seldom consider how they affect our perceptions. This unit uses music and art as a means of increasing student awareness and understand of these natural elements.

Light and Sound / Seeing and Hearing
(Through Art and Music)

1. a. Ask the student to cut a large rubber band so that it is one strip of rubber. Tack or secure one end to a piece of wood. Hold the other end tightly and pluck the rubber band. The student should listen carefully to the sound and try to determine the pitch by "humming". Then, holding the band taut in the middle, have the student pluck the band again, trying to hum the pitch. Comparing the pitches, have the student draw some conclusions as to how and why the pitch changed.

   b. Based on those conclusions, have the student study pictures of various musical wind instruments, i.e. flute, piccolo, French horn, trombone, clarinet, saxophone, and list them according to pitch (highest to lowest). Ask a music teacher or a local musician to review and discuss their responses with them.

2. To increase student awareness of sound in daily life, have the student tape record a variety of sounds that are likely familiar to most people such as food disposals,

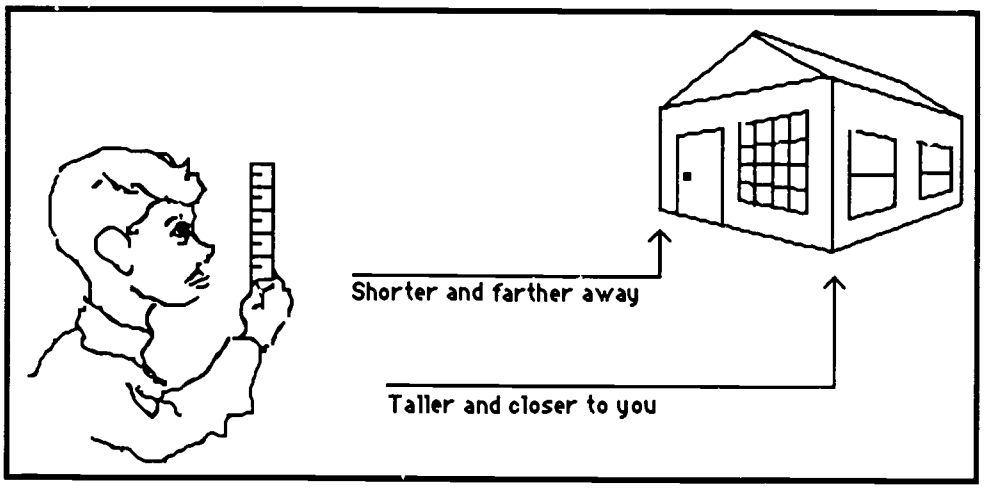
running water, a toilet flushing, a jar being unscrewed and a person cutting food with a fork and knife.

After listening to the tape, the student may choose to play it for several people, asking each individual what sound is represented. The student may keep a record and observe if age or sex is related to response.

SAMPLE CHART FOR SOUND GUESSES

	Sounds		
Name of Guesser	Toilet Flushing	Running Water	Someone Gargling
TOM	X		X
___			
___			

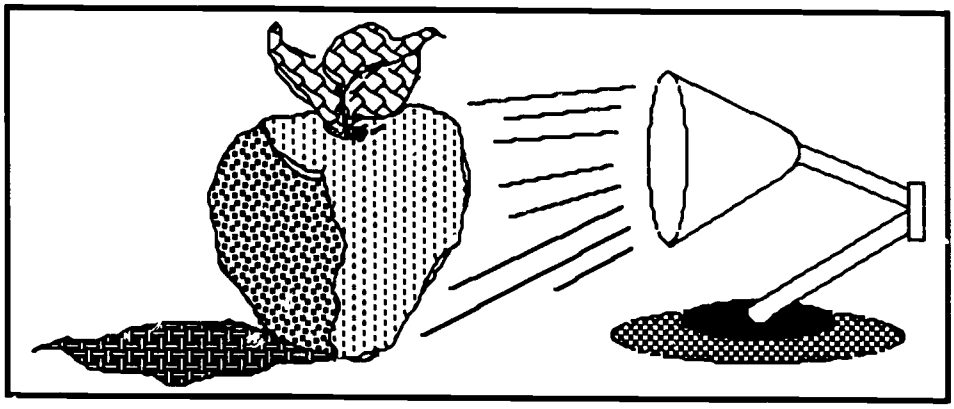
3. After discussing light and/or sight, ask the student to draw a picture of a house. Then have the student stand in front of a house and compare it to the drawing. How many sides of the *real* house can be seen compared to the *drawn* house? The student may stand away from the house at an angle to the house and, using a ruler held vertically four or five inches from his/her face, measure the length of the vertical edges of the house. The student should record these measurements and consider reasons for any differences.



Ask the student to look at photographs and paintings of houses shown from different angles and measure the ends of each house. Ask an art teacher or a local artist to discuss perspective drawing with the student or class.

4. The student may study light and shadow relationships through art.

   a. Place a real apple on a table and have the student draw an outline of it. Shine a lamp onto the apple from a side angle. Next let the student shade the dark area of the apple.



   b. Let the student look at several still life paintings or reproductions and study the effects of light on the objects. Ask the student to determine the direction of the sources of light used in the paintings.

5. Additional areas of sight/sound study might include:

   a. Structure of the eye (The Lions Club or a local ophthalmologist might serve as a resource).

   b. Op art and holograms

   c. Cameras and how they work Students may build a pinhole camera.

   d. Lenses as they are used in magnifying glasses, cameras, microscopes and telescopes

   e. Optical illusions

   f. Animation

   g. Impressionism painting and printed pictures created by dots

   h. Blindness
      - Louis Braille's childhood story
      - braille alphabet
      - technological developments for the blind

   i. Deafness
      - sign language
      - problems resulting from deafness and possible solutions

j. Structure of the ear

k. Vibrations and sound waves

l. How animals see and hear

m. Amateur and CB radio operations

n. Satellite communications

6. Additional information might be presented by a university specialist.

NOTES:

SUBJECT: Science

GRADE: K-3

UNIT: Nature Study/Plants

SOL OBJECTIVES: K.3 K.4 K.5 K.6 K.11 1.11 1.13 2.4 2.5 2.12 3.2 3.4 3.5 3.7 3.12

LENGTH OF UNIT: 1 week

CONCEPTS AND SKILLS:

1. Collection of samples/specimens
2. Description of samples based on observation
3. Identification of samples through research
4. Reading a map
5. Analyzing specimens

SPECIAL RESOURCES: Microscopes, magnifying glass, mystery bag of samples/specimens, treasure hunt list, map, notepad, bags and jars for specimen collection

INTRODUCTION: The student will act as a naturalist in exploring the world of nature and conducting research to learn more about his findings.

NATURE STUDY

Collecting specimens and samples

Provide a notepad for students to write or sketch where specimens were found.

Bring in a mystery bag of specimens for students to (1) describe the specimen (2) write or tell what is unusual about the specimen (3) predict the environment of the specimen.

Provide a map of the area or nature hike trail. Provide a list of items to be found. For example:

1. Evidence that an insect has been at work
2. Two kinds of seeds that travel
3. Evidence of erosion
4. Evidence of litter bug
5. A bird's feather with proper identification
6. Something destructive which was done by man
7. A plant with spores
8. Evidence of good/poor conservation
9. Evidence that a predator has been at work
10. Plant succession
11. Geometric patterns in nature

NOTE TO TEACHER: Students will need to research concepts with which they may be unfamiliar (e.g. predator, conservation, plant succession). Follow-up research on specimens found on the hike will be needed to make proper identification of specimens.

Water samples from streams or lakes can be studied under a microscope to identify organisms found in the water.

Winter/summer specimens from tree bark can be identified and researched to find out their various stages for each time of year.

Sounds from the nature hike can be tape recorded to identify in class.

Collect soil samples from different areas. Study what pH means. Students can find out what types of soil yield what types of plants in their region.

NOTES:

SUBJECT: Science

GRADE: K-3

UNIT: The Seasons and the Weather

SOL OBJECTIVES: K.6 K.10 K.14 1.5 1.10 2.2 2.4 2.5 2.6 2.9 3.4 3.5

LENGTH OF UNIT: Flexible

CONCEPTS AND SKILLS: The student will be involved in studying patterns and occurrences in nature and drawing his/her own conclusions to be compared with accepted natural laws. Seasons and weather conditions will be studied through literature, mathematics and scientific investigation.

SPECIAL RESOURCES: Globe, newspaper or USA Today, paper and cellophane or masking tape, information from the Red Cross or other source related to weather crisis precautions and procedures. NOTE: The last activity requires a glass bottle, hot water and ice cubes, but may be one at home.

INTRODUCTION: Changes in the weather and seasonal changes affect our moods, our environment and our activities. Through an interdisciplinary approach, students may explore, analyze and react to these changes.

The Seasons and the Weather

1. The seasons and the weather are not the same around the world. Have the student record the temperature in his locality. Using a local newspaper or USA Today, ask the student to record the temperatures for the same day in major cities around the world. The student may then write these temperatures on small pieces of paper and tape them to a globe at the appropriate locations. Ask the student to look for patterns and draw conclusions about the seasonal changes based on the location of the cities on the globe (both latitude and longitude) as well as the cities' terrain. Students may wish to follow temperature and climate patterns over a period of time, using the following chart:

TEMPERATURE

NAME OF CITY	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
_____(hometown) London Paris Madrid Sydney Tokyo					

2. Each season of the year creates a different mood as the weather and nature change. Give the student the following scenario, "You are a writer who is writing a novel. You want the first sentence to "show" the readers that it is a certain season without telling them which season it is. Write the opening sentence, building on to your idea to create a picture in the reader's mind." The following is an example from a third grade student who completed this activity: "The hot sun was beating on my back and everywhere I was, I could smell fresh hot dogs and fresh hamburgers cooking on the nice, warm grill."

3. There are many sayings about the weather that have been passed from generation to generation, such as the following examples:

> "Red sky at night, sailor's delight,
> Red sky at morning, sailors take warning."
>
> "When the temperature is between 64 degrees F and 100 degrees F,
> a cricket will indicate the temperature if you count its chirps
> in 15 seconds and add 20."
>
> "When the cows huddle with their heads together, there is a
> storm brewing."
>
> "When the wind is blowing so that the underside of the leaves
> on the trees turn upward, a storm is on the way."

Ask the student to collect sayings related to the weather and seasons. Possible sources for information include interviews with grandparents, older neighbors, parents, and Farmer's Almanac."

The student can test the reliability of these methods by observing them in nature, recording the results and discussing possible conclusions. Encourage the student to reflect and research the reasons why the sayings may be true at least some of the time.

4. For different weather crisis, there are different precautions that should be taken. Ask the student to research what actions should be taken in a hurricane, in an electrical storm, in a tornado and in a flood. (A source for such information might be the Red Cross.) Have the student contrast these precautionary measures and develop hypotheses for why they exist. For example, why do you open the windows when a tornado is coming, but you board them up before a hurricane?

5. To better understand what problems are created by certain weather crisis, have the student interview someone who has lived through a flood, a hurricane, and/or tornado. The student can develop a list of questions such as the following:

a. Where were you when it happened?
b. Did you have any warning?
c. What did you do to prepare for the crisis?
d. What kind of damage did it create?

The student may share this information by writing a short story account of the interviewee's experience, by giving an oral account to the class, or by inviting the individual to speak to the class.

6. Weather crisis can be studied through literature. The student can read the opening of the Wizard of Oz to get an account of a tornado, or Peter Spier's books on Noah and the Ark or Rain to reflect on flooding and thunderstorms.

7. Many explanations have been written and passed down through folklore about what thunder really is. Ask the student to imagine a story about the origin of thunder. The student may relate this story in writing or through a series of pictures, similar to Peter Spier's approach.

8. Ask the student if he/she has ever wondered why clouds get dark before it rains. Encourage the student to conduct the following experiment:

> *Pour about 2 inches of hot water in a clear glass bottle. Wait one minute. Darken the room, place ice cubes over the mouth of the bottle and notice what happens. Think about why this might have happened and discuss your reasons with an adult at home or at school.*

NOTES:

SUBJECT: Science

GRADE: 4 - 6

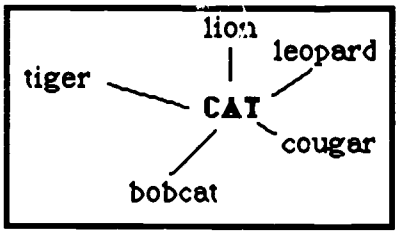
UNIT: Animals

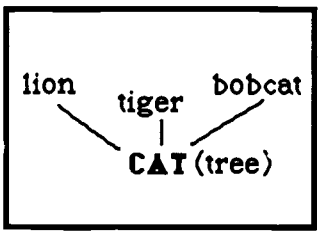
SOL OBJECTIVES: 4.2 4.14 4.16 5.4 5.13 5.15 6.14 6.16

LENGTH OF UNIT: 2-3 weeks

A N I M A L S

1. The teacher should have students group pictures of either vertebrates or invertebrates (at least 10 from each category) according to two different characteristics. Now have students group animals in each category by three or more characteristics found within each group. Next the students should determine specific characteristics within each group i.e. animals with four legs. Using library references, have each student pick an animal and make a "family" illustration of its relatives. For example:





More advanced students might be interested in formal classifications, listing examples of each. For example:

Species	Domestica
Genus	Felis
Family	Felidea
Order	Carnivor
Class	Mammal
Phylum	Chordates (vertebrates)
Kingdom	Animal

Students may wish to apply these activities to their own pets, researching the domesticating of their or other animals. Findings could be presented to the class.

2. Habitats

   a. Have students choose a 2' x 2' grassy area not regularly frequented by people but exposed to periods of both sunlight and shade. Students should describe the area including evidence of nature living and non-living as well as weather conditions. Next the student should cover a portion of the

area with a piece of wood. He or she should then record what and why changes take place during the period of a week or two.

Have the students try covering part of the area with other items as plastic, bricks or old tires.

b. Students could illustrate a comic strip or story about an animal out of its normal habitat. Even if humorous, the strip/story should relate environmental problems that the animal might be forced to confront.

c. Students might make a list of birds common to their area. On a map they could trace the routes of birds that migrate, comparing the areas where birds winter to summers and winters in the students' area. The habits of hibernating animals might be recorded.

3. Interaction (Effects of pollution, etc.)

a. Discuss with students environmental problems (both natural and man made) that effect plant and animal life.

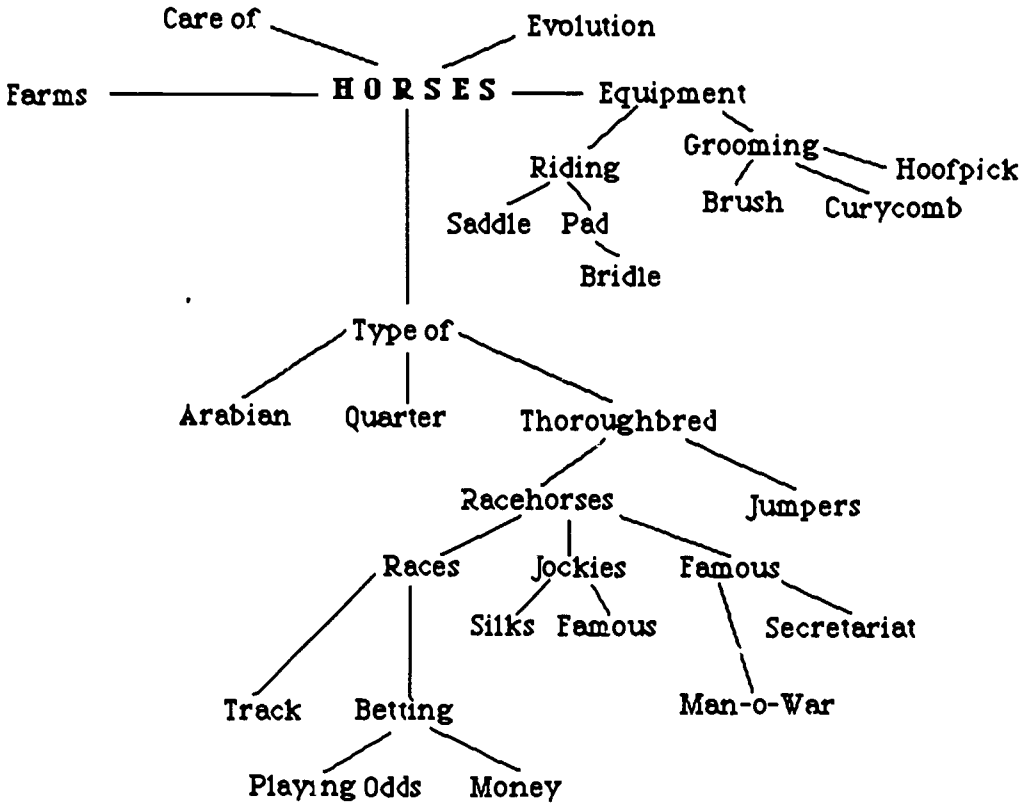
b. Using reference materials, have students design a plan to correct one of the man made problems discussed in A. For example:

Methods of "clean-up"
Letters of applicable government agencies and individuals
Letters to applicable companies and industries
Poster or ad campaigns to inform the public

The students should then summarize the results of their efforts, determine what was learned and consider methods of follow-up.

c. The teacher could provide students with a list of extinct or nearly extinct animals. After students have completed research related to these animals, they could list favorite, perhaps local animals, that could become extinct if conditions were changed. The students should discuss the causes of animal extinction.

d. The teacher could present information to students about the interaction that takes place in a food chain/pyramid/web. The student might select an animal and determine and illustrate its place in a food chain. Students could discuss the effects of disruption of a food chain.



NOTES:

(See Language Arts - Page 38, Language Usage through the Writing Process, Grades 2-3, Pre-Writing activity 1.2. for another activity using webbing.)

SUBJECT: Science

GRADE: 4 - 6

UNIT: Insects

SOL OBJECTIVES: 4.3 4.5 4.14 4.6 5.13 5.15 5.16 6.13 6.14 6.16 6.20

LENGTH OF UNIT: 4-6 weeks

CONCEPTS AND SKILLS: This modification focuses on changes taking place through natural selection/adaptations in organisms; variation and diversity among living things; and interrelationships between living things and their environment. The major skills developed are observation; classifying, collecting, and interpreting data; reporting data and evaluating data.

Insects

*Classification and Observation**

1. Collect at least 15 different species (different types, i.e. only one type grasshopper, beetle, etc.) of insects. Students should note where the insect was found, listing a brief environmental description for both living things (plants and animals) and non-living things and time of day.

2. Students will then mount, label (including type, location, etc.) and display the collection of insects.

3. Have students group specimens according to one variable, two variables, three variables, etc. until there are two or less specimens in a group. Note: Encourage students to use location or time as one of the variables.

4. Habits and adaptions. Group specimens according to similar body parts: for example, specimens with similar antennae. Have students compare these specimen's environments, eating habits, etc.; draw conclusions relating to these similarities.

5. Variation within a species. Students will choose one specie (i.e. beetles) and collect at least 10 different types. Students will need to research where, when, and how to find this specie. Students can illustrate adaptations and characteristics and explain the importance of each, i.e. camouflage to blend with the surroundings; specific type antennae for food getting.

6. Relate how a peppered moth's color has changed from a light grey, which matched the trees it stayed around, to a speckled grey and black. The bark of the trees become speckled from smoke put out by factories.

7. Have students redesign one of their insects to fit a new area/environment. For example, suggest moving the insect to an area with less predators but faster food. There is less need for camouflage and more need for jumping legs or wings.

8. Prepare for the class a presentation on insect adaptations and/or amazing feats they can perform.

**After reading this modification, the teacher should determine vocabulary that the student will need to know. Requiring students to collect equipment would be another possible activity. Presentations done by the students will depend on interest and types of materials available.*

Interaction

After one week, have the students change one variable in the habit: i.e., add no water; add 2x amount of water.

