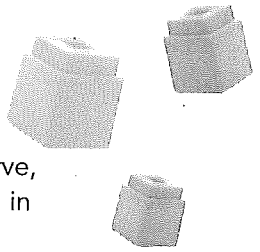
Counting throughout the Day



There are many opportunities for children to count throughout the day as they observe, record, or sort quantities. To continue practicing and applying the skills discussed in this section, children can

- count as part of indoor play (how many blocks they can stack before a tower falls, how many flowers they draw in their picture)
- help set a table with the appropriate number of place settings
- pick out a certain number of grocery items in the role-playing area
- count the number of items each child gets for snack
- sing and act out number songs, poems, and finger plays
- clap the syllables in their names or in other words of interest
- listen to number-related stories. Adults should frequently ask number-related questions during reading time, such as, "I wonder which picture has more bears in it?"
- practice dialing a telephone number in the role-playing area
- count possessions or personal collections of objects
- use a calendar, noticing the numbers on it, the number of days until an important event, etc.
- compare birthdays or how old they are in relation to other members of their family
- count coins
- count steps, jumps, number of turns taken
- march and clap rhythms with different numbers of beats
- notice numbers at home and in the community (in stores, menus, street numbers, phone numbers, newspapers, ball players' jerseys)
- notice quantities while on a neighborhood walk (the number of windows in a house, the number of trees in a yard, the number of birds in a tree). On occasion, this can be extended into a clipboard scavenger hunt for which children decide ahead of time what items to look for on their walk, and then have the teacher record a tally mark each time they spot an item
- gather materials during a nature walk (flower blossoms, leaf branches, acorn clusters). Later, they can count how many of each type they have gathered, or look closely at some other aspect of the objects gathered that involves quantity (the number of petals on a flower, the leaves per cluster on a stem, the seeds in a pod)
- count other aspects of interest while exploring the outdoor play area (the number of pill bugs under a rock, the number of worms on a square of sidewalk, the number of times they can dribble a ball or jump over a rope without missing)

SUPER FAB LAB INVESTIGATION:

Charts

Episode: The Sticker Chart
Cycle: Tools & Measurement

PLEASE NOTE: This is a printable activity that relates to the "Super Fab Lab" that Miss Susie performs with Sid and his classmates on the show. This activity has been modified for home or school use.

Purpose (What We're Going to Explore and Learn)

- Charts allow us to display information using pictures and, sometimes, words.
- We're going to collect data in your classroom or home, then display it on a chart.

Materials (The Stuff We Need)

- A large piece of paper or posterboard
- Crayons, colored pencils, or markers
- If you're doing this at home, you'll need to find a few people willing to talk about their favorite fruit or vegetable
- Photos of each person (optional)

Procedure (What to Do)

1. Draw a line down the middle of the paper, from top to bottom.
2. Draw or paste a photo of each person in the first column. You can also write names if those are meaningful to children. Use both names and pictures for children who don't read yet.
3. Ask each person to name their favorite fruit (or vegetable). Feel free to limit people's choices to fruits that are easy to draw!
4. Across from each person's picture or name, draw a picture of that fruit.
5. Have children think of a title or name for your chart. "Our Favorite Fruits" is one possibility.
6. Go over the data with children. Ask questions about different people and their favorites so that children can practice reading the chart.

Other Stuff You Might Want to Know or Do

- Depending on the data you collected, you can bring math into your discussion. For example, you can talk about how many people like bananas or whether more people like grapes or apples.
- This is a very simple example of a chart, but the thinking required is useful when kids start encountering more complicated graphs.
- Look for examples of charts in the world around you. Talk to children about the kind of information each one displays. You don't have to go into a whole lot of detail. The main idea is to give children examples of how charts are useful in everyday life.

SUPER FAB LAB INVESTIGATION:

Magnification Observation

Episode: The Rolie Polie
Cycle: Tools & Measurement

PLEASE NOTE: This is a printable activity that relates to the "Super Fab Lab" that Miss Susie performs with Sid and his classmates on the show. This activity has been modified for home or school use.

Purpose (What We're Going to Explore and Learn)

- We're going to learn about using magnifying glasses.
- We'll use them to observe things that are too tiny to see with our eyes alone.

Materials (The Stuff We Need)

- Magnifying glasses
- Objects with tiny parts or details that are difficult to see such as leaves, flowers, shells, etc.

Procedure (What to Do)

1. If children haven't used a magnifying glass before, we can almost guarantee that they'll need some time to just play around with it. Kids love just "making things bigger" without worrying too much about how that helps them observe in new ways. Grab your own magnifying glass and join the fun.
2. Eventually, you can begin to focus the exploration. Find something that would be hard to see with out the magnifier. The patterns on your fingertips are a good example. Can your child see something new with the magnifying glass?
3. As you and the children observe the patterns on the ends of your fingers, compare and contrast what you observe with and without the magnifiers.
4. Observe some of the other hard-to-see items and patterns. Describe what you see.

Other Stuff You Might Want to Know or Do

- Inexpensive magnifying glasses can be found at toy stores, school supply outlets, and general merchandise stores.
- Use descriptive language to talk about what you are observing. Encourage children to do so, too.
- Children can record what they've observed in their journals.

