

MILLIE'S



Teacher's Guide

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Introduction

Millie's Math House software and classroom activities have been created with a great deal of thought and care. They reflect our vision of what technology can bring to education. We want to share our love of learning with you and your students, so we've filled Millie's House with hours and hours of learning play, colorful characters, enchanting music, smiles, and giggles.

Through nine activities that feel like play, students learn about numbers, counting, addition, subtraction, patterns, problem solving, size, geometric shapes, graphs, and more. Eight of the nine activities have both a Discover Mode as well as a Question and Answer Mode so that children experience both divergent (many good answers) and convergent (one best answer) thinking. These activities will help build a foundation for the math concepts and thinking skills that children need to construct understanding and make sense of the world around them.

Powerful technology and proven educational methods have been combined to ensure success for a wide variety of children. The clear, digitized speech provides effective modeling for ESL students and early language development. *Millie's Math House* can also be very appropriately used in inclusionary settings.

A *Curriculum Connections* section in this Guide provides dozens of interdisciplinary activities for use in the classroom and at home. Reproducible activity sheets and artwork are included to provide additional learning opportunities before and after using the software.

Millie's Math House provides students with the opportunity to develop feelings of control and confidence. Using the computer as a tool, students gain a sense of accomplishment and skill as they create, play, and learn.

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What's in This Guide?

Introductory information (pages 3–12)

- *Steps to Start* information
- Visual overview of the program
- Activity room descriptions
- Learning opportunities matrix
- Assessment option
- Program navigation for teachers and students
- Suggestions for introducing *Millie's Math House* to your students
- Reproducible quick reference pages for your students

Room by Room in Millie's Math House (pages 14–48)

Helpful information about each room of *Millie's Math House*, including:

- **Overview**, giving a summary of the activity room, learning opportunities, and suggested extension activities for home and school. Learning Objectives show what is assessed. Learning Opportunities describe additional goals your students will meet using these activities.
- **Discover Mode**, explaining how your students can learn by experimenting with numbers, shapes, etc., in the activity room. In this Mode there are no "right" or "wrong" answers.
- **Question and Answer Mode**, explaining how a character takes charge and is looking for a "right" answer. The character also offers gentle help and fun rewards.
- **Together Time Activities**, offering suggestions for easy, at-home activities that integrate learning into everyday situations.

Curriculum Connections (pages 49–105)

- Suggested activities that can be integrated into many curricular areas. These activities strengthen the learning opportunities found in *Millie's Math House*.
- Reproducible sheets (for student handouts, bulletin board headings, and overhead transparencies) that can be used in conjunction with *Curriculum Connections* activities.

System Requirements (page 106)

Steps to Start

1. Install Millie's Math House.

- Please see "System Requirements" on page 106.

2. Read the Teacher's Guide.

- *What's Inside Millie's Math House* (page 4) and *Moving Around the House* (page 9) will help you begin using *Millie's Math House* immediately. *Curriculum Connections* (pages 49–105) offers additional suggestions and supplemental materials to help you integrate *Millie's Math House* with classroom activities.

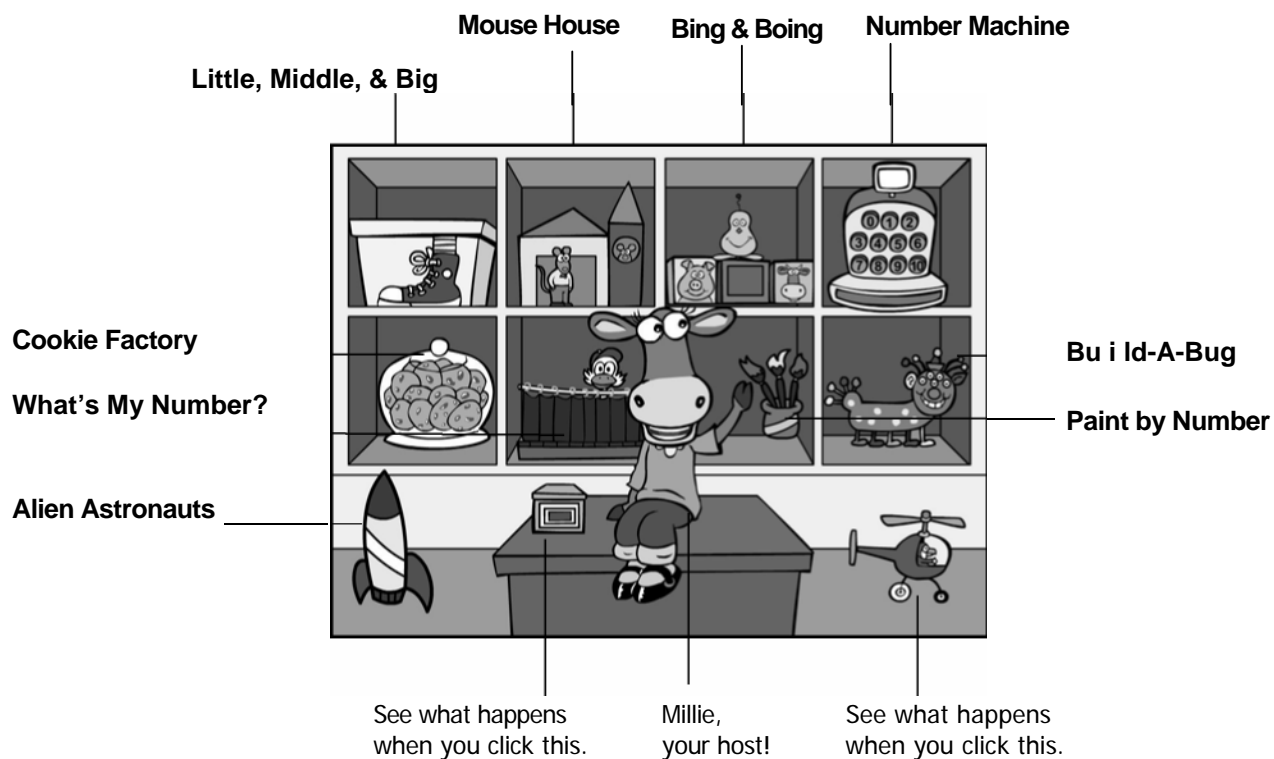
3. Become familiar with the program. ■ Try the software before you introduce *Millie's Math House* to your students.

- Decide if you want to introduce the activity rooms one at a time to your students or let them explore at their own pace.

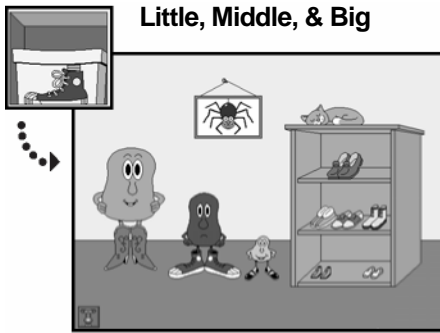
4. Introduce Millie to your students.

- Reproduce (for each student) or make overhead transparencies of *Millie's Map* and *Millie's Icons* (pages 11 and 12).
- See *Introducing Millie to Your Students* (page 10) for suggestions.

To play an activity, click one of the rooms below.



What's Inside Millie's Math House



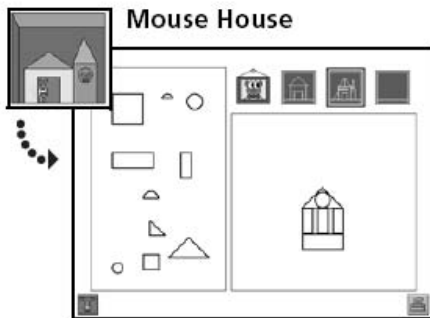
Little, Middle, & Big

Compare and match sizes. Try shoes of three sizes on three different characters.



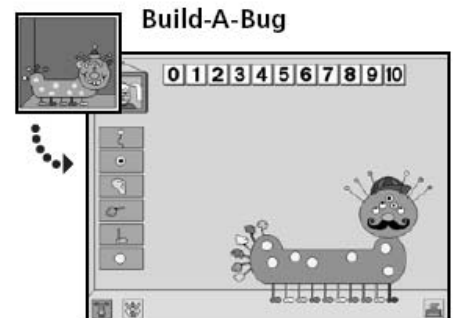
Bing & Boing

Recognize patterns. Create and complete interesting patterns that are seen and heard.



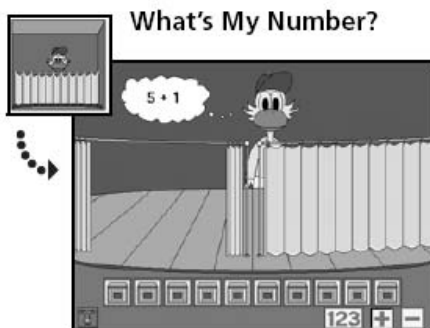
Mouse House

Identify and match geometric shapes. Build in the empty work area or by following a blueprint. Print and color what is built.



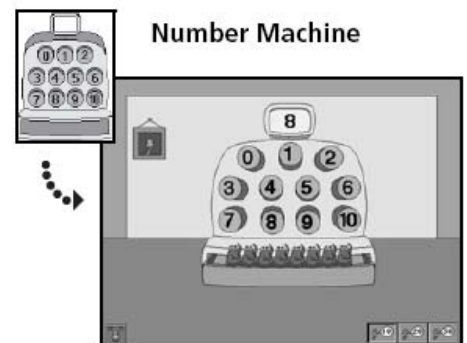
Build-A-Bug

Hear and see numbers and the corresponding quantity. Place from one to ten eyes, ears, spots, etc. on a bug. Print and color creations for the bug.



What's My Number?

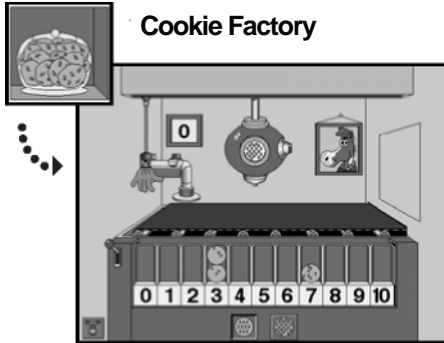
Count or use addition and subtraction. Read number sentences and find Dorothy's number.



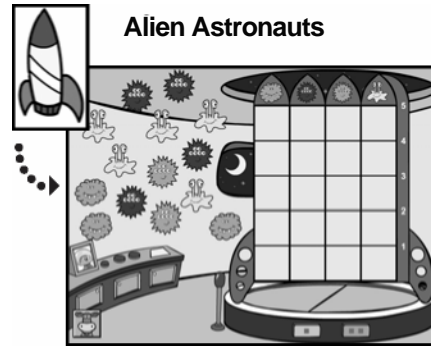
Number Machine

Recognize numerals. See and hear a delightful assortment of critters counted as they pop out of a drawer.

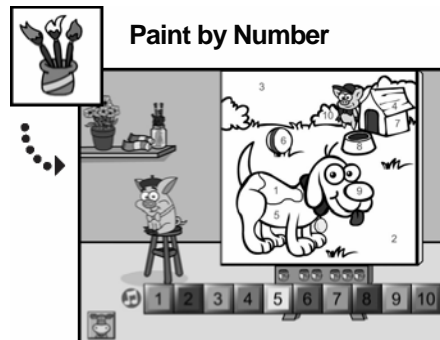
What's Inside Millie's Math House, Continued



Use thinking skills and counting. Try devices in different sequences to produce different results. Count jelly beans to decorate cookies.



Sort aliens into the correct rockets to make graphs and blast off to the moon.



Learn about counting by 1s, 2s, and 5s by coloring a painting for Picasso Piglet.

Learning Opportunities Matrix

	Cookie Factory	Number Machine	Build-A-Bug	Bing & Boing	What's My Number?	Mouse House	Little, Middle, & Big	Alien Astronauts	Paint by Number
Explore concept of size						X	X		
Identify and compare sizes						X	X		
Expand vocabulary of size words							X		
Explore concept of shape						X		X	
Match shapes						X		X	
Discriminate between sizes of the same shape						X			
Create with shapes						X			
Expand vocabulary of shape words						X		X	
Create patterns				X					
Complete patterns				X					
See relationship of parts to whole	X		X	X		X			X
Develop number recognition	X	X	X		X				X
Recognize one-to-one correspondence	X	X	X		X				
Create a unique work of art			X			X			
Hear numbers counted	X	X	X		X				X
Develop problem-solving skills and attitudes	X			X	X		X		
Hear singular and plural forms of nouns		X	X						
Develop basic addition and subtraction facts for numbers 1-10		X	X		X				
Recognize and read number sentences					X				
Observe that number sentences are a means of mathematical communication					X				
Read graphs and draw conclusions								X	
Organize and display data using simple graphs								X	
Sort objects into sets by attribute								X	
Skip count by 1s, 2s, and 5s									X
Match numerals									X

Notes

Assessment Option

An assessment of student learning, designed specifically for young children, is available for each activity and may be used to test learning objectives, should the teacher choose to use it.

The questions are presented verbally and the choice of answers presented in picture form. Both are in an understandable format for young children who might well be nonreaders.

Modification, adaptation, or alternative approaches to evaluation

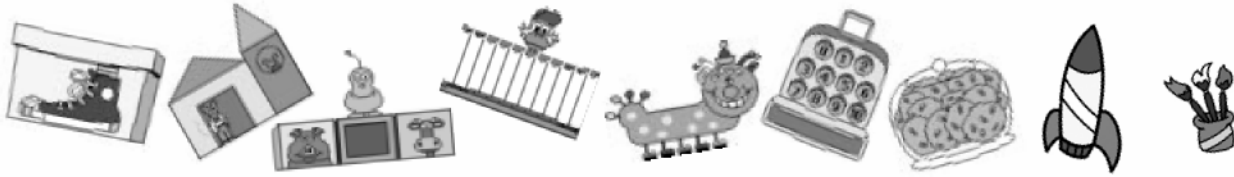
Some educators may not choose to “test” their very young students in a formal manner, or they may have some students with specialized needs who cannot easily use the formal assessment as presented.

Some suggestions to consider follow:

- Introduce the test to the class by means of a projector and large screen, encouraging group participation.
- Encourage students to click again on the question if they are not sure what is said.
- Provide an assistant, parent volunteer, or peer tutor to help a child having difficulties getting started.
- Check the lighting and minimize the glare on the computer monitor (pulling blinds or setting up a screen) if there seem to be visual concerns.
- Use individual earphones and/or adjust amplification needs for students with attention or hearing concerns.
- Sign language interpretation for questions may be helpful to some children.

Moving Around the House

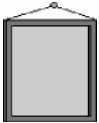
To move from the Main Room to an activity, click one of these:



Click Millie **to return to the Main Room** from any activity room in the Math House.



When students enter an activity room, they will initially be in the Discover Mode. Since emphasis is placed on students experimenting freely by clicking objects and icons to see what happens, there are no right and wrong answers. With students in charge, divergent thinking is encouraged by playful, positive responses to their natural curiosity. When you want **to enter the Question and Answer Mode**, click the framed picture (each activity room has a different picture).



In the Question and Answer Mode of an activity room, a character asks questions or makes requests. Convergent thinking is emphasized as the character offers gentle feedback and guides students toward a "correct" answer. Click the empty picture frame **to return to the Discover Mode**.



Click the printer **to print** student creations in Mouse House and Build-A-Bug.

Introducing Millie to Your Students

- Turn on the computer and launch *Millie's Math House*. Use a large screen monitor if one is available. Hand out copies of *Millie's Map and Millie's Icons* (pages 11 and 12).
- Point out the Main Room. Discuss the Stop Sign if students are allowed to exit.
- Ask a volunteer to click an activity room. Explain that students will first see the Discover Mode in each activity room. (Indicate that What's My Number? has the Question and Answer Mode only and that Paint by Number has only the Discover Mode.) Point out the framed picture, explaining that when one of Millie's friends is there, students can freely explore the room to discover what happens.
- Have another volunteer click the framed picture. Point out to students that the frame is now empty; a character will make a request because they are in the Question and Answer Mode. Explain that if they have trouble finding the answer, the character will help them.
- Help students understand that anytime during play, they can:
 - go back to the Discover Mode by clicking the empty picture frame;
 - go back to the Main Room by clicking the Millie icon.
- Have the students begin using *Millie's Math House*, or skim through *Curriculum Connections* and use one of the suggested activities to introduce an activity room. For example, "Meet Bing and Boing" (page 72) is a helpful introduction to the Bing & Boing activity room.
- As students work in different rooms of *Millie's Math House*, copy and send home the corresponding Together Time Activities (pages 17, 21, 25, 29, 33, 37, 41, 45, and 48).
- Use selected activities found in *Curriculum Connections* as follow-up exercises.

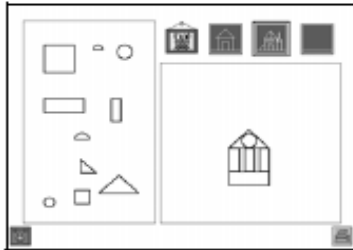
Millie's Map

Click the activity you want to enter:

Little, Middle, & Big



Mouse House



Bing & Boing



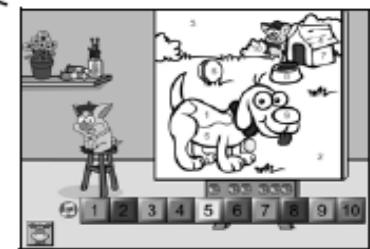
Number Machine



Build-A-Bug



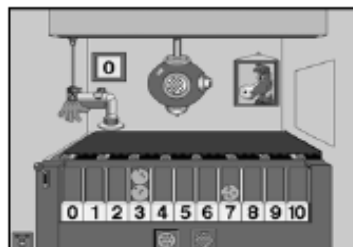
Paint by Number



Alien Astronauts



Cookie Factory



What's My Number?



Millie's Icons

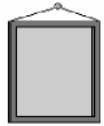
Click:



To go back to



To hear questions



To explore

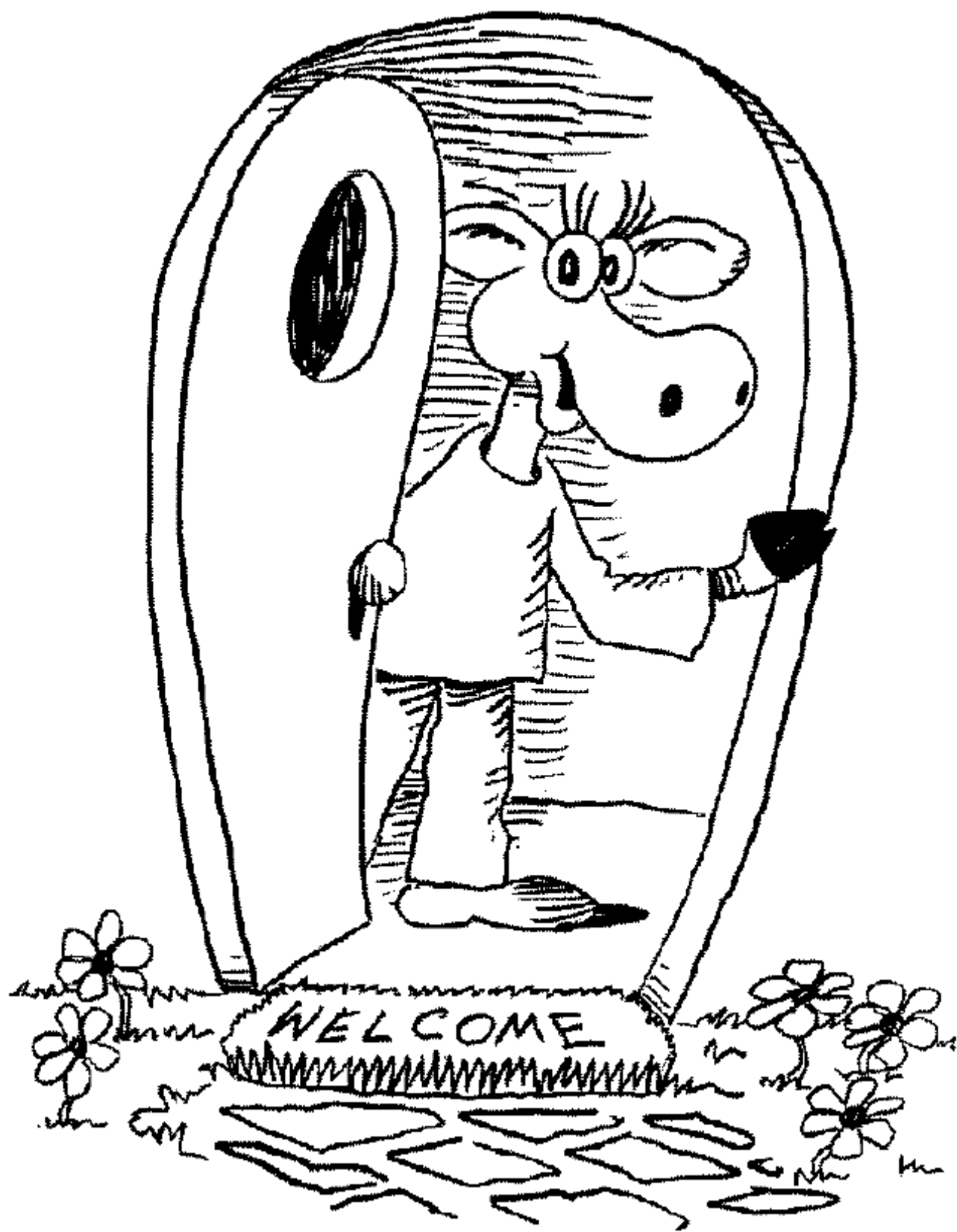


To print



To exit





Little, Middle, & Big Overview



Little, Middle, and Big need help finding shoes. As students select different pairs of shoes, Little, Middle, and Big let them know how well the shoes fit.

Learning Objectives

- Identify relative size of objects
- Compare the length of objects by making direct comparison with reference objects
- Expand vocabulary of size words

Learning Opportunities

- Explore the concept of size
- Examine similarities and differences in size
- Expand vocabulary of “size words”

Together Time Activities (page 17)

(To copy and send home)


- Bigger Than a Bread Box
- Silly Me

Curriculum Connections (page 53–58)


- Size Collages (Art)
- Size Up the Word (Language Arts)
- Trash and Treasure (Language Arts)
- Seeing It All (Science)
- So Many Ways to Say It (Language Arts)
- What Size, Please? (Science)
- Color Me Little (Science)






Little, Middle, & Big Discover Mode

- Click  to enter Little, Middle, & Big from the Main Room.
- Click a pair of shoes. A voice says the size; for example, "Small shoes."



- Click a character . Little, Middle, or Big asks for shoes; for example, "I'm Little. I need shoes."
- Click the shoes you want to try on Little, Middle, or Big. Because this is the Discover Mode, you can put any shoes on any character. The characters' faces react to the shoes you choose. **You are in charge!**




- If you want to mix up the shoes, click the cat . Try it just for fun. When you want the shoes sorted by size again, click the cat once more.
- Click  for the Question and Answer Mode, or click  to return to the Main Room.



Little, Middle, & Big

Question and Answer Mode



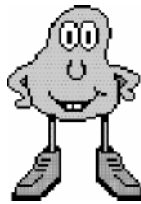
- Click  to enter the Question and Answer Mode. The spider introduces a character. Then Little, Middle, or Big asks you to find a pair of shoes; for example:



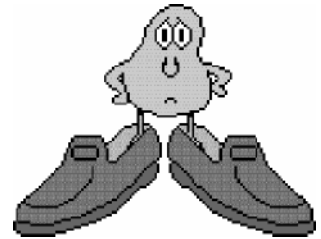
"I'm Little. I need shoes."


- Click a pair of shoes.



- If the shoes fit, the character looks happy and thanks you!



- If the shoes do not fit, the character tells you what the problem is. For example, "These are too big." Try again till you find some that are just right.



- If you want a challenge, mix up the shoes by clicking the cat . When you want them sorted by size again, click the cat again.
- Play as long as you want. After all the shoes are used, the cat meows, and the shelves fill with shoes.

- Click  for the Discover Mode, or click  to return to the Main Room.

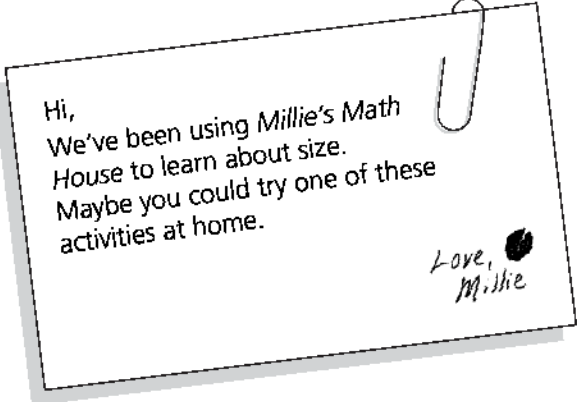


Little, Middle, & Big

Together Time

Bigger Than a Bread Box

Play a guessing game that requires size comparison and the use of "size words." Start by saying, "I see something smaller than you but larger than my ring." Let your child take a guess. Then help narrow the choices by offering another clue, "I see something smaller than your little brother but larger than the flowerpot." Continue to give clues until your child guesses correctly. Then let your child think of an object and give the clues.

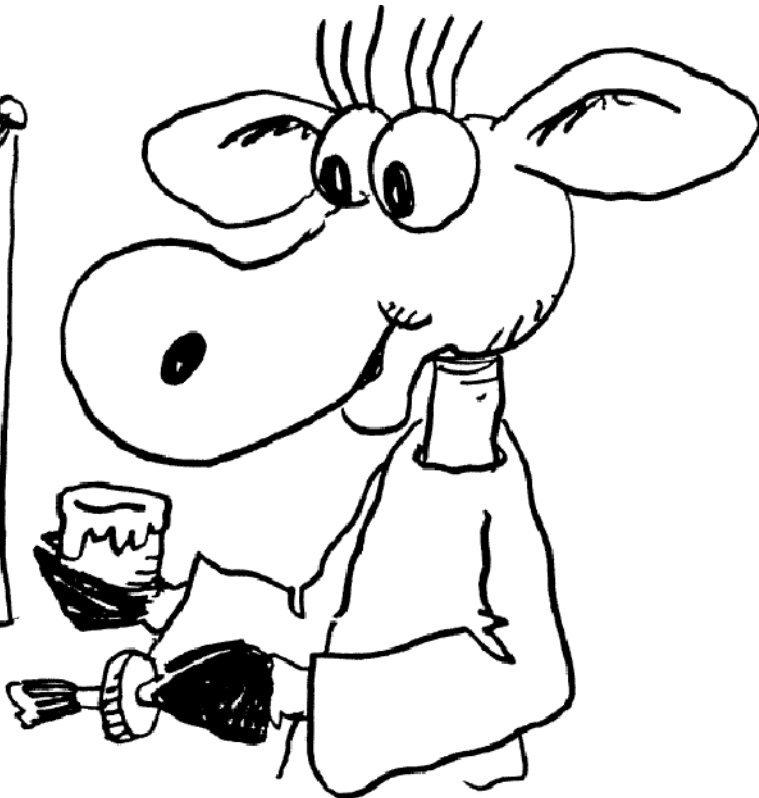


Hi,
We've been using Millie's Math
House to learn about size.
Maybe you could try one of these
activities at home.

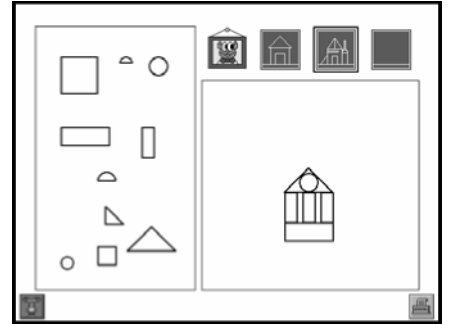
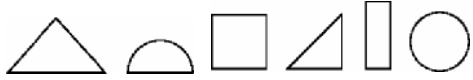
Love,
Millie

Silly Me

Cut out a full-length picture of your child from an old photograph. Glue the picture onto a large piece of white paper. Let your child find magazine pictures of hats, shoes, and gloves or mittens. Help cut out these items. Let your child create a funny self-portrait by adding clothing. Talk about the "too big hat," "too little mittens," "just right shirt," and so on. Follow by reading *Goldilocks and the Three Bears* as a bedtime story.



Mouse House Overview



Students use geometric shapes (squares, triangles, circles, half-circles, and rectangles) as they build by following blueprints. With these same shapes, students can also create their own designs. Designs can be printed and colored.