Illustrating Three Different Life Cycles of Insects

Have students collect moth or butterfly larvae. Placing them in a jar with leaves and twigs from where they were found, observe them as they feed and then go through the rest of their life cycle. Be sure leaves are added daily.

Illustrate the changes that are observed.

List factors that would disrupt this organism's life cycle. Use two categories: living and non-living.

Ways of Insect Communication

Prepare an interview with an entomologist from a college or university to determine how and why insects communicate. Present your findings to the class.

Pest Control

Talk with a local farmer, listing the types of insects that cause him problems and the types of beneficial insects. List insect problems and benefits determined by neighbors who garden, agricultural agents, grandparents, and other contact sources.

Discuss patterns of insect problems, i.e., always same variety; different each year; effect of weather (especially winter and spring).

Discuss and list how farmers control pests. Research effects on the environment caused by methods used. Can an alternate method to control harmful pests that does not disturb the environment be found?

NOTES:

SUBJECT: Science

GRADE: 6

UNIT: Plants

SOL OBJECTIVES: 6.2 6.3 6.14 6.20

LENGTH OF UNIT: 3 - 4 weeks

CONCEPTS AND SKILLS: The interrelationships between living and non-living things

P L A N T S

Map the plants around your school (be sure to key the plants growing under trees). The total area covered by the map can be determined by students' interest and ability. Suggest starting from the school building and then moving beyond.

Have students map the area around their house or another chosen location.

Compare the maps, noting similarities and definite patterns.

List numerous factors that effect the growth of plants. Remember to consider both living and non-living factors.

Procedure:

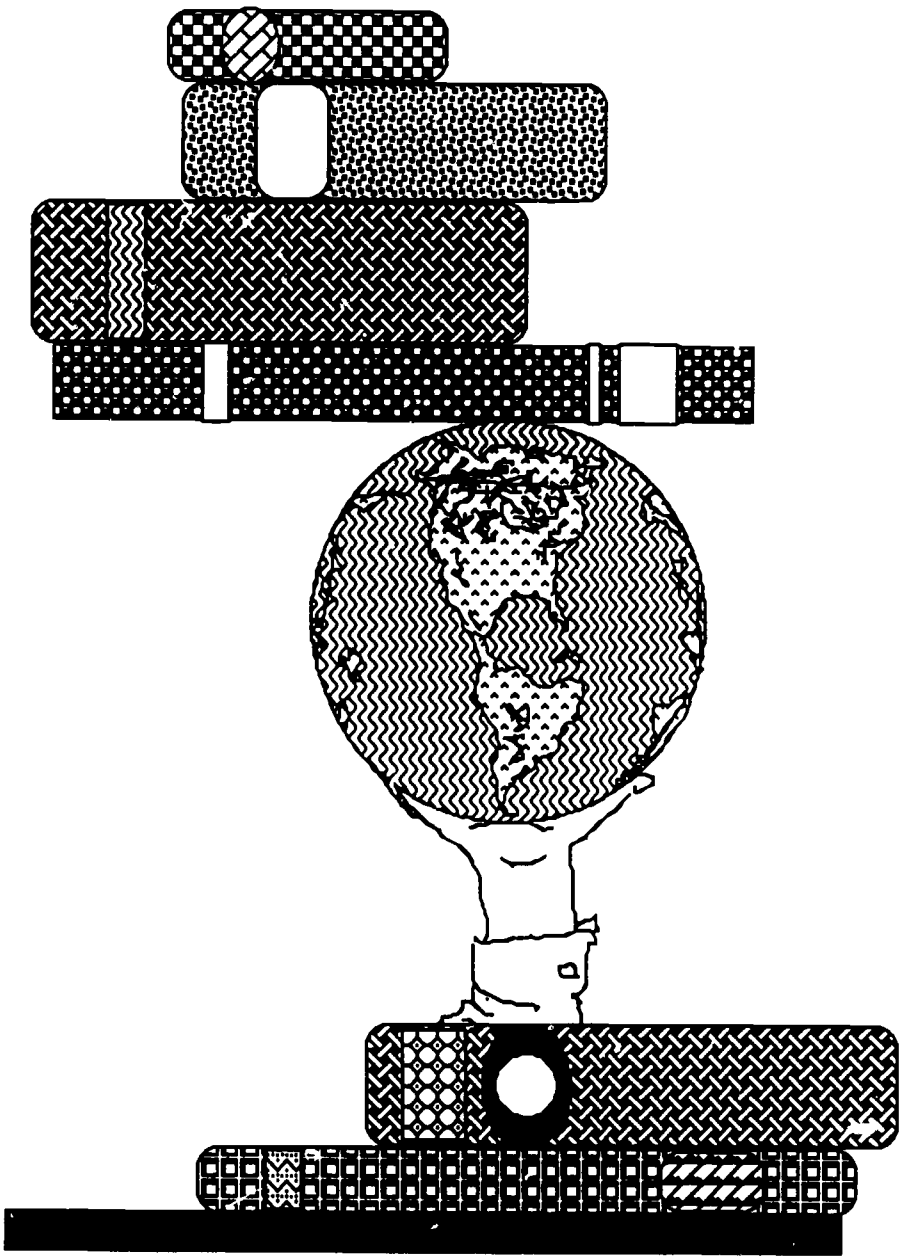
1. Soak lima beans in water overnight.
2. Fill 9 containers with equal amounts of potting soil. Fill a 10th container with sand.
3. Plant lima beans 1/4" (1 cm.) into soil.
4. Pair the containers (numbering them for observation purposes - pair #1, #2, etc.) and record time and date.
5. One plant from each pair will be the control plant with each getting equal amounts of water and sunlight. The other plant in each pair will have one variable changed i.e.: #1 increase the amount of water; #2 increase the amount of time in the sunlight; #3 store in refrigerator when not getting set amount of time in sun; #4 add small amount of vinegar to water; #5 is the container with the sand instead of soil.
6. For each pair, predict which of the two plants will grow to a predetermined height the fastest.
7. Observe the plants growth daily and graph each pairs growth.
8. Discuss the evaluate the results with your teacher and then present the results in graph form to the class.

Using the control plants from the experiment, design an experiment which will show the effects of pollutants on plant growth.

Using your results, prepare a presentation using posters, video tape, cassettes, slides, etc. in order to inform people of the harmful effects of pollutants on plants and environment.

NOTES:

LANGUAGE ARTS



SUBJECT: Language Arts

GRADE: K - 1

UNIT: Modifications for the Advanced (Early) Reader

SOL OBJECTIVES: K.4 K.9 K.10 1.3 1.5 1.7 1.8 1.10 1.12 1.13 1.16

LENGTH OF UNIT: Ongoing

SPECIAL RESOURCES: Teacher aide, community volunteer or student volunteer (preferable); books, magazines, filmstrips, human resources related to student's interest(s) (see Activity #6); tape recorder and tapes; quiet corner or area for reading, recording and conducting activities; folder for each child.

INTRODUCTION: This unit presents modifications for the child who enters kindergarten with some reading skills or readily learns how to read. Suggestions are given for classroom management considerations, as well as actual activities to be conducted.

Advanced Reader

Classroom Management

1. Teacher aides, community volunteers or older students can provide a greatly needed audience to the advanced or early reader for interaction and responses to the student's reading. Another possible audience might be an "adopted grandparent"- an older person in the community who would be willing to volunteer time in the school to work with the advanced reader(s).

2. A tape recorder and a listening/recording booth (at fairly quiet corner) can greatly assist in communicating instructions and allowing the student to respond in the absence of a human resource.

3. Time in the library could be valuable to the advanced reader who is curious and eager to read. Allow times when the advanced reader can have access to the media specialist or librarian, or an older student, to gain familiarity with reference materials, books, the card catalogue and the organization of the books on the shelves. The student should be encouraged to spend time browsing through such resources as the Guinness Book of World Records, the Atlas, Farmer's Almanac, and others.

4. In scheduling time for the advanced reader to read and to conduct the suggested activities, the teacher could choose class time when skills the student has mastered are being presented or reinforced. (Such mastery may be determined by pretest or observation.)

5. Allowing the advanced reader time to read is not addressing all of his/her needs as an early reader. The student will need time to develop an understanding and

appreciation for what has been read, as well as to analyze and evaluate his/her reactions to the reading.

Activities

1. The advanced reader needs opportunities to share his/her reading with others. If another student or a volunteer is not available, a tape recorder could address this need indirectly. The student could read the book aloud, using appropriate expression, and record it. These tapes could then be used in a learning center for the slower readers who can listen to the tape as they follow the words.

2. If the advanced reader feels comfortable doing so, he/she can gain leadership and oral reading experience by reading to a class or group other than his/her classroom peers. First grade students may enjoy reading a favorite book to kindergarten students, and developing some questions about the book to ask the class or group.

3. If an older volunteer (aide, community volunteer or student) is available, encourage the advanced reader to select a book for reading. Have the child read aloud to the volunteer. As the advanced reader encounters words that are unfamiliar, the volunteer can record those words with the child in the child's "vocabulary book". At the end of each period with the volunteer, the child and the volunteer can use the dictionary to find and record the meaning of those new words. The volunteer could encourage the child to use the new word in conversation during the week.

4. As the advanced reader reads the selected book, the volunteer should seek opportunities to ask questions that aid the child in reflecting on, analyzing and evaluating what is being read. Sample questions that might achieve these objectives are listed below:

   (1) What are several different reasons why this character did what he/she did?

   (2) When have you done or felt something like the character did, and what happened as a result?

   (3) If you were in the character's shoes, what might you have done differently?

   (4) What might have happened if . . . (change circumstances of the story, i.e. The mother of the children in The Cat in the Hat (page 12) had come home ; the boy in (name of story) had been a girl; the "goose that laid the golden egg" in Jack and the Beanstalk had been "the cow that gave golden milk"? What problems would have developed and how could Jack have solved them?)

5. The volunteer should look for opportunities to develop depth of learning stemming from the child's reading. For example, in The Cat in the Hat, the cat gets pink ink in the bathtub. Let the student experiment with different ways to get pink ink (or red) off of an absorbent surface (cloth, wood). Allow the student to test different kinds of surfaces to see which will absorb ink (tile, carpet, glass, plastic, paper).

6. The advanced reader should be encouraged to use reading as a means of learning more about topics of interest.

   (1) The teacher of volunteer could administer an informal interest inventory to the student. Questions on such an inventory could include:

   a. About what would you like to learn more ?

   b. What do you like to do when you are by yourself?

   c What do you like to do with other people?

   d. What are the names of some books you have selected to read?

   e. Which subjects (science, math, music, etc.) do you like best? Which do you like least?

   (2) The student, working with the teacher or volunteer or a tape recorder, should determine and record a list of questions that he/she would like to answer related to the selected topic.

   (3) A folder or booklet would be helpful in recording questions, answers and reactions, and collecting information.

   (4) Based on the student's interests, books and other materials that would be mutually reinforcing should be selected. Resources could include fiction and non-fiction books, filmstrips, human resources, reference books, magazines, responses to letters of inquiry from the student, or observations and data collected from experiments.

   (5) To share his/her new-found knowledge and awareness, the student may choose an appropriate product. The area of interest and the types of reading and research should be considered in selecting the product.

Types of products *that could be considered include the following:*

Oral	*Classroom presentation* *Discussion with small group of peers*
Visual	*Display* *Chart* *Illustrations* *Draw-on Filmstrip* *Collage* *Picture/Story Book* *Factual Booklet* *Map* *Timeline*
Kinesthetic	*Model* *Diorama* *Sculpture* *Puzzle/Game*
Written	*Letter* *Report* *Diary/Journal*

NOTES:

SUBJECT: Language Arts

GRADE: K - 1

UNIT: Language Experience

SOL OBJECTIVES: K.10 1.11 1.15

LENGTH OF UNIT: Ongoing

CONCEPTS AND SKILLS: Students will communicate ideas by dictating sentences and be able to understand that oral language can be written and that written communication can be used as self expression. Special emphasis will be placed on creativity. The major skills of this unit relate to independent learning, the writing process and self expression.

SPECIAL RESOURCES: An aide, volunteer or upper class student may be used to write the sentences and listen as students read their material orally. Large paper and pencils are needed. Art materials are needed to complete a book of stories and poems to be published. Resources such as a picture dictionary, newspaper, pictures and objects may be used. Poems and storybooks are going to be read and discussed.

INTRODUCTION: In order to generate original sentences and stories, the student should have many and varied opportunities to use oral and written language creatively. Students can be given themes and poems or choose one of their own to dictate to the teacher, aides, volunteer or student. The dictation may be typed and put into a book. The student can make the book cover and illustrate it. These may be read to the class.

Language Experience

I. Suggested Themes

1. Imagine that . . .
   You are a doctor/nurse, teacher, carpenter, etc.
   You are a flea.
   You are a martian, robot, etc.
   You are a wart on a pickle.
2. My family (family tree)
3. My community (interview)
4. My county, state, country (mini-research, newspaper)
5. My pet

6. If . . .
   I were a dinosaur
   I were a rock
   I were a pin
   I were a turkey

7. Which and How
   (E.g. Which is thinner summer or winter? How is a pen like a snake?)
   Sunflowering by Bob Stanish

II. Suggested Poems

1. Poems that express my feelings (e.g. sad, happy, angry)

2. Couplets (two lines that may rhyme)

3. Rhyming the nonsense alphabet
   E.g. A

A was once an apple pie,
Pidy,
Widy,
Tidy,
Pidy,
Nice insidy,
Apple pie.

Edward Lear "Nonsense Alphabet"

III. Write about a book you've read

IV. Illustrate each story and poem

V. Make your own book cover

VI. Share!

Volunteers: (Teacher, aide, student or volunteer)

1. Select sentence and ask student to build onto another sentence and elaborate.

2. Look for opportunities to reinforce grammar and usage skills based on child's dictation (e.g. asking sentence, telling sentence, exclamation mark).

3. Seek opportunities to open new areas of learning through child's expression (e.g. research an issue).

4. Allow child to write those words that he or she already knows. Use picture dictionary.

5. Encourage student to add-on to story. Extend story, look for alternatives.

6. Ask student why he/she makes certain choices. (E.g. Why did you choose a dinosaur for a pet?)

NOTES:

SUBJECT: Language Arts

GRADE: K - 1

UNIT: Nursery Rhymes

SOL OBJECTIVES: K.2 K.4 K.9 K.10 1.3 1.8 1.10 1.11 1.12 1.13 1.14 1.15

LENGTH OF UNIT: Flexible

CONCEPTS AND SKILLS: These modifications build from the original nursery rhyme toward interdisciplinary activities, analysis of the content presented in the nursery rhyme, and creative writing or dramatics. Each modification presents questions for discussion and/or activities for the students.

SPECIAL RESOURCES: Copies of the chart given for each student; volunteers or teacher's aides may be helpful in recording the students' ideas.

INTRODUCTION: Nursery rhymes are a major focus of kindergarten and first grade literature. In using these modifications, the teacher may choose to read the nursery rhyme to the entire class, then allow selected students an opportunity to examine the nursery rhymes in greater depth.

Nursery Rhymes

1. After reading "Wee Willie Winkie":

   Questions for Discussion:

   Wee Willie Winkie checks on children in their beds at 8:00. What time do you go to sleep? What time do you wake up? How long do you usually sleep?

   Activity:

   Students can ask their classmates what time they go to sleep and what time they wake up. Completing the following chart, they can determine how many hours their classmates sleep

Student	Time Went to Bed	Time Got Up	Hrs. Slept
Jo	9:00	7:30	_____
Linda	8:30	6:30	_____
Sam	10:00	8:00	_____
Robbie	9:00	7:15	_____
		TOTAL	_____ Hours

Who slept the longest? Shortest length of time?
What would Wee Willie Winkle say about our class?
Who would win the Rip Van Winkle award?

2. After reading "Humpty Dumpty":

Questions for Discussion:

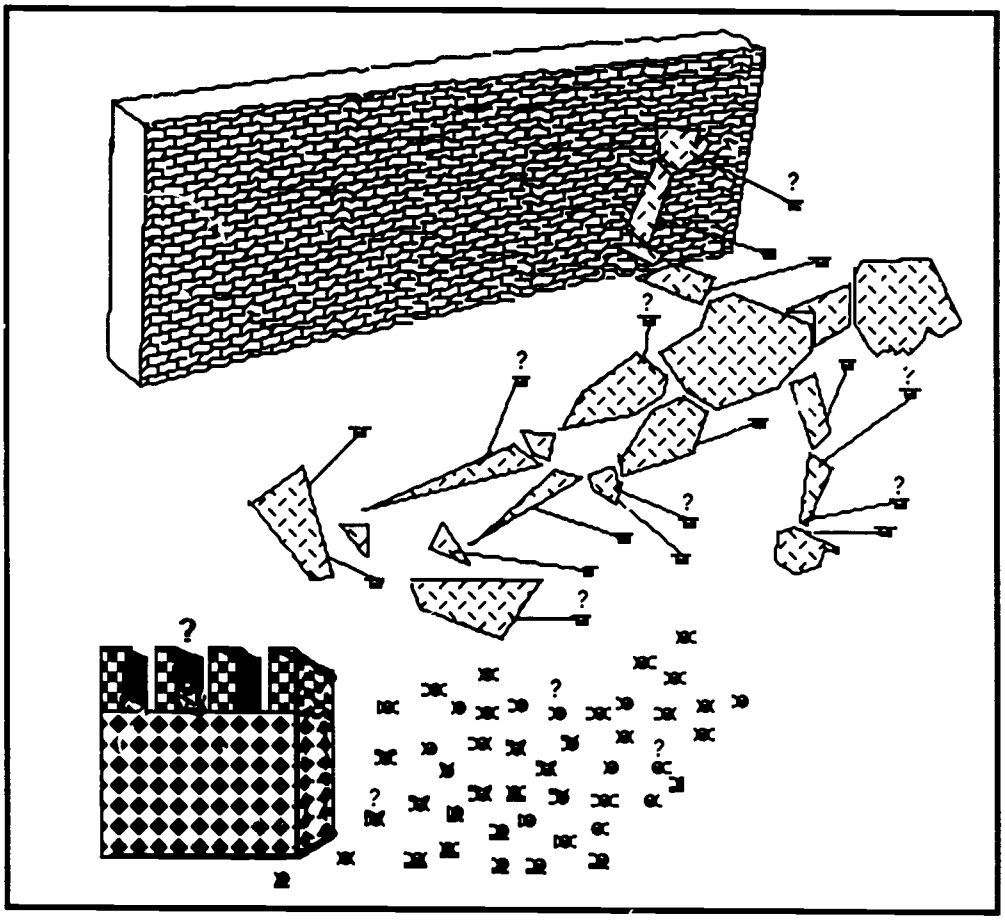
What was Humpty Dumpty? Does the nursery rhyme really tell us what Humpty was?

Activity (to student):

Make a list of what you do know about Humpty Dumpty. (E.g. It was breakable. It could sit. It took several men and several horses to even try to put Humpty together, so it must have been large.)

Based on your list, what kinds of things could Humpty Dumpty have been?

Draw a picture of Humpty Dumpty as something besides an egg. Be able to tell why you think Humpty Dumpty was what you drew.



3. After reading "Mary Had a Little Lamb":

Questions for Discussion:

Have you ever had a pet that followed you around?

Do lambs make good pets?

What do you think happened when the lamb came to school? What would you do if you were Mary's teacher? What would you do if you were Mary?

Activities (to student):

Make a list of the kinds of things that make an animal a good pet.

Read about lambs, or talk with a farmer or pet store owner. Find out if lambs would make good pets (using your list).

. v a picture of what would have happened next after the lamb followed Mary to school.

4. After reading *any* nursery rhyme:

Activities:

Have the student create an additional verse to the nursery rhyme.