SUPER FAB LAB INVESTIGATION:

Texture Hunt

Episode: The Itchy Tag
Cycle: Senses

Purpose (What We're Going to Explore and Learn)

- We're going on a texture hunt. We'll be using our sense of touch to find and feel different textures.
- Along the way, we'll use a lot of descriptive vocabulary-words like bumpy, scratchy, smooth, soft, silky...

Materials (The Stuff We Need)

- Things that are different textures to use as examples
- Sticky notes
- Pencils, crayons, or markers

Procedure (What to Do)

1. Explain to children that they will use their skin to feel various textures. They are going to try to find things that are bumpy, smooth, scratchy, and so on.
2. Pass around items that are examples of different textures. Ask children to describe how they feel.
3. If you are doing this in the classroom, have each child go on a texture hunt to find something interesting. They can leave a sticky note with their name (or some other mark that they make) on it. When they all return to the circle, they can report on the object they found and describe how it felt. If the object is small, you might pass it around so every child can feel it. For large items, wait until the end of group time, then go together to feel those items.
4. If you're doing this at home, just go around the house or yard with your child. Find objects with interesting textures. Describe what you are feeling.
5. Compare textures. "Is this rock smoother than that one? Is this tree bark bumpier than that tree bark? What is the softest thing we found?" You can also contrast textures. "Which of these things is bumpy? Which one is smooth?"

Other Stuff You Might Want to Know or Do

- Expand children's texture vocabulary by introducing examples that they might not have found. For example, a bristle block or a hairbrush are examples of prickly. Silk and satin material are silky and smooth.
- Our skin also gives us information about the temperature of objects and whether they are wet or dry. Explore these special capabilities of the skin, too. Be sure to use lots of descriptive words to talk about your observations.
- Remind children that we have skin all over our bodies. They can make observations using the skin on their arms, legs, backs, and cheeks, not just their hands.

SUPER FAB LAB INVESTIGATION:

Sound Garden

Episode: Too Much Noise!
Cycle: Senses

Purpose (What We're Going to Explore and Learn)

- Let's make some noise! We're going to make a sound garden filled with lots of different, great sounds.
- We'll compare and contrast the sounds made by different materials. We'll also explore loud and soft sounds.

Materials (The Stuff We Need)

- Plastic things to play and play with—bowls, buckets, foodsavers, big spoons
- Wooden things-blocks, bowls, spoons
- Metal things-bowls, pails, pots, pans, spoons

Procedure (What to Do)

1. Group items by material. Ask children if they know what the things in each pile are made out of. If they do not, provide the words for them.
2. Start by letting kids "play" the plastic items with a big plastic spoon. What does plastic sound like? It might be hard to describe in words so it's ok to just listen. Try making a loud sound. Now try to make a soft one.
3. Now use a wooden spoon to play some of the wooden items. Does wood sound different from plastic? Can you make a loud sound? Can you make a soft one?
4. Finally, play the metal things with a metal utensil. Does the sound remind you of anything? Does it sound different than the plastic and wood?
5. Now play around with different kinds of spoons and "instruments." Make sure no one's napping nearby, then have fun!

Other Stuff You Might Want to Know or Do

- Preschoolers sometimes have difficulty identifying the material an object is made from. In this activity, material is highlighted because each kind makes a distinct kind of sound. Be sure to use the labels for the materials and encourage children to use them, too.
- You could extend this activity by playing an "instrument" that children can't see. Without looking at the instrument, can they tell what it is made out of just by listening?
- Remind children that some things are not safe to play with in this way. Glass bowls, for example, could break. Let them know that it's really important to ask an adult to help them play sound garden.

SUPER FAB LAB INVESTIGATION:

Move It!

Episode: Must See TV!
Cycle: Health

Purpose (What We're Going to Explore and Learn)

- We're going to observe how exercise changes our heartbeat.
- First, we'll feel and listen to our hearts while we're sitting still. Then we'll move around - A LOT! Finally, we'll observe our heartbeats again to contrast them before and after exercise.

Materials (The Stuff We Need)

- Space to exercise
- Stethoscopes or plastic cups to listen to each others' hearts (optional)

Procedure (What to Do)

1. Have children put their hands on their own hearts to try to feel the beats. If you have stethoscopes, children can listen to their heartbeats, too. If not, they can use the cup (open side towards the chest) or just their ears to listen to a partner's heart. Let children try to describe what they see and feel.
2. Have the children exercise. They can do jumping jacks, run around the playground, anything safe that gets them moving.
3. Observe heartbeats again. Children's descriptions of what they observe will probably include comparison words like faster/slower and louder/softer.

Other Stuff You Might Want to Know or Do

- You can also talk about what happens to your breathing as you exercise. We've dedicated a whole Sid show to our amazing lungs later in the season.

- You might not think of it this way, but there's math in this activity. When children describe their heart rates (faster, slower) and the loudness (louder, quieter) of them, they are using simple measurement terms. Formal understanding of more precise ways to measure rate (miles per hour, perhaps) or loudness (decibels) builds on children's informal understandings of more and less, faster and slower, and louder and softer.

SUPER FAB LAB INVESTIGATION:

Dirt Detectives

Episode: The Dirt on Dirt
Cycle: Backyard Science

Purpose (What We're Going to Explore and Learn)

- What's the dirt on dirt? Do things live in dirt? What IS dirt anyway? In this investigation, we check out different kinds of dirt to explore these questions.
- We're going to compare and contrast dirt from different places. Is all soil the same?