Learning Objectives

- Identify common geometric objects: circle, triangle, square, rectangle, and half-circle
- Match shapes
- Discriminate between sizes of the same shape

Learning Opportunities

- Hear and use the names of shapes
- Discover that a shape is still the same shape, regardless of position or size
- Create with shapes

Together Time Activities (page 21)

(To copy and send home)

- Tabletop Town
- Geometric Pretzels
- City Stamps

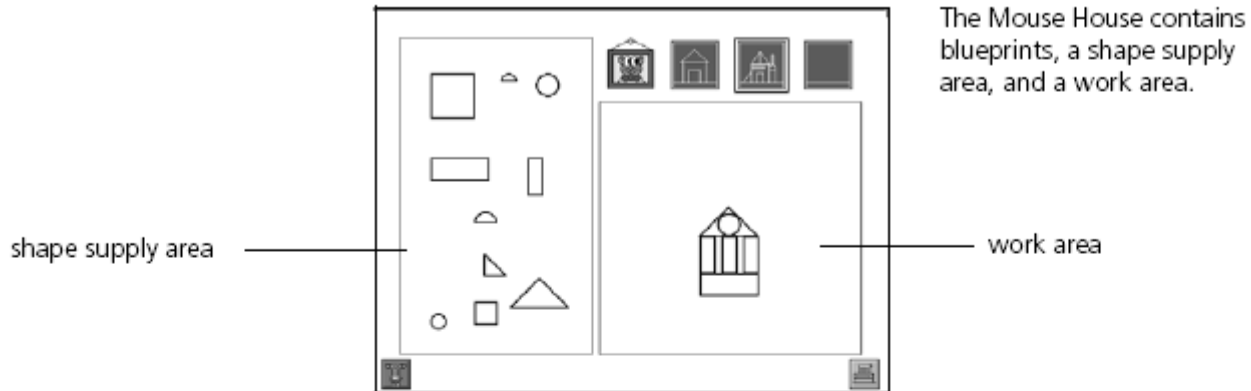
Curriculum Connections (pages 59–65)

- I Spy Shapes (Language Arts)
- Funny Faces (Art)
- Our Town (Art)
- Shadow Play (Art)
- Sort It Out (Science)
- All Shapes and Sizes (Science)
- Crazy Quilt (Art)
- Team Shapes (Physical Education)
- What Shape Are You In? (Physical Education)



Mouse House Discover Mode

- Click  to enter the Mouse House from the Main Room.



- Click:



Blueprints with squares, circles, rectangles, and triangles in one size

or






Blueprints with squares, circles, rectangles, triangles, and half-circles in two sizes

or




Empty work area (build without blueprints)

- If you are following a blueprint, drag the shape from the supply area to the work area and drop it into place (over the same shape).
 - If you are building in the empty work area without a blueprint or adding extra shapes to a blueprint, drag the shapes wherever you want.
- Build as long as you like. Click another blueprint, or build in the empty work area at any time.
- Click  to print what you have built. Once printed, you may want to color your design, adding bricks, scenery, people, and so on.
- Click  for the Question and Answer Mode, or click  to return to the Main Room.



Mouse House

Question and Answer Mode

- Click  to enter the Question and Answer Mode.
- Frank Lloyd Mouse has surprise blueprints. You will not know what you are building until you finish, but you can decide how many shapes and sizes to use.
- Click



Blueprints with squares, circles, rectangles, and triangles in one size

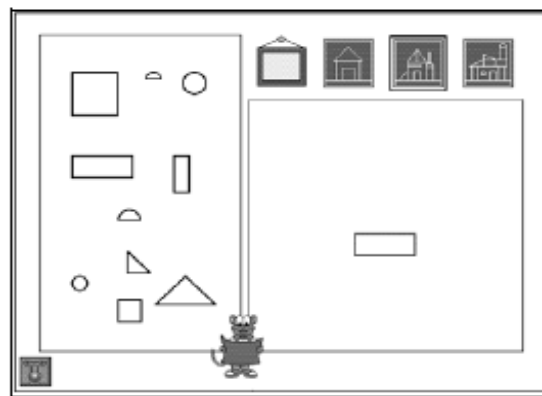


or Blueprints with squares, circles, rectangles, triangles, and half-circles in two sizes



or Blueprints with all the shapes in two sizes and the most complex design.



- Mr. Mouse asks you to find a shape; for example:
- Click or drag the shape requested. (To hear the request again, click Mr. Mouse.)



"Please give me a large rectangle."

- Click or drag the shape requested. (To hear the request again, click Mr. Mouse.)
 - If you click or drag the right shape, it snaps into place.
 - If you do not click or drag the right shape, Mr. Mouse asks you to try again.

When you finish building, the mice move in and celebrate!

- Click  for the Discover Mode, or click  to return to the Main Room.



Mouse House

Together Time

Tabletop Town

Cut out rectangles, squares, circles, half-circles, and triangles in different sizes from scraps of felt or other fabric. (Alternatively, use paper..) Sit with your child at the table, and construct buildings, trees, houses, roads, etc., together. Use the entire table. Then have dinner on the town!

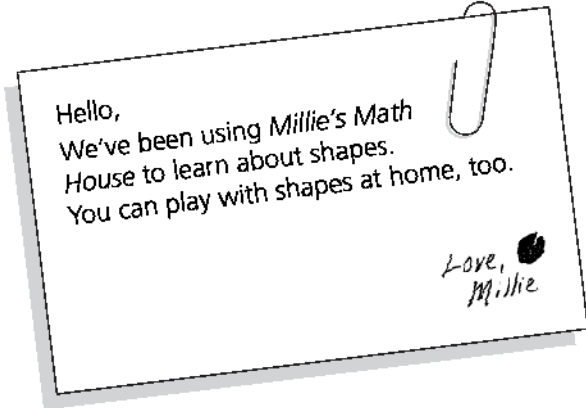
Geometric Pretzels

If you and your child enjoy cooking together, you can make geometric pretzels. Mix together

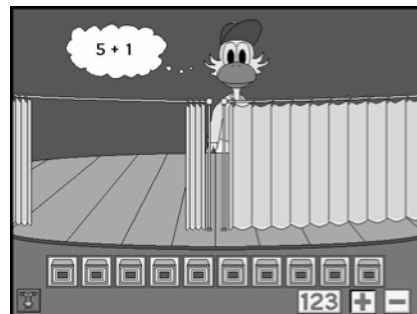
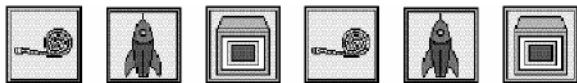
1 package of dry yeast, 1 tablespoon of sugar, 1-1/2 cups of water, 1 teaspoon of salt, and 4-1/2 cups of flour. Knead the dough for 5 minutes, adding a little flour if necessary. Pinch off chunks of dough and roll them into "ropes" of different lengths. Shape these ropes into rectangles, squares, circles, and triangles of different sizes, and place them on a lightly greased cookie sheet. If you wish, you can brush them with a little water and sprinkle them with coarse salt. Bake for 9 minutes at 475 degrees Fahrenheit.

City Stamps

Do you have old, flat sponges available? These can easily be cut into geometric shapes. Then, with two or three pie tins of colorful tempera paint, your child can stamp a city onto shelf paper. The completed city can be hung as a mural in a play area or child's bedroom.



What's My Overview



Students count objects and help Dorothy build number sequences. What's My Number? emphasizes numeral recognition and addition and subtraction facts for the numbers 0 through 10.

Learning Objectives

- Determine the sum of 1 plus any number to 9
- Subtract 1 from numbers up to 10
- Make sets containing 1 to 10 objects

Learning Opportunities

- Recognize and read the numerals from 0 to 10
- Understand that a number represents a certain quantity of objects, regardless of what the objects are
- Recognize and read number sentences
- Recognize the written or spoken number and the quantity it represents
- Observe that number sentences are a means of mathematical communication

Together Time Activities (page 25)

(To copy and send home)


- Marble Bag
- License Plate Search

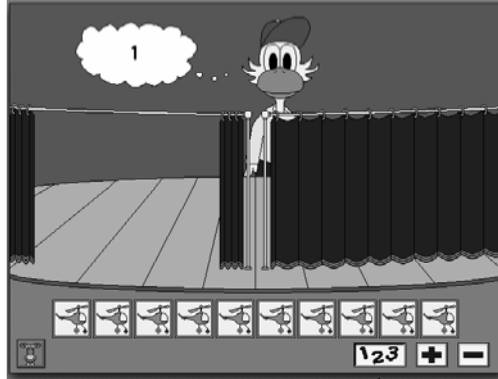
Curriculum Connections (pages 66–71)

- Number Tunes (Music)
- Just Add Rain (Science)
- Paint by the Numbers (Physical Education)
- One of, Two of... (Art)
- Arithmetic, Tac, Toe (Problem Solving)
- Winner in a Flash (Problem Solving)



Question and Answer Mode

- Click  to enter What's My Number? from the Main Room.
- A numeral appears on screen and its name is spoken aloud. Dorothy then asks you to solve a counting problem; for example:




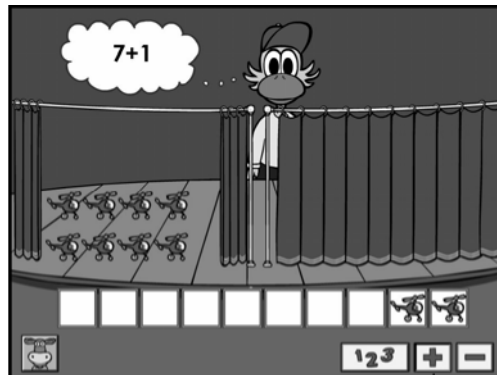
"Can you put the same number of objects on your stage as I put on mine?"

Counting is selected.

- Click an object or drag it to the stage. After you have placed the objects on the stage, click the curtain. (Click Dorothy to hear the problem again.)
 - If you count out the correct number of objects, Dorothy opens her curtain and shows you the same number of objects on her stage.
 - If you do not count out the correct

number of objects, Dorothy asks you to try again. If you keep trying, you will always find the correct answer.


- Click  for addition problems. Dorothy asks you to solve a problem; for example:

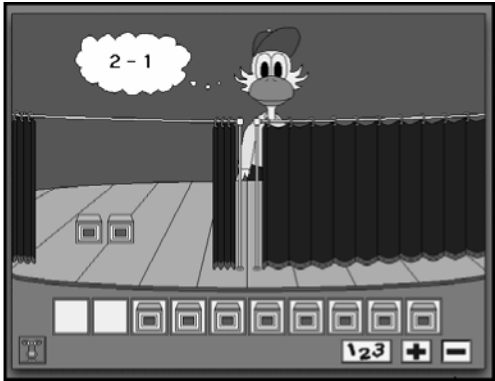


"Can you put the same number of objects on your stage as I put on mine?"

Addition is selected.

- Click an object or drag it to the stage. After you have placed the objects on the stage, click the curtain. (Click Dorothy to hear the problem again.)
 - If you solve the problem correctly, Dorothy opens her curtain and shows you the same number of objects on her stage.
 - If you do not solve the problem correctly, Dorothy asks you to try again. If you keep trying, you will always find the correct answer.


- Click  for subtraction problems. Dorothy asks you to solve a problem; for example:



“Can you leave the same number of objects on your stage as I left on mine?”

Subtraction is selected.

- Click an object or drag it off the stage. Click the curtain when the objects are on the stage. (Click Dorothy to hear the problem again.)
 - If you solve the problem correctly, Dorothy opens her curtain and shows you the same number of objects on her stage.
 - If you do not solve the problem correctly, Dorothy asks you to try again. If you keep trying, you will always find the correct answer.

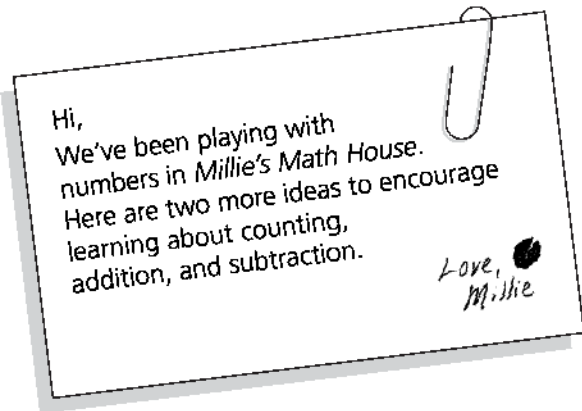
- Click  to return to the Main Room.



Together Time

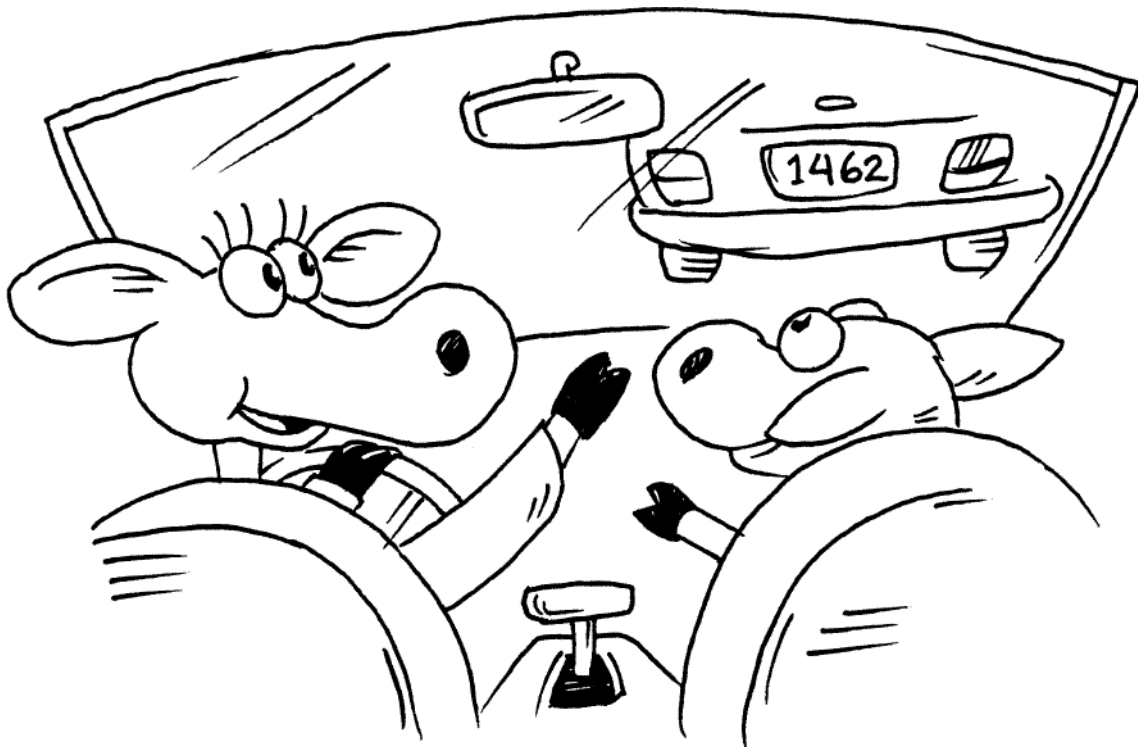
Marble Bag

Count out 3 marbles with your child and put them into a marble bag. Now say, "I'm going to add 1 more marble." Put another marble into the bag. Can your child guess how many marbles are now in the bag? Count them together to check the answer. As you continue, switch roles and/or try more difficult problems. You can also try subtraction problems, beginning with a simple problem such as: Put 4 marbles in the bag; remove 1; guess how many are left.



License Plate Search

The simple game helps time in the car pass quickly and teaches simple number skills as well. Ask your child to search license plates, looking first for a number 1, and then a number 2, continuing to number 9. Meanwhile, you look for number 9 and work down to number 1. See who finishes first. To practice simple addition, alter the rules to allow credit if the first two numbers on a license plate add up to the desired number. (For example, if your child needs a number 3, a license plate beginning with 21 would work because $2+1=3$). Or, to practice subtraction, allow credit if the difference between the first two numbers on a license plate equals the desired number.



Bing & Boing Overview



Bing and Boing are bouncing pals who help students create, recognize, and complete patterns. These patterns are special: each is made of pictures that make their own sounds.

Learning Objectives

- Complete linear patterns involving shapes and symbols
- Recognize linear patterns involving shapes and symbols

Learning Opportunities

- Create patterns
- Recognize that a pattern is made of regularly repeated parts
- Understand that parts make up the whole

Together Time Activities (page 29)

(To copy and send home)




- Name That Pattern
- Patterns, Patterns, Everywhere

Curriculum Connections (pages 72–76)

- Musical Motion (Music)
- Headband Patterns (Art)
- Meet Bing and Boing (Problem Solving)
- People Patterns (Creative Dramatics)
- Pattern Paths (Art)
- All Mixed Up (Creative Dramatics)
- Play That Pattern (Music)



Bing & Boing Discover Mode

- Click  to enter Bing & Boing from the Main Room.
- Click from one to three pictures to try in a pattern; for example: . If you click more than three, the new choices replace the original ones.
- Click Bing . Bing repeats the pattern you created and then hops along, playing the pattern for you to hear. Create and play as many patterns as you like.



Click for
one- to three-
part patterns.


or


Click for
one- to five-
part patterns.



Bing & Boing

Question and Answer Mode

- Click  to enter the Question and Answer Mode.

- Click Boing  when you are ready to watch and listen. Boing starts to play a pattern. Can you help finish it? (Click Boing to see and hear the pattern again.)
- Click the picture you think comes next.



Click for two- or three-part patterns.

Click for four- to five-part patterns.


- If you are right, Boing completes and plays the pattern.





- If you make a mistake, Boing stops and asks you to try again.



Try different patterns as long as you like. Just click Boing each time you want to play.

- Click  for patterns with up to five parts.

- Click  for the Discover Mode, or click  to return to the Main Room.



Bing & Boing

Together Time

Name That Pattern

Clap out name patterns with your child. Start with your child's name and repeatedly clap out "Jen-ni-fer, Jen-ni-fer," for example. Then, clap out your name pattern. Take turns thinking of

names and clapping them out together. Try using some long names from your child's favorite stories, such as Cinderella or Rumpelstiltskin. For variety, you can play name patterns with back-to-back spoons or sticks on a board.

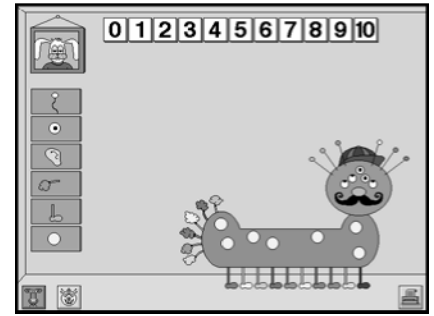


Patterns, Patterns, Everywhere

Help your child identify patterns in the environment. When you are out for a walk or drive together, look at window placement, patterns in flowers, and the arrangement of bricks or blocks on buildings. At home, point out patterns in quilts, fabrics, wood trim, wallpaper, and flooring. Your child may enjoy sketching some of these patterns.



Build-A-Bug Overview



Students experiment with numbers by placing from one to ten eyes, ears, antennae, spots, feet, and tails on bugs. These bugs can be printed and colored.

Learning Objectives

- Recognize numerals to 10
- Recognize one-to-one correspondence between numerals and number of objects
- See relationship of parts to whole

Learning Opportunities

- See numerals, hear them spoken, and see the corresponding quantity of objects
- Create a unique “work of art”
- Hear both singular and plural forms of nouns; for example, one antenna, two antennae

Together Time Activities (page 33)

(To copy and send home)




- Yummy Bugs
- Big Bug Bread!

Curriculum Connections (pages 77–81)


- How Many? (Language Arts)
- Find Five (Science)
- Mystery Bug (Art)
- Count on Me (Science)
- Bug Me! (Art)



Build-A-Bug Discover Mode

- Click  to enter Build-A-Bug from the Main Room.
- Click  to choose a head for your bug. Click the bug's head to hear it giggle.
- Click a bug part, then click a number. If you click  and then **4**, you will see:




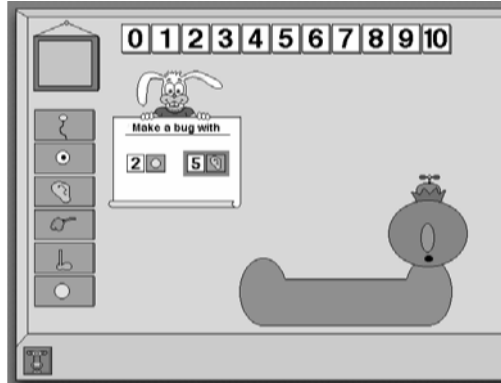
- To move a bug part, drag the part from one place to another.
- To change your bug's appearance, click new numbers and new parts. If you want to erase, click the bug part and then click zero.
- Click  to print your bug. Once printed, you can color your unique bug.





Build-A-Bug

Question and Answer Mode

- Click  to enter the Question and Answer Mode. The rabbit unrolls a plan and asks you to build a bug; for example:



"Make a bug with five ears and two tails."

- Following the directions given on the plan, click a bug part and a number. (Click the rabbit or the plan to hear the directions repeated.)
 - If you select the correct number of parts, you hear the number of parts spoken and the parts appear on the bug.
 - If you do not select the correct number of parts, the rabbit repeats the request for the number of parts again.
- Continue clicking the numbers and parts to complete bugs. You can keep building bugs as long as you like.
- Click  for the Discover Mode, or click  to return to the Main Room.

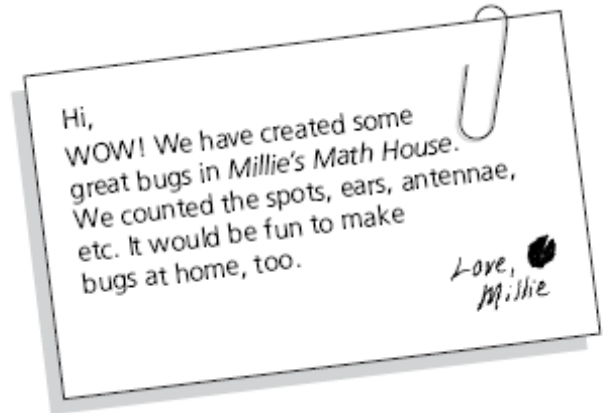


Build-A-Bug

Together Time

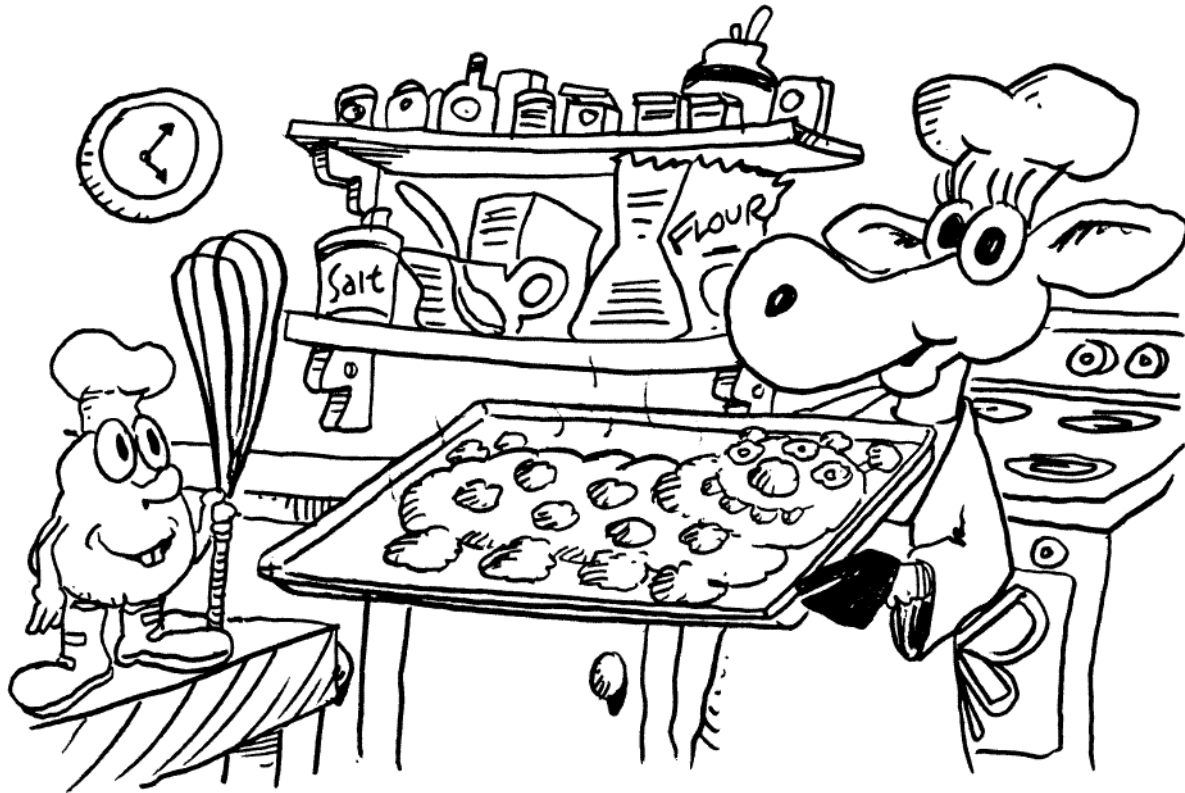
Yummy Bugs

Open the cupboards and the refrigerator. It is time to create yummy bugs for your dining enjoyment! With your child, count out the right number of small plates for your family. Then let your child create a different salad on each plate. Peach or pear halves make good bodies. Radishes, apricots, or marshmallows can serve as heads. An assortment of nuts, raisins, carrots sticks, grapes, etc. can be counted out and added for different bug parts. Your child can have fun deciding who will enjoy devouring each bug.

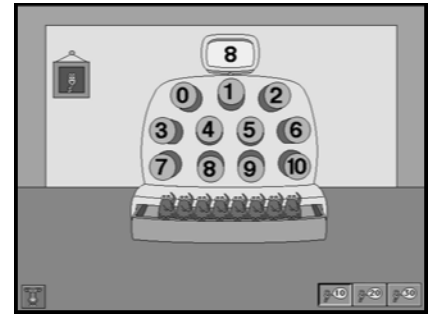


Big Bug Bread!

You and your child can create a giant bug from bread dough. Set aside about a third of the dough to use for the small bug parts. Shape the rest of the loaf into a head and a body, using a little water to stick them together. Then, using the remaining dough, shape and add feet, eyes, ears, etc. Count with your child as these parts are added. After baking, share the BIG BUG BREAD with your family for dinner!



Overview



The Number Machine houses critters who help students count and recognize the numerals 0 to 30.

Learning Objectives

- Recognize numerals from 0 to 30
- Understand that numerals represent specific quantities

Learning Opportunities

- See the numerals 0 to 30 and hear them spoken
- Hear the numbers 1 to 30 counted
- Hear both the singular and plural forms of nouns; for example, one mouse, two mice, one bee, three bees

Together Time Activities (page 37)

(To copy and send home)


- Book Look
- Snip That Number

Curriculum Connections (pages 82–85)

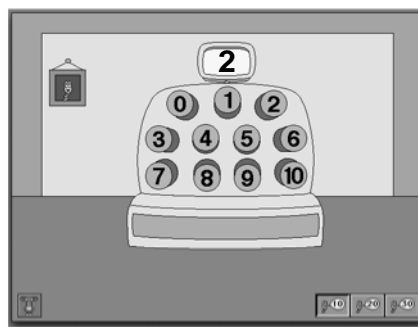
- Nonsense Poetry (Language Arts)
- Count on Action (Physical Education)
- Our Town Countdown (Social Studies)
- Door Decor (Science)
- Nutrition Numbers (Science)



Number Machine Discover Mode

- Click  to enter the Number Machine from the Main Room.

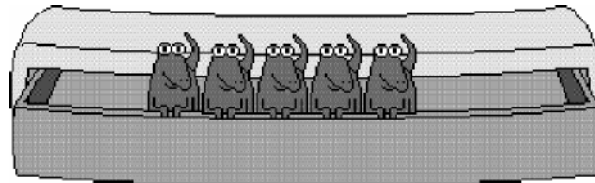
- Click any key **2** on the Number Machine. The number you chose is shown **2**, the drawer opens, and the critters pop up one by one. As they pop up, they are counted; for example:



"One, two. Two mice."

Numbers 0–10
currently selected.



- Continue exploring the Number Machine by clicking different keys and discovering the critters that live in that drawer. You might like to count aloud as you see the numerals and hear the number of critters counted.



"One, two, three, four,
five. Five lizards."

- Click  for numbers 10–20.

- Click  for numbers 20–30.


- Click  for the Question and Answer Mode, or  to return to the Main Room.