Let the student recreate the nursery rhyme in a different setting. For example, Jack and Jill could be Smurfs. Encourage the student to present his/her ideas in a dramatic monologue, a play or skit, or a book, elaborating on the basic idea presented in the nursery rhyme.

NOTE TO THE TEACHER: *Many of the discussion questions could be used with the entire class, with the realization that not all students will be able to respond at the same level.*

NOTES:

SUBJECT: Language Arts

GRADE: 2 - 3

UNIT: Language Usage through the Writing Process

SOL OBJECTIVES: 2.6 2.10 2.16 3.7 3.9 3.10 3.11 3.13 3.16 3.17

LENGTH OF UNIT: Ongoing

CONCEPTS AND SKILLS: The writing process approach is appropriate for all students, not just the gifted, but is particularly appropriate as a modification to be used with the gifted when the emphasis is placed on self-editing, peer editing and self-evaluation. Because of the gifted student's ability to generalize more quickly than his/her age peers, writing can be used successfully as a basis for a language program rather than relying on repetitive drill and practice of grammar. Writing can serve as a pretest to determine the skills the gifted student already possesses as demonstrated in writing samples. Writing can be done during the time commonly allocated for grammar and language usage (which is frequently taught in a workbook format).

SPECIAL RESOURCES: Two books which are useful resources:

No Better Way to Teach Writing, Jan Twinbill, ed. (Excellent introduction to the writing process and ideas for managing it in the classroom)

If You're Trying to Teach Kids to Write, You've Gotta Have This Book, Marjorie Frank

THE WRITING PROCESS

INTRODUCTION: (This can be done with the whole class, a small group, or an individual student.)

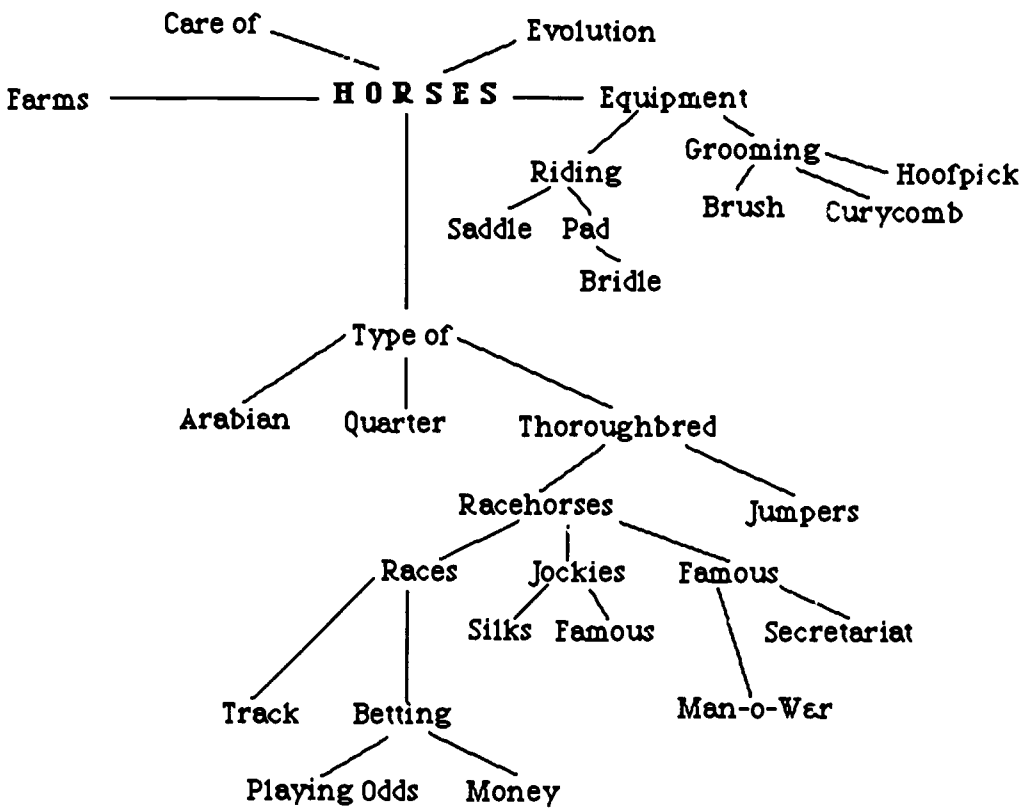
What might happen if no one ever wrote anything? Think of as many things as you can. Do you think it is important to write? Why or why not?

Think of all the ways that writing is used. List as many, varied and unusual reasons as you can for writing .

I. Pre-Writing

1. Students (individually) will brainstorm a list of ideas that they think would be interesting to write about. This list could be kept in a writing folder to be added to and referred to as needed.

2. If students have difficulty generating ideas of elaborating on any ideas, they might try webbing. This technique will generate many possible ideas related to one central idea. It is also useful as an outline of what might be included in a written piece. See chart:



(See Science - Page 21, Animals, Grades 4-6, Activity 3.d. for a related webbing activity.)

3. Another technique to use in generating ideas is power writing, having students write continuously for 2-3 minutes without stopping. After writing is generated, they can go back and pick an idea, word, phrase, etc. that they can expand upon in another 2-3 minute writing. This might then provide students with a more elaborate ideas for further writing.

If the teacher already has a number of writing activities incorporated into various disciplines, there is no need to start with the pre-writing stage. It may be more appropriate to use those ideas already generated as the basis for the following modification.

II. Writing

1. Once the student has chosen an idea for writing, writing should begin. The student is encouraged to let his/her thoughts flow freely without attention

given to grammar, structure, mechanics, word choice, etc. (This is not to imply that language usage is not important; it comes later in the process.)

2. To address language usage, the teacher could ask the student to emphasize a particular skill in the writing sample being generated. For example, if the class has been taught simple transitional words to connect ideas and sentences, the student should attempt to demonstrate his/her knowledge of these words by using them appropriately in the writing piece. Care should be taken not to restrict the creativity of an individual by overstressing a particular skill in one sample of writing. Focus on skills should take place in the revision of the writing process.

3. The actual writing can be done in many different forms; it should not be limited to story writing. Play writing, poetry, letters, advertisements, how-to guides, etc. should be encouraged. Students should have a writing folder for retaining their samples. When certain grammar skills are taught in the text, students can pull samples to revise and edit for those purposes.

III. Revision

1. Once the rough draft has been written, revision begins. At this point, the teacher will have the opportunity to appropriately direct the student to look for particular skills in the writing sample. This is the time to focus on grammar and language usage.

2. Management - Writing samples should be scanned for strengths and weaknesses. The teacher should work toward making students self and peer editors, rather than the teacher's editing the paper to find the strengths and weaknesses. Students need to respond to what has been written.

3. An atmosphere of helpfulness needs to be created by discussing people's feelings, tact, and how everyone can benefit from examining one person's work.

4. The teacher can provide the student with a guide that lists specific things the student should look for in his/her writing. An example of some questions to include are:

    a. What are the most colorful words?
    b. What was the most exciting sentence?
    c. What one thing did you like best?
    d. What sentences could be expanded?
    e. Can any sentences be combined so that a new sentence sounds smoother when you read it aloud?
    f. Have any words been overused?

Having the students answer the questions, and telling why they answered it as they did, will help them become more evaluative thinkers as well as help them realize why revision needs to be done.

5. When students start responding, it is helpful to focus on a small portion of an anonymous piece of writing and look for positive aspects first. The feedback needs to be specific, pulling from actual parts of the writing piece. The teacher should provide examples of what to look for.

   Students can begin by working in pairs, focusing on specific skills or aspects of the writing, then moving toward locating the strengths and weaknesses of their own writing.

Publishing

Once the students have revised and edited their writing pieces, they should rewrite their pieces in a polished, finished format. The publishing is important because students will be more concerned about grammar, spelling and structure if they know others will be viewing their work. Each student should have the opportunity to share his/her finished draft if he/she so desires. Getting a piece of writing into public view will enhance self-esteem and advance writing ability.

There are many different ways to publish a final draft. Here are some examples: make a book, create a literary magazine, submit to school newspaper, tape record it, display it on a bulletin board, create illustrations, hang it from the ceiling, write it on a banner, make a puppet to recite it, share it with a friend, send it to someone in a letter, type it, make it into a jigsaw puzzle, turn it into a paper airplane, etc. Don't forget to encourage the student to think of many, varied and unusual ways to publish the writing!

Evaluation

Evaluation of student writing is a legitimate concern. The final product should be only part of the total evaluation. Students should be guided toward self-evaluation. All writing should be kept in the individual's writing folder so that evaluation can involve comparison of work done. Students should develop criteria for evaluating a piece of writing. The criteria should focus on specific components of the writing and evaluated in terms of the degree to which a writing piece meets the criteria determined for that particular piece. The criteria for evaluation used does not need to be all encompassing, trying to look at everything in one piece, nor should the criteria necessarily be the same for each piece of writing. One evaluation might focus on the degree to which colorful, specific words and compound sentences have been used. Another evaluation of a different writing sample might focus on the degree to which words are spelled correctly or punctuation, capitalization and proper verb forms are used. Combinations of criteria for evaluation can be established by the student and should be done before the final draft is published. Focusing on specific criteria in each piece of writing will help students become more proficient in their writing.

Classroom Management

When using peer-editing and self-editing during the revision process, it will be helpful for the teacher to arrange partners. Some guidelines should be established by the students and teachers as to how writing partners will function.

Parents or volunteers might be enlisted to help students publish their work. A high school student interested in desktop publishing could help as part of an independent study.

A writing center may be established in the classroom so that students will have a place to work and a place to keep their writing folders.

NOTES:

SUBJECT: Language Arts

GRADE: 2 - 3

UNIT: Biographies

SOL OBJECTIVES: 2.3 2.5 2.10 3.1 3.6 3.10

LENGTH OF UNIT: Variable

CONCEPTS AND SKILLS: The activities incorporated within this unit will generate growth in such skills as discussion, brainstorming, independent thinking and reading, organizing information, sequencing, analyzing, seeing relationships (including cause and effect) and creative writing.

SPECIAL RESOURCES: Biographies with reading levels, graded 2 - 6

INTRODUCTION: Listed within the unit are follow-up activities relating to biographical literature. It is recommended that the teacher take a few minutes to define biography and what information can be gained from this type of literature. Have available a variety of biographies on entertainers, sport figures, historical figures, inventors, etc. to share with the child. Next, brainstorm with the child and list some people about whom he would like to know more. From this list, the child will select one person as a particular favorite and read a biography about him/her. After the biography has been read, help the child pick one of the activities to do which would be appropriate to his interests, needs, energies, and skill development.

BIOGRAPHIES

ACTIVITIES:

1. Make a list of accomplishments of the person you read about. Pick three of the most important accomplishments and illustrate them. Using the illustrations, tell the class about the person and share his/her particular accomplishments were important then and now.

2. Pretend you are the ghost of the character in the biography. What one thing would you go back and change or add to your life and why? How do you think this would have changed your life? For example, what would Helen Keller's life have been like if she could have had the sense of sight?

Now think about your *real* self. Is there any one thing about yourself or your life (up to this point) that you would change and why? What effect would this change have on the way things are now?

3. Imagine that the person you read about will be running for President of the United States in the next election. As publicity chairman (or campaign manager) you are to design

a poster, button, or T-shirt for use during his/her campaign. Be certain that the information depicts characteristics that would make him/her a good leader of our country today. To help you do this, first make a list of words or phrases that describe a leader. If necessary, look up the meaning of the word *leader* in the dictionary. Next circle the words in the list which also describe the person for whom you are campaigning. Then use the words you circled to help you create a slogan and/or picture for your character's poster, button, or T-shirt.

Now write a letter to the real President of the United States explaining what you have done and why. Enclose your promotional product.

4. A eulogy is a speech to honor a person when he/she dies. Pretend to be another character in a biography you read. Write a eulogy which you will deliver to the class highlighting this person's life - accomplishments and influences he/she had, or might have had, in your life and the lives of the other characters in the book.

5. NOTE TO THE TEACHER: Explain to the student what a timeline is. Provide a timeline of events in your life (the teacher) and ask the students to interpret the data to answer some questions. Be sure to point out the structure and organization involved in constructing a timeline.

Ask the student to skim back through the biography to retrieve important dates and events in the character's life. With the information, the student should make a biographical timeline for the character.

Build upon this by using a resource person (librarian, aide, volunteer, etc.) to help the child research a major event that occurred in the world during the time frame in which the character lived. Insert this event into the timeline of the main character. Ask the student to think about the events in this biography that occurred at about the same time as this important world event. Was there any connection in the book? Did this event have any effect on the character's life? If this event had not occurred, would the life of the character have been different? Expand the child's thinking by asking probing questions to determine cause and effect.

Next ask the child to make a personal timeline (of his own life). This should be assigned as a home project since baby books, scrapbooks, photo albums, and parent knowledge would be accessible. Included in the home assignment should be a discussion between the parent(s) and student concerning a major event that happened within the time frame of the student's own life. As with the main character of the biography, discuss how this event may have already begun influencing the student's life and how it may continue to influence his life. Since a 7 or 8 year old may not have lived through "earth shattering" experiences or events of which he will understand the complete significance (such as war), the teacher may need to assist by suggesting an invention or the availability of a product (e.g. home computers) to help the student. The focus here is not on events but on **cause and effect, predicting outcomes, and seeing relationships.**

6. You have been put in a time capsule and sent back to the childhood days of a person about whom you have read. Make a display of five things you would take with you. Share your items and reasons for selecting them with the class. Explain why these items would be needed or how they would be useful during the time in which the person lived.

7. Imagine that you are visiting in the character's hometown and he/she is your tour guide. Draw a sequence of pictures that explain where you go and what you do in the town.

Be sure the pictures represent the real setting of the character. For example, if Abe Lincoln were showing you his house, if would be drawn in a wooded area and look as if it were made of logs, not bricks or aluminum siding.

The teacher or librarian will probably need to supply the student with resource materials that help him/her locate the character's hometown. Geographical materials that show pictures of the general region would be helpful (e.g. the colonies in Virginia during the time of John Rolfe; recent pictures of the area of Canada where Michael J. Fox grew up).

8. Identify another character in the biography such as a brother, sister, parent, husband, pet, good friend, etc. Think about what the biography would have been like if that character had not been included. Retell the biography omitting the character you selected, using the tape recorder to record your storytelling. Ask the student to draw several pictures that go with this new story. Explain to him that he has now moved from a story that was true to a story with some truth and some fantasy. Introduce or extend the terms legend, fiction, and non-fiction.

NOTES: The activities listed within this unit are independent of each other. Some may require only one day to complete; others may require 4-5 days. The teacher could choose to use several of the activities to create a unit on biographies. Reading a biography is unquestionably a prerequisite to any of the activities.

ASSESSMENT of skills that have been built into these activities is to be done by observation and/or review of final products. Other skill development will need to be evaluated through conferencing opportunities.

Interaction with the student is more than necessary - *it is essential.* Approximately 5 - 10 minutes will be needed to introduce and motivate the student to the activity. Though it is most desirable that the interaction be with the teacher, there are opportunities where other persons, such as an adult volunteer, grandparent, aide, or older student, appropriately recruited, could help the student.

NOTES:

SUBJECT: Language Arts

GRADE: 4 - 5

UNIT: Leisure Time Reading

SOL OBJECTIVE: 4.5

LENGTH OF UNIT: Varies

CONCEPTS AND SKILLS: Given the opportunity, children will come to value reading as a source of entertainment and information. As a result of exposure to a wider variety of reading material, the student will experience an increased appreciation of literature and learning and an increased vocabulary and fluency of reading.

SPECIAL RESOURCES: Classroom library
Access to school and public libraries

INTRODUCTION: In order to encourage a student's natural desire to experience the world in its many forms, the teacher can introduce the student to reading as a pleasant and valued activity.

Leisure Time Reading

ACTIVITIES:

1. READ! READ! READ! The teacher is a role model for many things, the most important of which is reading. Read to your students, regardless of their grade level. Read a favorite story from your childhood, read a new book by a favorite author, read a book too lengthy or difficult for the students to read themselves. Ask your librarian for a suggestion. Choose a book from the Newberry Award list. Read Dickens at Christmas and Poe at Halloween. Read poetry. Read short stories or a chapter a day. Stop at a spot that is a "cliff hanger" to develop interest and enthusiasm. Have a student read to the class when appropriate to develop oral communication and reading with emphasis and clarity. Your students will consider themselves lucky because they had a teacher who read to them.

2. SUSTAINED SILENT READING - As a classroom activity or even a school-wide program, time can be set aside in which everyone reads: kids, teacher, principal, custodian - everyone. No distractions are allowed for approximately 20 minutes, daily, if possible, or twice weekly at least. Reading is thereby reinforced as an activity that is valued by "significant others" and the child whose home life may not be conducive to quiet times is given an opportunity to enjoy reading.

3. The teacher is responsible for providing not only the opportunity and time for reading enjoyment, but also an appropriate environment and materials. One corner or table in the room can be furnished with a rug or comfortable chairs or a couch to encourage the children to read. A classroom library can be maintained by the students. Paperbacks can be provided by the teacher or donated from the students or the community. Ask the librarian for discarded books from the school library.

4. Proficient readers should be allowed to read to younger students. This serves as an incentive and enrichment for the younger students and provides the older student an opportunity to become familiar with books appropriate for the younger students. The reader should be guided in the selection process by the librarian and encouraged to read with clarity and enthusiasm.

5. To encourage the student to broaden their range of topics in reading materials, the teacher can create a contest with an appropriate theme and allow points for books in different areas. The students should be encouraged to read biographies, how-to books, poetry, history, etc. as well as authors who write fiction on various subjects such as horses, cars, "older days," etc.

6. While the reading of "good" literature is not a requirement of leisure time reading, an extensive list of appropriate books for the students' reading level can be prepared by the teacher. Be sure the list is extensive and varied so every student can find several books of interest. Your librarian will help you in preparing a list of books. Other sources of information are the public library, teacher's magazines, children's magazines, publisher's catalogs and teacher's manuals.

7. Care should be taken in requiring a product as a result of this type of reading, but some students may want to share with the class a particular bit of information they have gained from their reading or tell the story of a fiction book they have read. This is an inspirational and rewarding motivator for reading.

8. To encourage continued, varied and increased amounts of reading, contests can be designed that provide visual representation for each book read by each child. This can be a competition within the classroom or among classes. The form can be anything that interests students - book worms, footballs, footprints, etc. The student's name and the name of the book is recorded on the chosen shape and displayed. These shapes can go around the room, down the hall, around the cafeteria, etc. Media coverage of the culminating activity can be a tremendous incentive. Paperback books or book marks - anything reading-related - can be used as the reward.

NOTE TO THE TEACHER: *In order to provide the students with the amount of time necessary to engage in leisure time reading at school, a process of* ***curriculum compacting*** *will be necessary. When your gifted students show proficiency in a given unit, the time available can be used by the student for enrichment activities and reading.*

NOTES:

SUBJECT: Language Arts (May also be used with 6th grade Social Studies)

GRADE: 4 - 6

UNIT: Lore, Legend and Myth

SOL OBJECTIVES: 4.12 5.10

LENGTH OF UNIT: 2 - 4 weeks

CONCEPTS AND SKILLS: Students are expected in this modification to go beyond recognizing different types of fanciful literature. They will be required to analyze, synthesize and evaluate the components of lore, legend and myth.

SPECIAL RESOURCES: Many examples of myths, fables, folk tales, and tall tales are needed. These need to be made available to the student, along with a quiet place to write.

INTRODUCTION: Fanciful literature provides a good opportunity to challenge students to operate at higher levels. They only need a large quantity of reading material and a little direction from the teacher.

Lore, Legend and Myth

STUDENT ACTIVITIES:

A. Your teacher has created a monster IQ test (or some other activity which poses a variety of monsters for the student to identify). These monsters include Medusa, King Kong, vampire, Dracula, Dr. Frankenstein's monster, cyclops, Godzilla, Chimera, Puff (the Magic Dragon), and Grendel. Choose one mythological monster and one movie monster. Write a comparative analysis of these two creatures.