Materials (The Stuff We Need)

- Trays or plates (plastic or paper)
- Trowels or small shovels
- Dirt from different places
- Magnifying glasses (optional)

Procedure (What to Do)

1. Give each child a tray and a trowel.
2. Let children know where it is ok to dig, then let them each get a sample of soil. If you are doing this with one child, get samples from multiple places. Be sure to remember where you found your dirt. You could also have children draw where they found their sample or write it down for them.
3. Ask children to describe their soil. What does it look like? How does it feel? Use the magnifying glasses to get a closer look.
4. Compare and contrast soil from different places. Does all soil look the same? Feel the same? Have the same things in it?
5. Don't forget to wash your hands when you are done observing the soil put on a pair of rubber gloves before beginning the experiment.

Other Stuff You Might Want to Know or Do

- This activity lends itself well to very careful observation and description. Most soil is brown, but is it all the same shade of brown? Do all the little pieces that make up dirt look like they are the same thing? You could see bits of leaves, very small pebbles, and sand.
- Before you do the activity, you might want to predict what you will see and find when you observe soil. After the activity, check your predictions. Did you find anything you didn't expect?
- Through this activity we find that there's more in dirt than we might have imagined. Even though there are lots of great things in dirt, certain things don't belong there. You might want to use this activity to talk with children about our role in keeping the earth clean.

SUPER FAB LAB INVESTIGATION:

Leaf Investigators

Episode: Don't Forget the Leaves
Cycle: Backyard Science

Purpose (What We're Going to Explore and Learn)

- In this investigation, we gather all kinds of leaves. We use lots of great adjectives to describe the leaves we are observing.
- We use our categorization skills to sort the leaves by shape, color, and size.

Materials (The Stuff We Need)

- Leaves that we gather
- Small bags for leaves
- Magnifying glasses (optional)

Procedure (What to Do)

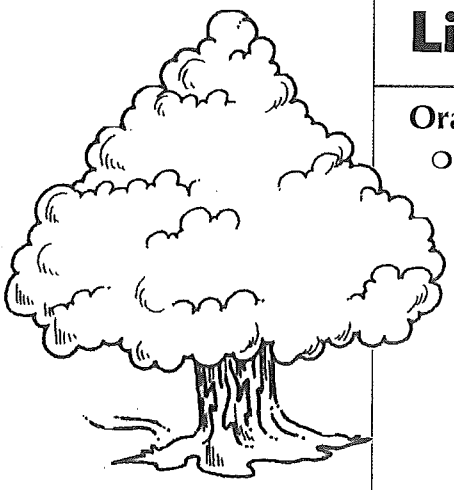
1. Talk to children about the leaves that are okay to pick. (You might limit them to leaves on the ground or leaves from large plants that won't be damaged by losing a leaf or two.)
2. Encourage children to try to find leaves that are different shapes, sizes, and colors.
3. When children have gathered their leaves, bring them back together to observe what everyone found. Have each child choose a leaf to describe. What color is it? Can you describe the shape? Is it pointy? Round? How does it feel? Is it smooth? Bumpy? Rough?
4. Sort the leaves by color. (You might choose a smaller group of leaves if children have collected a lot of them.) Now re-sort the leaves by size. Can you think of other ways to sort them?
5. Don't forget to wash your hands when you are done observing the leaves.

Other Stuff You Might Want to Know or Do

- In addition to sorting leaves, you can practice math skills by making patterns with the leaves (such as green, brown, green, brown) or by arranging them from smallest to largest. Can you think of more patterns to make with the leaves?
- This is a great journaling activity. Children can draw their favorite leaves, and adults can write down kids' descriptions.
- Choose a few leaves to investigate further. Do research using books or the Internet to identify your leaves.

Did You Know?

- "The Green Grass Grew All Around" is cumulative text and uses predictable language. It is also an echo song, which means children repeat each line after it is sung.
- During the breeding season, a nest is the environment in which birds' eggs develop. Some birds do not build nests, but instead lay their eggs directly on the ground, in a hole, or even on a bare branch. Other birds' nests are elaborate works of architecture.
- Nest size, shape, and building materials vary greatly. The placement and design of nests provide protection from temperature extremes and from predators. Birds instinctively know how to build a nest that is characteristic of their particular species.
- Woodpeckers excavate their nests in tree trunks or branches. These nest cavities offer safety from predators and a comfortable microclimate for their eggs and their young.



Literacy Links

Oral Language

- Have the children make up a last verse about what is in the egg that the bird is sitting on.

Phonological Awareness/Letter Knowledge

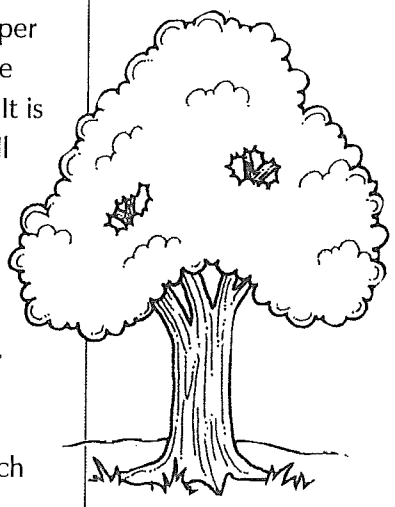
- Print "green grass grew" on chart paper. Ask the children to identify the first two letters in each word. Say the phrase slowly. Ask the children if they hear a repetitive sound at the beginning of each word. Can someone reproduce the sound that he or she hears? It is not important that the children connect the sound to the blend of /gr/ but they should be able to hear the repetitive sound. Point out that the repetition of beginning sounds in a phrase or a sentence is called *alliteration*.