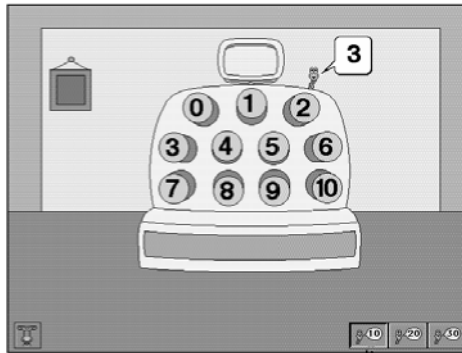


Number Machine

Question and Answer Mode



- Click  to enter the Question and Answer Mode.
- Annie, the worm, appears and asks you to find a specific number; for example:







"Find the number 3."

Numbers 0-10
currently selected.

- Try to find the number requested, and click that key. (If you forget what the number is, click Annie, the worm, for a reminder.)
 - If you are correct, the drawer opens and the critters pop up and are counted.
 - If you do not click the key requested, you can keep trying until you find it.

Annie, the worm, continues asking you to find different numbers. Don't be concerned about making mistakes; if you keep trying, you will always find the right answer!

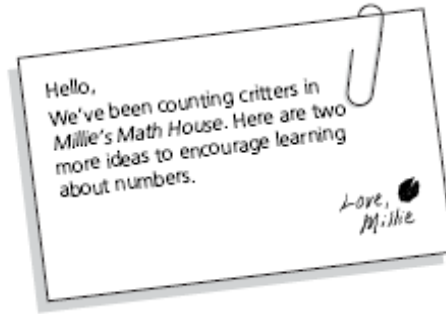
- Click  for numbers 10-20.
- Click  for numbers 20-30.
- Click  for the Discover Mode, or click  to return to the Main Room.



Together Time

Book Look

You and your child can look for numbers in newspapers, magazines, and books around your house. Count the people, animals, or objects on a page of a picture book. Read a story with counting or numbers to your child, or have your child "read" to you. Count the bananas in a grocery advertisement. Find and name page numbers. Count the houses in a real-estate ad.

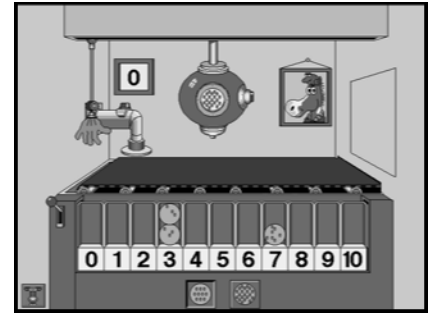


Snip That Number

Pile plenty of old magazines, catalogs, and newspapers on a table. Give your child ten sheets of paper, assorted markers, safety scissors, and paste or glue. Help your child number the pages from 1 to 10. Then cut out pictures to illustrate each number. For example, glue one house on page 1, two faces on page 2, three cars on page 3, and so on. When all pages are completed, have your child design a colorful cover and staple pages together. This is a great rainy day or "home from school with a cold" activity!



Cookie Factory Overview



Students enjoy counting jelly beans as they decorate cookies for Harley, the horse, and his friend Froggy. They also discover that using the Cookie Factory's devices in different sequences produces different results.

Learning Objectives

- Use concrete materials to show numbers to 20
- Create sets containing 1 to 20 objects
- Use one-to-one correspondence between objects and numerals in sequence

Learning Opportunities

- See the numerals 0 to 20 and hear objects counted
- Recognize the spoken or written number and the quantity it represents
- Use trial and error
- Experiment with single actions that can be combined to produce a variety of results
- Foster problem-solving skills and attitudes

Together Time Activities (page 41)

(To copy and send home)

- Comic Cut-ups
- Millie Says





Curriculum Connections (pages 86–90)

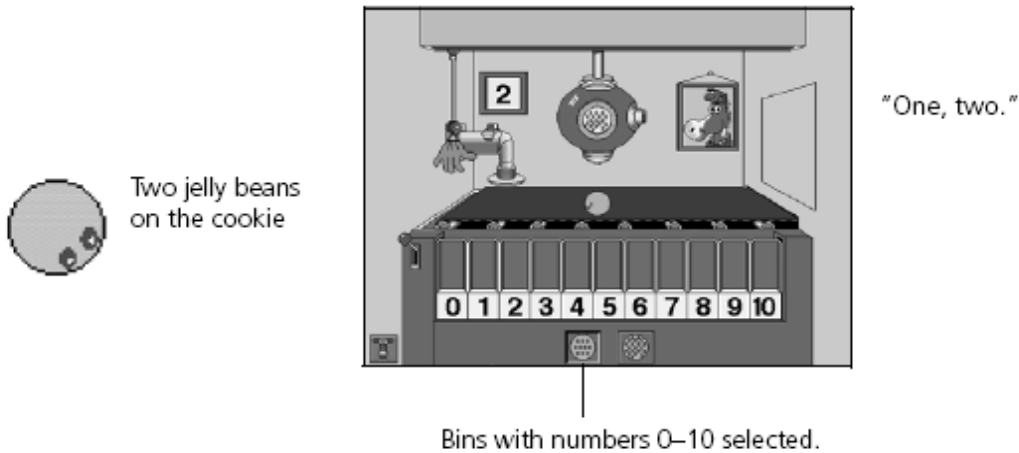
- Living Cookie Machines (Creative Dramatics)
- It's in the News (Social Studies)
- Putting the Cart before the Horse (Science)
- Number Relay (Physical Education)
- Old Millie (Problem Solving)







Discover Mode

Let your students click different devices in the Cookie Factory to discover the function of each one. At first, students may see each device in isolation. At some point, they will discover that clicking devices in different sequences will produce different results. The sequence below decorates and sorts cookies, but let students use trial and error to discover this independently!

- Click  to enter the Cookie Factory from the Main Room.
- Click the cookie pipe  to make a cookie appear.
- Click the conveyor belt lever  to move the cookie under the jelly bean dispenser.
- Decorate the cookie by clicking the jelly bean dispenser  as many times as you want. The number of jelly beans will be counted aloud and shown on the jelly bean meter as they drop onto the cookie; for example:





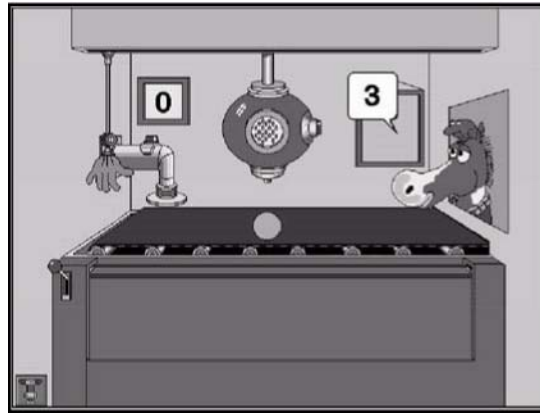
- Click the hand  to move the cookie into a bin, or click the lever to move the cookie along the conveyor belt. Make and decorate as many cookies as you want.
- Click  for bins with numbers 10–20.
- Click  for the Question and Answer Mode, or click  to return to the Main Room.





Cookie Factory

Question and Answer Mode

- Click  to enter the Question and Answer Mode.
- A cookie  drops and moves under the jelly bean dispenser. Then Harley asks you to put jelly beans on it; for example:





"Put three jelly beans on my cookie, please."

- Click the jelly bean dispenser  once for each jelly bean Harley requested. Then click the hand  to feed the cookie to Harley. (Click Harley if you want to hear the request again.)

- If you count out the number of jelly beans requested, Harley thanks you and gobbles the cookie!

- If you count out too many or two few jelly beans, Froggy gets to eat the cookie and you get to try again.

You can continue decorating cookies for Harley as long as you like.

- Click  for the Discover Mode, or click  to return to the Main Room.

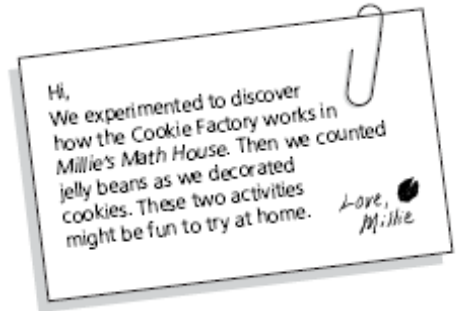


Alien Astronauts

Together Time

Comic Cut-ups

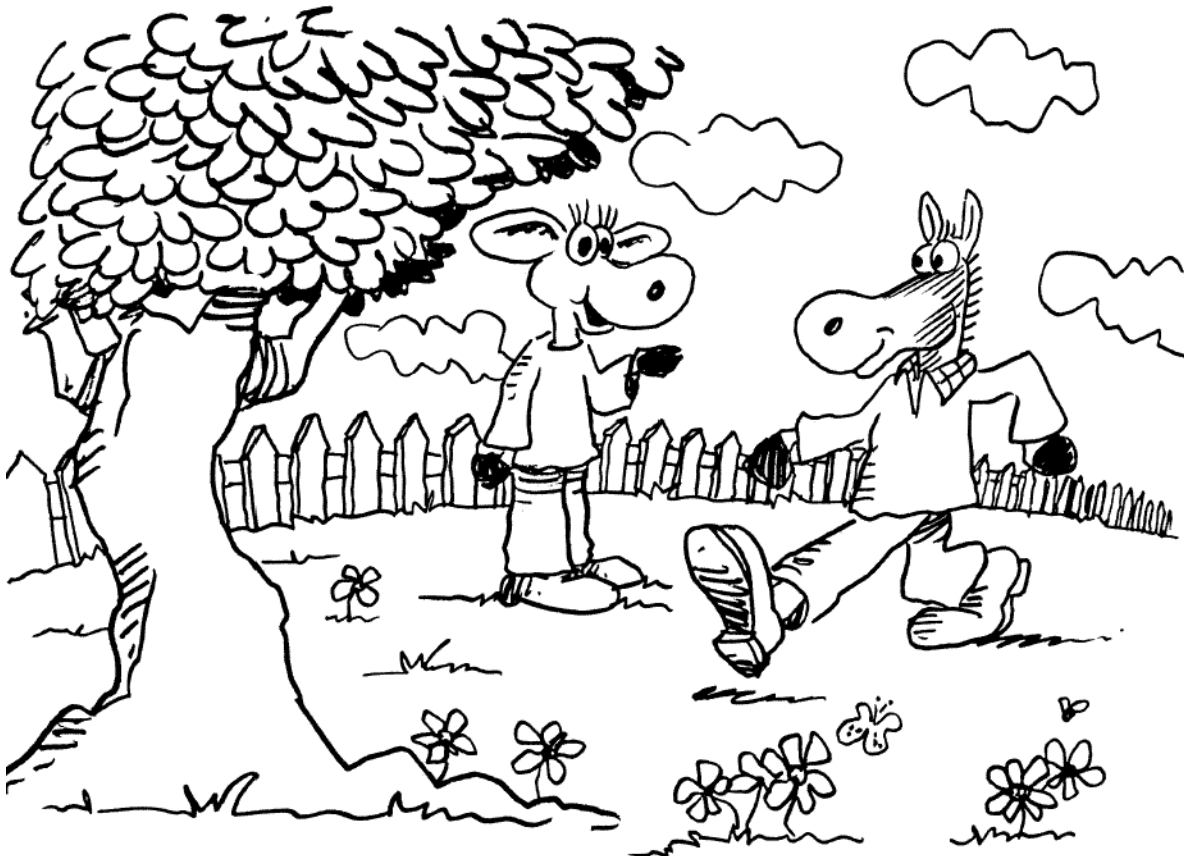
Cut out a comic strip (appropriate for your child) from the daily paper. Read the comic to your child and discuss what happens first, second, third, and so on. Then cut the frames apart, shuffle them, and lay them out in a new order. Read the "new comic strip" and discuss the difference. Then let your child try arranging the frames into their original order.



Millie Says

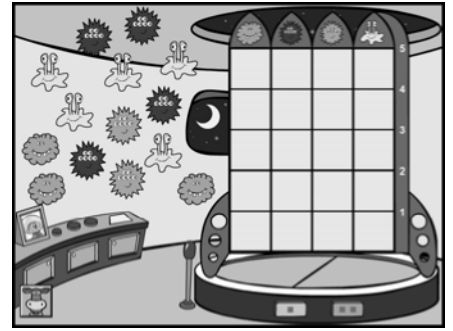
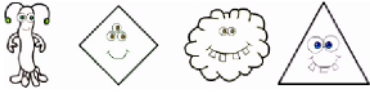
Enjoy the fair weather and play "Millie Says"

while you are outside in the yard or park. Make a request, such as "Millie says, 'Take 9 giant steps toward the tree.'" Count the giant steps together. Then make another request, such as "Millie says, 'Take 12 tiny hops sideways towards the house.'" Count aloud together as your child hops. Switch roles, and let your child be Millie.



Alien Astronauts

Overview



Blast off! Students put aliens into their corresponding rockets based on their shape or color. In Question and Answer Mode, students must help Millie by answering three questions based on the graph they have created before the rockets can blast off.

Learning Objectives

- Read graphs and draw conclusions
- Organize and display data using simple graphs
- Sort objects into sets by attributes

Learning Opportunities

- Explore concept of shape
- Match shapes and colors
- Expand vocabulary of shape words

Together Time Activities (page 45)

(To copy and send home)

- Clothing Watch!
- Clean Your Plate

Curriculum Connections (pages 91–100)

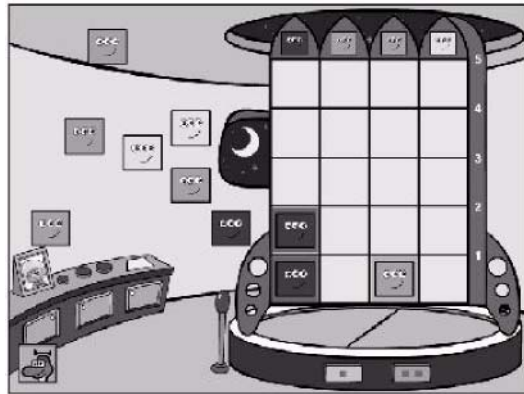
- Animal Life Styles (Science)
- Where Do the Animals Live? (Science)
- Bean Counter (Mathematics)
- Graph the Class (Mathematics)
- What's for Dinner? (Science)
- What's Different? (Problem Solving)
- Word Graph (Language Arts/Problem Solving)







Discover Mode

Sort Aliens into the correct rockets for blast off to the moon!

- Click the Rocket to advance to the Alien Astronaut Activity from the Main Room. Four labeled rockets line up to form a simple graph. Put the aliens into their correct rockets so they can blast off to the moon!




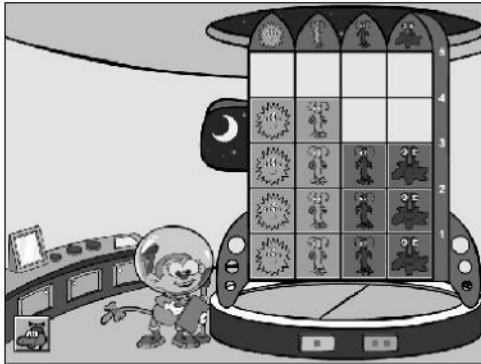
- Click an alien and its attribute is spoken—"I'm green!" or "I'm a triangle!" or "I'm fuzzy!"—and drop it into a rocket.
 - If correct, the alien sits within the square and the square fills in.
 - If incorrect, for example, if a yellow alien is placed in a "green" rocket, the narrator says, "This rocket is for green aliens. Try a different rocket." The alien floats out of the tube back into position in the room.
- Put all the aliens into their correct corresponding rockets, then click the Blast Off lever. The rockets blast off into space through the opening in the roof. The launch pad opens, and four new rockets rise onto the pad with different labeled attributes along with a new assortment of aliens.
- Click  for Level 1: Colors or Shapes. If shapes, the aliens featured begin with all basic-shaped aliens, progress to all uniquely shaped aliens, then both.
- Click  for Level 2: Colors & Shapes: Aliens featured begin with all basic-shaped aliens, progress to all uniquely shaped aliens, then both. Aliens featured have two attributes: "I'm square and I'm green!" or "I'm fuzzy and yellow!"
- Click  for the Question Mode, or click  to return to the Main Room.





Alien Astronauts

Question and Answer Mode

- Click  to advance to the Question and Answer Mode. Marley the Monkey needs help getting all her alien friends into their correct rockets.



- After you sort all the aliens into their correct rockets, Marley asks for help filling out the Blast Off Checklist. She asks you three questions based on the graph, for example, "Are there more red or blue aliens? Are there more fuzzy or long aliens? Do you see more green fuzzy aliens or blue blob aliens?"
- To answer, click a section of the graph.
 - If correct, Marley continues to the next question.
 - If incorrect, she asks the question again.
- When you finish answering the three questions, Marley pulls the Blast Off lever and the rockets blast off.
- Click  for the Discover Mode, or click  to return to the Main Room.



Alien Astronauts

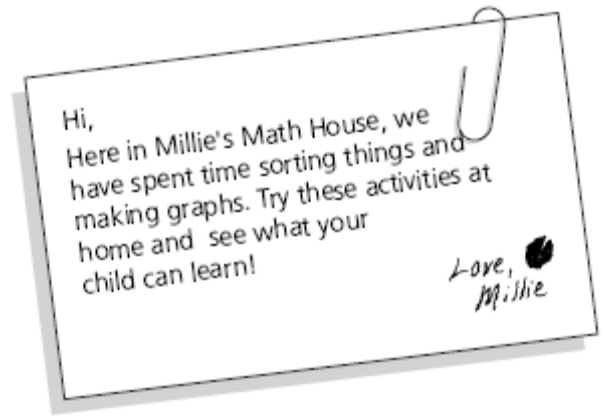
Together Time

Clothing Watch!

Take your child to a clothing store and look at all the different styles, colors, and sizes of clothing for children his or her age. How many different kinds of shirts, for example, can you find? How

would you sort them? Style, long- or short- sleeved, color, and so on.

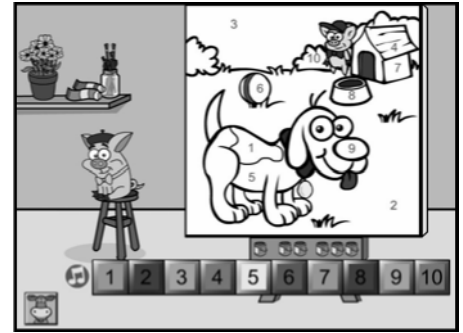
When you return home, extend the activity to your child's own clothing. How might he or she organize his or her clothes? Listen to your child's individual ideas as to how the clothes should be arranged. This a perfect opportunity for children to group items into sets and compare numbers.



Clean Your Plate

Have your child help unload the dishwasher and sort the flatware into groups —dinner forks, salad forks, knives, large spoons, and small spoons. (If you don't have a dishwasher, have your child help you with drying and move to the next step of the activity.) Then have the child put the flatware in the correct drawer. (Make sure that your child is not handling any sharp or dangerous knives.) Talk about how the flatware items are different. Which is the shortest? Which has the most points? Which is used to cut things? What other uses do the utensils have? How does the structure of the item reveal its function?

Paint by Number Overview



Picasso Piglet needs your help! Students color in the numbers in the correct order to finish the paintings. Students can fill in the numbers and hear counting songs counting by 1s, 2s, or 5s.

Learning Objectives

- Skip count by 1s, 2s, and 5s
- Match numerals

Learning Opportunities

- Develop number recognition
- See relationship of parts to a whole
- Hear numbers counted and sung

Together Time Activities (page 48)

(To copy and send home)

- Color by Number
- Many Pennies

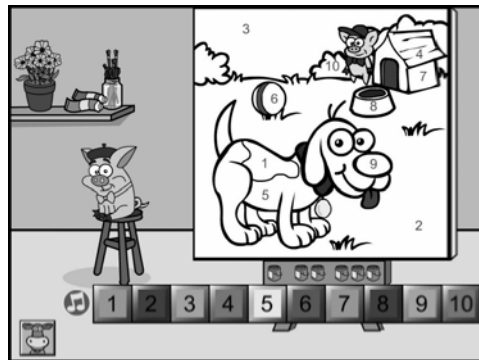
Curriculum Connections (pages 101–104)

- Number Line Walk (Physical Education)
- Making Change (Mathematics)
- Write a Cheer (Music)
- Fill in the Blanks (Problem Solving)
- Hand Prints (Art)
- Body Pairs (Science)




Paint by Number Discover Mode

- Click the Palette to advance to the Paint by Number Activity from the Main Room. A large canvas on an easel is broken up into ten pieces. Picasso Piglet needs your help.



"I need to finish this painting for my big art show. Please color in the numbers, in the correct order."

- Paint the number pieces the colors shown on the number line. Click the correct number on the number line—it says its name and your cursor changes to a paintbrush. Click the correct corresponding piece of the painting to fill it in with the color.
 - If correct, it fills in with the color.
 - If incorrect, Picasso says, "Please color the pieces in the correct order." The correct number flashes on the painting piece as well as on the number line.
- Continue filling in all the pieces to finish the painting. As you do, the numbers on the number line dim. When finished, the painting animates.
- Click on the Paint Cans to choose a level:
 - Level 1: Counting by 1s
 - Level 2: Counting by 2s
 - Level 3: Counting by 5s
- Click the Music Note Button to hear a Counting Song for each level.
- Click  to return to the Main Room.

Note: There is only one learning mode for this activity.



Paint by Numbers

Together Time

Color by Number

Look through your child's coloring books and choose one with pictures having large spaces to color. Then put the numbers 1 through 10 inside these large spaces. On a separate piece of paper, write the numbers 1 through 10 in order and ask the child to decide what color should go with each number. Then have the child color in the picture according to the chart you have just made. Use numbers 10 through 20 for the next picture!



Many Pennies

Start a penny jar! When your penny jar has enough pennies to work with, empty the pennies on the kitchen table and count them with your child. Count the pennies ones (one, two, three, four, etc)—count as high as your child can go. Then count the same group of pennies by twos (2, 4, 6, etc) and by fives (5, 10, 15, etc). You may have to help the child stack up groups of two pennies or five pennies before counting. Point out that you can get an accurate count in several ways. Look for other items in the home that can be counted by ones, twos, and fives. Examples may include buttons, paper clips, toy blocks, and more.

Curriculum Connections

The learning opportunities in *Millie's Math House* can be reinforced throughout the school day in many curricular areas. On the following pages you will find ideas to add to those you may have already tried. These *Curriculum Connections* activities are grouped by the corresponding *Millie's Math House* activity room (see the chart below).

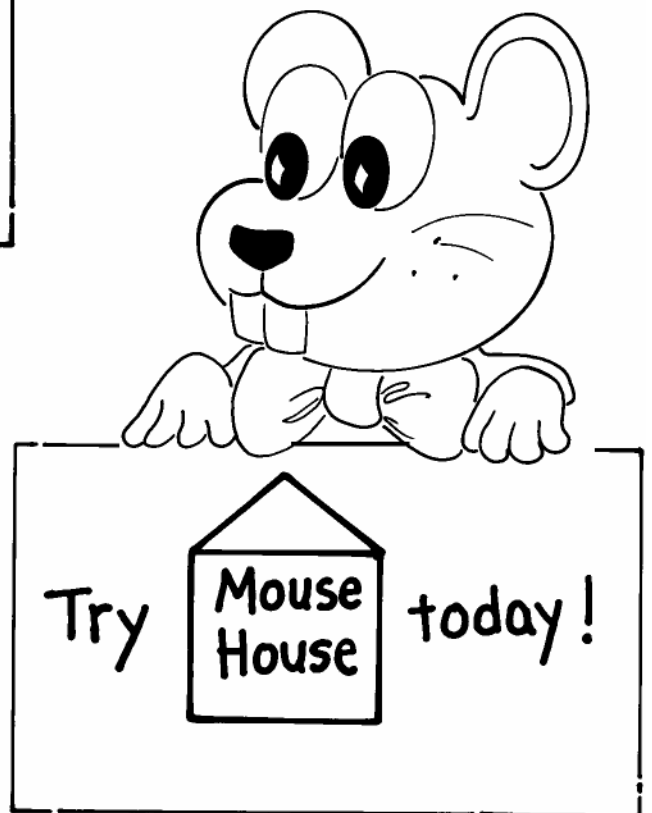
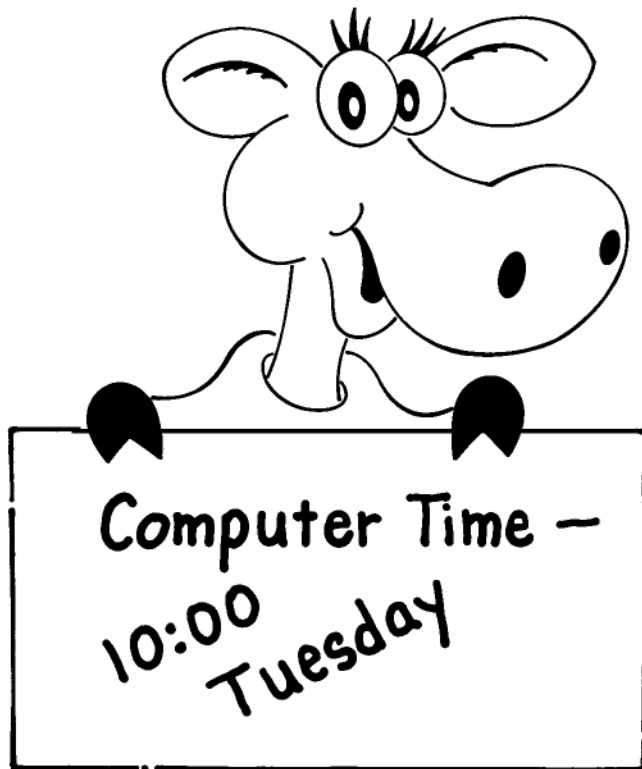
Some of the *Curriculum Connections* work well before using the corresponding parts of the software. Others work well as follow-up experiences. Most can be used before or after students play in the Math House. Pick and choose activities according to your students' needs as well as your computer equipment, facilities, resources, and schedule. There are many different ways to use *Millie's Math House* and *Curriculum Connections*; use them to stimulate your own imagination as you plan experiences for your students.

Reproducible activity sheets are also included. These can be used in a variety of ways (for student work, transparencies, labels, etc.), some of which are suggested in *Curriculum Connections*. In addition, there are two reproducible pages of Math House characters to use on your chalkboard, bulletin board, or computer.