B. Choose one of the following activities:

1. Create your own mythological monster. Draw it; describe it; tell what powers and weakness it has; and write an original adventurous tale about it.

2. Pegasus was a beautiful, winged horse that could fly. If you could ride Pegasus anywhere in the world, where would you go and why? Write a story about the trip and make an illustration of you and Pegasus.

3. A transformation myth is one in which something is changed into another form (for example, a girl is changed into a flower). Read some transformation myths and keep a list of them. Add any stories or fairy tales that you have read where someone was transformed.

4. If you could be changed into anything, what would it be? Write a creative story about it. Share your rough draft with your teacher and other students. Write a final copy incorporating any changes you think are necessary.

C. A fable is an animal story with a lesson or moral. Read several of the fables your teacher has made available. Notice how the story is written to convey the moral very well. Have you ever wanted to get a point across to your mom and she didn't have the time or inclination to get into a discussion on that particular topic? You may be able to clarify your message with a fable. She will love to read a story that you have written yourself! Write a "Fable to Mom". Let some of your fellow students and your teacher look at your rough draft before you write your final copy. They may be able to give you some helpful suggestions.

D. Another form of fanciful literature is the folk tale. People of all ages derive pleasure from reading this type of story. Folk literature speaks to us about good and evil, guilt and innocence. Read several of the folk tales the teacher has made available and consider their themes of good and evil. Choose one of these that you particularly like or you may use one of your childhood favorites. Using details and ideas from this story, discuss the following statement made by a famous child psychologist:

> *"To the child and to the adults who, like Socrates, know that there is still a child in the wisest of us, fairy (folk) tales reveal truths about mankind and himself."*
>
> Bruno Bettelheim, *The Uses of Enchantment*
> Alfred A. Knopf, Inc., New York, NY, 1975

E. Tall tales are among some of our best loved stories. This type of story is built on exaggeration of the main character's physical attributes and abilities. Remember Paul Bunyan and Pecos Bill? You may want to refresh your memory by reading some of these and others again.

Now you are ready to write your own tall tale. You might begin by writing imagination stretchers. Try these for starters:

> She was so strong that . . .
> He was so lazy that . . .
> He/She was so fearless that . . .

You might want to solicit ideas from your classmates. After you have a nice long list, pick those characteristics of your hero or heroine that you wish to use in your story. Remember to stretch the facts and let your character perform some outstanding feat which explains something about nature (e.g. Stormalong caused the eclipse of the moon; Pecos Bill created Death Valley). When you are finished, exchange stories with a classmate and make a list of the things in each other's story that stretch the facts and make it a unique story - a tall tale.

F. Now that you have reviewed four different types of fanciful literature, choose two of those to compare and contrast. Think about the main character, the setting, and the plot of each story. Be sure to address the question of whether or not there is a message or lesson to be found in the story. Remember the lesson may not always be stated out right.

NOTES TO TEACHER: *The activities have been written so they can be used together as one long modification or, with the exception of F, used independently. Other activities which may be added are:*

- Record oral histories or local legends.

- Write a fable for a given moral.

- Read different versions of fairy tales and write their own version, changing setting or time.

- Make a family tree of gods and goddesses that lived in Mt. Olympus.

- Write an imaginary adventure you had with Medusa in present time.

- Draw a diagram of the solar system. Determine which planets are named for gods and goddesses. Pretend that you found a new planet. Who will you name it after and why?

NOTES:

SUBJECT: Language Arts

GRADE: 4 - 6

UNIT: Poetry and Word Play

SOL OBJECTIVES: 4.15 5.9 6.3

LENGTH OF UNIT: 4 - 5 days initially, but this may be an ongoing modification for the year, culminating in a publication

CONCEPTS AND SKILLS: Students will be exposed to the sense of wonder to be found in language. They will conceptualize some processes involved in creating poetry. The specific poems chosen will offer a range of poetic forms and styles. Students will be offered the opportunity for oral expression, manipulation, and illustration of these styles.

SPECIAL RESOURCES: Collections of poetry containing familiar standards as well as examples of cinquain, haiku, and diamante will be needed. Almanacs and encyclopedias, as well as dictionaries should also be available.

INTRODUCTION: This modification is meant to be a fun and challenging learning experience. Use it to capitalize on the student's natural inclination to play with language. Poetry can be a fascinating "game". This modification presents "pieces of equipment" needed for student involvement.

Poetry and Word Play

A. A type of poetry that you have been familiar with for a long time is the nursery rhyme. You are going to have some fun changing the ending of several of your favorites.

Example: Jack and Jill went up the hill to fetch a pail of water,
Jack fell down and broke his crown
And had amnesia thereafter!

Jack be nimble
Jack be quick,
But Jack can never quite make it over the candle stick.

Choose several of your favorites and combine them with those of other students doing this activity to create a book of "*Not Necessarily Nursery Rhymes*". Group members should read their altered rhymes to each other and edit where needed before publishing the final draft. You may want to put in a blank page for other classmates to try their hand at doing the same thing.

B. Many types of poetry have set "formulas" for writing. Study these forms and read several examples of each from the poetry books available.

Cinquain

Line one - a one-word title
Line two - two words to describe the title
Line three - three words to express feelings about the title
Line four - two words
Line five - one word that is another word for the title

Haiku

Line one - 5 syllables
Line two - 7 syllables
Line three - 5 syllables

(Haiku is usually oriented toward nature)

Diamante

The lines form a diamond shape.
The lines do not have to rhyme.

Find and read the following poems. Some of the poems are by famous poets and some are famous by themselves, the poets not well known.

Meg Merrilies - John Keats
In the Time of Silver Rain -Langston Hughes
The Raggedy Man - James Whitcomb Riley
The Adventures of Isabel - Ogden Nash
Eldarado - Edgar Allen Poe
Stopping by the Woods on a Snowy Evening - Robert Frost
Arithmetic - Carl Sandburg
Mary's Lamb - Sarah Joseph Hale

Now choose one poem from the list above. Rewrite the poem to fit one of the forms (Cinquain, Haiku or Diamante). You may move the words around, shorten the lines, etc. but you must keep the meaning or mood of the poem intact. You will also keep the original title of the poem but add "Rewritten by:_____" after the title.

Read the original poem and its rewritten form to the class. Ask for the class' evaluation of how well you maintained the meaning and/or mood of the original poem.

C. Complete one of the following activities:

1. Choose one of the poems from above. Memorize the poem and share it with the class. Use your voice to convey to your audience the mood and meaning you feel the poet was expressing.

2. Reflect on a walk you have taken by yourself or with a friend. Write down a list of words of phrases that come to your mind as you reflect. Use one of the forms to express your ideas in poetic form.

3. Choose one of the poems from the list above and write a children's book with illustrations.

D. Conundrums are riddles solved with puns. Solve these conundrums.

What happened to the duck that flew upside down?
He quacked up.

Where did the first corn come from?
The stalk brought it.

Why did the farmer scold the chickens?
They used fowl language.

What animal never plays fair?
Cheetah

What animal is always short of breath?
Panther

Conundrums are classified as puns of paronomasia. Paronomasia refers to using words that are alike in sound but different in meaning. An example is a play on the Biblical saying "casting your pearls before swine", which states "casting my perils before swains" (Marshall McLuhan, *Corbett*, p. 481).

Get ready to create some paranomasia conundrums that will cause your audience to groan.

1. Pick a subject (dogs, robots, cooties, cars, etc.,

2. Brainstorm to come up with words synonymous or closely associated with your subject. If you picked pig, for example, you may come up with a list of words such as him, sty, bacon, sow, pink, grunt, pork, swine. The words are the blocks with which you will build your riddles. The longer your list, the easier it will be to make riddles.

3. Pick a proper noun. A person or a place is an easy place to start. An example might be Albert Einstein.

4. Using your related word list, substitute a suitable word for a syllable in the proper noun. The word should rhyme with or sound like the syllable it replaces, the closer the match, the better the riddle.

Example: Albert Ein-swine
Albert Swine-stein
Al-boar Swine-stein

This newly created name is the answer to your riddle.

5. Now make up the riddled question by doing a little research on your proper noun. Use the dictionary, encyclopedia, and almanac. These are the basic tools of riddle making. The riddle question should be the most familiar facts about the subject.

   Example: What pig was a famous 20th century physicist? Or what pig created the theory of relativity?
   Answer: Alboar Swinstein

   Please keep in mind that some subjects are more humorous and productive than others. If the one you choose doesn't work, try another one. You will also probably have to go through a lot of proper nouns before you find one that works.

   TEACHER: The *Challenge* issue listed in notes below has many more suggestions on riddle writing.

NOTES TO TEACHER: It is suggested that the teacher read a variety of types of poetry to the students. This may be done with the whole class with these activities planned as modifications for gifted students. The teacher may obtain or make tapes of readings.

The following books are excellent resources for teachers interested in teaching poetry to children:

Kenneth Koch, *Wishes, Lies, and Dreams: Teaching Children to Write Poetry,* New York: Harper & Row, 1980, and *Rose, Where Did You Get That Red: Teaching Great Poetry to Children,* New York: Random House, 1974.

Kinereth Gensler and Nina Nyhart, *The Poetry Connection: An Anthology of Contemporary Poems With Ideas to Stimulate Children's Writing,* New York: Teachers & Writers, 1978.

Edward P. J. Corliett, *Classical Rhetoric for Modern Day Students, 2nd Edition.,* New York: Oxford University Press, 1971.

Challenge, Vol. 3, No.1, Issue 11, Sept/Oct, 1984.

NOTES:

SUBJECT: Language Arts

GRADE: 4 - 6

UNIT: Letter Writing

SOL OBJECTIVES: 4.7 4.9 5.5 5.6 6.6 6.5

LENGTH OF UNIT: Ongoing

CONCEPTS AND SKILLS: Personal correspondence or business letters use a standard format. Each letter will have a purpose to either share news, invite guests, thank people, order materials or get needed information. The writing process will be used in conjunction with correct form and purpose.

SPECIAL RESOURCES: U.S. Postal Service, lists of addresses of probable pen pals (teachers magazines), lists and addresses of companies and travel agencies, library, directories of political figures.

INTRODUCTION: Letters are written for many different purposes. Students need to be able to differentiate between the form of the friendly letter and the form of a business letter. After teaching a unit on the forms and guidelines for writing a letter, let your students choose the most meaningful form and write, write, write!!!

LETTER WRITING

I. Friendly Letters

A. Choose a pen pal (U.S. or foreign country)
   1. Write a letter in his/her language (French, Spanish, German)
   2. Send a video or tape on your family, school and/or community
   3. Exchange poetry
   4. Exchange booklets with foreign students

B. Write an author, astronaut, inventor (field of interest)

C. Make a class cookbook. Write celebrities to get recipes (persuasion)

D. Teacher writes a letter to "Dear Gabby" proposing a problem. The student answers with a resolution.

E. Write a letter to the editor of a local paper discussing an issue of interest.

II. Business Letters

A. Choose a country, city, you would like to visit. (Imaginary trip) Write for information concerning the place. Make your own brochure and travel itinerary.
B. Do an opinion survey and then write your congressman on some social or political issue.
C. Do a market survey (in class, or school) on a local fast food place. (Example: MacDonald's) Write a letter to the company giving them the results. (Example: How do you like MacDonald's hamburgers?)
D. Write letters for information on a research project.

III. Study of the Postal Service

A. Registered and certified mail
B. Costs in our country and others
C. Service in our country and others

NOTES:

SUBJECT: Upper Level Language Arts

GRADE: 4 5

UNIT: Children's Literature

SOL OBJECTIVES: 4.1 4.12 5.2 5.13 6.2 6.8 6.9

LENGTH OF UNIT: Varies

CONCEPTS AND SKILLS: The student will develop an appreciation of literature and develop thinking skills through extensive reading and interpretation of literature. The student will become aware of various writing styles and plot and character development.

INTRODUCTION: Often, when given a choice of activities, gifted children will read. Our charge as teachers is to direct their reading to quality and variety and provide a means of sharing what they have learned - opening their minds to consider what they have read in a different manner.

Children's Literature

ACTIVITIES:

1. Over a period of several months, students are exposed through their teachers and librarian to the works of many authors of varying styles and time periods . Student are then asked to "Adopt an Author". The students become familiar with many of the works of the author they have selected and participate in such activities as:

   A. Dress as the author and present a reading from his/her works.
   B. Write a letter to the author (living or dead) discussing his/her style, etc.
   C. Write a selection in the style of the author.
   D. Research the author's life and make a presentation (in mode of student's choice - it could be a dramatization, an interview, T.V. talk show, etc.).

2. Many students enjoy reading books which are sequential. Some examples might be *The White Mountain* trilogy, *The Chronicles of Narnia*, and the *Little House* series. These books lead to activities based on the development of the characters over a period of time. Students can write the next book in the series and submit their ideas to the author where possible. Example: *Challenge Through Narnia,* Vol. I and II, by Dr. Edwina N. Olsen, 1982, **Resources for the Gifted,** P.O. Box 1505, Phoenix, Arizona 85060.

3. As students read extensively, they become familiar with the characters, plot and settings of various stories. What would happen if one or more characters were transferred from one story to another? How would Pippi Longstockings change the events in *The Secret*

Garden? What if one of the Borrows was shipwrecked with Robinson Crusoe? Let the students create their own examples and write a story illustrating the resulting changes in the story.

4. What would happen to a character if his setting were changed into the future or the past? Have each student select a story he/she has read and rewrite it or a given event using a different time frame. Have the students project a given character into another time frame and indicate how the character would interact with his/her new environment. Any of the alternate forms of book reporting can be used in this activity.

5. After the students have read several books, possibly from the list of Newberry Award winners, have each student select a different book for which he/she can make a visual/oral presentation. These presentations should be staged and could be recorded on video tape to be used by the librarian or other teachers as introductions to these books. The children should be encouraged to make a presentation that will appeal to their audience and yet not reveal so much of the story as to discourage the audience from wanting to read it for themselves.

6. Alternatives to book reports:

   a. Write a letter to the author asking questions you might have or making comments on the story.
   b. Dress like a character from the book and perform a monologue to reflect the character.
   c. Create a board game.
   d. Compose a poem.
   e. Write a ballad.
   f. Draw a mural.
   g. Write a newspaper article about the events in the book.
   h. Put on a puppet show.
   i. Make transparencies for a presentation using the overhead projector.
   j. Make a filmstrip.
   k. Select a better title and make an advertising poster.
   l. Rewrite an incident from a different characters' point of view.
   m. Make a mobile/diorama/collage.
   n. Make a flipbook illustrating events.
   o. Compose a song.
   p. Rewrite the ending of the story.
   q. Write a chapter predicting what will be the lives of the characters 10 years in the future.
   r. Have a jury trial of one of the characters. State the crime and prepare a defense.
   s. Draw a comic strip.
   t. Draw a map of the setting.
   u. Make a jigsaw puzzle.
   v. Write a letter to a character in the book.

A source of activities for specific children's books is available from **Engine-Unity**, P.O. Box 9610, Phoenix, Arizona 85068. These are called *Porta-Center Kits,* Kid Lit I, II, and III with ten books per kit.

7. After the students have read a book of their choice, ask them to prepare a list of activities based on the book which other students can use. Students should be exposed to teacher-made and purchased activities of this kind as an example.

8. Fairy tales are familiar to students. They have heard them read to them by an adult, but often children miss the joy of reading them for themselves because they think they "already know the story". Therefore encourage the students to read Grimm and other fairy tales.

Many of the stories have significant problems with which the characters are faced. Try the following activities after reading various fairy tales.

A. *Hansel and Gretel*
   1. Brainstorm alternative solutions for their father.
   2. Conduct a mock trial.

B. *Beauty and the Beast*
   1. Discuss the motives of the father, Beauty, the Beast.
   2. Write a letter that Beauty might write to her father.

C. *Sleeping Beauty*
   What would the world be like if you went to sleep and woke up many years later? What would be the first thing you would do?

Think of others problems posed in familiar fairy tales.

NOTES:

SUBJECT: Upper Level Language Arts

GRADE: 4 - 6

UNIT: Oral Communication/Expression

SOL OBJECTIVES: 4.10 4.13 4.16 5.1 6.1 6.15

LENGTH OF UNIT: Varies

CONCEPTS AND SKILLS: The power to persuade is a life skill and can often make the difference in many events in the life of an individual. Young students need to research and process information from which to form opinions for their oral presentations. Unlike doing 50 multiplication problems, repeated practice of oral communication skills can provide long term benefits.

SPECIAL RESOURCES: Video camera

INTRODUCTION: Push back the desks, roll the camera - Action! All subject areas and personal interests can be accommodated through oral communication. Set the mood for self and peer evaluation early and the students will aim at polishing their craft.

Oral Communication / Expression

ACTIVITIES:

1. All students have something which they do well. It may be a talent or skill or trick or an experience that is unique to them. One may have taken a trip while another can bake cookies while another plays the piano and yet another has a collection of baseball cards. The **Speaker's Bureau** is an opportunity for the students to share their uniqueness with others. The students sign up for the Speaker's Bureau and give a short description of their speciality. A list is compiled and distributed to other teachers and the students are invited to speak to various groups on their area of expertise.

2. A **Toastmaster's Club or Debate Club** can be formed in which the skills of public speaking and debate can be refined. The students need many opportunities for self and peer evaluation. The topics for the speeches and debates should be of interest to the students and provide an opportunity for research.

3. Because of the influence of television and mass media on the lives of the students, they need to be aware of the power of communication to influence others. The students should listen to television advertisements and read magazine and newspaper advertisements in order to make a list of **persuasive techniques**, words and visuals. The effect of each of

these means of persuasion should be discussed and their appeal to the target audience analyzed.

The student should then design a product and create a television commercial and a magazine ad to introduce the product. These commercials might be video taped.

4. **Video taping** is an effective tool for self evaluation. The students can prepare and tape book talks, editorials, a walking tour of the school, plays, etc. This would be an interesting addition to a P.T.A. program or Open House.