Curriculum Connections

Art

- Provide paintbrushes, easel paper, and green tempera paint. Encourage the children to paint green grass pictures.

- Draw a tree trunk and branches on a large piece of white butcher paper and then paint it. Provide sponges and green tempera paint. Invite the children to use the sponges to make leaf prints on the tree branches. It is not necessary to cut sponges into leaf shapes because the sponges will provide a lacey look that simulates the way trees look at a distance.



Construction

- Provide grass, hay, dried leaves, and coffee filters. Invite the children to glue the grass, hay, and leaves onto the filter to create a bird's nest.

Cooking

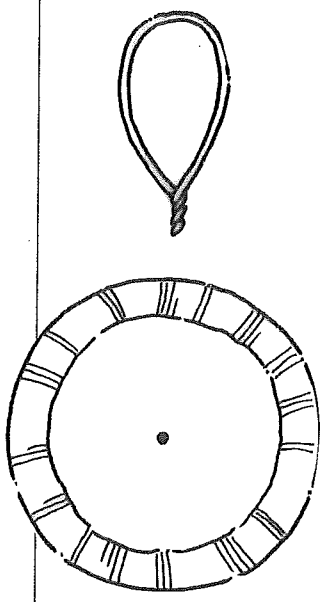
- Invite the children to make candy bird nests. Melt a bag of butterscotch chips in the microwave. Add Chow Mein noodles and mix until the noodles are all coated. Have the children scoop spoonfuls of the mixture and drop them on wax paper. Show them how to press their spoons into the centers of the dropped mixture to create bird's nests. Allow to cool before serving.

Math

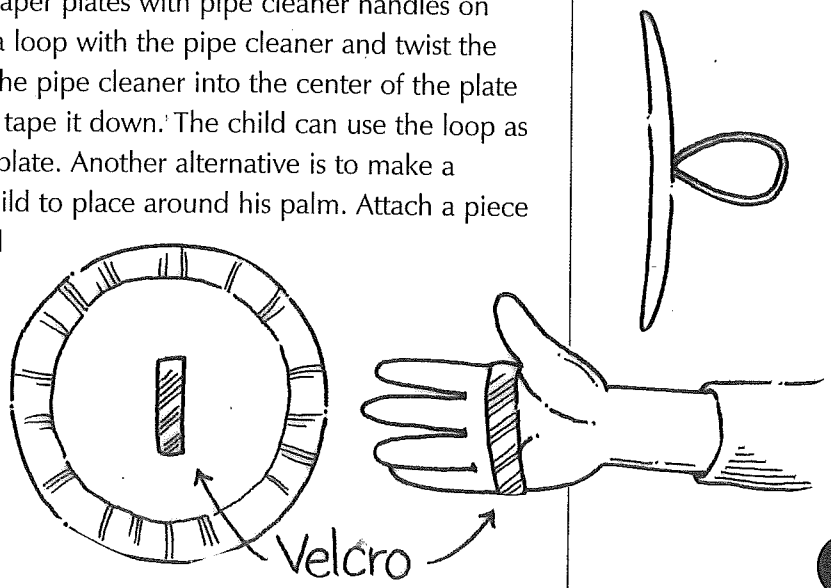
- Fill plastic eggs with objects of different weights. Challenge the children to organize the eggs from the heaviest to the lightest, "weighing" the eggs by holding them in their hands.

Music

- Give the children paper plates to use for wings and encourage them to fly like birds to classical music.



Special Needs Adaptation: It may be difficult for children with limited motor skills to participate in activities that require diverse movements. Adapt the paper plates with pipe cleaner handles on each paper plate. Make a loop with the pipe cleaner and twist the bottoms together. Insert the pipe cleaner into the center of the plate through a small hole and tape it down. The child can use the loop as a handle for holding the plate. Another alternative is to make a Velcro bracelet for the child to place around his palm. Attach a piece of Velcro to the plate and have the child attach the plate to his bracelet. He can move with the music without being concerned about holding on to the plate.



Book Corner

re You My Mother?
by P.D. Eastman

aby Bird's First Nest
by Frank Asch

here Was an Old Lady Who Swallowed a Fly
by Simms Taback

his Is the House That Jack Built by Simms Taback

Science

- ○ Locate a real bird's nest and place it in the science center for observation. If a real nest cannot be found, provide photos of birds' nests.
- ○ Provide leaves, paper, and crayons. Encourage the children to make leaf rubbings.

Writing

- ○ Provide feathers, small branches, and tempera paint. Show the children how to use the feathers and the branches as writing tools by dipping them into the paint. Encourage the children to write their names or draw pictures.

Home Activity

- ○ Encourage the children to count the trees in their yards. Many will have no trees, which is fine. Make a graph that shows how many trees children have in their yard.

It's Raining

with additional verse by Richele Bartkowiak

It's raining, it's pouring
The old man is snoring.
He bumped his head
When he went to bed,
And he couldn't get up in the morning.

It's raining, it's pouring
Playing inside is boring.
We want sunshine
And bright blue skies.
Don't make us wait till morning.

Vocabulary

blue
bright
bump
inside
morning
pouring
snoring
sunshine
wait

Theme Connections

Humor
Nature
Seasons
Weather

Did You Know?