	Little, Middle, & Big (page 53–58)	Mouse House (pages 59–65)	What's My Number? (pages 66–71)	Bing & Boing (pages 72–76)	Build-A-Bug (pages 77–81)	Number Machine (pages 82–85)	Cookie Factory (pages 86–90)	Alien Astronauts (pages 91–100)	Paint by Number (pages 101–104)
Art	<ul style="list-style-type: none"> Size Collages 	<ul style="list-style-type: none"> Funny Faces Our Town Shadow Play Crazy Quilt 	<ul style="list-style-type: none"> One of, Two of ... 	<ul style="list-style-type: none"> Headband Patterns Pattern Paths 	<ul style="list-style-type: none"> Mystery Bug Bug Me! 				<ul style="list-style-type: none"> Hand Prints
Creative Dramatics				<ul style="list-style-type: none"> People Patterns All Mixed Up 			<ul style="list-style-type: none"> Living Cookie Machines 		
Language Arts	<ul style="list-style-type: none"> Size Up the World Trash and Treasure So Many 	<ul style="list-style-type: none"> I Spy Shapes 			<ul style="list-style-type: none"> How Many? 	<ul style="list-style-type: none"> Nonsense Poetry 		<ul style="list-style-type: none"> Word Graph 	
Mathematics								<ul style="list-style-type: none"> Graph the Class Be a 	<ul style="list-style-type: none"> Making Change
Music			<ul style="list-style-type: none"> Number Tunes 	<ul style="list-style-type: none"> Musical Motion! Play That 					<ul style="list-style-type: none"> Write a Cheer
Physical Education		<ul style="list-style-type: none"> Team Shapes What Shape Are 	<ul style="list-style-type: none"> Paint by the Numbers 			<ul style="list-style-type: none"> Count on Action 	<ul style="list-style-type: none"> Number Relay 		<ul style="list-style-type: none"> Number Line Walk
Problem Solving			<ul style="list-style-type: none"> Arithmetic Tac, Toe Winner in a Flash 	<ul style="list-style-type: none"> Meet Bing and Boing 			<ul style="list-style-type: none"> Old Millie 	<ul style="list-style-type: none"> Word Graph What's 	<ul style="list-style-type: none"> Fill in the Blanks
Science	<ul style="list-style-type: none"> Seeing It All What Size, Please? Color Me Little 	<ul style="list-style-type: none"> Sort it Out All Shapes and Sizes 	<ul style="list-style-type: none"> Just Add Rain 		<ul style="list-style-type: none"> Find Five Count on Me 	<ul style="list-style-type: none"> Door Decoration Nutrition Numbers 	<ul style="list-style-type: none"> Putting the Cart before the Horse 	<ul style="list-style-type: none"> Animal Life Styles Where Do the Animals Live? What's for 	<ul style="list-style-type: none"> Body Pairs
Social Studies						<ul style="list-style-type: none"> Our Town Countdown 	<ul style="list-style-type: none"> It's in the News 		

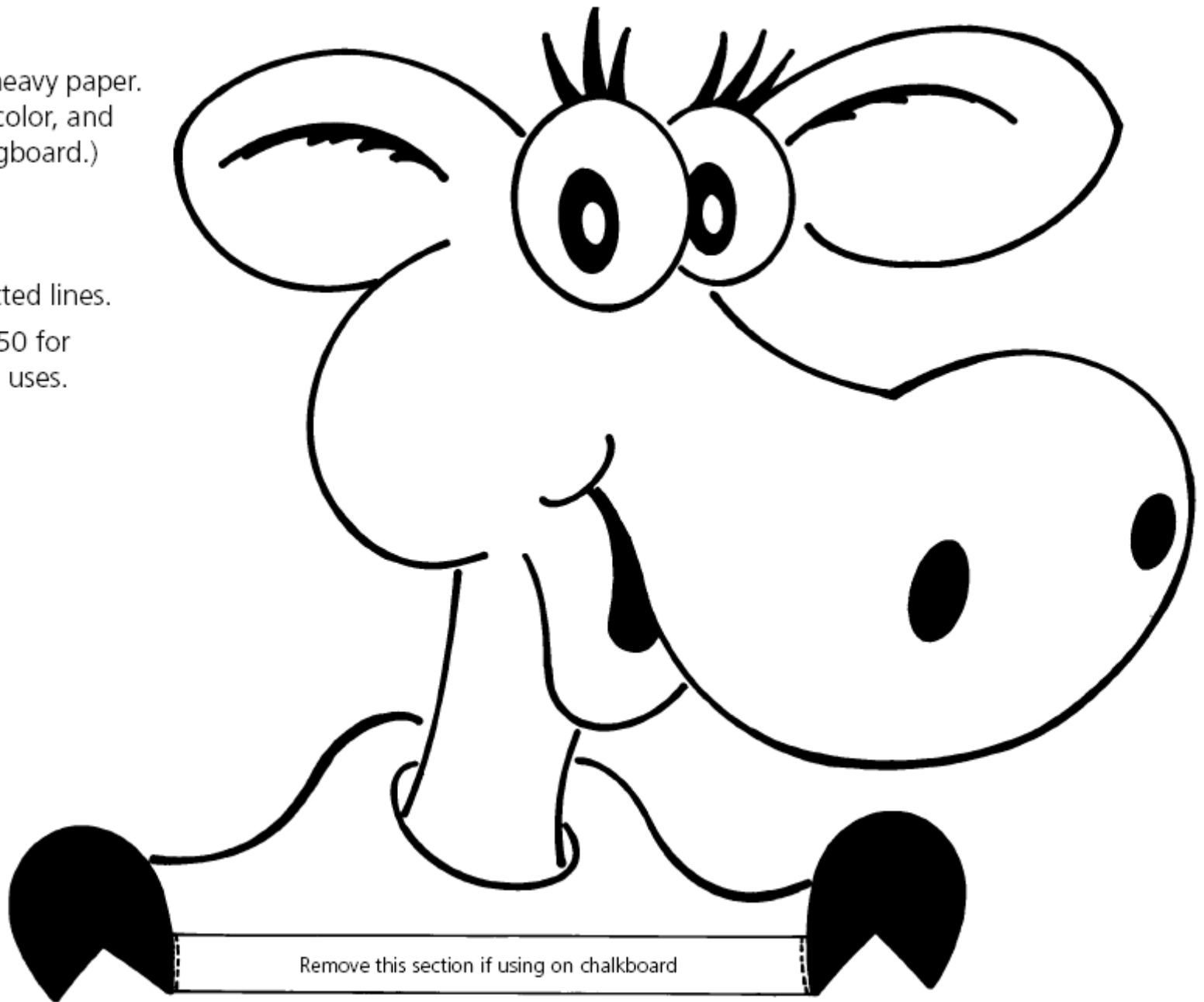
Characters for Bulletin Boards, Computers, and Chalkboards

Pages 51 and 52 can be used to “hold” messages for bulletin boards, computers, and chalkboards. Copy, color, and cut out the character. For bulletin boards, slip the character’s hands over the message and staple or tape into place. To use the character on the chalkboard, mount the character on the chalkboard and draw a rectangular sign for the character to “hold.” Then write the information inside the rectangle. These pages can also be reproduced to serve as posters near the computer. You can write in current assignments, notes of encouragement, etc.



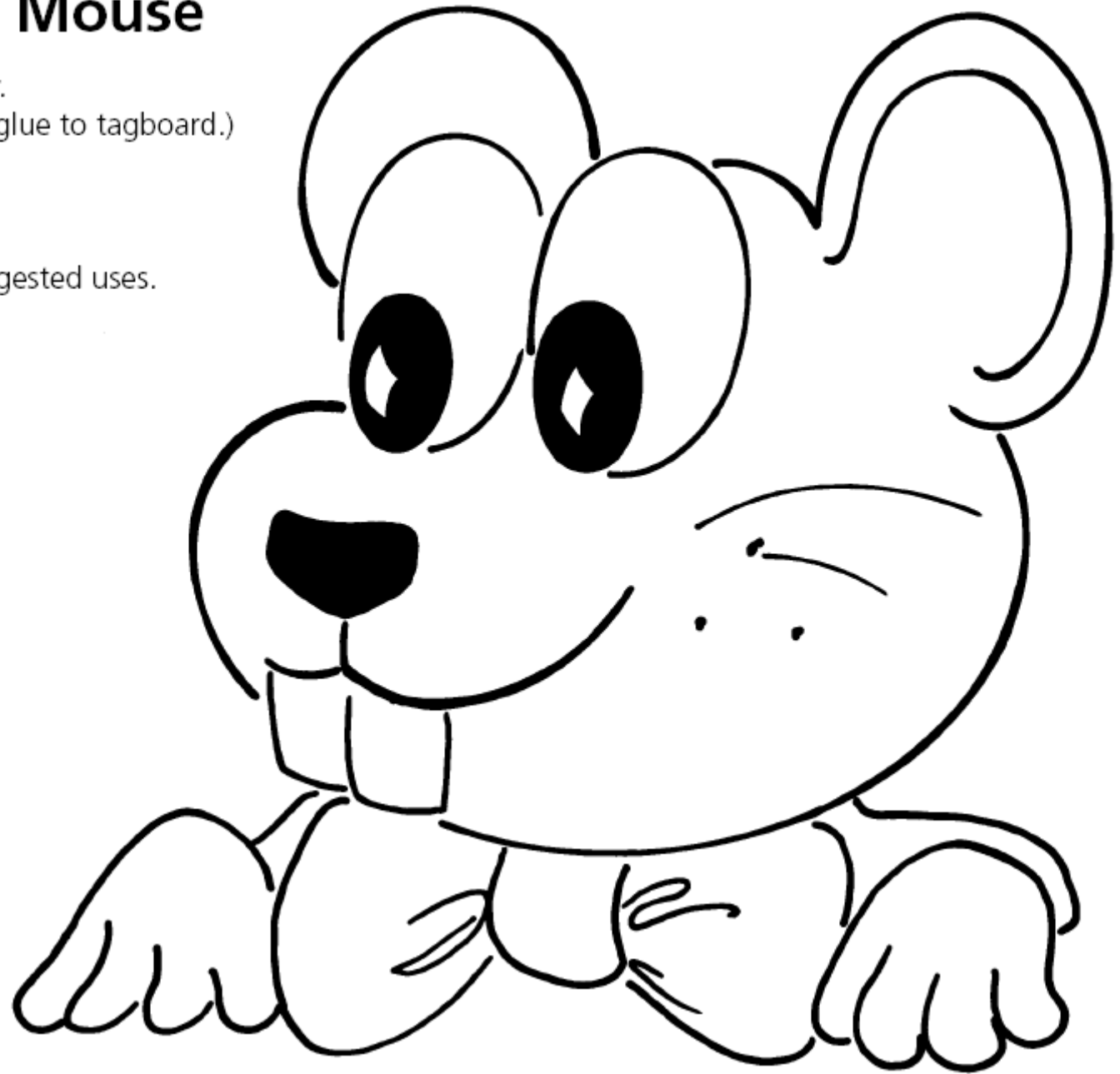
Millie

1. Copy on heavy paper.
(Or copy, color, and glue to tagboard.)
2. Color.
3. Cut out.
4. Slit on dotted lines.
5. See page 50 for suggested uses.



Frank Lloyd Mouse

1. Copy on heavy paper.
(Or copy, color, and glue to tagboard.)
2. Color.
3. Cut out.
4. See page 50 for suggested uses.



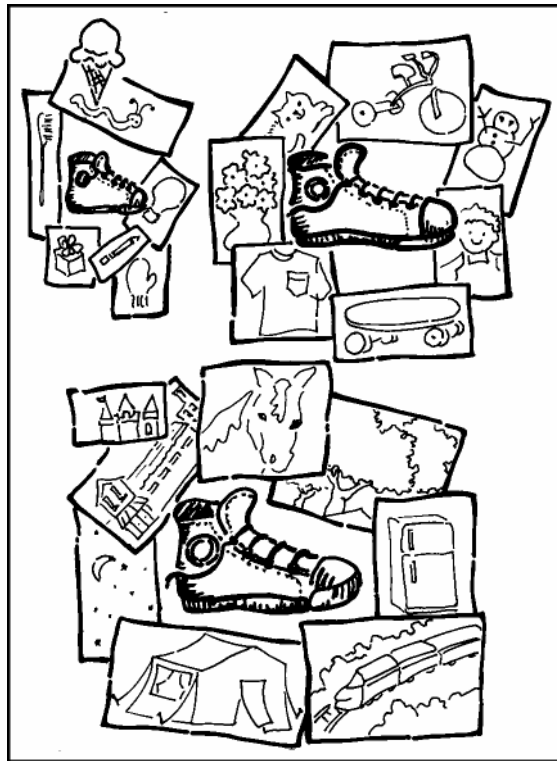
Little, Middle, & Big



Size Collages

Art

Make one copy of page 56, and have a volunteer color and cut out the shoes. Use these shoes to label a bulletin board with sections for small, medium, and large. Explain that the class will be making a collage for each size. Ask students to cut out pictures of animals, people, boats, cars, etc. of different sizes from magazines and catalogs. Put them on the board as you talk about different sizes. (You may want to help students establish some guidelines. For example, "large" might include pictures of things at least as large as a refrigerator.) Encourage students to use other words for sizes, such as tiny, petite, gigantic, huge, etc.



Size Up the World

Language Arts

Small, smaller, smallest. Long, longer, longest. Compare sizes by lining up three stuffed animals, toy trucks, or boxes and asking questions: "Which is smallest?" "Which is tallest?" Then compare two objects by talking about which is larger, longer, etc. Encourage students to use words that describe size when they talk. Have students create complete sentences to compare sizes. For example, "The red truck is the largest. The yellow truck is larger than the blue truck. The blue truck is the smallest." If desired, use a ruler or tape measure to measure the three objects. Record each measurement on a piece of masking tape and place on the object.

Trash and Treasure

Language Arts

Make one copy of page 56 and have a volunteer color and cut out the shoes. Label three small tables or extra desks with the headings. Explain to students that over the next week they can add objects to the tables: things they find while walking to school (leaves, rocks, etc.); things from a "junk drawer" at home (tennis balls, old candles, etc.); things they have made (clay sculptures, pencil holders, etc.); or things from the classroom that are not in use (basketball, rubber bands, etc.). Remind students not to collect objects that are dangerous or unclean and not to disturb living plants or animals. Once the display is complete, have students compose a story or poem, mentioning as many of these objects as possible. Invite the class to compose the poem while the teacher records it on the chalkboard or on a large piece of paper, or let groups dictate their poems to a classroom aide. A poem can be modeled after the adjacent one by using the first two words of each line and the entire last line.

Little, Middle, Big
Little is a tiny blue egg shell.
Little is a pearly bead.
Little is a sparkling birthday candle.
Little is a pebble.
Middle is a smooth round rock.
Middle is a dirty tennis ball.
Middle is an old aluminum can.
Middle is a bird nest built of mud and twigs.
Big is a basketball.
Big is a very, very heavy dictionary.
Big is an empty fish bowl.
Big is ME!

Seeing It All

Science

Students can sharpen their observation and memory skills using the "trash and treasure" display from the above activity. Have students observe the table of large objects for 30 seconds and then turn their backs to the table. As students call out the names of objects they remember, the teacher records them on the chalkboard. Repeat the process for the other two tables.

So Many Ways to Say It

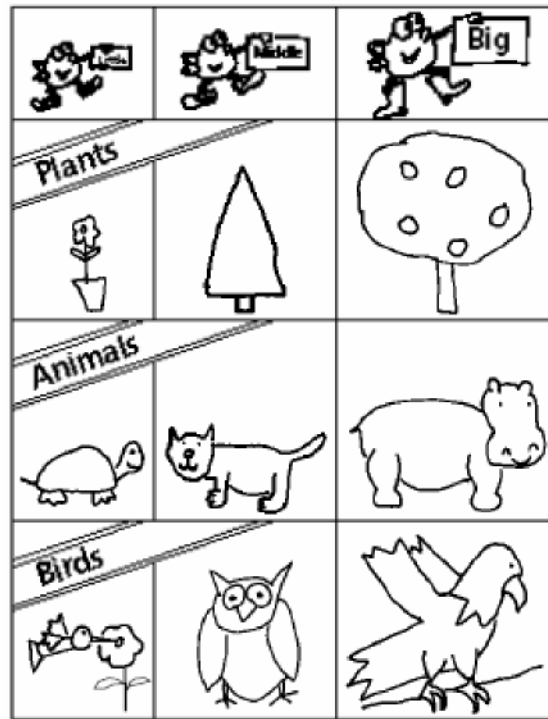
Language Arts

Reproduce page 56 and have students color the shoes. Hang three long strips of shelf or freezer paper on the wall. At the top of each, place one of the headings (Small, Medium, or Large). Encourage students to think of and write down words that have meanings similar to the heading words (or set aside a specific time to write down the words your students suggest). Leave these papers up for a few weeks so students can add and discuss the words. Use these word lists for vocabulary building activities, such as constructing sentences describing unusual objects.

What Size, Please?

Science

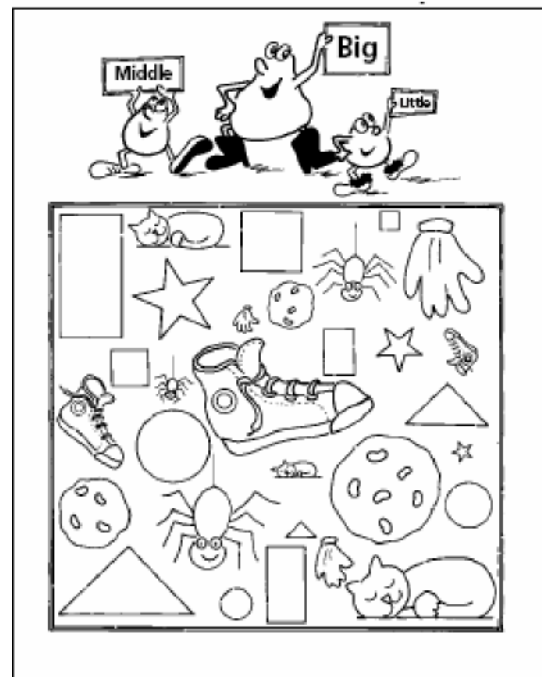
In this activity, students categorize objects. Make copies of page 57 for your students. As a class, list trucks that are large (moving trucks, garbage trucks, etc.), trucks that are medium-sized (milk trucks, bread trucks, etc.), and trucks that are small (mail trucks, meter checker trucks, etc.) on the chalkboard. Distribute the activity sheet and discuss the first row (plants). Ask the class, "Can you think of a little plant?" (violet or pansy) "Draw it in the box under the little character." "Can you think of a medium-sized plant?" (bush or house plant) "Draw it in the box under the character for middle." "Can you think of a large plant?" (tree) "Draw it in the box under the big character." Then allow time for students to complete the rest of the activity sheet independently. When all students are done, have student volunteers share their ideas with the class.



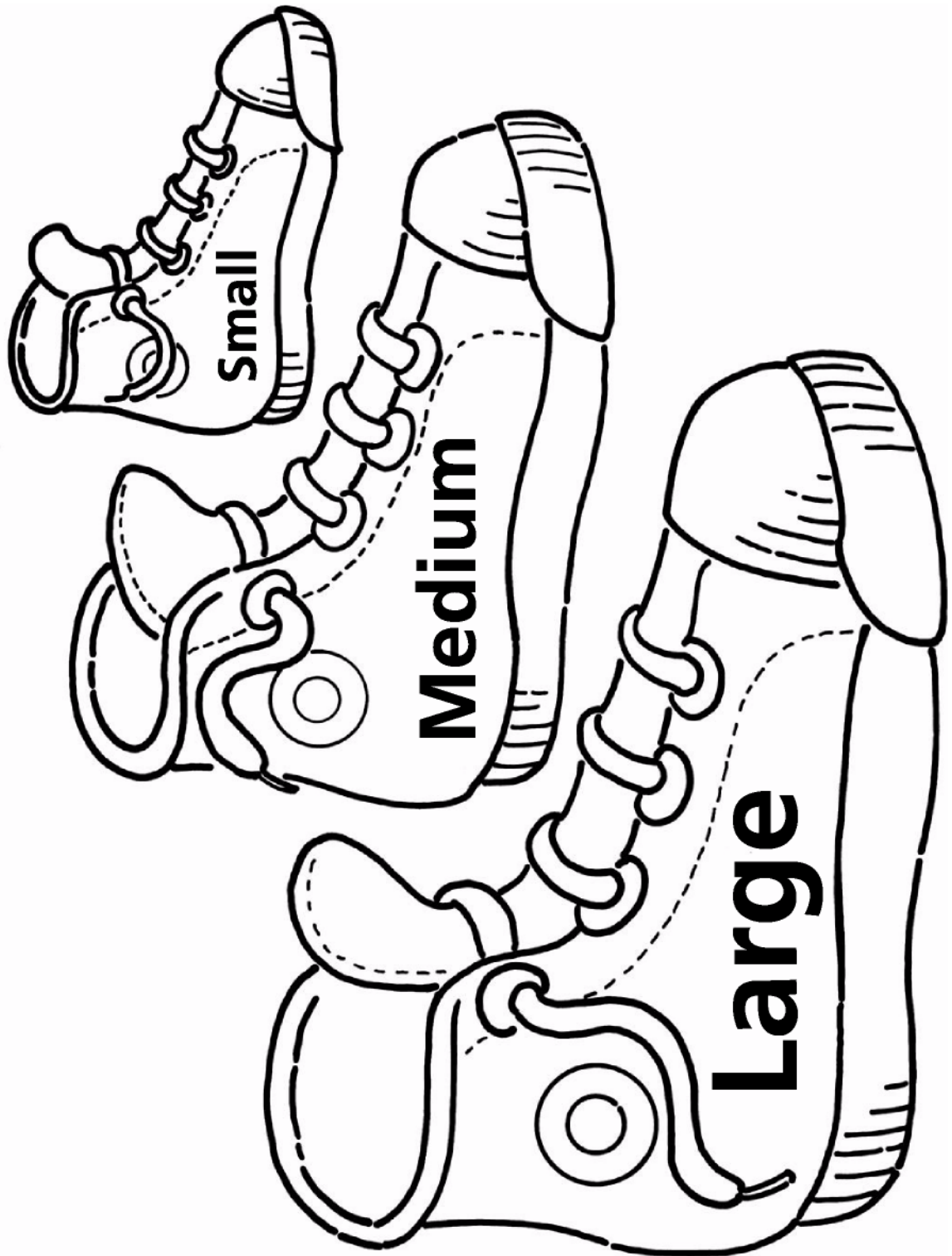
Color Me Little

Science




Reproduce page 58 for students. As students learn about color, they can also learn about categorizing by size. Distribute the activity sheet and instruct students to color the characters: Little—yellow; Middle—red; Big—green. Then explain that these characters provide the clues that tell them how to complete the sheet: color all little objects yellow; all medium-sized objects red; and all big objects green. Ask students to locate the three spiders on their activity sheets. Tell them to color the littlest spider yellow, the medium-sized spider red, and the big spider green. Have them continue on their own, first locating three sizes of the object, and then coloring according to the key.



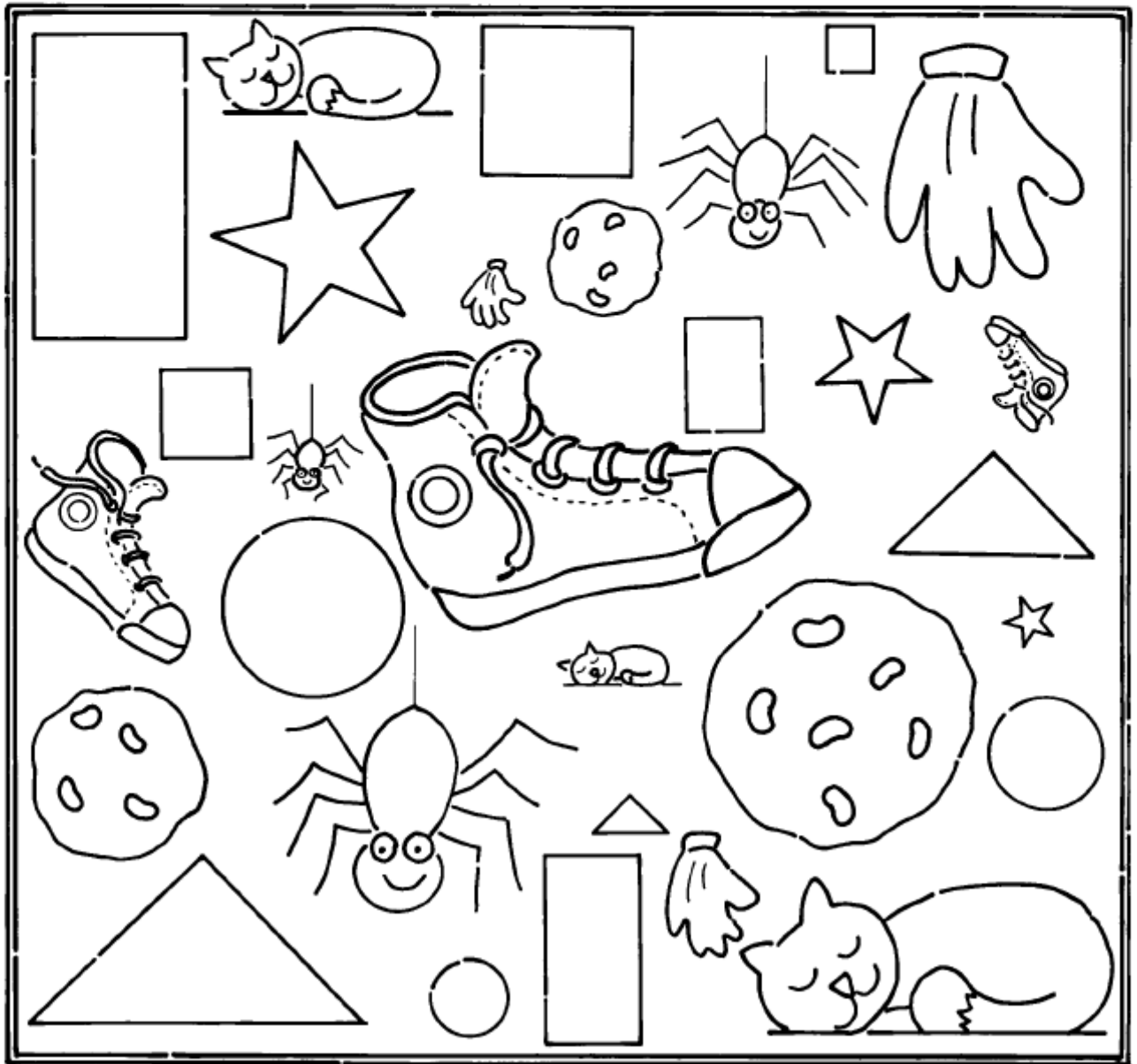
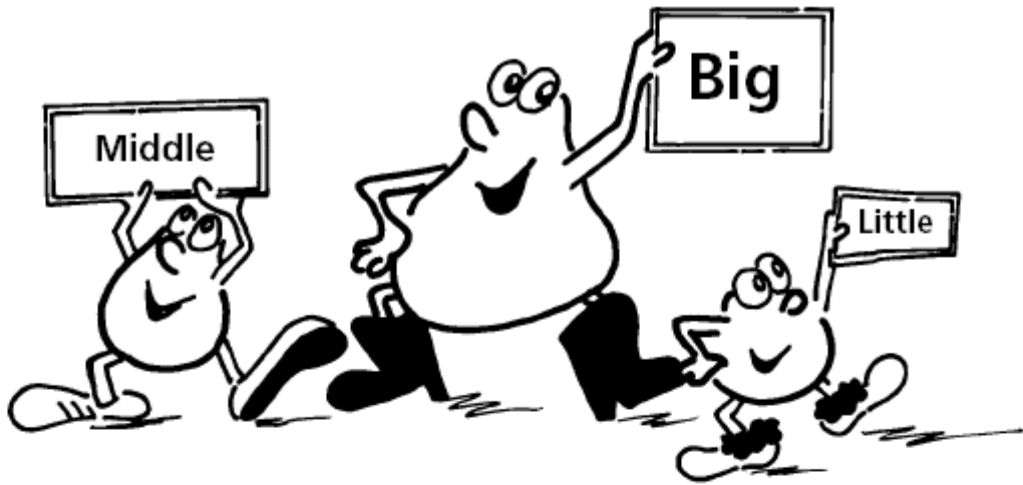
Little, Middle, & Big



Use with "Size Collages" (page 53),
"Trash and Treasure" (page 54),
and "So Many Ways to Say It" (page 54).

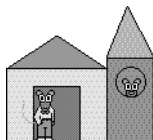
		
<p>Plants</p>		
<p>Animals</p>		
<p>Birds</p>		

Use with "What Size, Please?" (page 55).



Use with "Color Me Little" (page 55).

Mouse House



I Spy Shapes

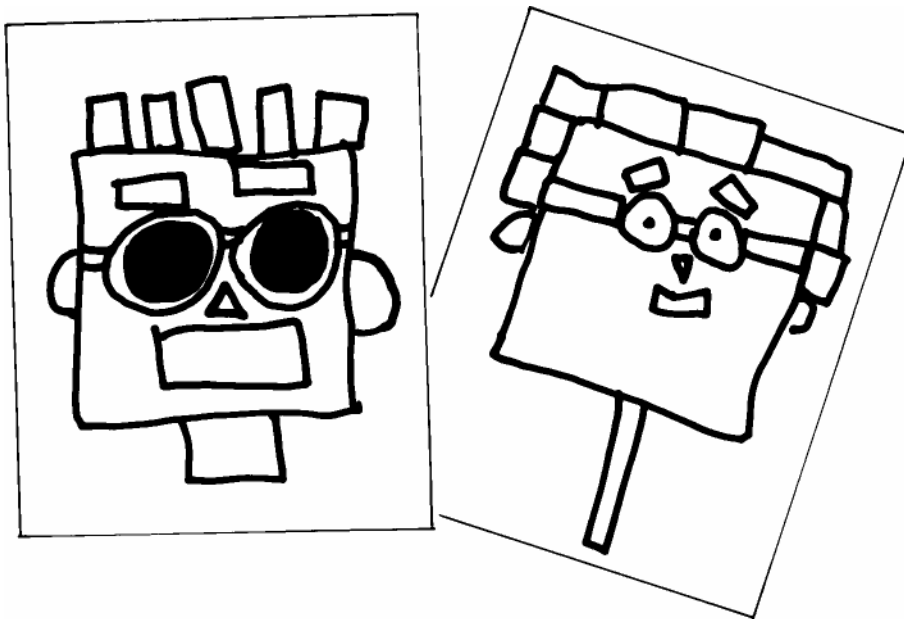
Language Arts

Review the characteristics of each geometric shape with your class: A triangle has three sides; a square has four equal sides, etc. Describe an object in the room to your class: "I see something that is shaped like a rectangle and is made of wood. What is it?" Let the student who guesses the object describe the next object to be found.