5. Demonstrating and explaining an activity with multiple steps requires the students to think through the steps sequentially, assemble the materials and write the presentation in such a way that their intent is as clear as possible. Some examples of **demonstrations** might be:

a.	paper airplane folding	f.	drawing or painting
b.	skin care	g.	pet grooming
c.	recipes	h.	clown make-up
d.	flower arranging	i.	magic tricks
e.	wood carving	j.	shoe shining

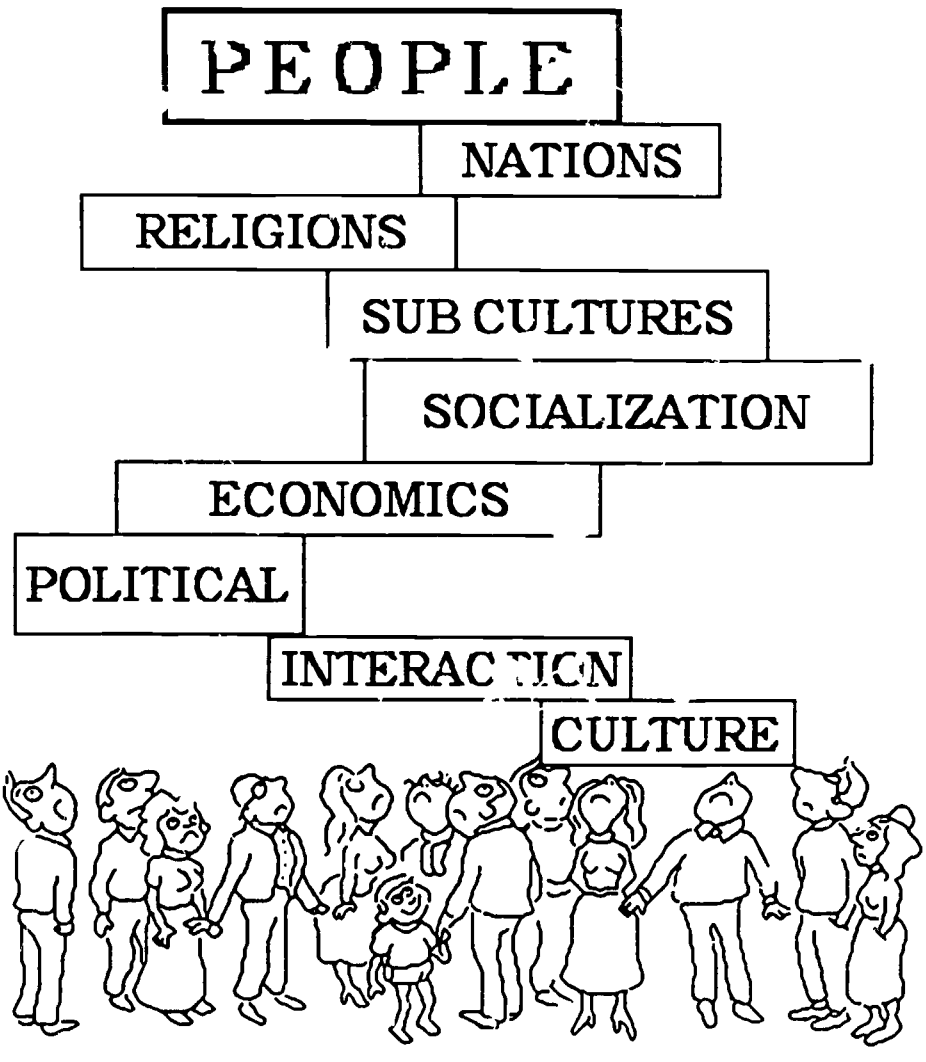
Students should be allowed to demonstrate a skill of their choice.

6. To extend the concept of giving oral demonstrations and instructions, the students should be asked to **design a game**, prepare directions, and present it to the class.

7. To stress the importance of careful word selection and easily understood instructions in giving **oral directions**, one student is sent to the board to draw from the oral directions of another student at the back of the room who is describing a geometric pattern. The closeness of the replication on the board to the original determines the success of the directions. Students should be encouraged to use specific directional terms, such as upper left, lower right, one inch, NE, SW, etc. Relative terms such as large, small, etc. should be avoided. A blindfolded student can also be directed through a maze of desks by a student giving oral directions. This activity can be effective outside using playground equipment. Listening skills are also enhanced through this activity.

NOTES:

SOCIAL STUDIES



SUBJECT: Social Studies

GRADE: K

UNIT: Understanding Ourselves

SOL OBJECTIVES: K.1 K.2 K.6

LENGTH OF UNIT: One week

SPECIAL RESOURCES: None

INTRODUCTION: This unit is an activity designed to develop a deeper understanding of the basic kindergarten curriculum. The modification is simple and easily fits into this basic curriculum. It is both flexible and open-ended which allows the teacher to judge the extent he/she should distinguish and challenge the gifted kindergarten student.

Understanding Ourselves

Activities:

The kindergarten class studies the concept of "self", recognizing that each person is a unique individual.

1. The teacher focuses on identifying basic body parts (eyes, ears, arms, legs), physical characteristics (hair color, eye color), sex, name, birthday, etc. The teacher may want to ask all children a series of questions such as:

   What color are my mom's eyes?
   What color are my dad's? ... my sister's? ..my neighbor's?
   How many people in my family have blue eyes? ...blonde hair?
   Am I like my mom or dad or sister?

2. The teacher next focuses on personal feelings such as happiness, anger, sadness, surprise, and fear. The class may participate through answering questions such as:

   What makes my happy? ...sad?
   How do I feel when I am happy? ...angry?
   How does my sister feel?
   What makes Daddy surprised?

3. As the teacher continues discussing the concept of "self", he/she focuses on what people need in order to live. The class can answer questions about food, clothes, and shelter.

   Where do I live?
   What do I need to live?

When I get cold, what do I need?
Where does my grandmother live?

4. All students are now asked to think about different animals. The teacher might make a list of familiar animals. Students might find pictures of familiar animals and share them with the class. The teacher discusses and asks questions about each animal. For example:

   How many eyes does the dog have in this picture? ... feet? ...arms?
   How do you think this cat feels? Why?
   What makes this cat happy? ...sad?
   What does the bear need to live? ...to keep warm?

   [Note to teacher: It may be necessary to discuss characteristics of animals in more detail. The teacher should be prepared to fill in information that students might not know.]

5. The teacher asks all students to choose a favorite animal. This is an assignment that requires research and an oral interview. The student should ask parents or grandparents what animal they think he/she should become and discuss their reasons.

6. During the next class, the teacher gives directions. "In one minute, you will become the animal you selected." Members of the class may discuss how it makes them feel. "Now that you are an animal, you will be asked to show what you:

   1) Look like
   2) How you feel
   3) What you need to live."

   Students will show this by selecting one product from below:

   1) Design a costume
   2) Draw a picture
   3) Role play
   4) Posters

   [Note to teacher: Any other appropriate activities may be added.]

7. Gifted students will be asked to go one step further and show similarities and differences between themselves and the animal that they have become. They may compare and contrast physical characteristics such as eyes, heads, etc. They may compare and contrast emotional characteristics and survival characteristics. The teacher may help them through a series of questions.

   What color eyes does a dog have?
   Are my eyes the same color?
   How would a mother cat feel if her kitten got cut?
   Does a dog need a coat in the winter?

   Gifted students may use the same basic products to communicate their information. That includes pictures, posters, role playing, etc.

8. After all students have finished their products, the teacher might want to end the class by asking a fun question. For example, he/she might ask the children to decide which animal is most like them. Then she might ask them to explain why.

NOTES:

SUBJECT: Social Studies

GRADE: 2

UNIT: Understanding Change: Today and Yesterday

SOL OBJECTIVES: 2.4 2.14

LENGTH OF UNIT: One - two weeks

SPECIAL RESOURCES: Photographs or pictures; frosted acetate or tracing paper, colored pencils or pens.

UNDERSTANDING CHANGE: TODAY AND YESTERDAY

[Note to Teacher: All students may want to participate in this first activity. However, the teacher may feel that this will use too much additional class time.]

1. Gifted students (and others) are asked to collect photographs or pictures from magazines or newspapers that focus on the neighborhood or community. (The places should be located near the child's home or even inside the child's yard or house.) The entire class will identify these places and discuss why they were selected and why they are important. For example, they might discuss the importance of the physical features, the climate, the type of building, or the people shown in the pictures. Individual students can tell why the pictures were important to them personally. (Note: This may be a good place to discuss emotions associated with the pictures selected.)

2. The gifted students would then be asked to take their same pictures and determine how the area in the picture looked twenty-five years ago.

   [Note to Teacher: The teacher will need to help the student understand the concept of *past* and/or *change*. A series of questions may be appropriate. Select and add characteristics of your community that would have changed over the last twenty-five years]

   How old were your parents twenty-five years ago?

   What types of things would have been likely to change in twenty five years: ...trees? ... number of people living in your area? ...major buildings? ....landscape? ....streets?

   How did these things change?

   Why did these things change?

3. In order to determine how the area in the picture changed, the student will have to collect information (research) and conduct interviews.

   Have the student identify three people to interview who have lived

in the same area and know how the area in the picture has changed over 25 years. Suggest that the student select a parent or grandparent or neighbor who will understand the student's interview skills. The series of questions that were appropriate for understanding change will also be appropriate for the interview. However, modify them as needed

4. Have the student present his findings to the class in one of the following forms: (Be sure his product illustrates the changes.)

   Drawings
   Posters
   Photographs - take frosted acetate or tracing paper and fasten it over the photograph. Draw the way the area looked twenty-five years ago.

5. The concept of change may be enlarged to examine the future. Extend your questions to include:

   What big changes are going on in our area today?

   Given these changes, what things do you think will happen twenty-five years from now?

   For example: ...more people? ...fewer trees? ...new roads?

   Why will change happen?

[Note to teacher: This activity is designed to share answers and strengthen the reasoning process. Things happen for reasons and changes occur for reasons. Therefore, it is not always necessary to have an accurate picture of twenty-five years past or future. What is important is the reasoning skill.]

NOTES:

SUBJECT: Social Studies

GRADE: 4 - 5

UNIT: Local History

SOL OBJECTIVES:

LENGTH OF UNIT: 2 - 4 weeks

SPECIAL RESOURCES: Books on local history. Local resource people. A camera and film are needed if the student cannot supply his/her own.

LOCAL HISTORY

1. The topic for this modification will be local history. Available resources will be used to gather information and present in indepth final product to an audience of your choosing.

   Choose one of these final products or take a product from one and put it with an audience from another.

   (1) Slide presentation that can be given to local clubs, organizations and/or other groups.
   (2) A travel brochure on your locality to distribute to local residents.
   (3) A play about your locality in which the narrator is a figure from its early history that is brought back into the future.
   (4) An annotated picture book of local points of interest and history.

   As you are planning the final product by which you will present what you have learned about the history of your locality, remember to gear that product to the audience to which you are presenting. Think about how you can best get across the interesting facts that you have learned.

2. Methods for collecting information:

   (1) Make a list of possible sources of information about your locality. Include books, magazines, people, and local records. Talk to your teacher, librarian, other students, neighbors, and anyone else that might help you make this list as long as possible. The newspaper office or public library will give you access to old newspaper articles and pictures.

   (2) Investigate each source on your list and make another list of actual sources of information on your topic.

Make this list specific. Use exact titles of books, issues of magazines , and names of people. You will find that people will be a good source of information on this topic.

(3) After you have done some reading on your topic, try to identify several people you can interview. Make sure you prepare your questions ahead of time, and go over them with your teacher. If, during the interview, the person does not know the answer to one of your questions, be sure to ask if he/she knows where you might locate the answer. During the interview, be sure to be an active listener. Watch for answers to your questions that might make you think of something else you need to ask.

(4) You will find it helpful to visit local landmarks including cemeteries. Take your camera along . You will be able to take slides or pictures depending on the final product you have chosen. Compare what you find today with the information you have found on the history of your locality.

(5) Choose one important person in the history of your area and designate a portion of your final product to him/her. Design an award you would like to see presented to your famous citizen. Make the award part of your final product.

3. Make a first draft of your product. Think about what you would want if you were the audience. Show your draft to your teacher and some fellow students to get their input.

Revise and prepare your final product. Make arrangements to share the product with the audience you have chosen.

NOTES:

SUBJECT: Social Studies

GRADE: 5

UNIT: The U.S. in the Twentieth Century

SOL OBJECTIVES: 5.1 5.3 5.4 5.8 5.12

LENGTH OF UNIT: 3 weeks

SPECIAL RESOURCES: Library reference materials on population and economic information will be required. General reading material on the cities selected for study will be needed.

INTRODUCTION: This unit leads students through a study of cities and communities in the United States. The purposes of the unit are to (1) evaluate change that has occurred in various locations and (2) predict change that may occur in the next twenty-five years. The teacher may introduce this unit at anytime the class is studying the various regions of the United States, as the unit includes the study of various cities across the nation. The unit is also appropriate during the study of the twentieth century since all activities are based on data generated since 1900.

The U. S. in the Twentieth Century

The activities will require experience in using reference materials. If the student has not had such experience, provide him with opportunities to develop such before undertaking this unit. Prior to the student's arrival at the library, the school or public librarian should be alerted that the student will be seeking census and growth data related to selected cities.

1. Outline the thrust of the study to the student, brainstorming a list of major cities in the U.S. as well as a list of major industries in the country. If deficiencies in the lists are evident, lead the students to discover the industries or major (types of) cities omitted. Based on the student's knowledge only, ask him/her to classify the cities by industries (e.g. Houston - oil; Newport News - shipping; Three Mile Island - nuclear). Discuss cities that may fall into more than one category.

2. Optional if needed: Use the information generated in #1 to determine the need for general reading about cities and regions in the U.S. If the student had difficulty generating the lists, or knew little about certain areas of the country, or lacked information about various industries, provide him/her with general readings which will help fill in the gaps. The goal is not to make the student an expert on each region or each industry, but to give him a global overview of the industrial situation in the U.S. The student should be given two or three days to complete these readings (in class or the

library in lieu of social studies class) and then report to the teacher what he/she has learned. While the teacher may wish to take time to discuss industrial growth, the purpose of this activity is to create awareness and knowledge and to provide the foundation for subsequent activities.

3. Provide the student with the following list of cities, asking him/her to choose one city from *List A* and one from *List B.* He/She will study these two cities to learn about their past and current economic situations.

List A	*List B*
Allentown, PA	Raleigh, NC
Detroit, MI	Orlando, FL
Cleveland, OH	Silicon Valley, CA
Juneau, AK	Tulsa, OK

The student should understand that he/she is to read about these cities, and gather information which will answer the questions in the Student Worksheet.

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STUDENT WORKSHEET

We often think we know a great deal about our own community - what 's right with it and what is wrong with it. Whenever we learn about another locality, we sometimes relate the information we learn to our city or town or to another place about which we are knowledgeable. You are going to become an expert on two cities in the United states - two cities which you may find to be quite different from your home town. Read about the two cities you have chosen. Determine when these cities were settled and attempt to determine how these cities grew from their settlement through the early 1900's.

Beginning with the 1900's, start recording data about the cities which will answer the following questions:

1. *What was the population of each city in 1900?*

2. *What were the two or three major occupations of citizens in these locations during the early 1900's?*

3. *What was the environment like during the 1900/s? Were natural resources used, and, if so, how were they used?*

Meet with your teacher, presenting him/her with a brief oral report on each city, describing as best you can what life was like in these cities.

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4. After the student has reported to you what he/she has learned about life in these localities at the turn of the century, explain to him/her that you now want him/her to focus on life in these two cities during the latter half of the twentieth century. Ask the student to gather data relative to the situation in each city in 1950 and last year. He or she should use the questions below as guides for gathering data about each city and should generate additional questions which will focus on environmental and economic concerns.

Management of the data may be a problem for the student. Provide him with assistance if needed. A chart in the following form may prove helpful.

A TALE OF TWO CITIES

	City A		City B	
	1950	1985	1950	1985
Question:	_____	_____	_____	_____

Questions for *Guide Research*:

a. What was the population of each city in 1950 and last year?
b. What was the rate of unemployment?
c. Who were the major employers? What was the major industry of the area?
d. What was the rate of inflation?
e. What was the birth rate?
f. What are the natural resources of the area?
g. What are the man-made resources of the area?
h. What was the environment of each city like? Was pollution a problem? If so, cite the source of the pollution.

The teacher should spend adequate time discussing these questions with the student. As the student generates one, two, or more questions which he/she wants to include, the teacher should help the student determine the value of all the questions in leading him to the economic characteristics of his two cities.

The teacher should be prepared to define economic terms such as research, and help the student acquire a good understanding of these terms. While the gifted social studies student at fifth grade should be well acquainted with the terminology of the social studies, the teacher must not assume understanding of these concepts. It may be necessary to design concept attainment lessons to interject before the student begins his research.

At this time, the teacher should release the student to conduct his/her data gathering. He should report briefly every day so that the teacher will be able to set a reasonable deadline for the conclusion of the data gathering.

5. After working with reference materials for several days, the student may need a break before analyzing the data. Provide him/her with a tape of Bruce Springsteen's song My Home Town. Ask the student to listen to the song two or three times and to write a brief analysis of Springsteen's home town, noting what it was like in the 1950's, 1960's and 1980's. (It may be necessary to provide a copy of the lyrics). Ask the student the following questions:

> Do either of the cities you have studied reflect any of the characteristics of Springsteen's hometown?
>
> Do you know any "mill towns" which are experiencing problems in the textile industry?

Suggest ways to the student that he can determine more about the change in communities dependent upon the textile industry (e.g. interview a union representative of the United Garment Workers; write to the mayor of Fries, VA to get his opinion on the change in his town since the mill has cut back; interview a manager of a store which advertises "Made in the U.S.A").

6. Before asking the student to present his/her analysis of the cities he has studied, the teacher should "teach" the concept of change. Since the last activity involves evaluation of change and prediction of change, the student should be cognizant of the ways change can occur.

Present the student with examples of change in his world:

a. A kitten becoming an adult cat
b. A plant during a drought
c. A barn vacated and not maintained
d. A new governor every four years
e. The naming of teams for the Super Bowl
f. The marketing of the computer for home use

Ask the student to draw flow charts of one or more of these events, charting the major activities leading to the event itself (i.e. plant dying during drought, new Governor, etc.). Ask the student to highlight on the flowchart the decisions made or forces acting which caused the change to occur. Discuss the forces of change, posing different situations, actors, or events which may have impacted to cause a different event (e.g. a large dog kills the mother cat; a veterinarian discovers the week-old kittens).

The teacher should continue this activity, building the concept of change until he/she is convinced that the student understands that change may be caused by a number of factors, that change is not always bad or good, and that change can be the result of natural, uncontrollable forces or the result of planned, directed intervention.

<u>During this discussion, the teacher should avoid using cities as an example.</u>

7. In this final activity, the student analyzes the data on the two cities, prepares a presentation to his/her class on the two cities, and predicts what these cities will be like in twenty five years.

Find a form of presentation which is comfortable for the student and can be shared with the class. It may be most effective for the student to prepare a large bulletin board showing his cities **"Then - Now - In the Future"**. Ask the student to use graphs and charts to illustrate the information found in his research, using pictures - student-drawn or found in magazines - showing the city and its resources. Ask the student to illustrate the forces acting upon his city to cause change. (It is expected that he/she will have found one city to be growing positively from change, the other feeling the negative effects of change.

The teacher should encourage the class to ask questions about the cities. He/she should probe with questions such as:

a. What could happen to a town when the water becomes extremely polluted with industrial waste?
b. What happens to the industry of that town if the Environmental Protection Agency or local groups of citizens pressure the company to stop pollution?
c. Would you rather live in a city with no industry and clean air and water, or would you rather live in a thriving city with much industrialization and some pollution problems?

NOTES:

SUBJECT: Social Studies

GRADE: 5 - 6

UNIT: Canada

SOL OBJECTIVES: 5.11 6.2 6.4 6.6

LENGTH OF UNIT: 4 - 5 Weeks (with the option to extend the project through additional exchanges with a Canadian class)

SPECIAL RESOURCES: Video camera (ideal) or regular camera

INTRODUCTION: Travel to Canada without leaving the classroom.
This is a very special unit that enables students to have an international experience without leaving their classrooms. Through an exchange with a Canadian class, students will be able to learn more about the United States and compare governments, geography, cultures, customs, and important issues between two neighboring countries.

The best method to accomplish this exchange is through video tape because the opportunity to see students from another country on tape is an excellent motivator. However, other methods may be used if a video camera is not available. For example, this modification may be accomplished by a photo essay, a slide tape presentation, recordings with still photos, or perhaps written reports.

Canada

ACTIVITIES:

1. This activity is designed for the entire class, but it includes selected in-depth study for gifted students. The activity essentially involves collecting information from the textbook and other readily available sources about the United States. Gifted students, however, will pursue in-depth research going far beyond the textbook.

2. The product will be information on the United States which is sent to a school/class in Canada. (See "Notes to Teacher" at the end of this unit to identify sister Canadian schools.) The ideal product is a video tape, but other formats are acceptable. The teacher needs to decide on the proper format or combination of formats that will be most practical given local resources. This decision should be made before beginning study of the unit.

3. The teacher now needs to decide on the format of the product. A suggested format includes general information on the local community which all students may help provide. Specific topics or concepts such as government, geography, etc. are selected for in-depth study by the gifted students. (Note to Teacher: Canadian students will use the identical concept list for their study and exchange. They will be developing a similar product on Canada to be exchanged with the students in your class.) All

students can develop final questions to be sent to Canadian students for their response to a concluding activity.