- Snoring is noisy breathing through the mouth or nose during sleep. Most people snore every so often. People snore when they are congested. Even babies or pets snore.
- Sleep and relaxation go hand-in-hand. During deep sleep, the muscles in the body relax; as the muscles in the throat relax, the airway closes partly. This is normal. Air comes into and out of the lungs through this airway. However, if the airflow in the throat and nose is obstructed, the air passage narrows, and snoring is the result. Snoring is the fluttering sound created by the vibrations of tissues in the back of the throat and nose.

See page 66 for facts about rain.

Literacy Links

Oral Language/Phonological Awareness

- Discuss snoring. Ask the children if they know anyone who snores. Encourage the children to make snoring sounds. Print "zzzzz" on chart paper. Tell the children that "zzzzz" is often used to describe the sound of snoring. Sing the first verse of the song while a small group of children snore lightly in the background.

Phonological Awareness/Letter Knowledge

- Print *pouring*, *snoring*, and *boring* on a sheet of chart paper. Read the words aloud. Help children recognize the rhyming sounds of the words. Look at the letters in each word. *Which letters are the same?*

Curriculum Connections

Art

- Provide containers with several colors of dry tempera paint. Encourage the children to use a dry brush to create a design on their paper. When they are finished, have them lay their designs in a cake pan and spray them with a spray bottle filled with water to simulate the effect of rain. Allow the "Rain Designs" to dry.
- Invite the children to draw a picture of an indoor activity they do on a rainy day. Collect the pictures to make a class book titled "Things to Do on a Rainy Day."

Special Needs Adaptation: Provide magazine pictures of activities that can be done indoors. Invite the children to select a picture that represents something they like to do and might choose to do on a rainy day. Use their selections in the class book.

Discovery

- Provide spray bottles with adjustable nozzles filled with water. Encourage the children to spray the bottles onto different surfaces to create a variety of sounds. Challenge them to find a surface and a spray that creates a sound that is gentle and soft like a lullaby.

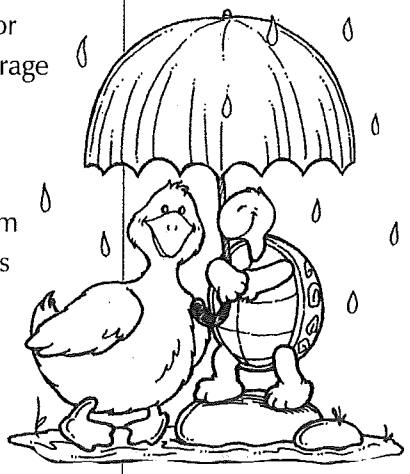
Dramatic Play

- Provide sleeping bags, an alarm clock, pajamas, and other props for sleeping. Encourage the children to pretend to be sleeping. Encourage them to snore!

Gross Motor

- Invite the children to play Rain Puddle Jump. Cut rain puddles from 12" x 18" sheets of brown construction paper. Arrange the puddles in a path on the floor. Encourage the children to jump over the rain puddles.

Special Needs Adaptation: Provide beanbags to children with limited mobility. Encourage them to toss the beanbags over or onto the rain puddles.

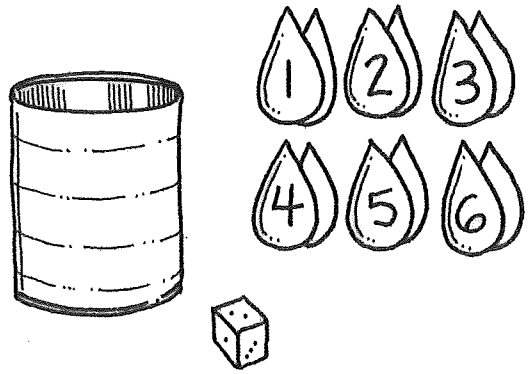


Book Corner

Listen to the Rain by Bill Martin, Jr.
My Rainy Day by Dee Ann Grand
The Rainy Day by Anna Milbourne
The Snoring Monster by David Lee Harrison

Math

- Encourage the children to play Raindrop Stop. Cut 12 raindrops from blue construction paper. Print the numerals 1-6 on the raindrops to make two sets of playing cards. Give two children a die, an empty coffee can, and one set each of the raindrop cards. Have the children lay their raindrops in front of them on the floor. The first player rolls the die and then picks up the raindrop with the numeral that matches the number on the die, and places the raindrop in the can. The next child rolls the die and does the same thing. When a number is rolled a second time, the player simply passes the die to the other player without removing a raindrop. The winner is the child who runs out of raindrops, or stops the rain, first.