Funny Faces

Art

Draw and discuss the following geometric shapes on the chalkboard: square, triangle, rectangle, circle, and half-circle. Ask a student to draw a funny face on the chalkboard, using these shapes. Then ask another student to describe the face to the class, using the names of the shapes. To make this a collaborative drawing activity, have students work with partners. All students will need pencil, paper, and something sturdy under the paper. Have each pair sit back-to-back. As one student draws and says aloud what is being drawn (for example, "I'm drawing a large circle for a head. Now I'm using small triangles for ears."), the other student "copies" the drawing, relying on the verbal information for directions. When the drawings are finished, have students compare results and see the variation achieved using the same shapes (see the examples below). Then have students switch roles.



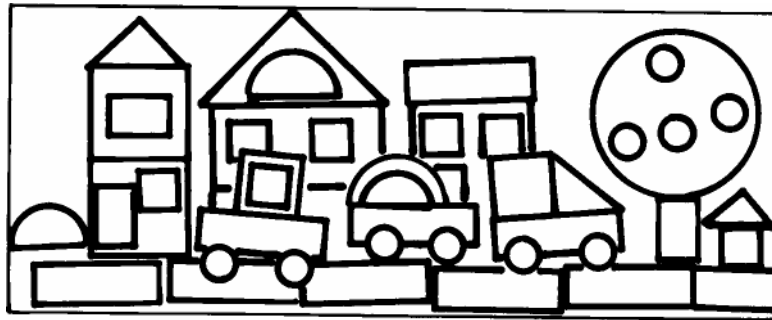
Shape Sets

Make a copy of pages 63 and 64 (for each student) on the heaviest paper your copier will accommodate. Have students color the shapes as they choose and cut them out. These shape sets can be stored in old envelopes. Students can use the shape sets for the following three activities:

Our Town

Art

Roll out several long pieces of shelf or freezer paper across the classroom or art room floor. Have students bring their shape sets and crayons with them to work on a classroom town. Students can work in small groups or individually, tracing around their shapes along the paper (or gluing their shapes to the paper) to design buildings, trees, vehicles, etc. Once the shapes are outlined (or glued in place), have the students add details and fill in with color. Hang the completed artwork in the classroom. Then, play "How many?" with your students and ask questions such as the following: "How many triangles between this tree and this bush?" "How many yellow squares are there in our paper town?" Student volunteers can also ask "How many?"



Shadow Play

Art

Set up a station where students can make shadow pictures using an overhead projector. Have students combine different shapes on the projector surface and then turn on the projector to see the shadow picture on the screen or wall. They may enjoy working at this station in pairs with one student composing the picture and the other guessing what it is.

Sort It Out

Science

Each student will need a shape set for this categorizing activity. Start by asking students to sort the shapes into two groups: shapes that are circles and shapes that are not circles. Then have student volunteers make up rules for sorting the shapes. Some suggestions include:

Two groups:

- big shapes and little shapes
- shapes with some straight lines and shapes with no straight lines
- shapes with four sides and shapes with a different number of sides
- shapes that are yellow and shapes that are not yellow (if students colored their shapes)

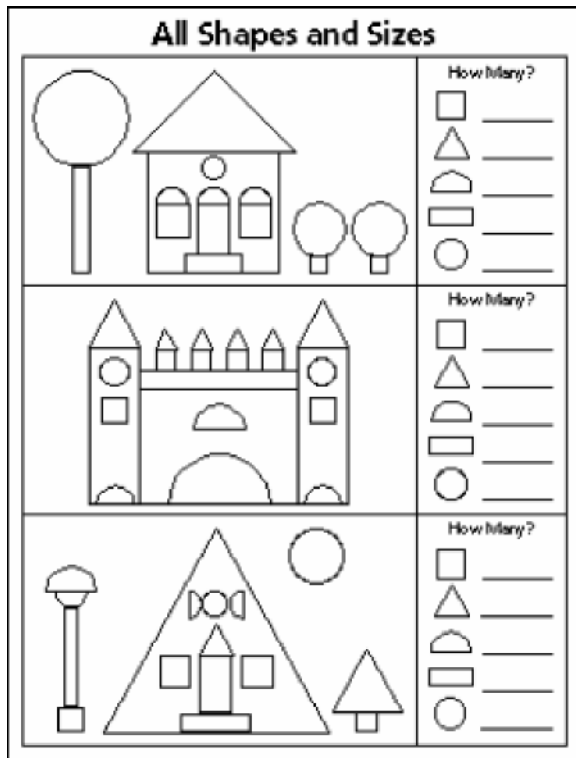
Three groups:

- shapes with curves, shapes with three straight sides, shapes with four straight sides
- big shapes, medium-sized shapes, little shapes

All Shapes and Sizes

Science

Page 65 can be used to sharpen categorizing skills, while working with shapes. There are many ways to use the sheet; two are suggested below:



- Make page 65 into a transparency and use it to introduce Mouse House to your students. Talk about the different shapes and their characteristics. Have students point out all the rectangles in a picture, all the circles, etc.
- Make a copy of page 65 for each student. Beginning with the first picture, instruct students to pick a different color to fill in each shape along the right-hand side of the page (for example, yellow square, red triangle, etc.). Then have students color all the shapes in the picture according to this key. Last, have them count the shapes and fill in the blanks at the right. For the next picture, they may want to change the color key.

Crazy Quilt

Art

If possible, introduce this activity by showing the students quilts or pictures of quilts. Discuss how quilts have been made for many years and often can give us a glimpse into the times in which they were created. Explain how quilt making is a useful way to recycle fabric from old clothing and to utilize leftover fabric scraps. Give each student a 4-inch square of white paper; these will be the quilt blocks. Have students fill their blocks with the geometric shapes they used in the Mouse House. (You may want to draw the geometric shapes on the board for reference.) They can arrange the shapes into any design they wish and fill the blocks with as much color as possible. When they have finished, assemble the blocks by stapling them edgeto-edge onto a bulletin board. As a class, discuss the variety and repetition in the quilt. (You can also do this activity with small precut geometric shapes, asking students to color and then glue the shapes to their quilt blocks.)

Team Shapes

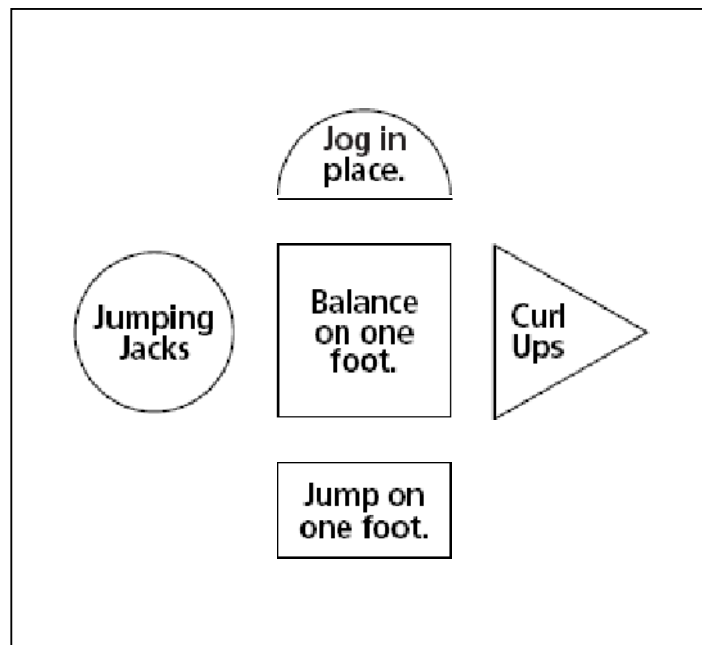
Physical Education

Using paper from a recycling box, cut out an equal number of rectangles, squares, triangles, half-circles, and circles. The total number of shapes should equal the number of students in your class. (For example, if you have 20 students, you will need four of each of the five shapes.) When you need to group students into teams, distribute the shapes randomly to the students. Then, to make up five teams, explain that all the triangles will be a team, all the rectangles will be a team, etc. If you want to make up two teams instead of four, you can have two types of shapes on a team. For example, one team can be squares and triangles. The other team can be circles and rectangles.

What Shape Are You In?

Physical Education

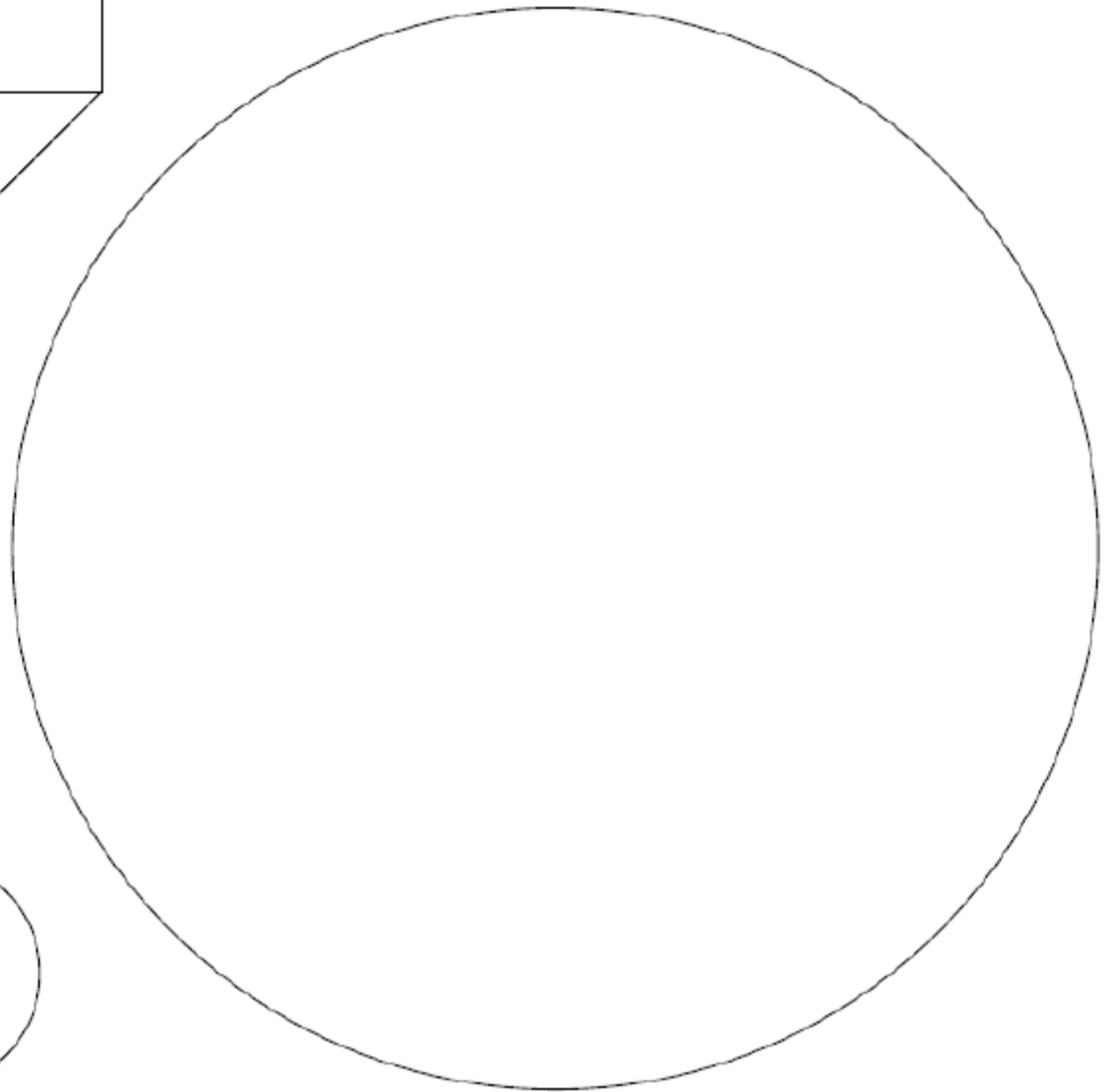
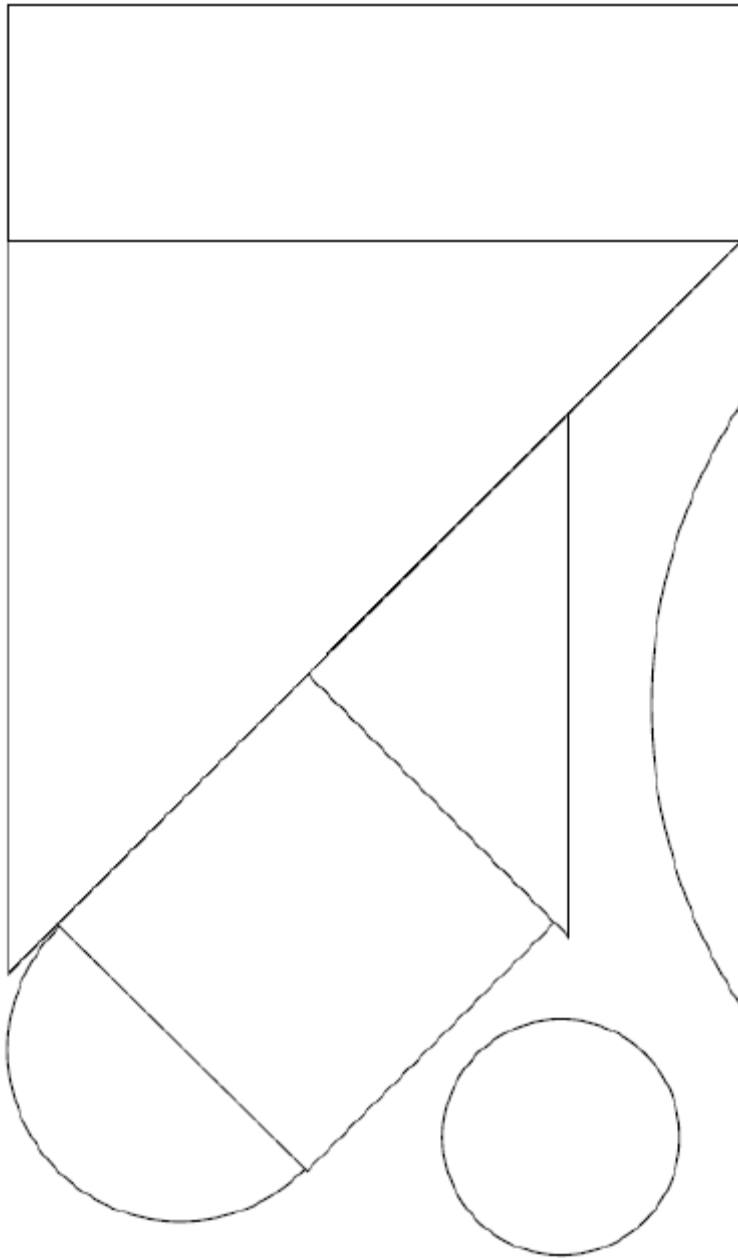
Using chalk on the playground (or tape on the gymnasium floor), mark off very large shapes. You can use some or all of the shapes from Mouse House (square, rectangle, circle, triangle, and half-circle). Have students walk along the edges of each shape as they quietly say the name of the shape aloud. Next, divide the class into the same number of groups as there are shapes. Write an activity key on the chalkboard (or post a key written on tagboard). You might like to try the following:



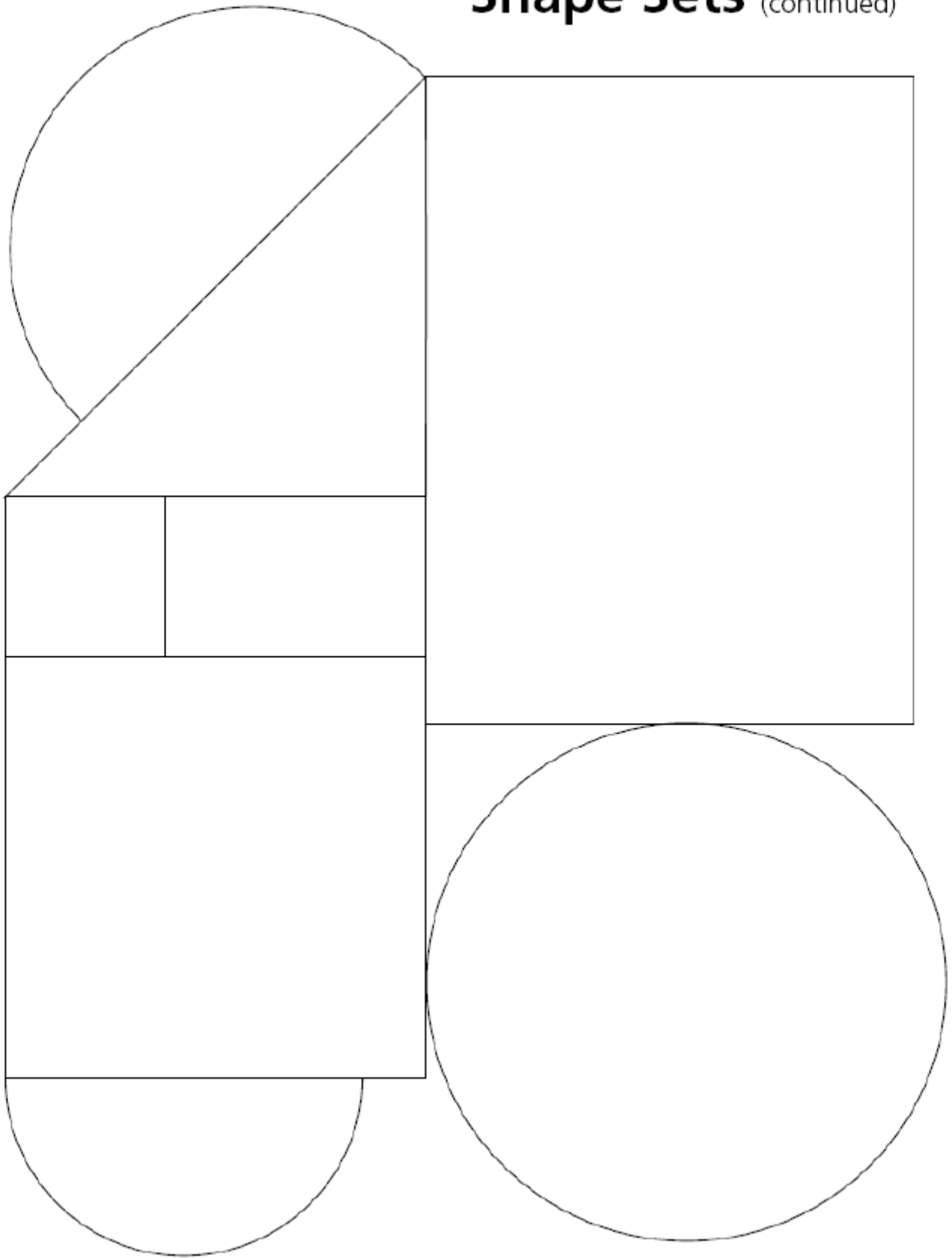
Assign each group to stand inside one of the shapes and then consult the activity key to see what they should do first. A student leader rings a bell or says "go" when it is time to start the activity. After a few minutes, the leader instructs the groups to rotate to the next shape, consult the activity key, and begin the activity for that shape. Continue the rotation until all groups have been in all the shapes. This is a good activity for warm-up or cool-down time in physical education.

Shape Sets

Use with "Our Town," "Shadow Play," and "Sort It Out" (page 60).



Shape Sets (continued)

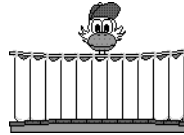


Use with "Our Town," "Shadow Play," and "Sort It Out" (page 60).

All Shapes and Sizes

	<p>How Many?</p> <p>□ _____</p> <p>△ _____</p> <p>◐ _____</p> <p>▭ _____</p> <p>○ _____</p>
	<p>How Many?</p> <p>□ _____</p> <p>△ _____</p> <p>◐ _____</p> <p>▭ _____</p> <p>○ _____</p>
	<p>How Many?</p> <p>□ _____</p> <p>△ _____</p> <p>◐ _____</p> <p>▭ _____</p> <p>○ _____</p>

What's My Number?



Number Tunes

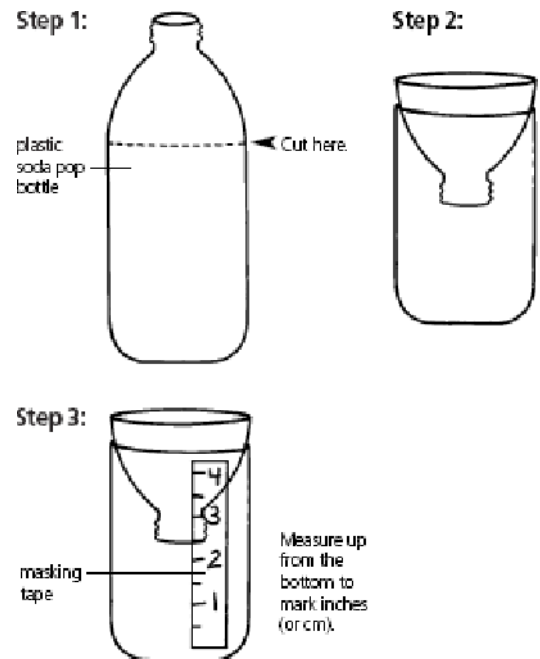
Music

If students are not already familiar with number songs, introduce them to songs such as "The Ants Go Marching." Encourage participation by selecting ten volunteers (one for each verse). While the whole class sings, "The ants go marching one by one . . .", the first volunteer marches around the room, pausing only when it is time to say or sing a made-up line, such as, "The first one ate my hot dog bun." Continue adding volunteers for each successive verse, the last volunteer always making up the new line. Repeat the activity on other days with a different ten students until all have had a chance to march.

Just Add Rain

Science

Follow these three steps to make a rain gauge. Using water from a pitcher, demonstrate how rain is collected and measured. Have students take turns determining the amount of "rainfall" when water is added to an empty gauge, as well as when water is added to a partially filled gauge ("If there were 2 inches of rain in the gauge, and now there are 4 inches, how many inches has it rained?"). Live up rainy days by setting the gauge outside, near a classroom window, for real-world measurements. Mention other types of instruments used for measuring (thermometers, barometers, etc.) and discuss why these measurements are important.



Paint by the Numbers

Physical Education

As a cool-down activity after an outdoor physical education period, here's a fun way for students to practice writing and solving equations. Pair students to work together, outfitting each pair with an old paintbrush and a plastic bucket of water. After the first student "paints" an equation (for example, $2+1 =$) on the sidewalk or blacktop, the second student quickly "paints" the answer before the equation dries up and disappears. Encourage students to switch roles after each equation.

One of, Two of...

Art

Make pages 69 and 70 into transparencies. Using an overhead projector, show one of the pages on a screen. Ask students to think of something there is "zero of" (elephants, trees, whales, etc.) in the classroom. Explain that nothing is drawn next to the numeral 0 on the transparency because there are no elephants (for example) in the classroom. Then ask students to find something there is "just one of" (teacher, clock, window) in the classroom and have a volunteer draw it next to the numeral 1. Continue the activity for each of the numerals. A fun variation of this activity is to project the image onto a large sheet of white paper instead of a screen. Then volunteers can draw on the paper instead of the transparency. Or, turn this into a "cut and paste" activity for younger students, using old magazines or catalogs.

0	2	3
1		
4		6
5		
7		

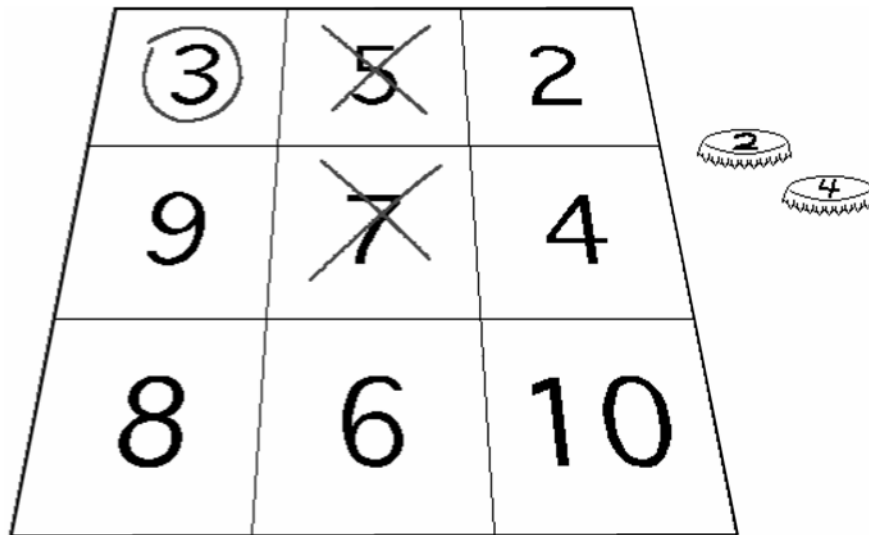
8	9
10	

Older students may be able to do this activity individually or in pairs. Distribute copies of pages and let students work independently. The completed papers can be posted on a bulletin board for students to enjoy the variety of responses.

Arithmetic, Tac, Toe

Problem Solving

To prepare for this two-player equation game, first collect ten milk-bottle caps and mark each with a number from 1 to 5 (two bottle caps for each number). Drop all the bottle caps into a bag and shake them up. Next make a copy of page 71 and cut the game boards apart. Set one aside to play later. You are now ready to explain the game to the students.



The first player selects two bottle caps from the bag and draws an X on the square that displays the sum of the bottle cap numbers. For example, if the player selected a 2 and a 3, the player would draw an X on the square with the number 5. The second player then takes a turn, drawing two bottle caps and placing an O on the correct square. If a square has already been marked, the player must pass. Like traditional tic-tac-toe, the winner is the player to first draw a straight line through three X's or three O's.

Winner in a Flash

Problem Solving

Play a favorite board game, using a deck of equation flashcards instead of the game's dice or spinner. At the start of a player's turn, the player draws a flashcard and must correctly answer the equation in order to move the game piece (by as many spaces as the equation answer).

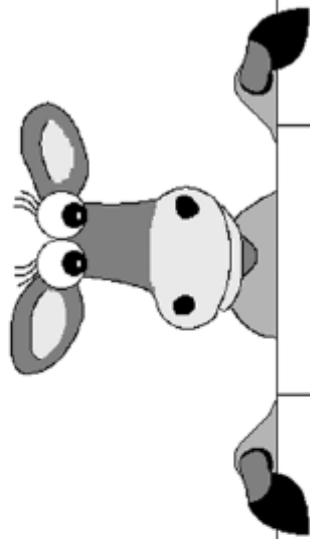
0	2	3
1		
4		6
5		
7		

Use with "One of, Two of..." (page 67).

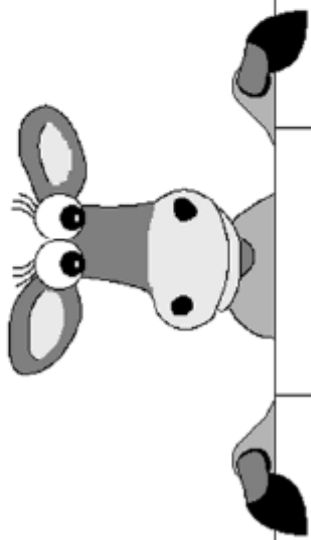
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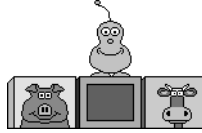


10	4	8
2	6	9
7	5	3



3	5	2
9	7	4
8	6	10

Bing & Boing



Musical Motion!

Music

Students can use many kinds of sounds, hand claps, and foot stomps to make patterns. Begin with a two-part pattern, such as a “Bing” in a high voice, followed by a “Boing” in a low voice. Then add a hand clap for a three-part pattern (Bing, Boing, clap; Bing, Boing, clap; etc.). After some practice, students can make up their own sound patterns. Some sample patterns include:

Two-part patterns

- Bing, stomp; Bing, stomp; Bing, stomp.
- Click, clap; click, clap; click, clap.

Three-part patterns

- Clap, clap, Boing; clap, clap, Boing.
- Stomp, Bing, clap; stomp, Bing, clap.

Headband Patterns

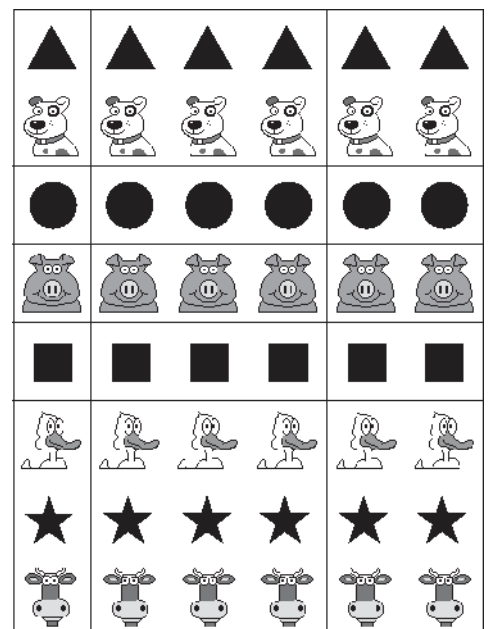
Art

Pull out your favorite rubber stamps, cut calculator tape for headbands or wristbands, and stamp out a pattern. For example, a student might stamp out 2 frogs, 1 cat; 2 frogs, 1 cat, etc. Glue or staple the ends together to make headbands or wristbands. If you don't have stamps or calculator tape, ask students to create their own patterns with crayons on precut strips of paper.