4. All classroom students participate in the exchange by gathering information on the United States from the text. Everyone also gathers information about the community to share with the Canadians. The teacher might ask students questions to direct the information gathering. For example:

   (1) What information about our community would be useful to Canadians?

   (2) What information about our community would be interesting to Canadians?

   (3) What information about our community would be different from that of the Canadian community?

5. Gifted students would be asked to select from the following concepts for in-depth research:

   (1) government

   (2) geography

   (3) culture

   (4) customs

   (5) important issues

After selecting the concept, students should develop a plan for gathering information by answering the following questions (the teacher should provide help only when the student has exhausted his/her own resources):

(1) What information (your concept) would be most useful to Canadian students? For example, what information about the U.S. government would be most useful? More specific questions geared to the concept will be useful and may be developed.

(2) Whom could I interview to gather more information about this topic?

(3) Whom could I write?

(4) What agencies could I write?

(5) What reference books in my school library would have information on this topic?

(6) What reference books in the public library would have information?

(7) What magazines could I look at?

(8) What filmstrips or other audiovisual matter could I find?

6. After identifying information sources, the gifted student needs to begin researching by:

   (1) Developing interview questions. Other students in class or the teacher can help in editing the questions for clarity and comprehension.

   (2) Writing a draft letter which can be edited by the students and teacher.

   (3) Taking notes from books, magazines, newspapers.

7. The gifted student summarizes the information gathered from his/her specific questions that relate to the concept which he has selected. To do this, he uses the information he gathered from a variety of sources. Gifted students might also like to produce a set of questions related to their concept that they would like answered about Canada. For example:

   Is your prime minister elected by the people?

   [Note to the teacher: Student questions about Canada indicating a lack of knowledge do not necessarily require correction. In a cover letter to the Canadian teacher, the teacher can point out that he/she did not edit student questions.]

8. The format used to summarize the information may be any of the below or a combination of any below:

   (1) charts or graphs

   (2) story

   (3) scrapbook

9. Edit the product. All classroom students should participate in this activity. Have students suggest editing questions. For example:

   (1) Is the information clear?

   (2) Does the information answer the questions?

   (3) Is the information accurate?

   (4) If charts or graphs are used, are they readable?

   (5) Is the presentation appealing or interesting?

10. The introduction developed by the entire class and the product developed by the gifted students are compiled using the format selected by the teacher as being the most practical.

11. Other questions that the entire class developed based upon what they want to know about Canada are prepared, edited, and added to the final product. (Note: Brainstorming might be appropriate to determine these activities.)

12. Send the information to the Canadian class and wait to receive Canadian information.

13. The class receives information from Canada. The information is viewed by the entire class. Gifted students would be asked to specifically review the information which relates to their concept. They note how Canada is similar and different from the United States in regard to their concept. This comparison and contrast can serve as a basis for a class discussion led by the teacher with information supplied by the students. Note that as an ongoing extension to this activity, the Canadian students will also be sending a list of questions to be answered by the U.S. students. A shorter exchange can continue with the sister class.

Notes to Teacher:

1. Canada is used here only as an example. Other counties may also be used.

2. This modification requires special planning to allow for the time requirements necessary to exchange a product between two countries.

3. The Social Studies Service in the Va. Department of Education will facilitate the exchange by providing the names and addresses of Canadian (or other country's) teachers willing to participate in this exchange.

NOTES:

SUBJECT: Sccial Studies

GRADE: 6

UNIT: Middle Ages (Medieval Period)

SOL OBJECTIVES: 6.1 6.2 6.3 6.4 6.7

LENGTH OF UNIT: 3 - 4 weeks

CONCEPTS AND SKILLS: Students may choose form various activities that explore important concepts related to the Middle Ages. Activities are designed to allow the student to examine the ideas and cultural structure of the Middle Ages in comparison to our modern society.

SPECIAL RESOURCES: Books related to medieval Europe will be needed. These should span a range of reading levels from sixth grade to college. Resource people, such as lawyers and war veterans, are suggested for specific activities. One activity requires the student to examine a contract, for the sale of property.

Books and filmstrips related to the Medieval Period should include examples of art, literature, architecture, life styles, dress, historic events and individuals who played key roles.

NOTES TO THE TEACHER: Within this modification, flexibility is allowed for selection of activities which are of interest to the student. Choices should be discussed with the student. Once the has chosen the activities, thought should be given as to how the products from that activity will be developed and shared with an appropriate audience.

MIDDLE AGES (MEDIEVAL PERIOD)

1. The Medieval Period seems to have been a time of great contradictions -- enormous wealth and extreme poverty, strong belief in God and cruel brutality, chivalry and savagery. Read the following selection from the 13th Century poet Carite':

"Lords, uphold the law
but have a care for God's handiwork.
A criminal should be loved because his is your brother,
but hanged because he is a thief."

Does this seem contradictory? How does it relate to present day debates on capital punishment?

(1) Students may choose to stage a debate over the issue of capital punishment, using logic based on Medieval Period writings and thought.

(2) Students may research paintings, literature, historic events, dress and lifestyles of the Medieval Period to identify examples of contradictions. Their findings may be shared through original poetry, a collage or mural, oral presentation and discussion, or other product forms.

(3) Students may elect to create a newspaper chronicling stories that reflect contradictions of Medieval life and events. Items that seem contradictory should be placed in close proximity to each other.

Example: **Medieval Observer**

Peasant Population Decreasing Due to Starvation – **Feast is Spread For Lord William and Visiting Nobility**

2. A person's role and status in life during the Middle Ages were determined by birth. You were born into wealth or poverty, nobility or slavery. Examine the following excerpt from a 13th century poem:

"The work of the priest is to pray to God,
of the Knight to give justice,
and of the laborer to find bread for all.
One ploughs, one prays and one defends.
Thus, each following his proper trade,
all three live in harmony."

Does our society still adhere to this line of thought?

(1) Students may research the lifestyles and forms of government of the Middle Ages to find evidence to support this perception of interdependence and pre-determined status.

(2) In comparing the Medieval view with our modern society's views, students may want to list individuals whose lives and circumstances support this view (i.e. the Kennedy family), and those whose lives defy it (i.e. Abraham Lincoln). Information may be gathered from interviews or through biographical writings. If more than one student is involved, a debate may be stated over the extent to to which the circumstances into which you were born determine your role and status.

3. Fighting for your lord, your land, or your country was an act of highest honor in the Middle Ages. Consider the following excerpt from the hero in the ancient tale Garin of Lorraine:

"If I were stepping forward with one foot in Paradise and
the other still in my castle, and someone sounded the call
to battle, I would step backward again."

Do people in our modern culture consider fighting for their country to be of greatest honor?

Has the overall sentiment toward war changed in recent history?

(1) Students may choose to design an open-ended questionnaire with which to interview veterans from at least two wars or conflicts, examining their views on war and their perceptions of our society's opinions toward veterans who have fought for this country.

(2) Students may design a survey to administer to their peers, questioning their willingness to fight in defense of their country, their home, their family, their land, or themselves.

(3) Students may research writings of the Medieval Period to examine other statements relating to fighting and war. Then, research songs and writings from the 1940's relating to World War II and/or the 1960's Vietnam/Peace Movement era. Students should examine these writings and songs for comparison of similarities and differences of views among these three time periods, and to better understand the student's own views toward fighting and war.

(4) Students should examine their findings from the above activities by comparing elements from modern culture with those of the Middle Ages to determine if there are related factors which contribute to making fighting honorable. Findings may be shared through discussion, oral presentation, analytical writing, or a form of personal expression, such as art, poetry, drama or reflective writing.

4. Under feudalism every man owed something to a stronger man. When a vassal initially paid homage to a lord, an agreement of the terms was reached, after which the lord could not impose new taxes or obligations.

Does our modern society still adhere to a system by which every man owes something to a stronger man?

(1) Students may elect to design a contract that might have been drawn up between themselves as the lord and a friend of the vassal. All obligations of both parties concerning responsibilities for defense, payment of services, housing, loyalty, and so forth, should be clearly stated and based on accurate research.

(2) Students may secure a modern-day contract, such as a loan agreement or a real estate sales contract. Students should examine the contract for similarities with the Medieval contract which they have designed, as well as the concept of every man's owing a stronger man.

5. Fascinating stories abound from the Medieval Period of individuals who influenced the events of the time. Some of the individuals follow:

St. Thomas a Becket
Joan of Arc
Geoffrey Chaucer
Marco Polo
King John
Kublai Khan

(1) Students may choose an individual from the Medieval Period to study.

(2) Having conducted research on the individual chosen, students should consider the influence that this individual had on Medieval society. Students may write original songs, poems, plays or reflective writings characterizing the individual's personality and life's events.

(3) If more than one student is involved in the study, students could start a political campaign, with each student designing posters, slogans and speeches outlining why his/her Medieval character would best serve as President or as a Medieval King.

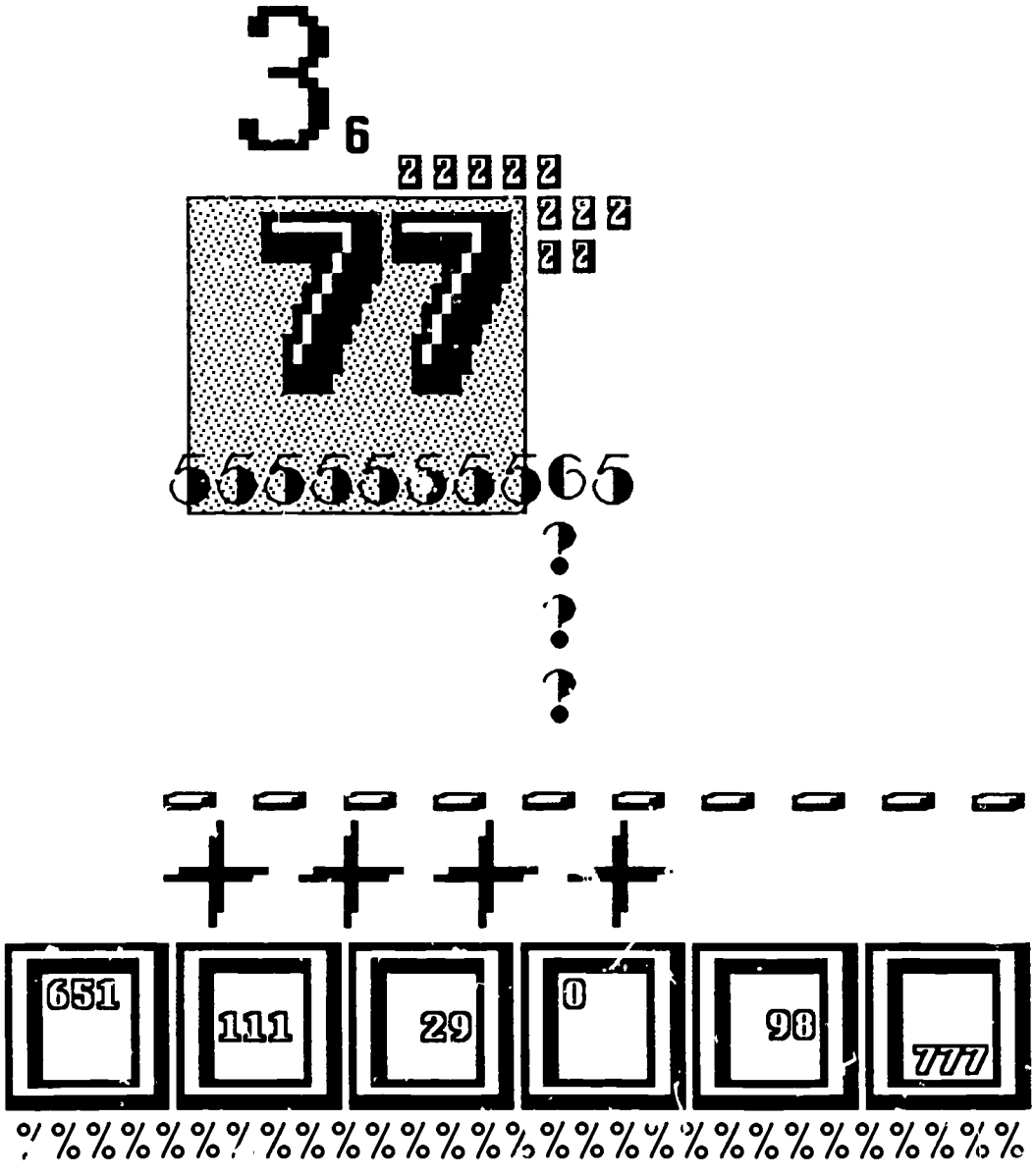
6. If you were to explore modern-day Europe, what evidence would you find of the Medieval Period?

(1) Students may conduct research to determine what still remains of the Medieval Period -- castles, cathedrals, historic sites, ruins. Resources may include travel agents and brochures, individuals who have traveled in England and the continent, as well as books about various countries.

(2) Having completed the research, students can prepare a travel brochure and "tour package" for an individual interested in visiting Medieval Period sites of modern-day Europe.

NOTES:

MATH



SUBJECT: Mathematics

GRADE: K - 3

UNIT: Set Theory

SOL OBJECTIVES: K.1 K.2 K.5 K.6 K.13 1.5 1.15

LENGTH OF UNIT: 1 week

CONCEPTS AND SKILLS:

1. Describe the attributes of the numbers
2. Compare and contrast the attributes
3. Picture the relationship of the attributes with manipulatives in Venn diagram form

SPECIAL RESOURCES: Attribute blocks, yarn circles or grouping circles, poker chips, flannel board colored shapes (small colored blocks)

INTRODUCTION: Given a set of objects, the student will describe the common attributes of the set. Using an example situation, the student will be shown ways of forming sets and subsets based on their common attributes.

Set Theory

ACTIVITIES:

1. The student will be given a set of attribute blocks with at least 3 sets of attributes: e.g. color, size, shape. The student is shown three examples of sets and asked to name the distinguishing attribute of each.

Example 1:

▲ - green

▲ - green

▲ - yellow SET OF TRIANGLES

▲ - yellow

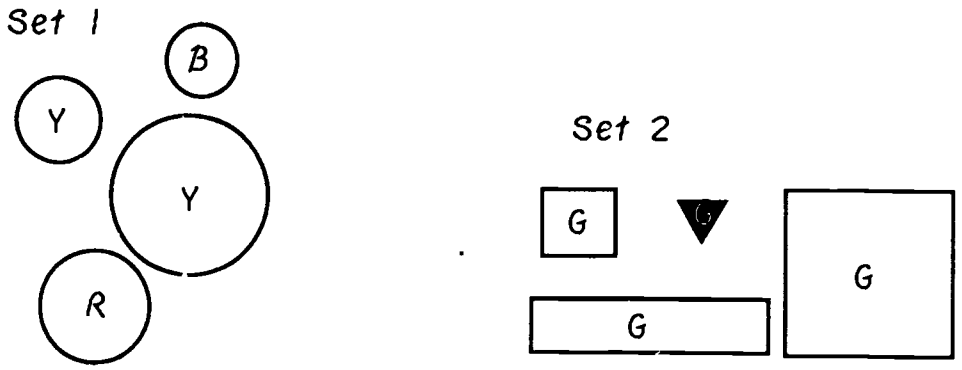
▲ - blue

Example 2:  - green
- green
- green
- green

SET OF GREEN BLOCKS

2. The student is asked to create other sets and name them. Students can share their sets with each other, trying to name and classify or describe each other's sets.

3. The student is given two disjoint sets, each based on a different attribute (e.g. a set of circle blocks and a set of green blocks). The sets are disjoint if there are no attributes in common (e.g. no green blocks in the set of circle blocks and if there are no circle blocks in the set of green blocks):



NOTE: It is important that each set be unequally defined. That is, set 1 needs different colors and signs or it could be defined in two ways--a set of yellow circles.

The student is asked to make a border of yarn around each set and name each set. A block from one set is placed in the other. The student is asked if it belongs and hen to explain why not. The student is then asked to see if any block from one set could belong to the other (if the sets are truly disjoint, no block from one set could belong to the other set).

NOTES:

SUBJECT: Mathematics

GRADE: K - 3

UNIT: Money

SOL OBJECTIVES: K.11 1.12 1.13 2.15 2.16 3.12 3.13

LENGTH OF UNIT:

CONCEPTS AND SKILLS: The student will be able to manipulate coins to form given amounts of money.

SPECIAL RESOURCES: Make-believe or real money

INTRODUCTION: Wherever possible, real money should be used in these activities. This eliminates a transfer of learning from play money to real money.

M O N E Y

ACTIVITIES:

1. In order to establish a familiarity with the value of given coins, the students will decide on an appropriate price for given small items, prepare price tags and play store. The students will make change from dollar bills. The decision-making process, which is necessary in determining appropriate prices for given items, will help the students conceptualize value as associated with the coins. A group of small items could be sorted into sets of items whose "sale prices" would be 10¢, 20¢, 30¢, etc.

2. An interesting activity to illustrate multiples of numbers by adding sets using money is to ask students whether they would rather have $100.00, or a penny today, two pennies tomorrow, four pennies the day after, etc.; in other words, each day he/she would receive twice as many pennies as the day before, for a total of 30 days.

After stating a choice, the task is to find the total amount of money the student would receive at the end of 30 days if they choose to receive the pennies.

Did he/she make the right decision? At the end of how many days would doubling the pennies equal approximately $100.00? How soon would he get to $100.00 using nickels instead of pennies? Dimes? Quarters? Dollars?

3. Ask your students to find a combination of coins equalling a given amount using the largest denomination coin first. Record the results on a table. Begin with pennies, nickels and dimes to equal 16¢.

Dime	Nickel	Penny	Total
1	1	1	16¢
1		5 1	16¢
	3	1	16¢
	2	5 1	16¢
	1	5	
		5	16¢
		1	
		5	
		5	16¢
		5	
		1	

More complex money problems can be posed by increasing the total amount slightly. There are nine ways to form 21¢ and 782 ways to form $1.21. Try adding quarters to the list, half-dollars, and dollars.

Can the students see a pattern?

NOTES:

SUBJECT: Mathematics

GRADE: K - 3

UNIT: Numeration

SOL OBJECTIVES: K.2 1.1 1.3 1.4 1.6 2.2 2.3 2.4 3.3

LENGTH OF UNIT: 1 - 2 days

CONCEPTS AND SKILLS: Students will recognize numerals 0-999.
Students will complete a sequence of five whole numbers 0-999.
Students will count by 2's, 5's, 10's.

SPECIAL RESOURCES: Number lines; manipulatives, such as bottle caps, lima beans, flannel board objects; small circle objects, such as rubber gaskets or washers

Numeration

Students are provided with a sequence of 5 - 10 consecutive numbers and asked, "What comes next?" Then students are given a sequence of 5 - 10 numbers and asked to fill in the blanks.

EX. 12, 13, 14, ___, ___, ___

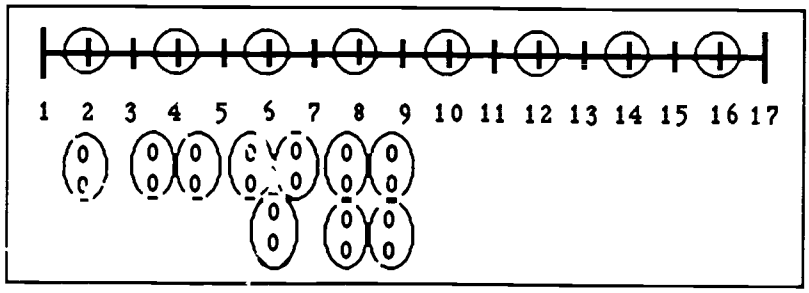
97, 98, ___, ___, ___

2, 4, ___, 8, ___

___, 10, 15, ___, 25

___, 6, 9, ___, ___, 18

Using a number line and washers, the student will count by 2's, covering each step with a washer.