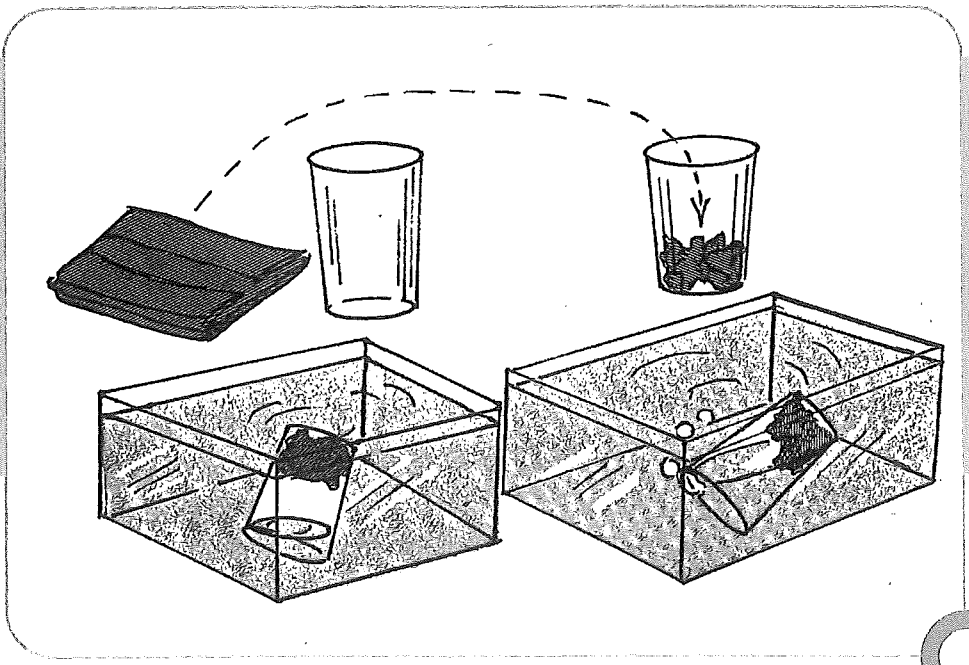
Water Play

- Provide cups, pitchers, watering cans, plastic bottles, and other utensils for pouring. Have the children describe the speed of the water as it moves through the various spouts. *Does the water pour slowly? Does it pour evenly?* Challenge the children to describe the sound of the water as it hits the water in a container or the bottom of another empty container.

Home Activity

- Suggest that families collect rainwater to use for watering plants. Suggest that families measure the amount of rain they collect during each rainstorm.

Wet and Dry



PRINCIPLES

Air takes up space. Air has substance.

SCIENCE EXPERIENCE

- Tell the children you are going to put a paper towel under the water without getting the towel wet.
- Crumple up a paper towel and put it in the bottom of the cup.
- Push the glass completely underneath the water, open end first. Make sure the glass is not tilted. When the glass is lifted out of the water, the paper will be dry.
- Again, push the glass with the paper in it beneath the water. This time, allow the cup to tilt. Let the children see the air escape, and watch the water replace the air. This time, the paper will be wet.
- Put the materials in the sand and water table and encourage the children to experiment with the materials.

MATERIALS

paper towels
clear plastic drinking cup
pan of water

WORDS TO DISCUSS

air
air pressure
compression
dry
paper
replacement
tilt
wet

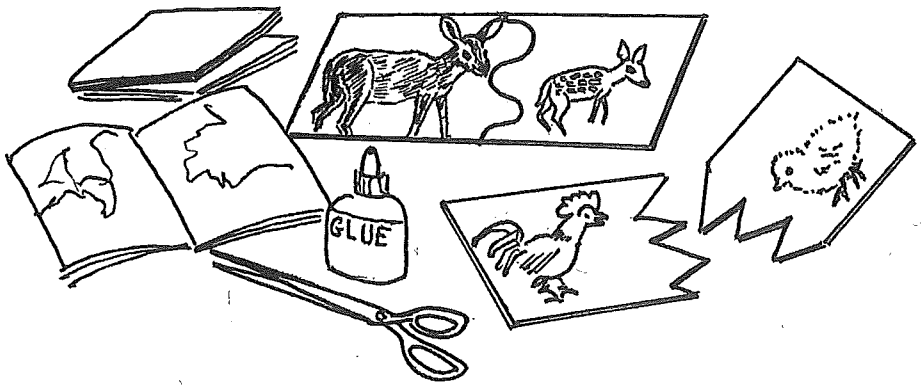
EXPLANATION

When a glass is forced straight down into the water, the air inside the glass cannot escape and is compressed in the glass. The compressed air will not allow the water to reach the paper. When the glass is tilted, the air escapes and is replaced by the water.

Animal Baby Puzzles

PRINCIPLES

Animal babies look much like their parents.



MATERIALS

magazines
old story books
scissors
glue
strips of posterboard or heavy paper

WORDS TO DISCUSS

adults
animals
babies
growing
matching

SCIENCE EXPERIENCE

- Spend time with the children finding and cutting out pictures of animals and babies.
- Select pictures of animals and pictures of each animal with its baby.
- Glue the picture of the adult animal on one end of a strip of posterboard and the picture of the baby animal on the other end of the strip.
- Cut the strips in half in different ways to produce puzzles. Mix several strips together and ask the children to match the correct animal with the correct baby.