Meet Bing and Boing

Problem Solving

Make page 75 into a transparency. This activity helps develop problem-solving skills as students analyze patterns and anticipate what comes next. It is also an effective tool for introducing Bing and Boing to the class. Once you have made the transparency, cut it into pieces. Use some of the pieces to lay out a two-part pattern on the overhead projector surface (for example, star, square; star, square). Arrange the remaining pieces at the bottom on the projector surface. Turn on the projector and add one more star to the pattern. Ask if anyone knows what comes next. Have a volunteer move the square into place. Ask the class to repeat the pattern aloud together, “Star, square; star, square.” Then let a student lay out a new pattern and call on a classmate to complete it.



People Patterns

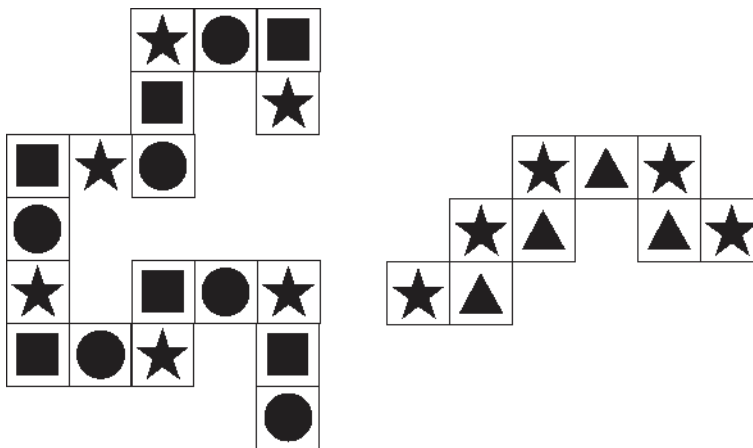
Creative Dramatics

Divide the class into groups of six students each. Have each group model positions, gestures, and facial expressions and organize themselves into a two-part or three-part pattern. For example, one student pattern might include two frowning students, one smiling student; two frowning students, one smiling student. Another pattern might include one sitting student, one standing student, one student with back to class; one sitting student, one standing student, one student with back to class. Have student groups take turns setting up their patterns in front of the class. Then, as a volunteer points to each student in the group, the class calls out each part of the pattern.

Pattern Paths

Art

Make copies of page 76 for your students and have them cut the copies into pieces. (Keep the pieces in old envelopes or clipped together with paper clips.) Students can work together in groups of two to four. The first student starts the pattern by laying down two or three pieces. Thereafter, students take turns placing one piece at a time, maintaining the pattern. Students can make the pattern "turn corners" and change direction, but each new piece must touch the previous piece on one (and only one) side. Interesting designs will form as the pattern is repeated, especially if students combine pieces from all their envelopes.



All Mixed Up

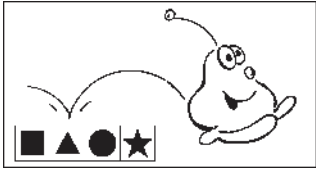
Creative Dramatics

Read the story *The Cow That Went Oink* (by Bernard Most; Harcourt Brace Jovanovich, Publishers) to the class. Let volunteers make the sounds of different animals. Then talk together about what sounds seem funny. For example, a bunny that moos, an elephant that quacks, etc. Talk about the sounds students hear in *Bing & Boing*.

Play That Pattern

Music

Make copies of page 76 for your students and one extra copy. Using the extra copy, cut out the four small pattern pieces at the top of the page. With removable tape, attach these pattern pieces to four different keys of a xylophone or piano. (Alternatively, the pattern pieces can be attached to four different rhythm instruments.) Have students bring their activity sheets with them when it is their turn to try playing the instrument. (Two or three students will need to work together if they are using rhythm instruments.) Encourage them to play the patterns on the activity sheet and then to invent patterns of their own. The activity sheet is designed for students to invent one two-part pattern and one three-part pattern.



Play these patterns.

★	●	★	●	★	●	★	●
---	---	---	---	---	---	---	---

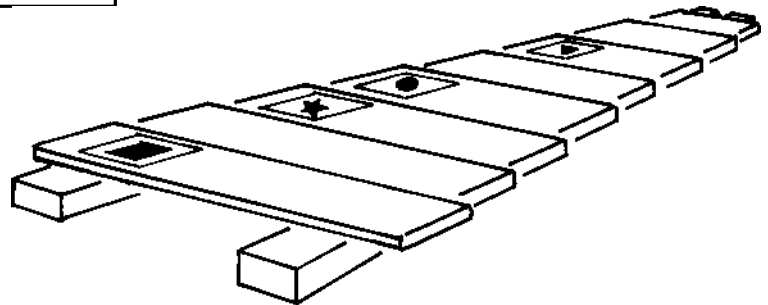
■	▲	▲	■	▲	▲	■	▲	▲
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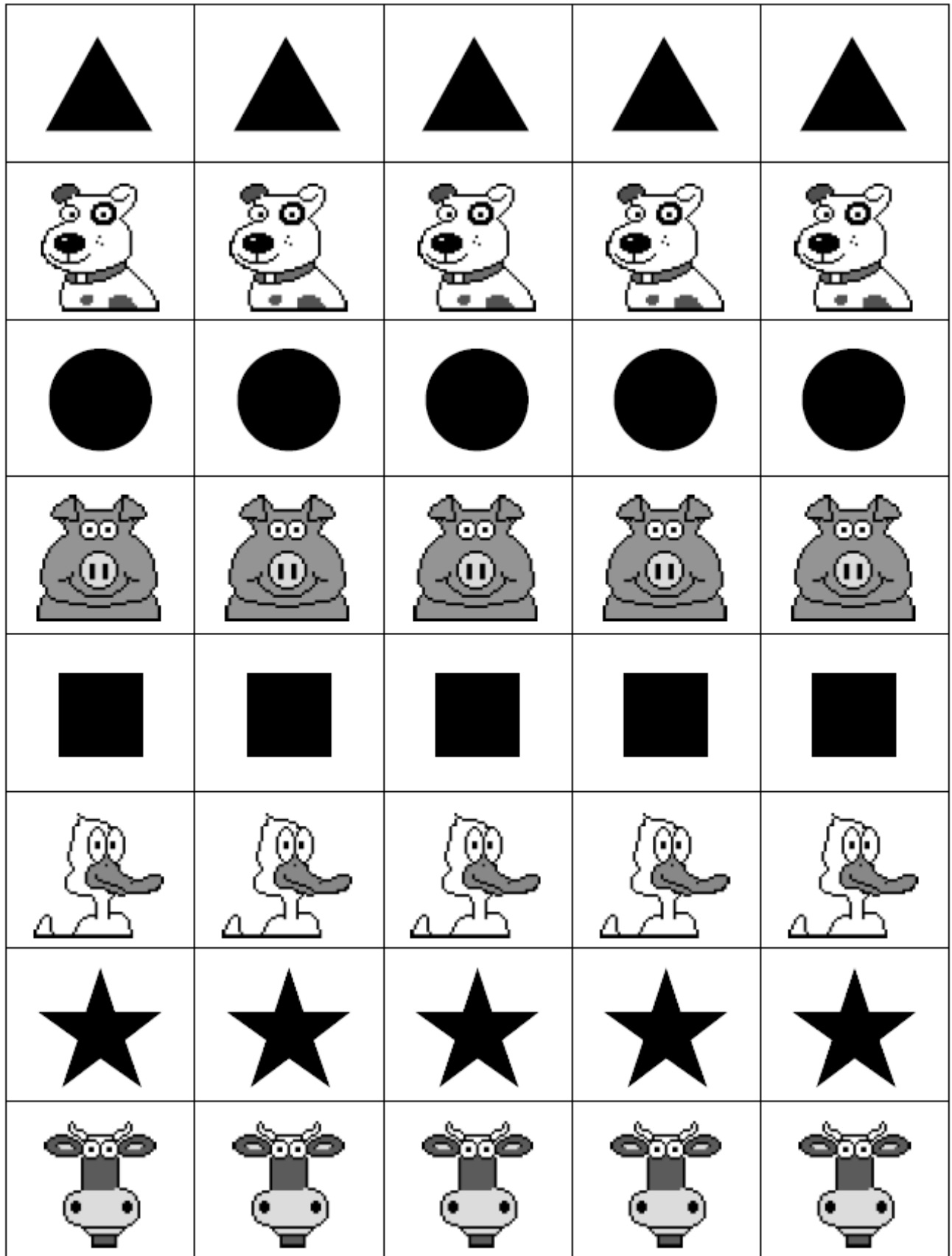
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Make your own patterns.

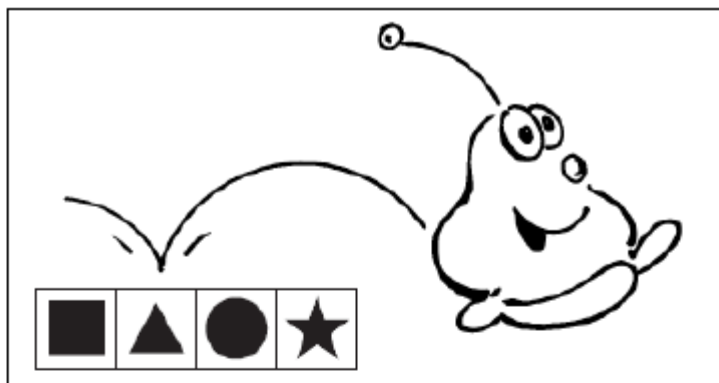
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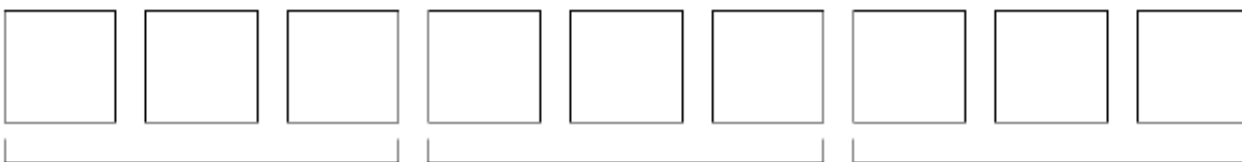
Use with "Meet Bing and Boing" (page 72) and "Pattern Paths" (pages 73-74).



Play these patterns.



Make your own patterns.



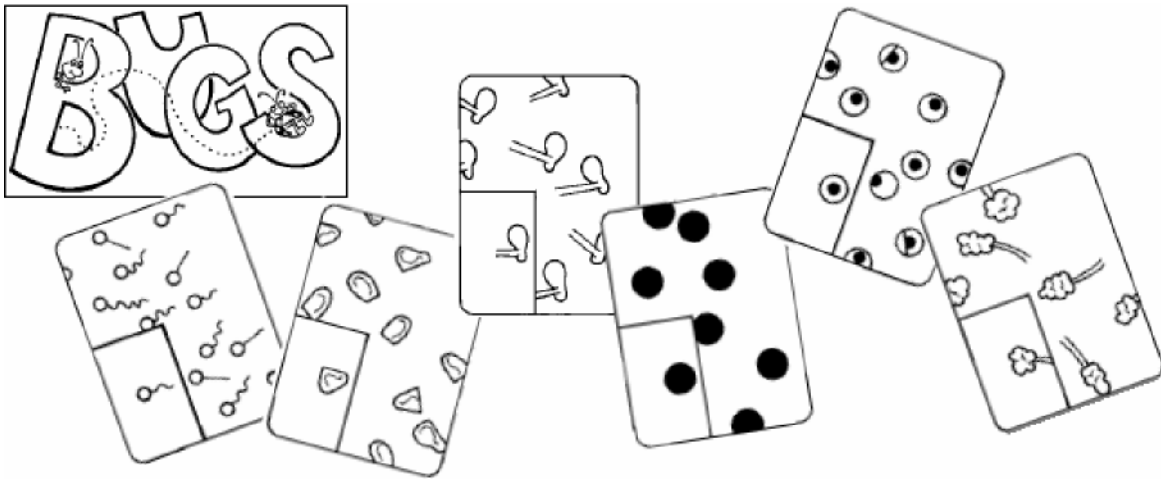
Build-A-Bug



How Many?

Language Arts

Post printouts of students' bug creations (from Build-A-Bug) on the bulletin board. Ask one student at a time: "Can you find a bug with three eyes?" "Can you find a bug with six legs?" To make it more challenging ask, "Can you find a bug with two ears and five spots?" For a variation of this activity, copy pages 79 and 80. If desired, color the title on page 79 and use it as a title for the bulletin board. Cut out the word cards and put them in a box or sack. Let a student draw out a card. After noting the singular and plural forms of the word (for example, "eye" and "eyes"), ask the student a question about the word such as "Can you find a bug with four eyes?" Or, let students formulate the questions and/or draw two cards at a time. For example, "Which bug has four eyes and two spots?" When you have completed the activity, add the word cards to your bulletin board display.



Find Five

Science

Play this game to give students practice in sorting and counting. Ask students to find one tall thing; find two short things; find three green things; find four round things; and so forth. Then let the children choose what and how many to find.

Mystery Bug

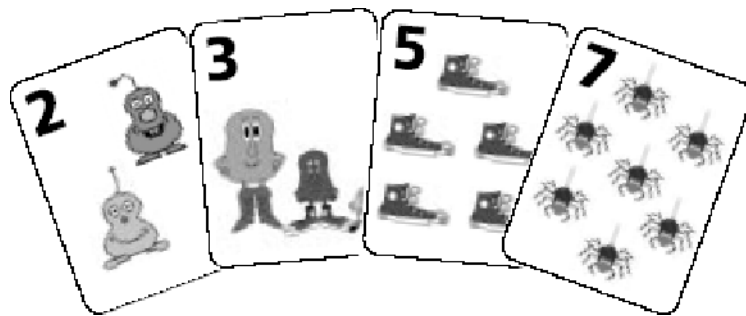
Art

Divide the students into groups of six students each. Each group will need a large sheet of white paper, scissors, glue, and scraps of colored paper. First, the members of the group design a bug body and head and glue it to the white paper. Then, each member of the group is assigned a bug part. That member determines how many spots, eyes, etc., the bug will have and cuts them out of the colored paper scraps. Group members take turns gluing the parts onto the bug as the group counts, for example, "One, two, three spots." When every group is finished, they can share their bugs with the rest of the class or post them on a bulletin board labeled "Bug Zoo."

Count on Me

Science







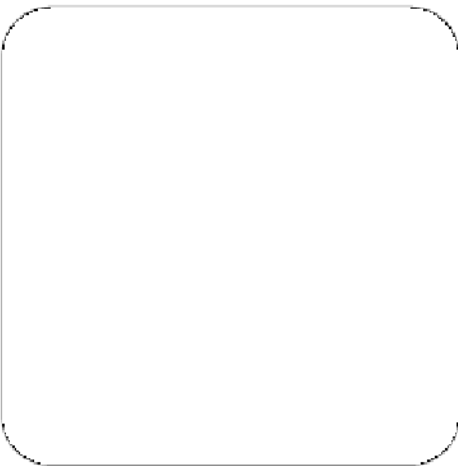
Make two copies of page 89 on the heaviest paper your copier will accommodate. If possible, laminate the paper. Cut the cards apart and have them available for pairs of students to sharpen their observation skills by playing "Count on Me." To play, students take turns drawing a card from the stack and then finding something of the same number on their own clothing or body. For example, if the card says 2, the student counts, "One, two. Two eyes"; if the number is 4, "One, two, three, four. Four buttons"; if the number is zero, "Zero antennae." If they find something of the right number, they get a point; if they cannot find something of that number, the other student gets the point. Once something has been said, the other student cannot use it for an answer. For example, if a student has used "two eyes," the next time 2 is drawn from the cards, the student cannot use "eyes" but could use "two knees" or "two pockets." When all the cards are used, the game is over.

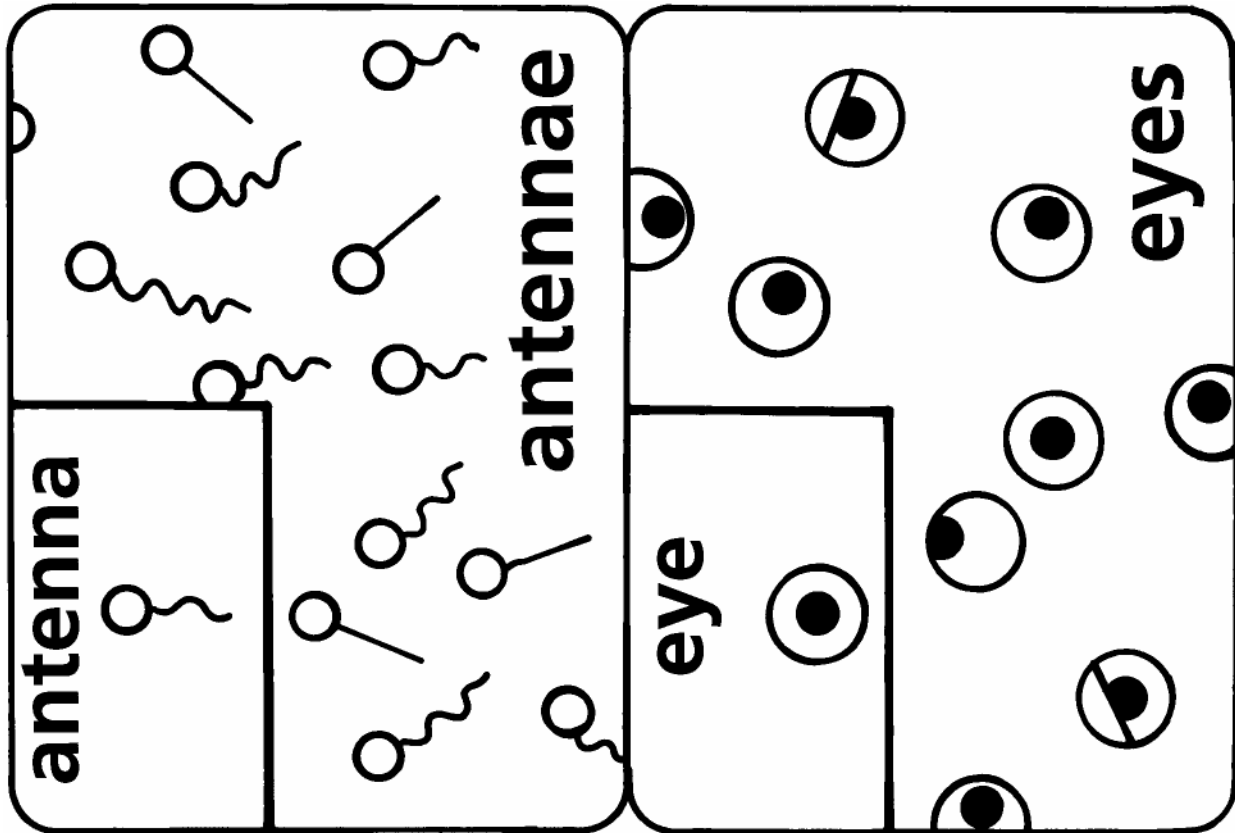
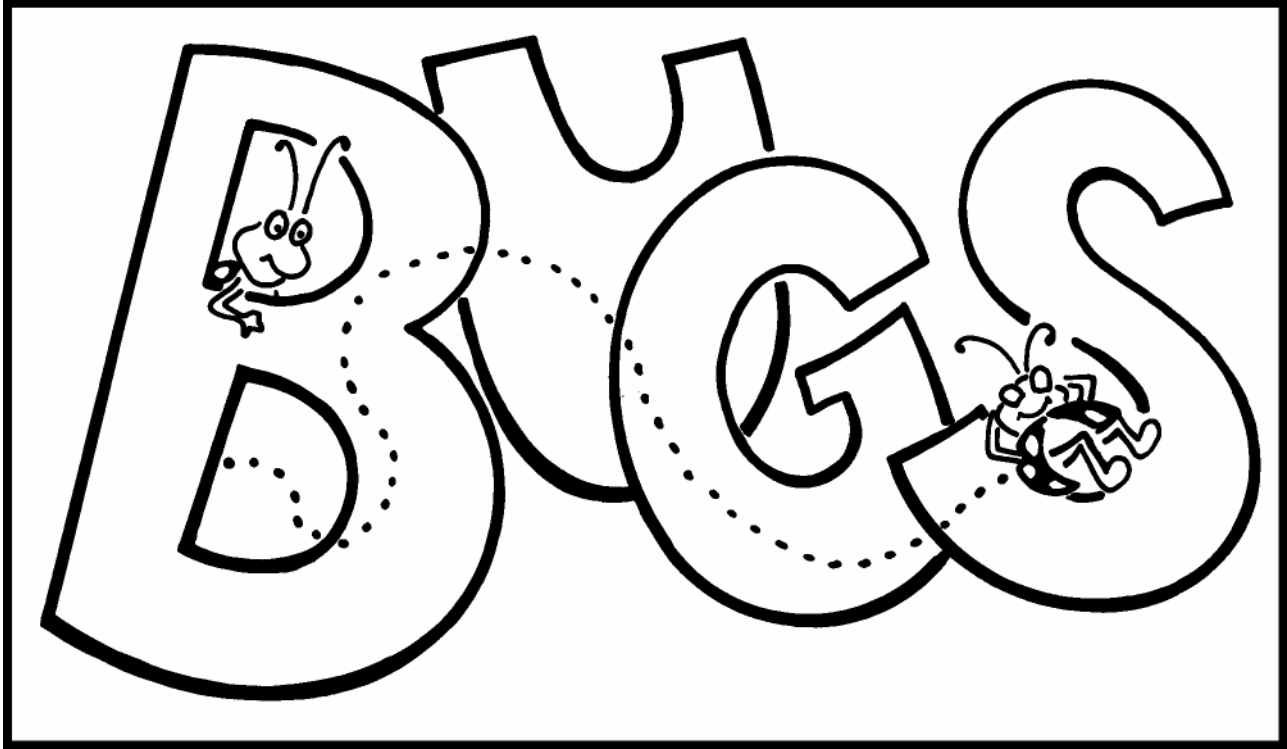


Bug Me!

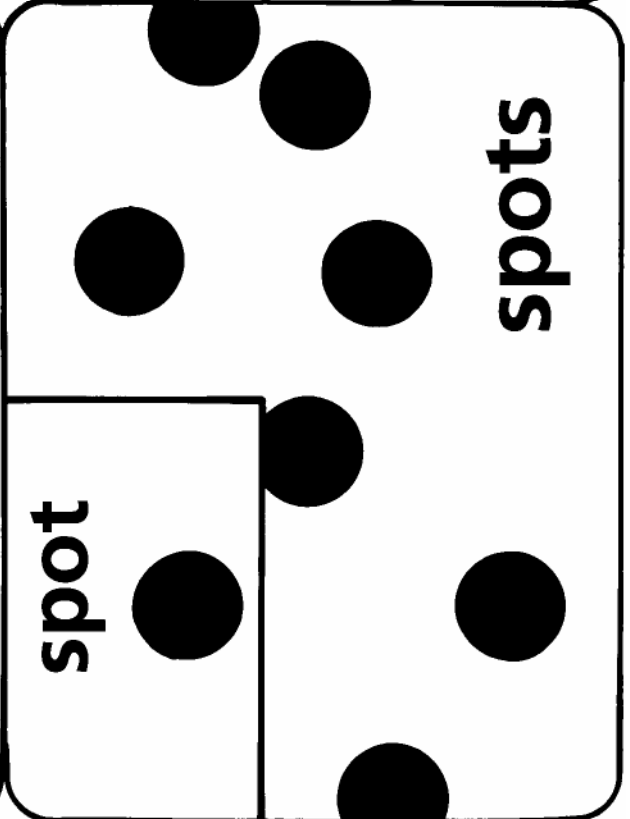
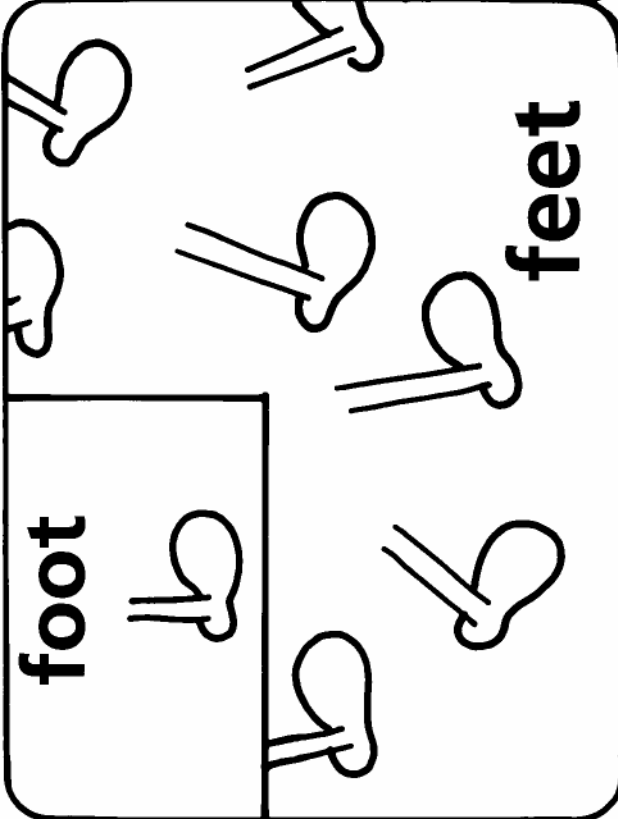
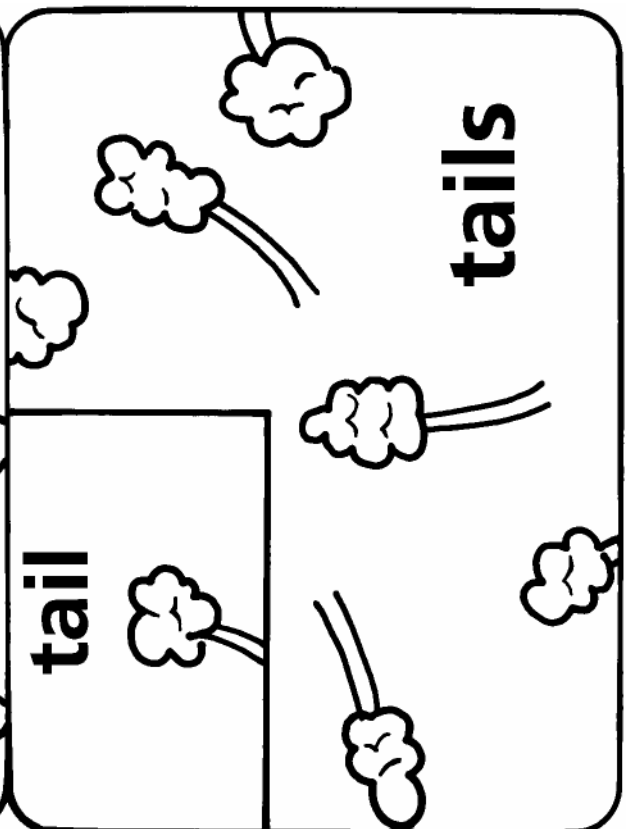
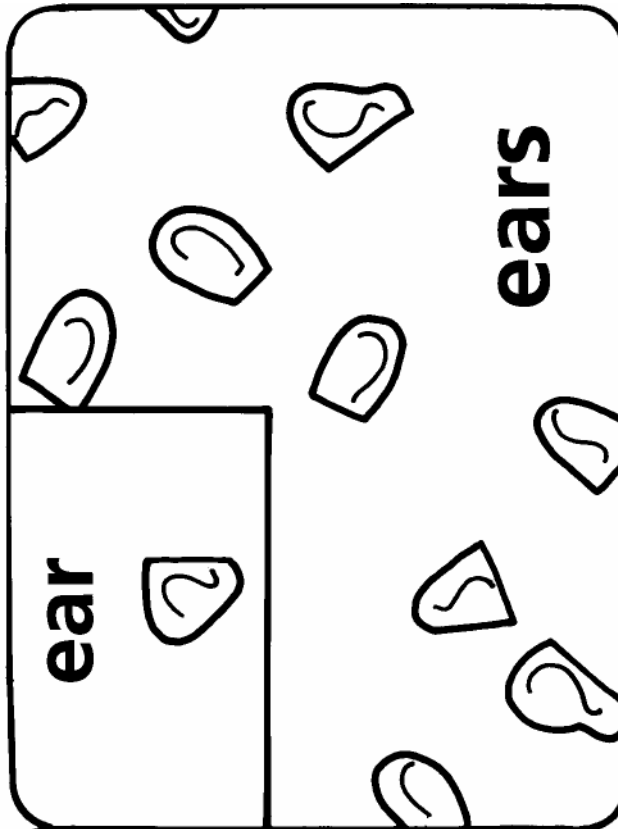
Art

Make copies of page 81 for your students. Have them "plan a bug" by writing numbers beside the bug parts on the activity sheet. Next, tell students to each draw a bug body and head. Have them continue drawing by consulting their plans to see how many of each part to draw. Encourage them to count quietly to themselves as they add parts to their bugs. Suggest that they use all sorts of colors and shapes and make their bugs as outlandish as their imaginations allow. If desired, have students name their bugs and introduce them to the class. For example, "This is my bug, Hannah-Louise. She has four spots, two ears, three antennae, nine eyes, one tail, and six legs."