The teacher will ask, "How many sets of 2 washers can you make for 2? How many sets of 2 washers can you make for 4? For 6?" The student will build sets of 2 for each of the numbers on the number line.

NOTE TO TEACHER: This activity can be done for counting by 3's, 4's, 5's, etc.

NOTES:

SUBJECT: Mathematics

GRADE: K - 3

UNIT: Problem Solving/Patterns

SOL OBJECTIVES: Although no specific SOL addresses itself to thinking skills, the need for this activity is recognized by many classroom teachers.

LENGTH OF UNIT: 2 weeks

SPECIAL RESOURCES: Attribute blocks or shapes cut from colored paper, Cuisenaire Rods

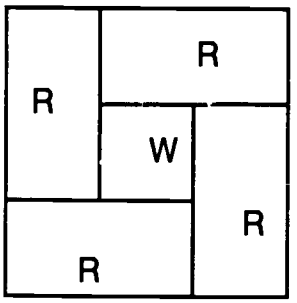
INTRODUCTION: Problem solving has become an important area in today's elementary curriculum. It is now viewed as an integral part of mathematics. The use of manipulatives has long been lauded for remedial students, but we should not neglect using visual representations with all students.

PROBLEM SOLVING / PATTERNS

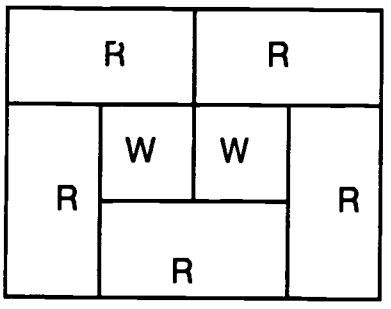
ACTIVITIES:

1. Students can chart the number of Cuisenaire Rods needed to extend or repeat a given pattern. For example:

1 white, 4 reds to go around



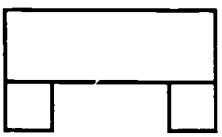
2 whites, 5 reds to go around



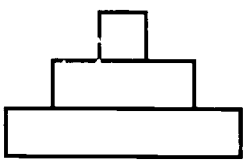
How many reds to go around 10 whites?

Whites	Reds
1	4
2	5
3	____
4	____

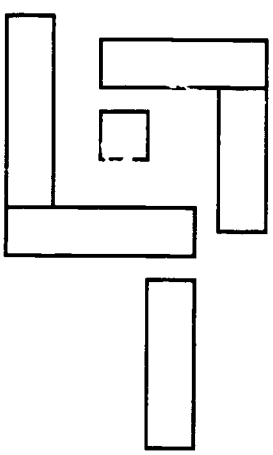
Other patterns to chart:



A beam with 1 board has 2 legs.
How many legs for a beam with 10 boards?



One tugboat takes 3 rods to build.
How many rods to build 10 tugboats?



One pinwheel takes 6 rods to build.
How many rods to build 10 pinwheels?

What patterns can you make?

2. The students will determine that number patterns are repetitions of the same operation.

ex.: 2, 4, 6, ____

5, 10, 15, ___

ex.: The third number depends upon the first two. Can you find the rule?

0, 2 -» 4
1, 2 -» 5
2, 2 -» 6
3, 2 -»
4, 2 -»

(RULE: add the sum of the first and second numbers to second number)

2, 3 -» 6
2, 4 -» 8
2, 5 -» 10
2, 6 -»
2, 7 -»

(RULE: multiply second number by first)

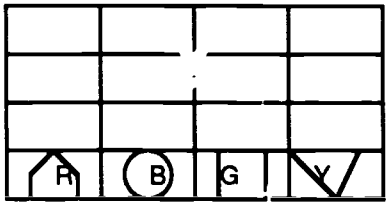
ex.: Try to complete the chart below. What is the rule?

	4	5	1	3	0	2
7					7	
6						
5				11		9
0					0	
1		11				
3						

(RULE: Double number at top of column and add to the number along the side)

What number pattern puzzles can you make?

3. Given four circles, four pentagons, four triangles and four squares, and given one of each shape will be red, one blue, one green, one yellow, the students are asked to place the shapes on a square separated into sixteen equal parts so that no two identical shapes and no two identical colors are in any vertical, horizontal, or diagonal row.



Students should be able to devise similar puzzles.

NOTES:

SUBJECT: Mathematics

GRADE: K-3

UNIT: Place Value

SOL OBJECTIVES: 1.2 1.4 1.7 2.1 2.7 3.1 3.4

LENGTH OF UNIT: Variable

CONCEPTS AND SKILLS: Determine how many given factors and combination of factors that a given composite number contains. Represent numbers as products of their place value positions. Write number sentences using addition and multiplication.

SPECIAL RESOURCES: Charts for activity, pencil

INTRODUCTION: The student will be shown an example of a composite number that has been broken down into a sum of its factors. The student will complete examples of his own and then extend the activity to the place-value of a decimal number by writing number sentences using addition and multiplication.

PLACE VALUE

TASK I. A decimal number is one that has each digit representing a power of 10. Now take the number given and set up a chart like the one in A. No more than 10 checks can appear in any one column.

38		
100	10	1
	XXX	XXXX XXXX

Write a multiplication and addition statement for each.

$38 = (3 \times 10) + (8 \times 1)$

What number would be in the heading of the column in a 3 digit number to the far left?_____

Given the number 281, how would we chart its digits?

281		

What is the number sentence?

TASK II. How many different ways can you make this number using just the numerals in each column? Each column can be used a maximum of 5 times.

38		
1	3	7
XXX X	XXX	XXXXX XXXX

(3 ÷ 1 = 3) (38 ÷ 7 = 5 r 3)

TASK III. Write addition and multiplication facts to illustrate your statements. Examples:

$(5 \times 7) + (3 \times 1) = 38$

$(4 \times 7) + (3 \times 3) + (1 \times 1) = 38$

TASK IV. Using the information in *Tasks I - III*, chart the following numbers and write out number sentences to check your results.

1. 7
2. 12
3. 97
4. 341
5. 888
6. 1,247

NOTES:

SUBJECT: Mathematics

GRADE: K - 3

UNIT: Time and Measurement

SOL OBJECTIVES: 1.11 2.14 3.19

LENGTH OF UNIT: 3 Weeks

SPECIAL RESOURCES: Balance scale, weights, and objects or practice "specimens" and metric ruler

INTRODUCTION: You have been selected by NASA to serve as a researcher in their upcoming mission to Mars. You will be responsible for collecting and analyzing specimens found on the surface of the planet. The specific data you will be collecting for each specimen will include weight, size. written description of the specimen, written description of the location in which the specimen was found, time found, and time for each analysis to be completed.

Time and Measurement

On the mission you will be weighing specimens and soil samples using a balance-type scale and 1-, 2-, and 4-gram weights. Which weights will you use to calculate specimens weighing 1 gram, 2 grams, 3 grams? Is seven the heaviest object or soil sample you can weigh using the three weights provided? Determine by completing the table below.

Object Weight	Gram Weights
1	1
2	2
3	2 & 3
4	4
5	
6	
7	

Our mission specialist for specimen analysis suggests that you might collect specimens that weigh more than the 1-, 2-, and 4-gram weights can handle. It is suggested that 1-, 3, and 9-gram weights be substituted. What are the possible weights of objects that can be measured with these particular weights?

(Remember that when you use a balance scale you want the weights to be the same in each pan of the scale. To be sure you are weighing a 1-gram specimen, you would place a 1-gram weight in the other pan. Since you only have 1-, 3-, and 9-gram weights, if you are weighing a 2-gram specimen you would need to add a 1-gram weight to your 2-gram specimen in one pan to balance with your 3-gram weight in the other

pan. If you have a 4-gram specimen in one pan, you would need to use the 3-gram and the 1-gram weights in the other pan).

Can you complete the table? What is the heaviest object you can weight? Are there any specimens weighing less than your heaviest weight that cannot be weighed?

Object Weight	Gram Weight
1	1
2	3
3	3
4	1 & 3
5	9
8	
9	
10	
11	
12	

+ 1-gram

+ 1-gram + 3-gram

NOTE TO TEACHER: It is a good idea to have the actual balance scale, weights, and objects or practice "specimens" available for the students to use as they complete this activity.

To measure the size of the specimens students will need to practice using a metric ruler. (Having actual practice specimens of irregular shapes for the students to practice measuring is most meaningful to the students). Based on suggested sample specimens, students should design storage cases that will be of the appropriate size and shape for transporting back to earth.

Provide a map of the simulation area. Students should measure various areas on the map as potential exploration sites upon their arrival on the surface of Mars. Using the maps with overlying grids, students should plot exact locations of their "finds" based on information for finding specimens provided by the teacher.

Students should time their data analysis to determine which procedures to recommend to their peers. Examples of data procedures to be timed ar weighing specimens on various types of scales, locating specimens by grid on a map versus locating specimens by written directions only, etc. Students can research the amount of time required to travel to Mars and then estimate how long an exploratory expedition might take. Another question to be researched might be time in space measurement in minutes, hours, or other units.

NOTES:

SUBJECT: Mathematics

GRADE: 1 - 3

UNIT: Addition

SOL OBJECTIVES: 1.7 2.7

LENGTH OF UNIT: 2 weeks

CONCEPTS AND SKILLS: Student will apply mathematical concepts of addition using manipulatives.

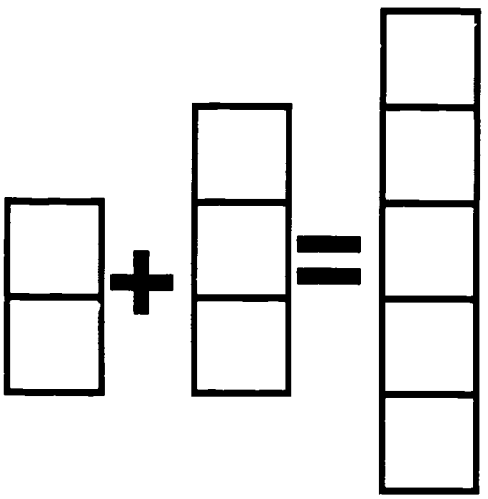
SPECIAL RESOURCES: Cuisenaire rods, unifix cubes, or other manipulatives

Addition

Students are given manipulatives, such as Cuisenaire rods, and asked to make combinations of blocks to equal the largest block (e.g. ten 1-blocks = one 10-block).

After students have made as many combinations as possible with each of the blocks, have them represent those combinations using numerals.

Example:

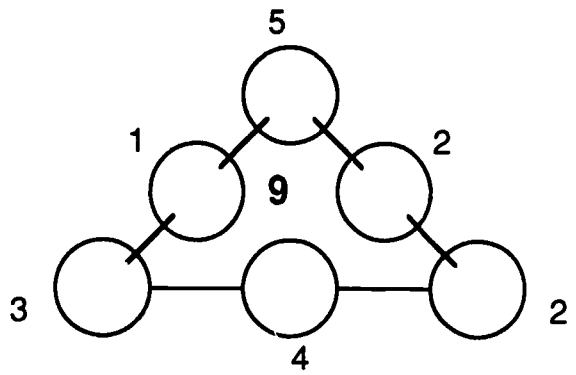


2 + 3 = 5

The teacher will provide the sum for the child to represent with the manipulatives. For example, the sum is 6. What possible combinations of numbers will add up to 6?

Given the sum of 3 numbers, the student will use manipulatives to show the possible combinations of 3 numbers that will equal the sum.

Place numbers from 1-9 into the circles of the triangle so that when you add up the numbers on each side, the sums are all the same.



NOTES:

SUBJECT: Mathematics

GRADE: 1 - 3

UNIT: Problem Solving Using Addition and Subtraction

SOL OBJECTIVES: 1.18 2.19 2.20 3.19

LENGTH OF UNIT: 2 weeks

SPECIAL RESOURCES: Samples of simple bar and picture graphs

INTRODUCTION: For some students an introduction to graph reading may be needed. The computation skills are assumed. In fact, the introduction would probably have been given to all students and the activity would be an extension of the lesson for those who grasped the information quickly.

PROBLEM SOLVING USING ADDITION AND SUBTRACTION

ACTIVITIES:

1. Given a number, the child will be able to give all possible combinations of numbers that will equal that number, using the operations of addition and subtraction.

   Example: Given the number 4 , students would respond:

   3 + 1, 4 + 0, 2 + 2, 9 - 5, 8 - 4, 7 - 3, 6 - 2. 5 - 1, 4 - 0

2. For these number sentences, the child will be able to give an appropriate word problem.

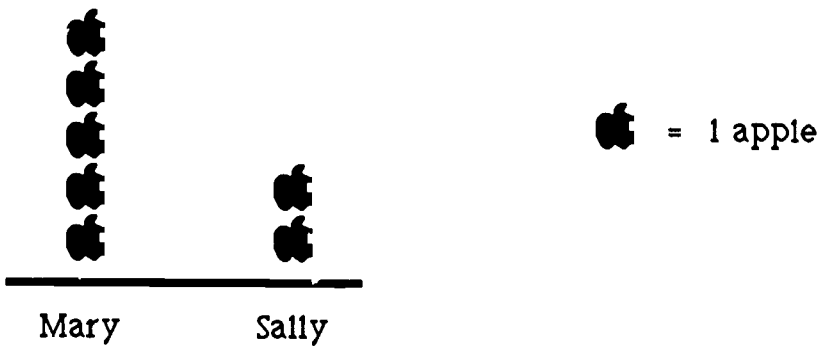
   Example: 3 + 1 = 4

   Johnny had 3 books. He got a new book for his birthday. How many books does Johnny have now?

3. Given a set of information the child can draw a simple picture graph to illustrate the information.

Example:

Mary has 5 apples, Sally has 2 apples.



Can you combine Mary's and Sally's apples?

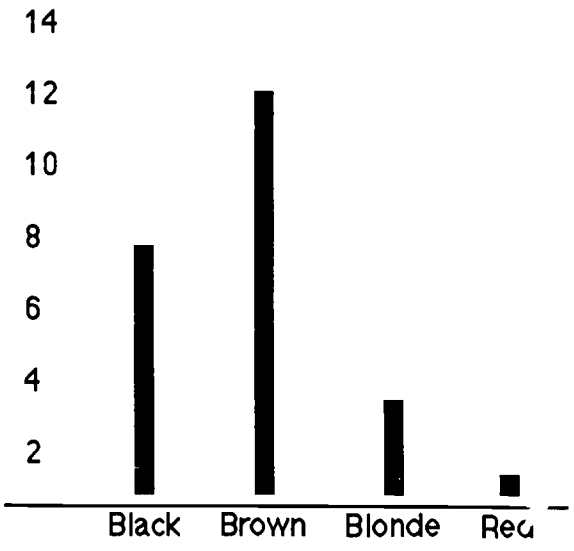
(graph of 7 apples)

Can you take Sally's apples away from Mary's apples? How many more apples does Mary have than Sally?

(graph of 5 apples)

4. The students can use information gathered from a survey to complete data into a graph form and interpret the results.

Example: How many students have (1) black hair, (2) brown hair, (3) blonde hair, and (4) red hair?



How many number sentences can you write to reflect the results of the survey?
What conclusions can you draw from the survey?
Do these conclusions hold true for other classes?
What other surveys can you conduct?
Write number sentences and word problems to reflect the results of the new surveys.

5. Students can write number sentences and word problems that reflect the findings of the surveys.

Example:

Survey says six students prefer white milk, ten students prefer chocolate milk, two students do not like milk.

6 + 2 + 10 = 18 students in the class

10 - 6 = 4 more students prefer chocolate milk than prefer white milk

NOTES:

SUBJECT: Mathematics

GRADE: 3

UNIT: Multiplication

SOL OBJECTIVES: 3.7 3.8

LENGTH OF UNIT: 2 weeks

CONCEPTS AND SKILLS: The ability to see multiplication as a pattern of repeated addition will lead to the concept that division is a process of repeated subtraction.

SPECIAL RESCURCES: Poker chips or any small manipulative objects for counting

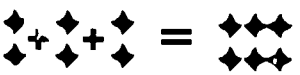
INTRODUCTION: As the students see sets being added or subtracted, they will see an amount being achieved or decreased by steps (i.e. four steps of 5 = 20; those same four steps of 5 taken away from 20 = 0). The use of manipulatives may be helpful in the beginning.

Multiplication

ACTIVITIES:

1. Students who can add are introduced to the concept of multiplication by adding numbers repeatedly.

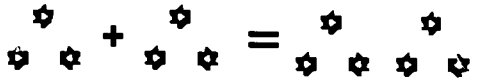
EX. 2 + 2 + 2 = 6



Therefore, 3 sets of 2 = 6

3 X 2 = 6

3 + 3 = 6



Therefore, 2 sets of 3 = 6

Therefore, 2 X 3 = 6

2. Students can visualize through the use of a chart all the number families which equal a given number.

EX.:

8

	1	2	3	4	5	6	7	8
1								X
2				X				
3								
4		X						
5								
6								
7								
8	X							

Write # sentences

1x8=8
2x4=8
4x2=8
8x1=8

3. For larger numbers, the students could experiment with sets of 2, 3, 4, etc. until they find combinations to equal the number, then prepare a chart of their findings. (1 and the number are givens)

EX. 36

2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 36

Therefore, 2 X 18 = 36

3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 36

Therefore, 3 X 12 = 36

4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 36

Therefore, 4 X 9 = 36

6 + 6 + 6 + 6 + 6 + 6 = 36

Therefore, 6 X 6 = 36

Trial and error will eliminate all other numbers. The students will discover that when they reach a number which multiplied by itself equals the given number, they are finished. A chart can then be made using all the numbers that were successful in reaching the given number, and number sentences can be written.

36

	1	2	3	4	6	9	12	18	36
1									X
2								X	
3							X		
4						X			
6					X				
9				X					
12			X						
18		X							
36	X								

1x36=36
2x18=36
3x12=36
4x9=36
6x6=36
12x3=36
18x2=36
36x1=36

4. Interesting discoveries will be made when the students try to factor a prime number. The value of introducing the terms "factors" and "prime numbers" at this time can be determined by the teacher (for each individual student).

5. If it is appropriate to introduce division at this time, it can be accomplished through the reverse of the previous activity--division being a process of repeated subtraction.

EX. 8 - 2 - 2 - 2 - 2 = 0

Therefore, 8 ÷ 2 = 4

8 - 4 - 4 = 0

Therefore, 8 ÷ 4 = 2

Expanded steps, i.e. 8 - 2 = 6
6 - 2 = 4
4 - 2 = 2
2 - 2 = 0 may be clear to some students.

A chart similar to that in Activity # 1 can be prepared by the student and number sentences written. (Again, 1 and the number are givens.)

8

	1	2	4	8
1				X
2			X	
4		X		
8	X			

8 ÷ 1 = 8
8 ÷ 2 = 2
8 ÷ 4 = 4
8 ÷ 8 = 1

NOTES:

SUBJECT: Mathematics

GRADE: 4 - 6

UNIT: Graphing and Predicting

SOL OBJECTIVES: 5.21 7.19 8.19

LENGTH OF UNIT: 1 - 2 weeks

GRAPHING AND PREDICTING

ACTIVITIES:

The student should think of a variety of things that are considered popular in society Examples might include:

the popularity of certain television shows
foods
rock groups
movies
clothing
songs

After making a list of things and choosing the ones he/she is most interested in, the student may choose to find about several topics or only one. Before students conduct their survey, they should predict what they think the results will be. The survey should be conducted across grade levels in order to make a more generalized statement about popularity within the school.

After conducting the survey, the student should create a chart to tabulate the results. The results can be shared in various types of graphs. Each student should study the usefulness of each type of graph (pictograph, pie graph, bar graph, etc.) to determine which format would best convey his results. The student should compare the actual results with the predicted results.