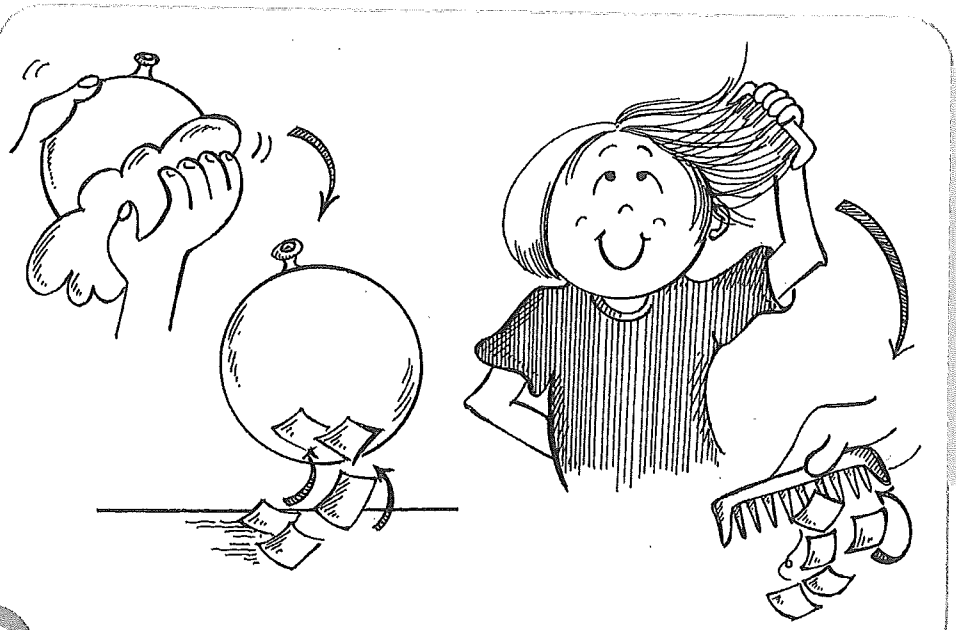
EXPLANATION

Baby animals look like their parents because they are younger versions of the parent. When a baby animal grows up, it will look just like its parent.

Static Electricity

PRINCIPLES

Static electricity can be created by friction.



MATERIALS

piece of wool
balloons
comb
small pieces of paper

WORDS TO DISCUSS

attract
friction
magnet
produce
static electricity
wool

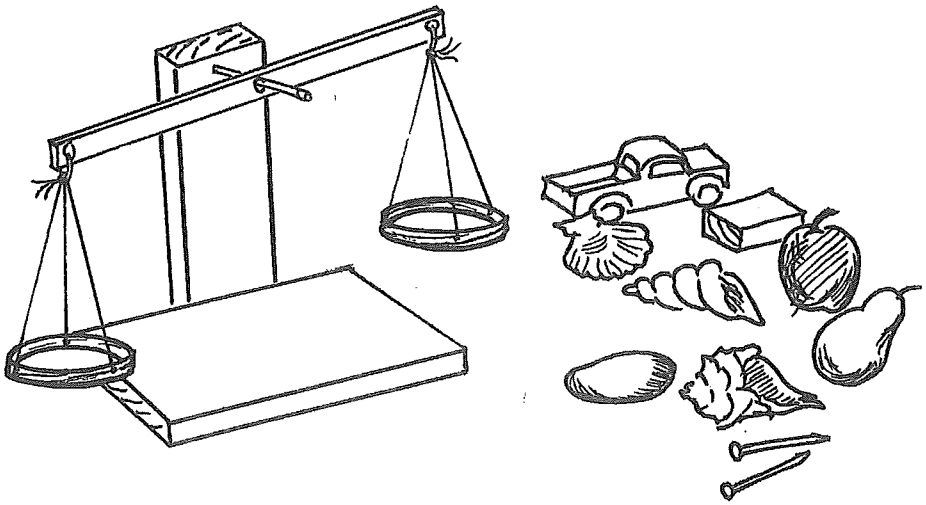
SCIENCE EXPERIENCE

- Let the children blow up balloons.
- Ask the children to put their balloons against the wall to see if they will stick.
- Rub the balloons on the wool. See if they stick.
- Explain that static electricity builds when you rub the balloon on wool, and that the electricity makes the balloon stick to the wall.
- Using a pocket comb, ask a child to comb her hair when it is very dry. Then ask the child to use the comb as if it were a magnet to pick up small pieces of paper. "What happens? Why?"

EXPLANATION

Static electricity builds up to make objects attract or push away from each other. Static in a child's hair, created by running the comb through it, makes it stand up.

Using a Balance Scale



PRINCIPLES

Objects have different weights. Objects may be classified according to weight.

SCIENCE EXPERIENCE

- Introduce the children individually or in small groups to the balance scale.
- After the children have become familiar with the scale, allow them to compare weights and sizes of various objects.
- Let the children select one object and sort the remaining objects according to which are heavier, lighter, or weigh the same as the chosen object.

MATERIALS

simple balance scale
an assortment of objects to be weighed

WORDS TO DISCUSS

balance
heavier
lighter
same
scale
sort
weigh
weight

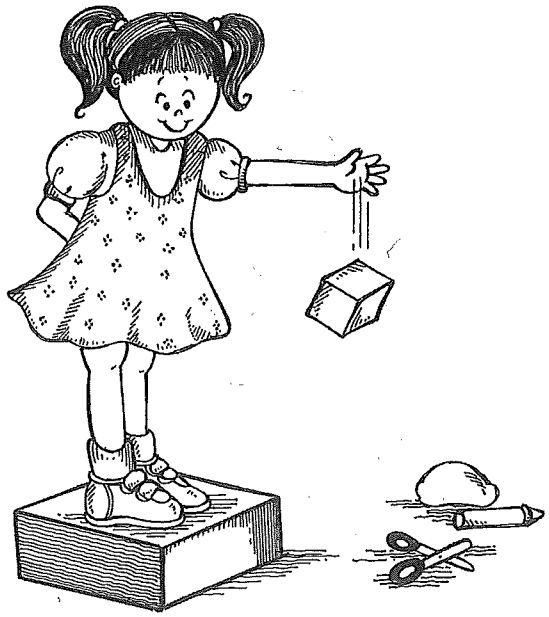
EXPLANATION

Because gravity pulls on objects differently depending on how much matter each contains, some objects are lighter and other objects are heavier.