Bug Me!			
How many do you want?	<input type="text"/> 	<input type="text"/> 	<input type="text"/> 
	<input type="text"/> 	<input type="text"/> 	<input type="text"/> 
Draw your bug here:			
			



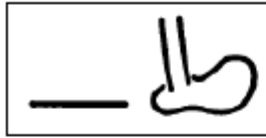
Use with "How Many?" (page 77).



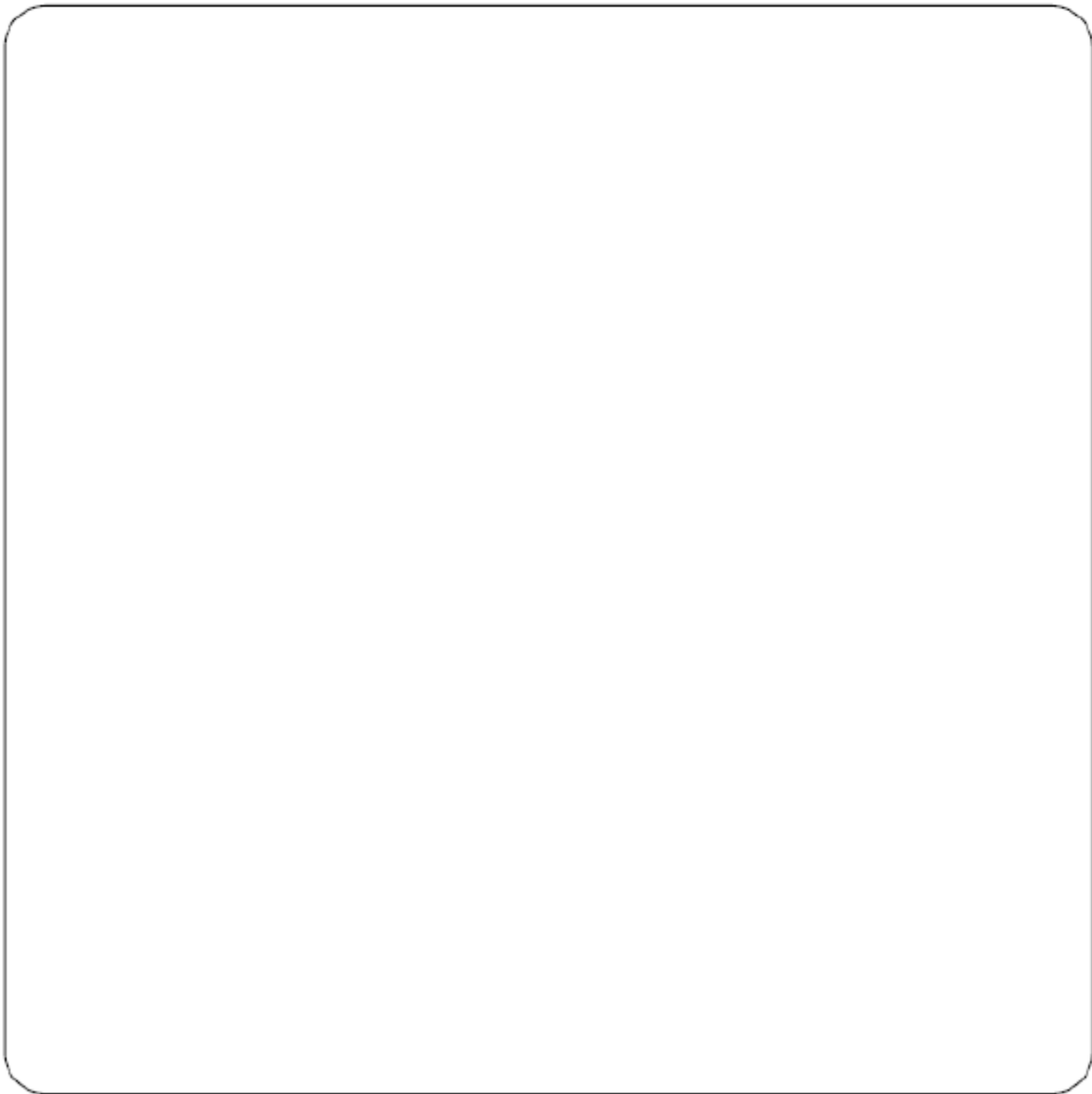
Use with "How Many?" (page 77).

Bug Me!

How many do you want?



Draw your bug here:



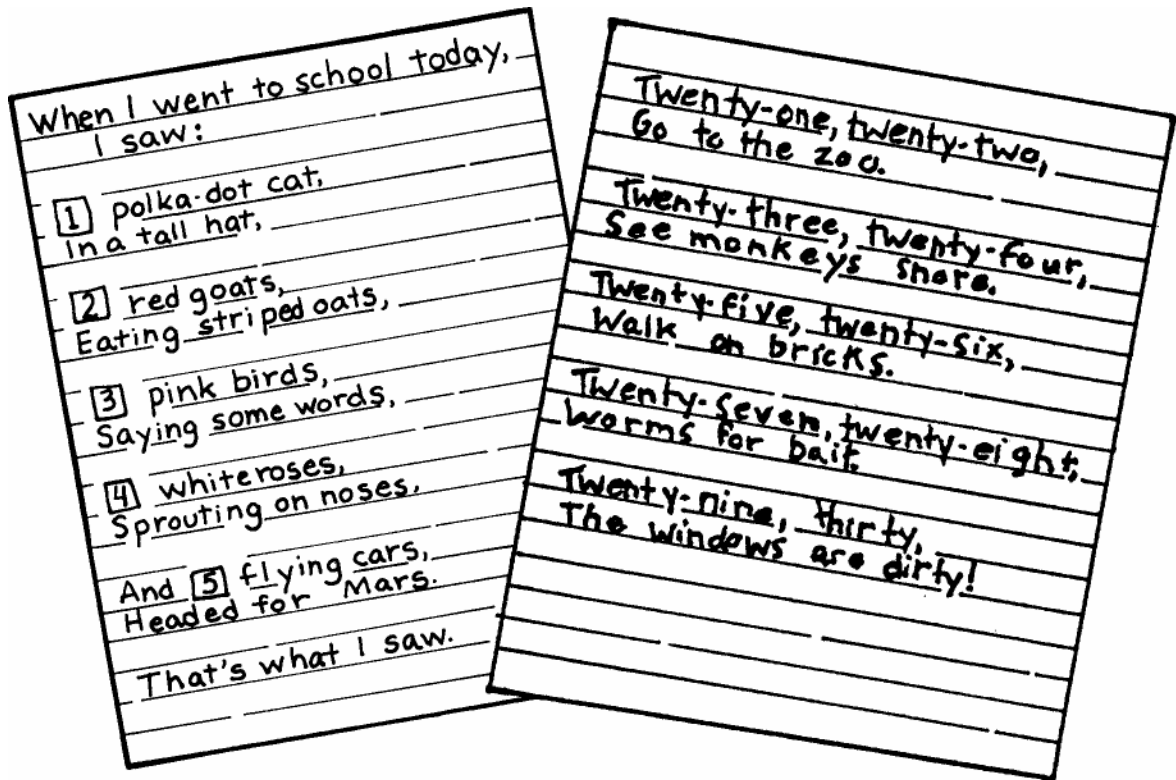
Number Machine



Nonsense Poetry

Language Arts

Compose a class number poem using fantastic, outlandish words or situations, or rewrite familiar rhymes in creative ways. Examples are shown below:



Count on Action

Physical Education

Have the class count aloud to 30 as each student repeats an action such as jumping jacks, toe touching, hand clapping, or jumping. On the playground, in the classroom, or in the gymnasium, let pairs of students take turns counting actions for each other.

Door Decor

Science

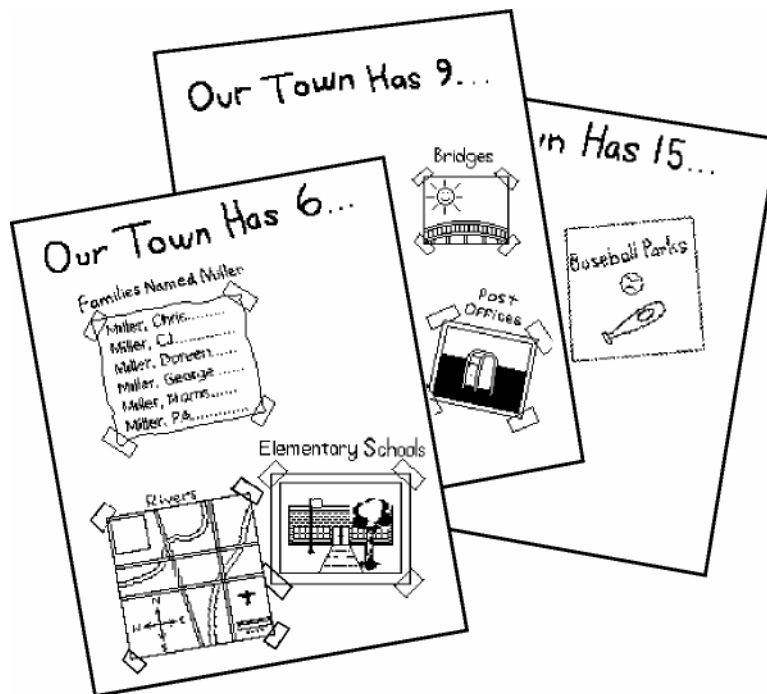
Cover both sides of a classroom door with a large sheet of paper. Give each student a number from 1 to 30. Print a topic that your class is currently studying at the top of the paper. Throughout the day, have students take turns (starting with number 1) "drawing on the door" that number of things related to the topic. For example, if the topic is "The Ocean," students could draw one octopus, two whales, three pieces of seaweed, etc. This activity can also be done on a section of the chalkboard using colored chalk or on a whiteboard using colored, erasable markers.

Our Town Countdown

Social Studies

Create a town scrapbook. Start by using heavy paper (8-1/2 by 11 inches) to prepare the thirty pages. At the top of each page, print the title, "Our Town Has," followed by a number from 1 to 30 and an ellipsis (...). For example, the first page will read, "Our Town has 1 ...", the second page will read, "Our Town has 2...", etc. Shuffle the pages and pass them out to either individual students or small student groups.

Offering resources such as local visitors' guides, phone book yellow pages, newspapers, and city maps, ask students to fill each page with appropriate pictures or facts. Encourage a mixture of community information (professions, landmarks, names, etc.).



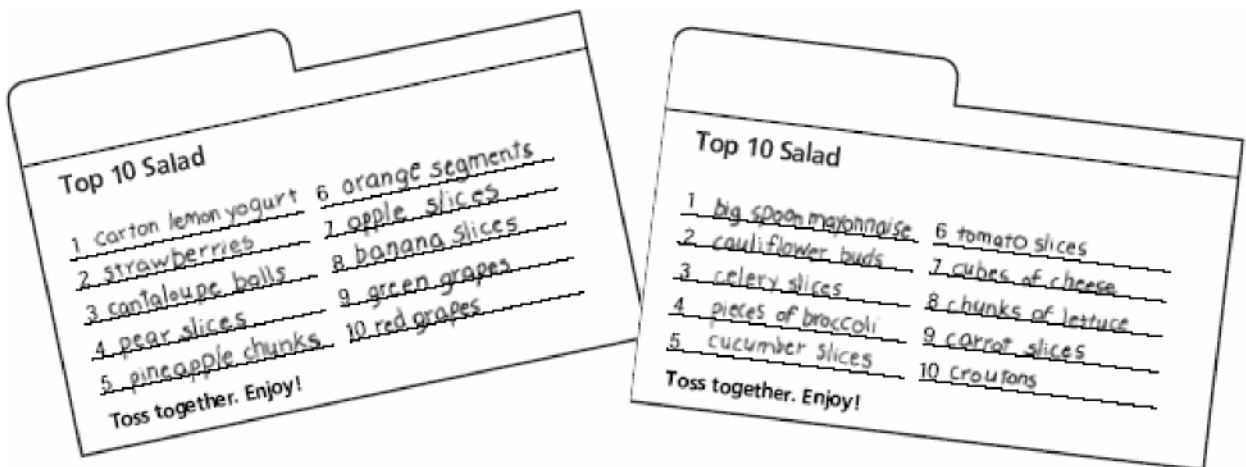
Three-hole punch the completed pages. To conclude the activity, ask the students or student groups to insert their pages in a three-ring binder in the correct order.

Nutrition Numbers

Science

As a culminating activity for the study of nutrition, let students work in groups to make healthy salads. Divide the class into groups of six to eight students. Give each group a copy of page 85. Work with the groups, deciding and writing down what will go into their salads. Ingredients can include fresh, frozen, dried, or canned foods such as raisins, nuts, nectarines, kiwi, peaches, watermelon, sunflower seeds, onions, green beans, or shoestring potatoes. (Other ingredients are included in the sample recipes shown below.) Each salad will have ten ingredients—one unit of the first ingredient, two units of the second ingredient, etc. Some groups might choose vegetable salads and others fruit salads.

Provide each group with the ingredients (or have them donated from home), a large bowl, a large spoon, a table knife, and a cutting board for slicing ingredients. (You may want to precut ingredients.) Each group will also need a small cup and spoon for each student. After students have washed their hands, each student in the group prepares one ingredient and adds it to the bowl while the other students in the group count aloud. For example, a student adds raisins and counts, “One, two, . . . ten raisins.” Students may need help cutting bananas, carrots, etc., but let them add the pieces to the bowl. When all the ingredients are in the bowl, a student can stir the salad and divide it equally into the cups. Then everyone can enjoy a healthy salad.



If food allergies, school policy, etc. prevent you from doing this activity with real ingredients, groups can make salad collages with pictures they draw themselves or cut from magazines. They can start with a large piece of green paper cut into a giant lettuce leaf and glue on the ingredients as the rest of the students in the group count aloud.

Top 10 Salad

Put in bowl:

1

6

2

7

3

8

4

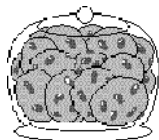
9

5

10

Toss together. Enjoy!

Cookie Factory



Living Cookie Machines

Creative Dramatics

Ask five students to play the following parts:

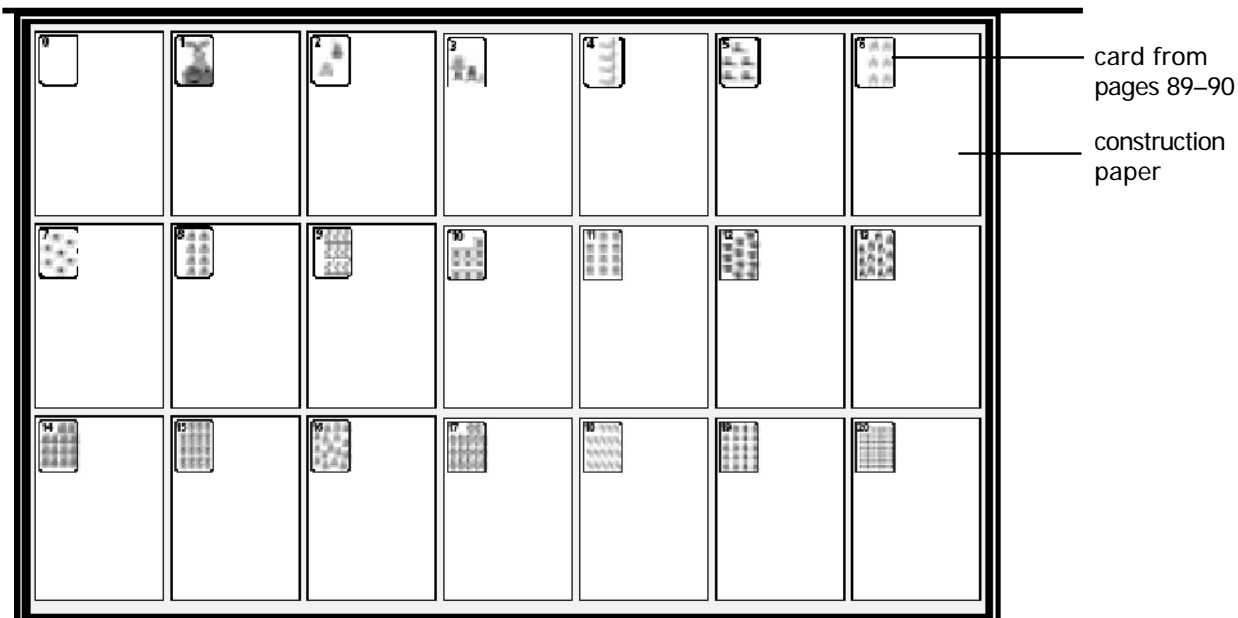
- 1) The cookie pipe that pats out a clay cookie;
- 2) The conveyor belt that receives the cookie and slides it under the dispenser;
- 3) Harley, the horse, who asks for a cookie decorated with a specific number of jelly beans;
- 4) The jelly bean dispenser that counts clay jelly beans as they are dropped onto the cookie;
- 5) The hand that gives the cookie to Harley, who pretends to gobble it up.

Encourage the entire class to provide the sound effects and to count along as jelly beans are dispensed.

It's in the News

Social Studies

Encourage children to start looking at the newspaper even before they can read. Set up a bulletin board using the cards copied from pages 89–90. A suggested arrangement is shown below. Ask students to hunt through old papers (either at home or at school) and circle places where the numerals 0 through 20 are used. Next, they can tear or cut out the example to post on the bulletin board by the corresponding numeral. Allow the clippings to accumulate on the board over several days and then discuss some of the examples of where numerals were used (classified advertisements, diagrams, weather maps, etc.).

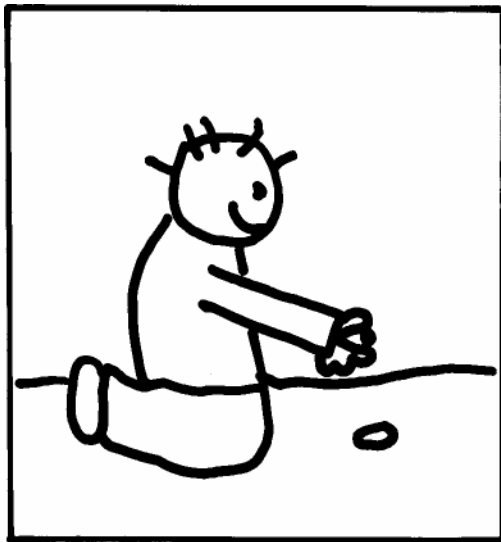


Putting the Cart before the Horse

Science

Cut sheets of drawing paper (9 by 12 inches) into fourths and distribute two pieces to each student. Have students number their sheets "1" and "2." Set the papers aside for a few minutes. As a class, talk about sequence as it relates to science. Make the discussion fun by asking silly questions such as, "Can a flower grow before the seed is planted?" "Can baby birds fly out of the nest before the eggs hatch?" Then talk about what happens first and second. Help students think of other things that must happen in a specific sequence (cooking dinner before eating it; getting the paint and the paper ready before making a painting; building a house before moving into the house; baking a cake before having the birthday party, etc.).

Then have students draw a two-step sequence of an event. Explain that the first thing to happen should be drawn on rectangle 1 and the second on rectangle 2. When students are finished, they can take turns holding their drawings up for the class and asking which comes first and which comes second. The rectangle sets can also be stored in individual envelopes and left on a table for students to enjoy during free time.



Number Relay

Physical Education

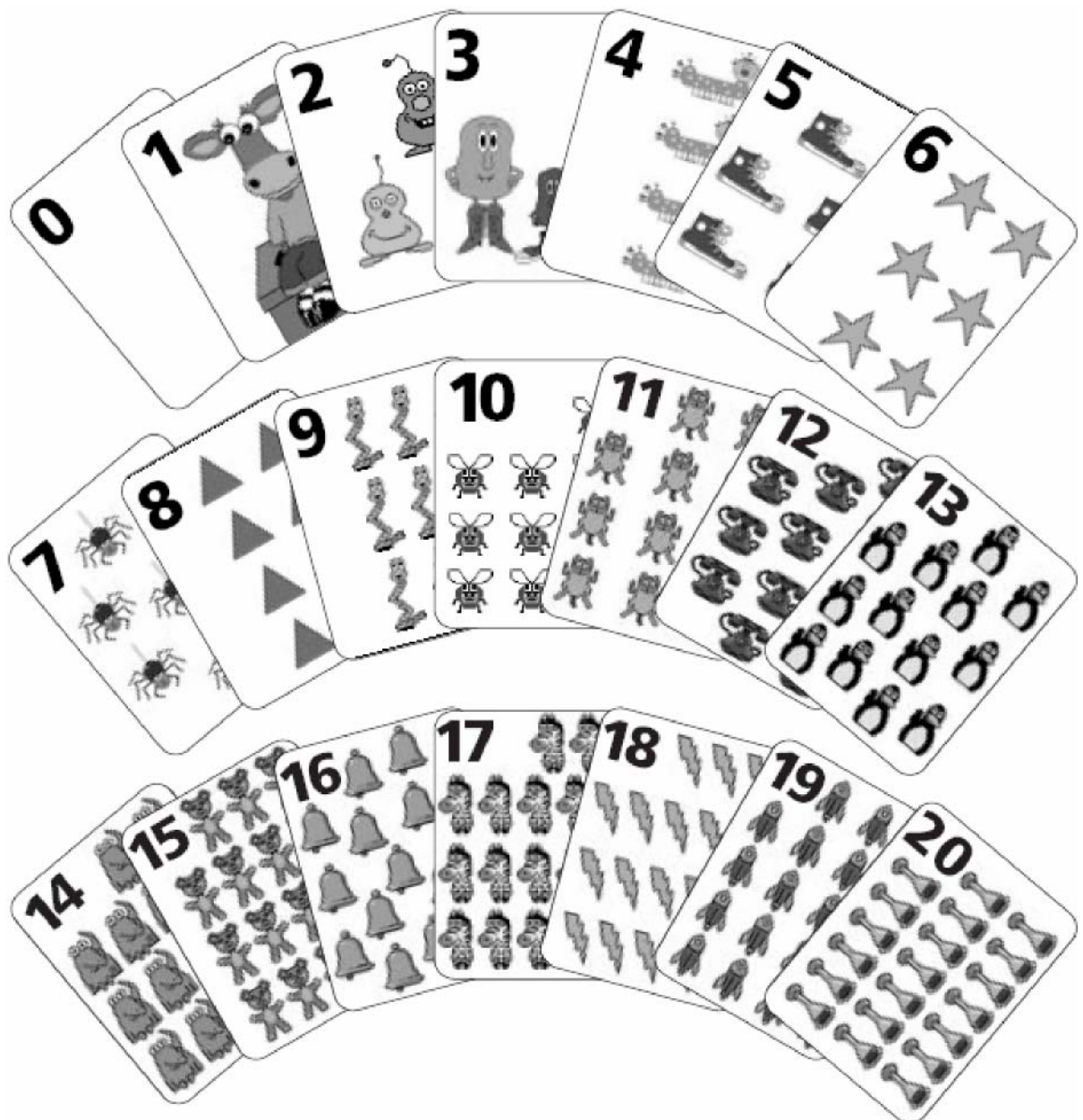
Students can sharpen memory skills while exercising. Divide the class into four groups. Each group sits behind a line in the gymnasium. When the teacher says "go," the first person in each group runs up to another line and says "One shoe" (or whatever object they want to say) and then runs back. The next person in each group runs to the line and says, for example, "One shoe, two bananas." Then the third person says, for example, "One shoe, two bananas, three trucks." A group member who can't remember one of the objects must run back and bring the person who had that particular number to the line; then they say the list together. The first group to reach 10 wins.

Old Millie

Problem Solving

Many familiar card games require players to analyze data, anticipate moves, and practice memory techniques. Use Millie's Deck to play some of these games. Make two copies of pages 89–90 on the heaviest paper your copier will accommodate. If possible, laminate the paper. Cut the cards apart. To play "Old Millie," remove one of the cards with Millie's picture (the 1 card). Hand out the rest of the cards to two (or more) students; let them draw and match cards until one student is left with Millie.

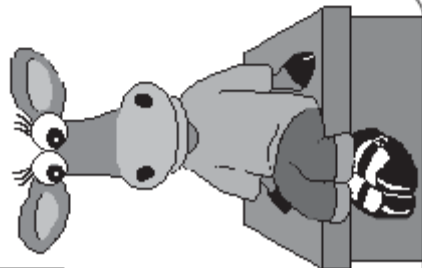
To play another kind of memory game, students turn all cards face down and take turns trying to match cards by turning over two at a time. Students will be able to play other familiar games using Millie's Deck. Also, encourage them to invent new games and teach each other.



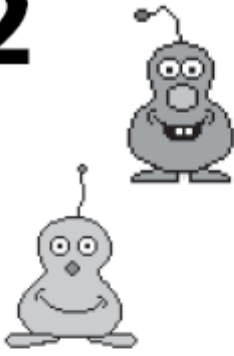
Millie's Deck

0

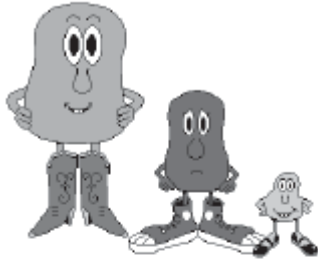
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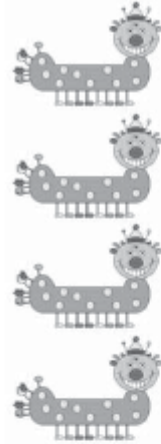
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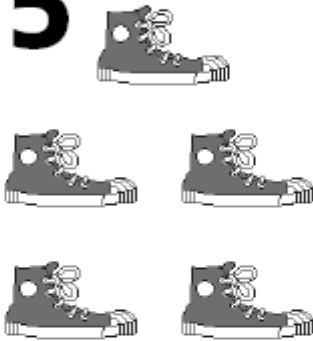
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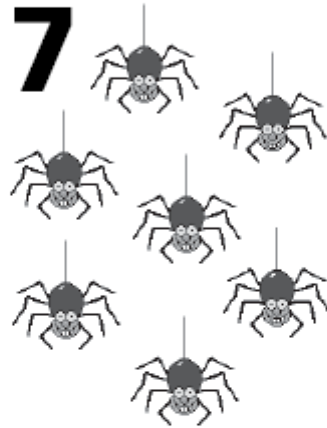
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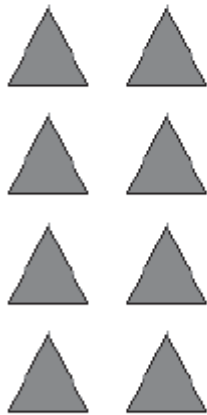
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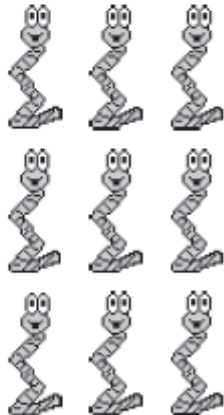
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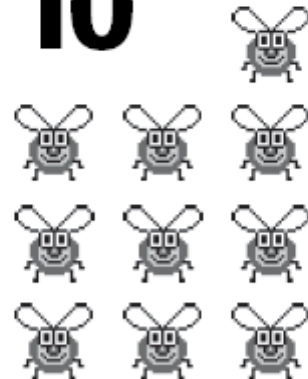
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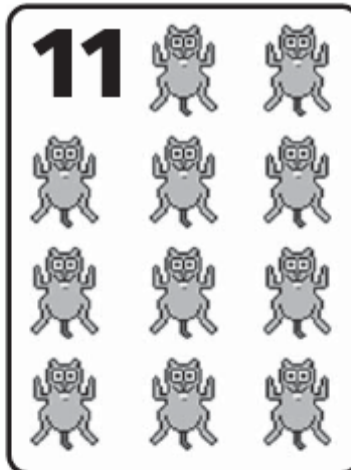
9



10



Millie's Deck



Alien Astronauts



Animal Life Styles

Science

Imagine a woodland or city park. What animals might live there? Where would you find them? Discuss the characteristics of a natural park with the students. Have them talk about the human-made and natural structure, the kinds of plants, and other features one might find at the park. Give the students a chance to create a large mural of the park that they have described.