How accurate were the predictions?

Why do you think they were or were not accurate?

Can you think of any ways to make more accurate predictions?

Each student should make a presentation to the class, discussing his survey and his graphs. Later when the teacher assigns construction of graphs or reading of graphs to the whole class, this student can serve as a resource person to explain the advantages of various graphs.

NOTES:

SUBJECT: Mathematics

GRADE: 5 - 6

UNIT: Equivalent Fractions, Decimals and Percentages

SOL OBJECTIVES: 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.22 6.8 6.9 6.10 6.11 6.12 6.13 6.14 6.22 7.13 7.19 7.21

LENGTH OF UNIT: 10 - 15 days

CONCEPTS AND SKILLS: Indepth understanding of the relationship between fractions, decimals and percentages is stressed in these activities. The student will analyze the relationship of the three and synthesize information, using graphs and charts. Simple surveys will be conducted and data collection and organization will show application of fractions, decimals and percentages in real life situations.

SPECIAL RESOURCES: Protractor, compass, graph paper, colored markers, rulers, examples of different types of graphs

INTRODUCTION: The teacher will ask the student to tell how fractions, decimals and percentages are alike and how they are different. The teacher will ask the student why there is a need to understand these measures. The teacher will ask the student to think of all the instances in real life when fractions, decimals or percentages are used.

To create an indepth understanding of the relationship between fractions, decimals and percentages, students need an understanding of how to compute fraction, decimals and percentages and how to apply their understanding through a variety of activities.

Equivalent Fractions, Decimals and Percentages

ACTIVITIES:

1. The student will conduct a simple survey and show the results in fractions, decimals and percentages. A comparison of these could be made in a graph or a table/chart.

Some suggestions for surveying include:

a. *# students who pack their lunch or buy their lunch*

b. *# students who have bothers or sisters*

c. *finding the favorite snack food*

d. *# students who walk, ride in a car, or ride the bus to school*

e. *counting the number of different color cars passed on the way to school*

f. *finding the favorite color*

g. *# students who wear a certain brand of tennis shoes*

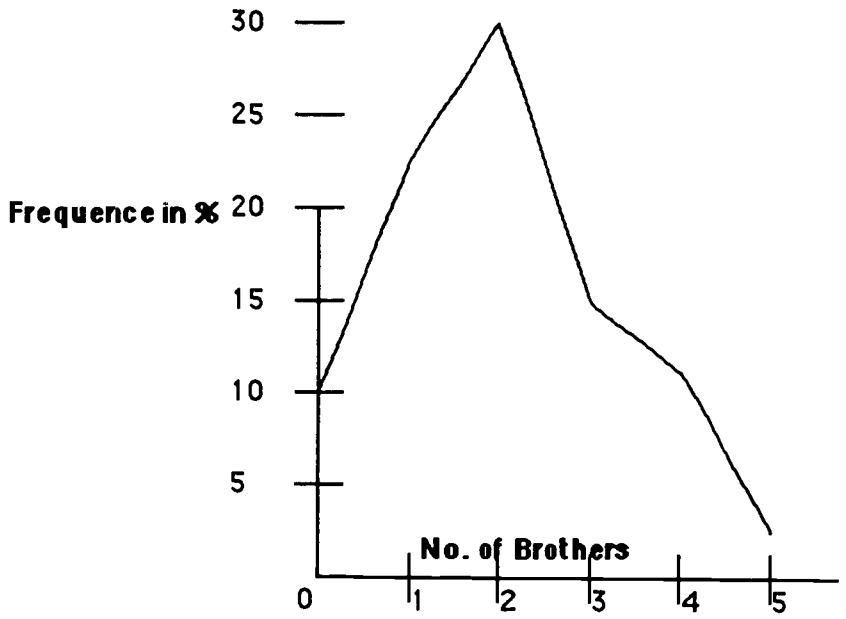
Students could create a chart to record the data. They may want to distinguish between male and female and compare the results. A sample chart may look like the following:

No. of Brothers	*Tally*	Frequency
0	///	3
1	////	5
2	~~////~~ ///	8
3	////	4
4	///	3
5	//	2

Once students have the raw data, they can convert it to fractions, decimals and percentages. They could record these numbers in an extension of the previous table. For example:

# of Brothers	Fraction	Decimal	Percentage
0	3/25	.12	12%
1	5/25 =1/5	.2	20%
2	8/25	.32	32%
3	4/25	.16	16%
4	3/25	.12	12%
5	2/25	.08	8%

To further extend the activity, students might show their results in line, bar, pie, composite, or pictograph graphs.



2. The student will construct a graph to show the comparison between specific fractions, decimals, and percentages. The student may construct a bar graph or circle graph.

   The student will create word problems, which include fractions, decimals,and percentages from real life experiences, that have happened in the past several weeks. Or the teacher may supply several computational problems.

   Examples of word problems are:

   a. The Cardinals had 18 hits in the baseball game against the Indians. John had 3 hits in that game. What percentage of the hits did John have? (16.6%) What fraction of the hits did he have? (1/6)

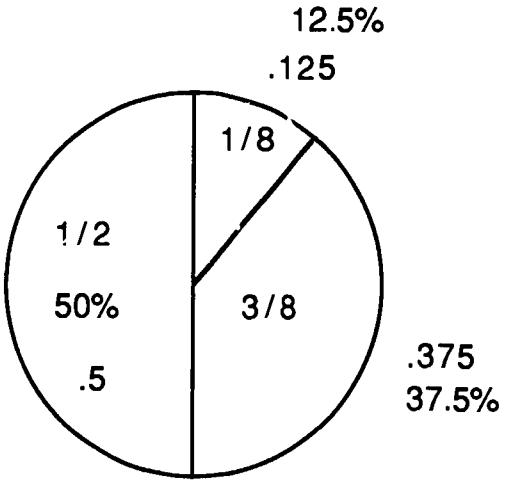
   b. There are 48 cookies in a package of Oreos. There are 12 students in the choir who will have the cookies. There are 6 girls and 6 boys in the choir. The girls are given 2/3 of the cookies. What percentage of the cookies will be left for the boys? What percentage of the cookies do the girls have?

   c. 12 is what percentage of 78?

   d. 3/14 is what fraction of 56?

   e. 72% is the same as what decimal?

After solving word problems and finding equivalent fractions, decimals and percentages, the student will represent them in a chart or graph. For example:



3. The student will fill-in an incomplete chart containing equivalent fractions, decimals and percentages. The chart may be similar to the following:

Fraction	Decimal	Percent
2/3	.6	66.2/3%
___	.85	___
___	.___	37%
7/23	.___	___

After completing the chart, the students will create a game for others to play, based on this concept. Students should generate many, varied and unusual ideas before creating their own game. The students will design the game, making sure to write clear directions for playing. Before finalizing the game, it should be field-tested with an appropriate audience. For example, if the game is for students in the same grade level, it could be field-tested with several classmates. If the game is for older students, then the game should be tested with them. The students should develop criteria for evaluating the game prior to the completion of the final product. After field-testing the game, the students should make necessary changes and finalize the game. The game could be given to the teacher to use. The final game should be evaluated by the student according to self-determined criteria. Some criteria the student might consider are:

Did the game address the concept?
Were the directions clear and understandable?
Was the game challenging to the players?

Was the game fun?

NOTES:

SUBJECT: Mathematics

GRADE: 5 - 6

UNIT: Freaky Fractions

SOL OBJECTIVES: 5.13 5.14 5.15 6.13 6.12

LENGTH OF UNIT: 1 week

INTRODUCTION: This activity naturally follows a unit on the numeration and computation with fractions. It is necessary that the student have an understanding of equivalent fractions, unit fractions and the complex method of dividing fractions. Step-by-step example are given so the logical progression of steps can be seen.

FREAKY FRACTIONS

ACTIVITIES:

Students in the upper elementary grades are usually well versed in the numeration of and computation with fractions and decimals. This activity is an extension of the computation and numeration of rational numbers but also exercises the student's knowledge of greatest common factor and least common multiple.

Activity I -- Egyptian Fractions:

Background Information: The ancient Egyptians did not write fractions the way we do. They had no symbol for 2/3 or 4/5, but they did have symbols for 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, and so on. These fractions are called unit fractions because their numerators are all 1. These unit fractions can be used to make other fractions.

Example: 2/3 = 1/2 + 1/6 because 2/3 = 1/2 + 1/6
(4/6) = (3/6) + (1/6)
= (1/2) + (1/6) unit fractions

However, they could **not** write:

2/3 as 1/3 + 1/3 because they needed two different unit fractions

2/3 = 4/6 therefore 4/6 - 3/6 + 1/6 = 1/2 + 1/6 unit fractions

2/5 = 1/5 + 1/5 but 1/5 = 6/30 = 5/30 + 1/3 = 1/6 + 1/3 therefore
2/5 = 1/5 + 1/6 + 1/30

Write these Egyptian fractions:

(1)	3/4	(3)	3/5	(5)	5/8
(2)	5/6	(4)	3/8	(6)	7/8

Although there is a symbol for 1/2 in the Egyptian system, we can say that any fraction must be expressed as at least two different unit fractions.

Example: 1/2 = 1/3 + 1/6

because 1/2 = 3/6 = 2/6 + 1/6 = 1/3 + 1/6

Write these unit fractions as the sum of at least 2 unit fractions. Can you devise a system for doing this?

(7)	1/3	(9)	1/5	(11)	1/9
(8)	1/4	(10)	1/6	(12)	2/9

Activity II -- Elevator Fractions

Background Information: Students should be familiar with complex fractions in order to do this extension.

Remember: 1/a/b = 1÷ a/b = 1 * b/a = b/a

Example: $\frac{1}{2/3}$ = 1 ÷ 2/3 = 1 * 3/2 = 3/2

1 + 1/3 = 1+ 1/3 = 4/3

$2 + \frac{1}{1 + 1/6} = 2 + \frac{1}{1\ 1/6} = 2 + \frac{1}{2/6}$ = 2 6/7 =20/7

Follow these examples and then simplify:

SUBJECT: Mathematics

GRADE: 6

UNIT: Basic Manipulations

SOL OBJECTIVES: 6.1 6.3 6.4 6.5 6.6

LENGTH OF UNIT: 1 - 2 weeks

INTRODUCTION: This activity is a direct extension of the place-value of a decimal numeral and computation of whole numbers. In order to do this modification, the student needs a thorough understanding of the place-value of digits in a decimal numeral, and the concept of powers of whole numbers. The latter activities involve fractions and "decimals" in different bases and are only appropriate for the strongest mathematics students.

In this activity we will extend the concept of place-value in the base-10 system to other base systems and then perform the four basic operations in different bases.

BASIC MANIPULATIONS

Activities for Various Bases:

What does a number in the decimal system have:

(1) one or more digits of a possible combination of 10 digits (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)

(2) each digit is in a place-value position that is a power of 10

e. g., 10^0, 10^1, 10^2, etc.

In a decimal numeral:

In a base$_5$ number:

1) there is only 5 possible digits 0, 1, 2,3, 4

2) each place-value position is a power of 5: 5^0, 5^1, 5^2, etc.

In a base $_5$ number:

$\frac{5^5}{3,125}$	$\frac{5^4}{625}$	$\frac{5^3}{125}$	$\frac{5^2}{25}$	$\frac{5^1}{5}$	$\frac{5^0}{1}$	(powers of 5) base 10 equivalent

A number in base-five can easily be converted to base-10 by writing it in expanded form:

$3,214_5 = (3x5^3) + (2x5^2) + (1x5^1) + (4x5^0)$

$= (3x125) + (2x25) + (1x5) + 4x1)$

$= 375 + 50 + 5 + 4$

$= 434$

$\therefore \quad 3,214_5 = 435_{10}$

A number in base-ten can easily be converted to base-five

$195_{10} = \underline{\quad ? \quad}_5$

Base 5 place-value positions $\frac{5^4}{625}$ $\frac{5^3}{125}$ $\frac{5^2}{25}$ $\frac{5^1}{5}$ $\frac{5^0}{1}$

How many groups of 5 are found in this base-10 number?

$$\begin{array}{llll} 1 & 2 & 4 & 0 \\ 125\overline{)195} & 25\overline{)70} & 5\overline{)20} & 1\overline{)0} \\ \underline{125} & \underline{50} & \underline{20} & \\ 70 & 20 & 0 & \end{array} = 1240_5$$

$\therefore \quad 195_{10} = 1240_5$

What are the counting numbers in base-five?

0,1,2,3,4,10,11,12,13...

Finish this sequence for the first 25 numbers

Addition & Multiplication Charts:

These charts in base-five are completed the same ways as the ones in base$_{10}$

Example:

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
3										
4										
5										
6										
7										
8										
9										

In base-five the addition and multiplication tables are completed in the same manner. Follow the numbers shown and then complete. To check your sums and products: add or multiply in base-10 and convert.

Addition Table

+	0	1	2	3	4
0	0	1	2	3	4
1	1	2	3	4	10
2					
3					
4					

Multiplication Table

x	0	1	2	3	4
0	0	0	0	0	0
1	0	1	2	3	4
2	0	2	4	11	13
3					
4					

You may use the tables above to add, subtract, multiply and divide numbers in base-five.

1) $234_5 + 112_5$

2) $234_5 - 22_5$

3) $141_5 - 43_5$

4) $24_5 \times 4_5$

5) $31_5 \times 22_5$

6) $22_5 \overline{)1232_5}$ check?

7) $41_5 \overline{)1234_5}$ check?

Extra Practice:

See what you have learned.

1) $211_3 =$ _____ 10

2) $321_5 =$ _____ 10

3) $3122_4 =$ _____ 10

4) $2110_5 =$ _____ 10

5) $212_8 =$ _____ 10

6) $310_7 =$ _____ 10

7) $314_5 + 232_5$

8) $2323_5 + 1441_5$

9) $7412_5 + 13214_5 =$

10) $40133_5 + 21421_5 =$

11) $100101_2 + 100101_2$

12) $110010111_2 + 11101111_2$

13) $10131_5 - 2012_5$

14) $11401_5 - 4210_5$

15) $3412_5 - 1321_5$

16) $13214_5 - 4321_5$

17) $321_5 \times 4_5 =$

18) $423_5 \times 23_5 =$

19) $1011_2 \times 101_2 =$

20) $10110_2 \times 1011_2 =$

21) $10110_2 \div 10_2 =$

22) $11000_2 \div 11_2 =$

23) $224_5 \div 31_5 =$

24) $1010_5 \div 20_5 =$

Extras for Experts:

Fractions and "Pentimals"

There can also be fractions in the base-five system.

$0.4_5 = \frac{4}{5}$

$0.23_5 = \frac{2}{5} + \frac{3}{25} = \frac{13}{25}$

$0.134_5 = \frac{1}{5} + \frac{3}{25} + \frac{4}{125} = \frac{44}{125}$

Find the values of each digit: continue the pattern

$0.2314_5 = \frac{2}{5} + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

What is the relationship of each succeeding place-value position?

Write a fraction in base-five naming $\frac{47}{12}$

$47_{10} = 142_5$

$12_{10} = 22_5$

$\therefore \frac{47}{12} = \frac{142_5}{22_5}$

Write a base-five numeral for 17.36_{10}

$17.36 = 17 + \frac{36}{100} = 17 + \frac{9}{25}$

$= 32 + \frac{5+4}{25}$

$= 32 + \frac{1}{5} + \frac{4}{25}$

$+ 32.14_5$

Convert the given base-10 fraction to a fraction in the base stated.

1) $\frac{21}{33_2}$

2) $\frac{15}{22_5}$

3) $\frac{123}{151_8}$

4) $\frac{57}{85_3}$

Convert the given decimal numeral to non-fractional numeral in the given base

5) 21.25 to base-two

6) 19.75 to base-eight

7) 215.72 to base-five

8) 172.375 to base-four

NOTE TO TEACHER: (Answers to Problems)

First 25 concerning numbers:

12; 13; 14, 20, 21, 22, 23, 24, 30, 31, 32, 33, 34, 40,41, 42, 43, 44

Addition Chart
(base five)

+	0	1	2	3	4
0	0	1	2	3	4
1	1	2	3	4	10
2	2	3	4	10	11
3	3	4	10	11	12
4	4	10	11	12	13

Multiplication Chart
(base five)

x	0	1	2	3	4
0	0	0	0	0	0
1	0	1	2	3	4
2	0	2	4	11	13
3	0	3	11	14	22
4	0	4	13	22	31

Answers to Computation Questions:

1) 401_5
2) 212_5
3) 43_5
4) 211_5
5) 1232_5
6) 31_5
7) 14_5 r 10_5

1) $234_5 + 112_5 = 401_5$

2) $234_5 - 22_5 = 212_5$

3) $311_5 - 43_5 = 43_5$

4) $24_5 \times 4_5 = 211_5$

5) $31_5 \times 22_5 = 112 + 112 = 1232_5$

6) $22_5 \overline{)1232_5}$ → 31_5; 121; 22; 22; 0

7) $41_5 \overline{)1234_5}$ → 14 r 10_5; 41; 324; 314; 10

Extra Practice

1) 22 2) 86 3) 218 4) 280 5) 138 6) 154 7) 1101_5 8) 4314_5 9) 22131_5 10) 112104_5

11) 1001010_2 12) 1010000110_2 13) 3114_5 14) 2141_5 15) 2041_5 16) 3343_5 17) 2334_5 18) 21334_5

19) 110111_2 20) 11110010_2 21) 1011_2 22) 1000_2 23) 4_5 24) 23_5

Extras for Experts

1) $\frac{10101_2}{10111_2}$ 2) $\frac{30_5}{42_5}$ 3) $\frac{173_8}{227_8}$ 4) $\frac{2010_3}{10011_3}$ 5) 10101.01_2 6) 23.6_8

7) 1330.33_5 8) 2230.12_4

APPENDIX A

Explanation of SOL Objectives System

Explanation of SOL Objectives System

The State Board of Education in the Commonwealth of Virginia adopted a plan in 1981 which established the Standards of Learning Program. As this program has developed, objectives have been developed in each subject area and at each grade level which establish a framework for general education in the public school in Virginia. The SOL objectives were developed by teachers, supervisors, administrators, teacher educators, industry personnel, representatives of professional organizations, and the Department of Education staff.

This publication was designed for teachers in Virginia, and the assumption was made that each teacher would have access to written copies of the SOL objectives. Therefore, in the interest of compacting this document, the objectives referred to in the modifications were not written in full. Rather, each modification refers to the SOL objective number which identifies the specific objective.

For those educators who may use this document and wish to see the objectives, you are referred to the Virginia Department of Education, Box 6Q, Richmond, VA, 23216. For your information, the first letter or number in the SOL objective number refers to the grade level (i.e. 5.12 is a fifth grade objective; K.2 is a kindergarten objective).

APPENDIX B

Principles of a Differentiated Curriculum for the Gifted/Talented N/SLTI

Principles of a Differentiated Curriculum for the Gifted/Talented

Present content that is related to broad-based issues, themes or problems.

Integrate multiple disciplines into the area of study.

Present comprehensive, related, and mutually reinforcing experiences within an area of study.

Allow for the in-depth learning of a self-selected topic within the area of study.

Develop independent or self-directed study skills.

Develop productive, complex, abstract, and/or higher level thinking skills.

Focus on open-ended tasks.

Develop research skills and methods.

Integrate basic skills and higher level thinking skills into the curriculum.

Encourage the development of products that challenge existing ideas and produce "new" ideas.

Encourage the development of products that use new techniques, materials, and forms.

Encourage the development of self-understanding, i.e. recognizing and using one's abilities, becoming self-directed, appreciating likenesses and differences between oneself and others.

Evaluate student outcomes by using appropriate and specific criteria through self-appraisal, criterion referenced and/or standardized instruments.

National/State Leadership Training
Institute on the Gifted and the Talented