Next, provide copies of the animal pictures on page 94 for each student. Have them color and cut out the animals. Next, students should place the pictures on the mural in the places they think you would be most likely to see each one. (Double-sided tape works great.)

When the animals are all in place, ask the students what they see and what they have learned. They might describe the characteristics of the animals and why they are found where they are. Animals can be sorted by size, by physical characteristic, by ecological niche (where they are found in the park), behavior, or any other characteristic that they children feel is important. You might have the students count each animal and make a chart or graph showing the results.

Where Do the Animals Live?

Science

Make copies of pages 95 (farm background), 96 (zoo background), and 97 (animals). You will need one set for each student in class. Have students color the backgrounds and animals. Then students should cut out all the animals, sort them, and paste them in the correct "home." Have a discussion about the types of animals that belong in a zoo, versus the type of animals that would live on a farm.

While children are finishing their worksheets, print out extra copies of page 97. Post two large sheets of heavy paper and have the class create one pictograph showing farm animals and zoo animals. Then sort the animals by size and create another pictograph showing large animals and small animals. Encourage the students to talk about the location of the animals, and sort and count the animals. This will reinforce their mathematical thinking. Encourage students to talk through the placement of animals and count animals when the pictograph is completed to reinforce mathematical thinking.

Bean Counter

Mathematics

What kinds of beans are there? Show the students a package of dry bean soup beans. Ask them how many different beans are there. Pass the bag(s) around the class. Be sure to warn the students to be very careful of the bag so it does not break.

Working in pairs or small groups and with trays to hold the beans, students sort the beans and record the number that they discover. The numbers are collected from all groups and entered on a chart or graph for all to see. Discuss what the students have learned about beans from this activity and record the results on a chart.

As an extension, place individual types of beans in small opaque cans or plastic jars. Have the students shake the jars and listen to the sounds. See if they can rank the size of the beans by the sounds that they make when shaken.

Graph the Class

Mathematics

Print out several copies of the graph on page 98. If you have the capability, you may want to enlarge these graphs for classroom display. Start with graphing the number of boys and the number of girls in the class, using only two of the bars. Label the increments so that you can accommodate the number of students in the class. Have students help count the number of boys and girls and then color in the bars properly. Discuss how a graph can be a "picture" of the class or any other topic you are counting. You may wish to prepare a graph of the class next to yours and see what the students can learn. They could then visit the class and compare themselves and the graphs.

Have the students decide what other characteristics they would like to study and graph. They might consider their favorite types of pets, or months (seasons of the year needs only four bars) of their birthdays, or number of siblings. You may wish to create a graph of some characteristic (sex of teachers, breakfast foods eaten in a month, students in each grade) and have the students describe what they have learned. Finally, discuss the value of graphing data and what they can show or learn.

What's for Dinner?

Science

Talk to students about the foods that they need to stay healthy: fruits, vegetables, grains, milk products, and meat and beans. Display a list of foods in these five groups on the board. Explain why these foods are more important than sweets and "junk" foods, which should be eaten only in small amounts. Hand out copies of page 99 and show children the food pyramid. Hand out magazines and ask students to find and cut out pictures of good foods in each category. (Make sure that blunt scissors are used.) Have the students sort the foods into the five food groups. You might wish to have a "junk" food group so students can discover just how many ads are for processed foods.

Students can then paste food pictures into the pyramid in the correct sections. Alternately, they may draw pictures of food directly on the sheet. Have them circle their favorite food in each category.

What's Different?

Problem Solving

Talk to the class about the importance of paying close attention and looking at details. Bring out a tray (prepared ahead of class) containing about a dozen articles commonly found in the classroom, such as scissors, pencil, eraser, paper clip, small tablet, pen, crayon, and so on. Walk slowly around the classroom and tell each student to look carefully at the tray. Then put the tray away and ask students to name things that they saw on the tray. Try the experiment again, changing the articles slightly. Can the students tell you what was different the second time? Then hand out copies of page 100 and ask students to look at the two versions of the picture, circling six differences on the right side. The picture shows two similar versions of a "busy" scene. The version on the right side should have six items not present on the left.

Word Graph

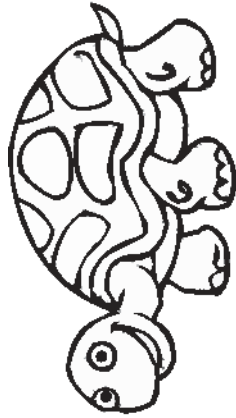
Language Arts/Problem Solving

Use data (information) to complete a graph. Construct a large blank graph on the chalkboard, whiteboard, or large chart paper. Name the graph, "Word Graph." The x-axis (the vertical line) should be labeled "Number." The y-axis (the horizontal line) should be labeled "Kinds" and have three places for bars: color, shape, and size. Write the following words on cards: yellow, blue, red, green, purple, orange, circle, square, triangle, diamond, rectangle, tiny, small, medium, and large.

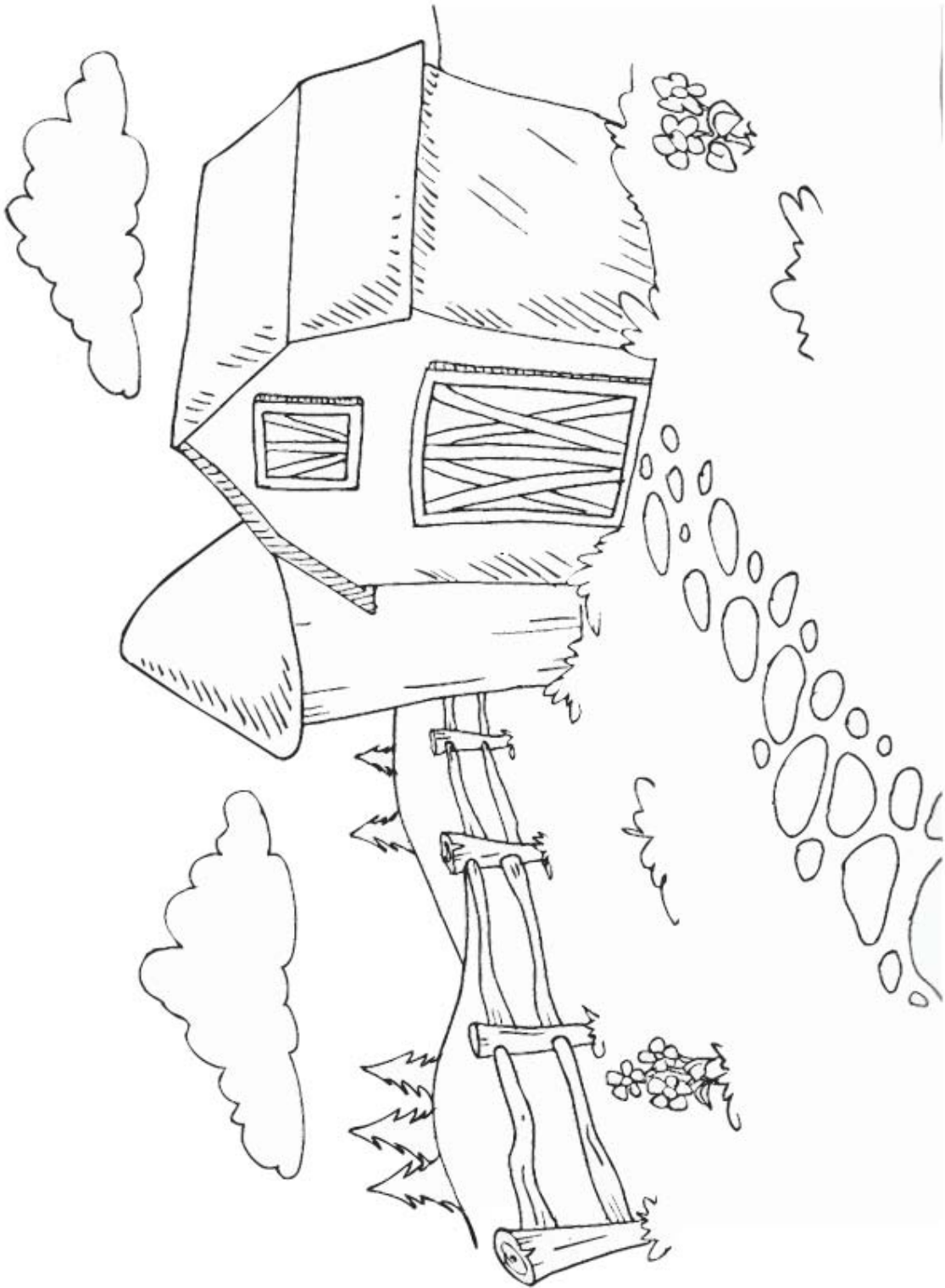
Have students select a card and place it on the graph on the appropriate bar with tape. When all cards are in place, discuss the results with the students. What have they learned from the graph?

To continue the activity, post another blank graph and have the students list words and topics they want to examine. Some suggestions might include people, places, animals, pets, and/or foods. The x-axis should always represent the number of each category and the y-axis contains the topics or groups.

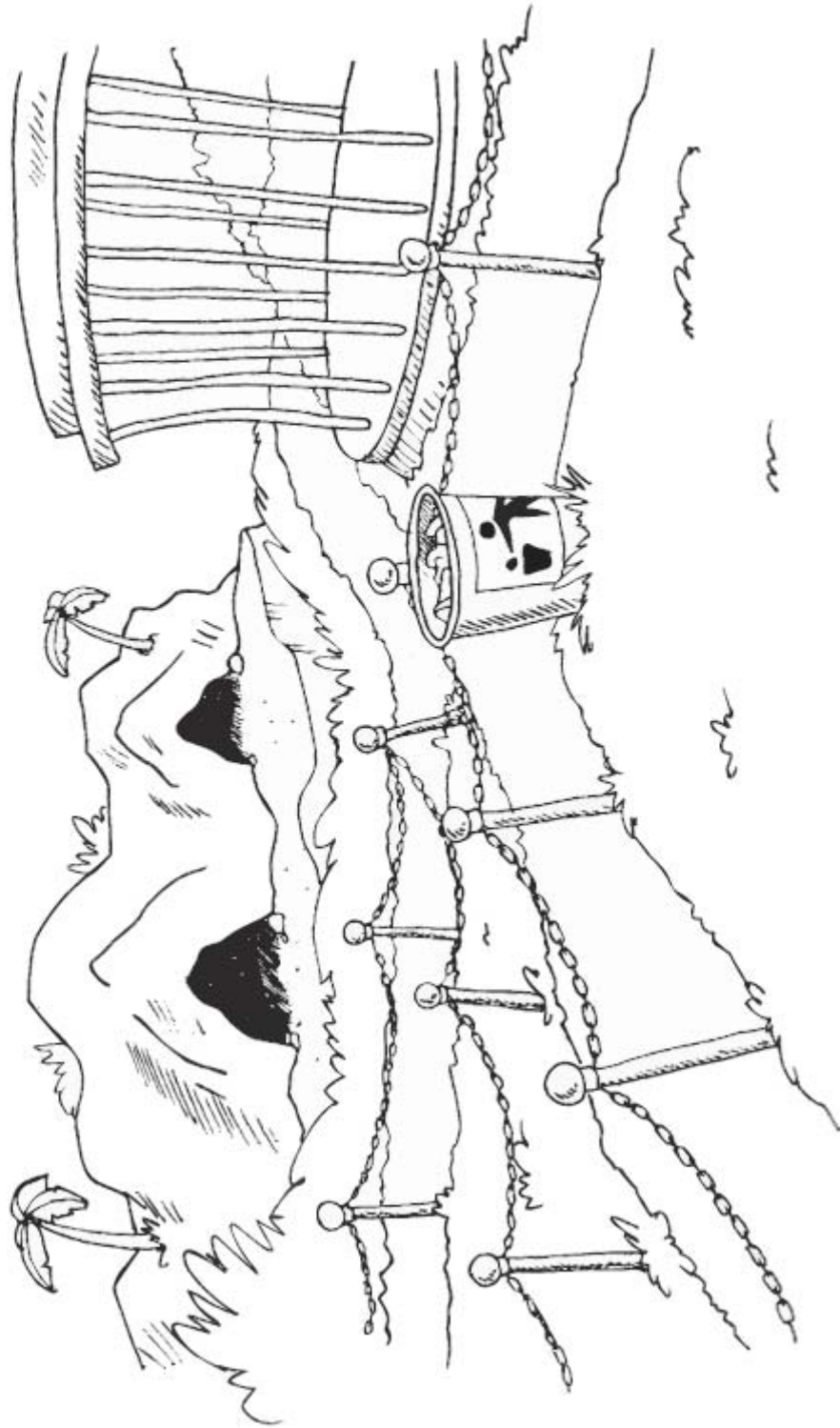
Animals in a Park



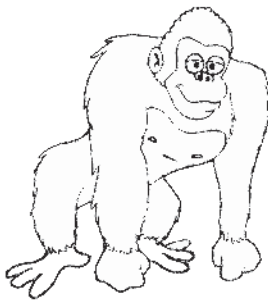
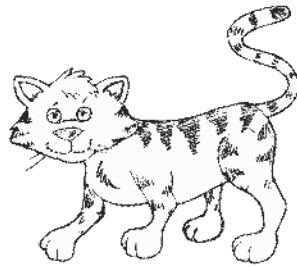
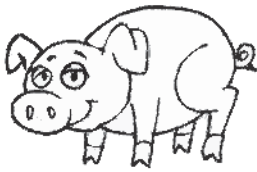
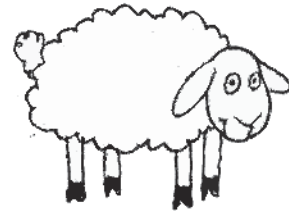
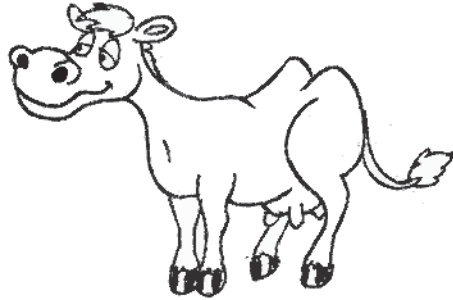
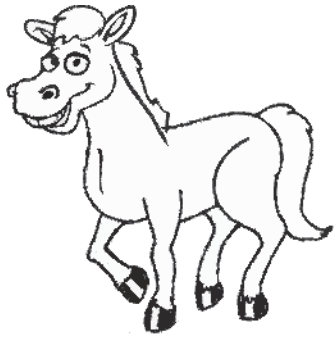
Farm Background



Zoo Background

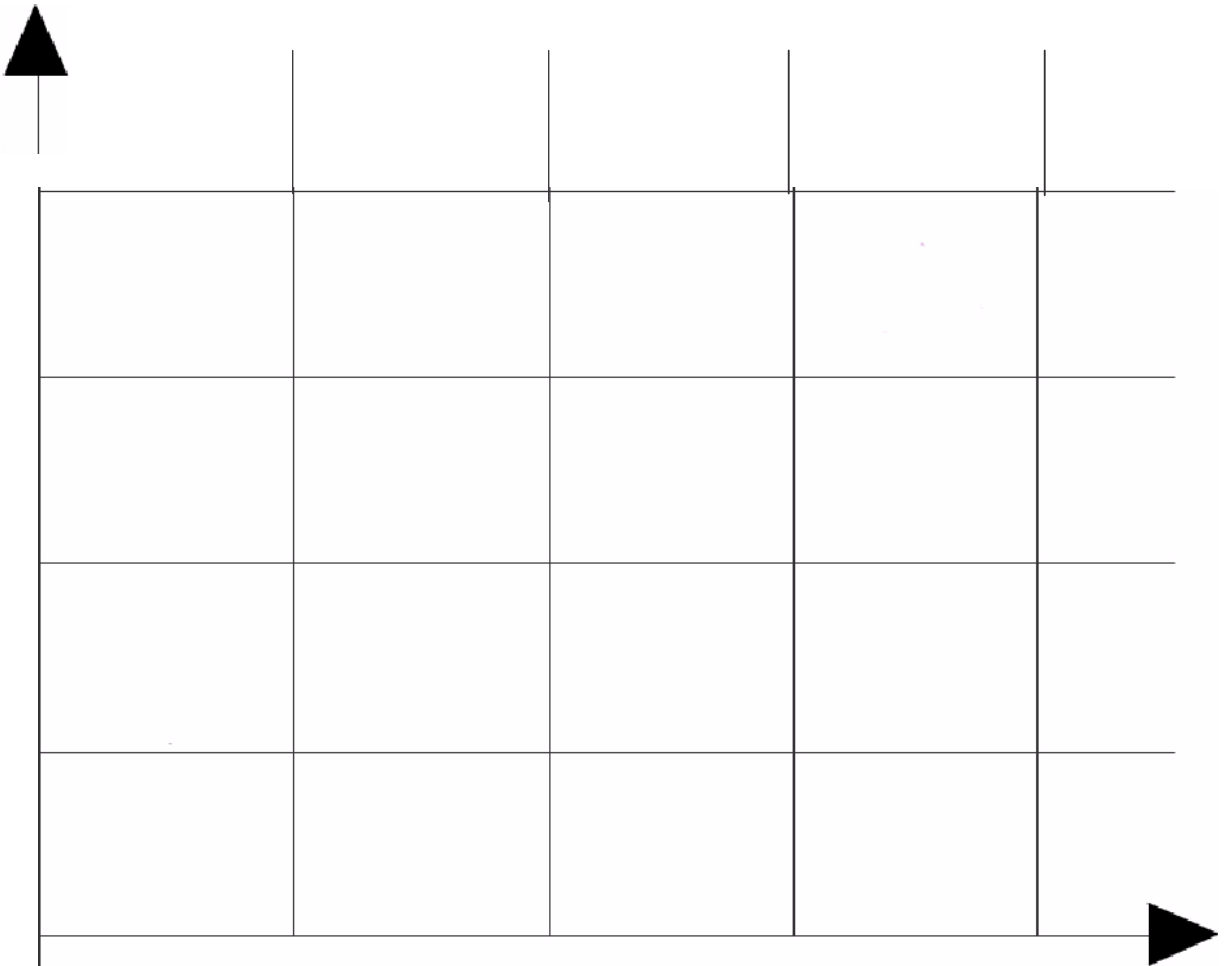


Farm and Zoo Animals



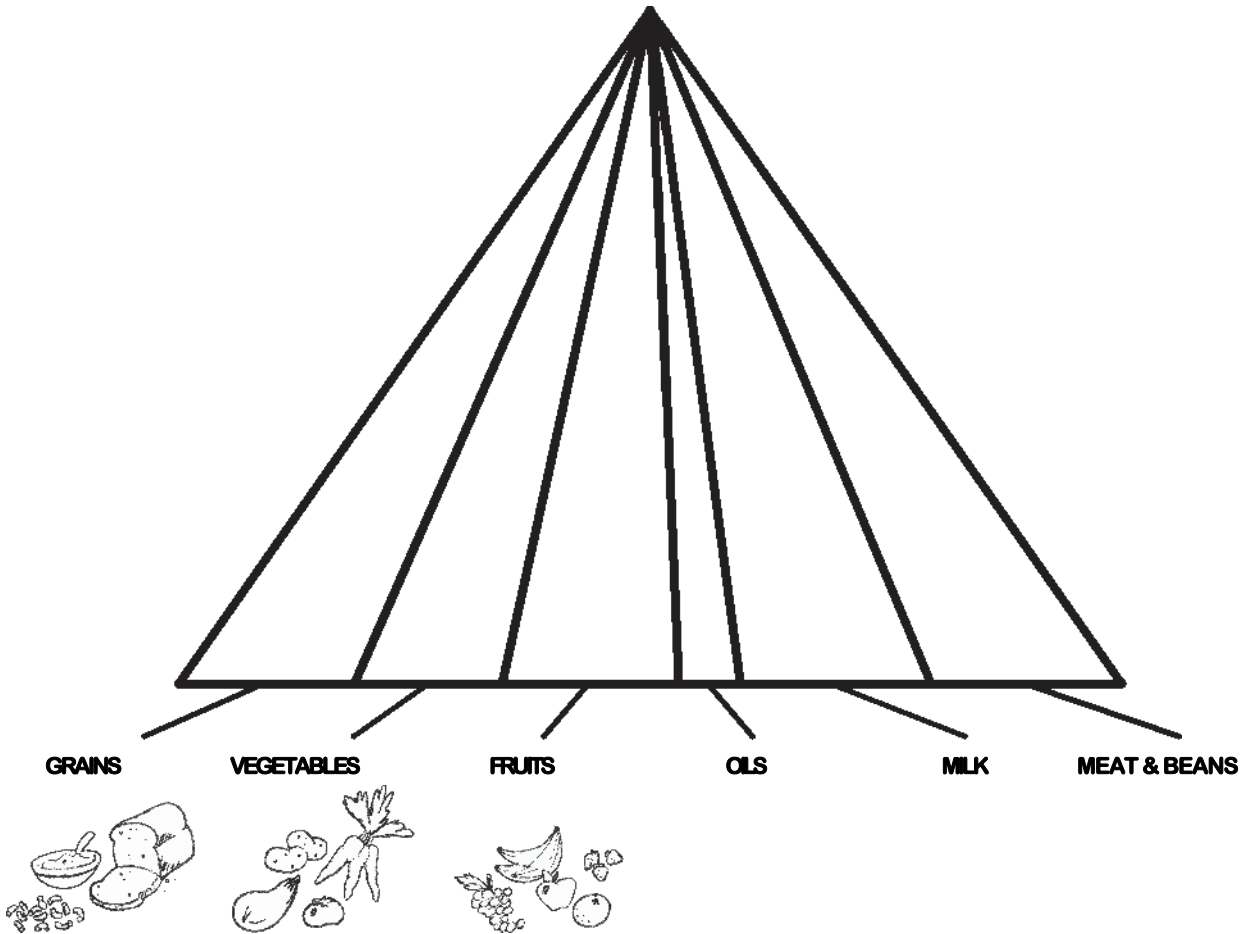
Use with "Where Do the Animals Live?" (page 91).

Graph



Use with "Graph the Class" (page 92).

Food Pyramid



Use with "What's for Dinner?" (page 92).

What's Different?



Use with "What's Different?" (page 92).

Paint by Number



Number Line Walk

Physical Education

Take 20 sheets of paper (8-1/2 x 11 inches) and number them one through twenty, writing a large number on each one in black marker. Place the sheets in order to make a path around your classroom floor. Tape them down, if necessary. Take advantage of any existing tile marks, carpet squares, or other natural patterns as you place the numbers. Be sure to place the numbers at the appropriate width for a young child's stride (considering the length between even numbers) and avoid the danger of slippage by having them step next to the numbers.

Ask students to walk the number line, counting aloud as they step next to each number. Then ask them to walk the line counting by twos, stepping on the even numbers and skipping over the odd numbers. They will be stepping on, and saying, 2, 4, 6, 8, etc. If weather and school policies allow, try this activity in an outdoor reaction area by using biodegradable chalk to mark numbers and squares.

Making Change

Mathematics

Hand out copies of the change pictures on page 104 and explain that students will be learning to make change. Ask students to color and cut out the pennies and nickels on the worksheet. Remind students of your classroom scissor safety rules. Review skip counting by fives and demonstrate how to use the nickels and pennies to practice counting by ones and skip counting by fives. Lead the class in a group skip counting exercise using the nickels. Call out a specific number such as 25, and have students stack their paper nickels as they count aloud "5, 10, 15, 20, 25." Repeat this process for skip counting by tens. After this practice session, students could set up a little "store" in the classroom and use their coins to practice counting.

Write a Cheer

Music

Practice skip counting using rhymes, songs, cheers, and chants. Sing familiar songs like "One, Two, Buckle My Shoe," "The Ants Go Marching," and other number songs. Then repeat the following cheer for students:

2, 4, 6, 8! Who do we appreciate?

As a class, brainstorm other words that rhyme with eight. Explain to students that they will write out number sequences and brainstorm words that rhyme with the last number to create their own cheers. Then divide students into small groups to write a cheer using counting by ones and skip counting by twos and fives. Begin with counting by ones, using one, two, or three number chants. For example:

1,2,3—Count with me

4,5,6—Counting sticks

7,8,9—Counting time

Then move on to skip counting by twos. For example:

2, 4, 6, 8—Counting things is really great!

10, 12, 14, 16—Count by twos and don't be mean.

18, 20, 22, 24—We can count and count some more!

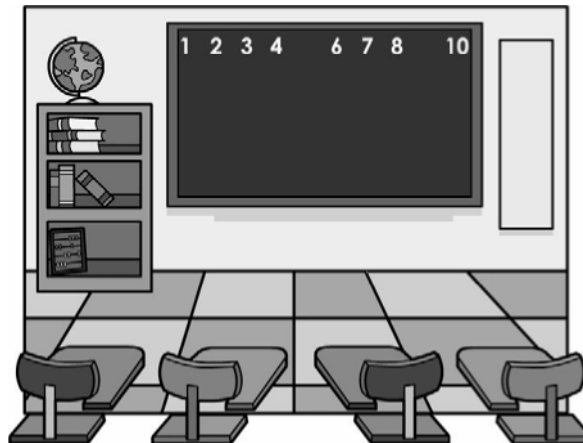
When students are finished, each group can perform their chants for the class. Repeat the cheer brainstorm and performances to practice skip counting by fives.

Fill in the Blanks

Problem Solving

To prepare, take 10 large sheets of construction paper and write the numbers 1 through 10 on them as large as possible in heavy black marker. Make another set of the numbers 1 through 10, keeping this set in reserve. Line up one set of numbers in order on the ledge of the whiteboard (or post them on a bulletin board). Talk about the number line concept. Then have the students close their eyes or put their heads down on their desks. Remove one number and have students open their eyes and then ask them which number is missing. After practicing this several times with the whole class, you are ready to begin the game.

Put all the numbers from the second set on a table near the number line. Have students close their eyes and then you remove two numbers from the number line, placing them on the table with all the extra numbers. Choose one student to come up, find the missing numbers and place them on the number line. Ask the remaining students if the number line is now complete and correct. Continue the game, giving each student a turn. As students gain more confidence, you can remove three or four numbers from the line.



Hand Prints

Art

Set up finger painting materials for the class and review the classroom rules for finger painting to ensure students avoid getting paint their clothes or other items. Provide large sheets of paper. Make a single hand print and a print of both hands. By counting hands and fingers, demonstrate that you can count the print as 1 finger, 2 hands or 2 fingers, or 5 fingers (single hand). Have the class use the paints and large sheets of paper to create hand prints in different colors. When the painting is complete and dry, pin it up for the class to see. As a class, practice counting by ones, twos, and fives for each color using the colorful hand prints on the paper. Invite different students to practice counting. You may need to demonstrate first by counting red fingers (counting by ones), red hands (counting by twos), then red hands (counting by fives).



Body Pairs

Science

Apply skip counting by two to a lesson on the parts of the human body. Challenge students to list things about themselves that can be counted by twos, fives, or tens. Call on students one at a time for ideas. If the class needs prompting, consider the following list:

Twos: eyes, ears, arms, legs

Fives: left fingers, left toes, right fingers, right toes

Encourage the class to think of as many parts of their body that they can (nostrils, fingernails, elbows, knees, and so on).

Remind students that many people have disabilities that make their bodies different—some people have one arm or one eye—and reinforce the importance of valuing diversity and appreciating differences.

Making Change



Notes

System Requirements

Windows®

- Operating System: Windows 98 SE, Windows 2000, XP Home, XP Professional (with latest Service Packs)
- CPU: Pentium III 733 Mhz or better
- Hard Drive: 100 MB free
- RAM: Minimum 128 MB
- Graphic Card: 800 x 600 Hi Color 16-bit (thousands of colors) or higher
- Network Card: 10Base-T or better
- Sound Card: SoundBlaster 16 or compatible (Headphones recommended)

Optional

- Printer
- Touch Window

Macintosh®

- Operating System: OSX 10.2, 10.3, 10.4, or higher
- CPU: iMAC PPC 750-400 MHz or PowerMac G4-350-Mhz
- Hard Drive: 100 MB free
- RAM: 128 MB
- Graphic Card: 800 x 600 Hi Color 16-bit (thousands of colors)
- Network Card: 10Base-T or better
- Sound Card: Standard Macintosh Sound (Headphones recommended)



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