Gravity

PRINCIPLES

Gravity pulls objects toward the Earth.



MATERIALS

An assortment of small items such as a block, a pencil, scissors, toys

WORDS TO DISCUSS

fall
gravity
ground
hold

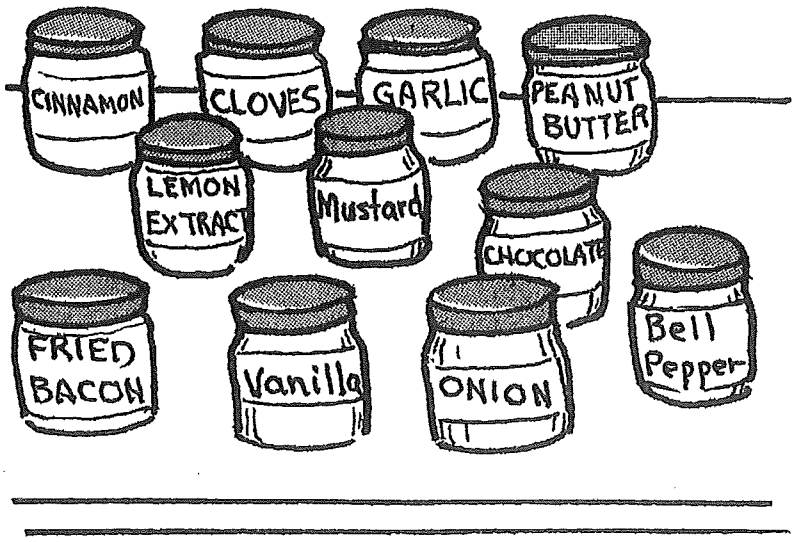
SCIENCE EXPERIENCE

- Use the word "gravity" as you talk about objects falling. A young child can easily understand that whatever is dropped will fall. However, it is a stretch to expect the very young child to explain why. We can lay the foundation of future understanding.
- Use the falling of a block structure as a learning experience. Ask questions after you drop the block. "Which way did it fall?" "If you drop a pencil, will it fall up or down?" "Will it ever fall to the side?"
- Drop several objects to the floor such as a block, pencil, scissors, or toy. "Which ones fall up and which ones fall down?"
- Have the children stretch out an arm to hold a small wooden block at shoulder height. Ask them to notice their arms getting tired as they hold the block. Explain that gravity is a force that can't be seen but can be felt as it pulls objects to the ground.

EXPLANATION

Gravity is a force that pulls objects toward each other. The bigger the object, the more gravity it has. The Earth is so large that it pulls everything down toward it. Explain that this is why when the children jump, they come right back down, and why things never fall up or to the side.

What Is That Smell?



PRINCIPLES

Different things have different smells. We can use smells to identify substances. Smell is one of our five senses.

SCIENCE EXPERIENCE

- Put a wadded-up paper towel in the bottom of each baby food jar.
- Put a different object for smelling in each jar.
- Allow the children, while blindfolded, to smell and guess what the odors are.
- Talk about the different smells. "How are they alike and how are they different?"

MATERIALS

clean baby food jars
paper towels
vanilla extract
lemon extract
cloves
mustard
fried bacon
onions

WORDS TO DISCUSS

blindfold
odor
guess
smell

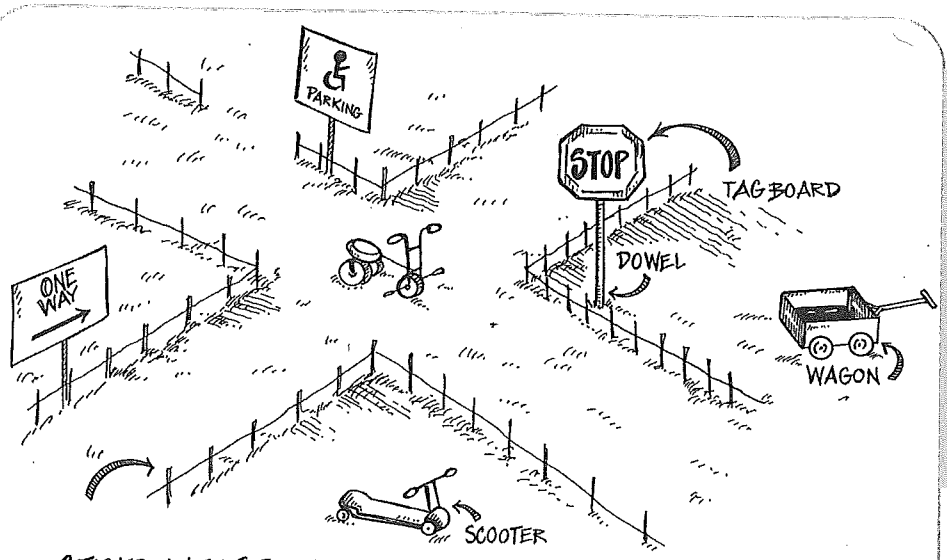
EXPLANATION

Tell the children that smell rises from the jars into the air. Smells are composed of elements that are too small to see. Though smells can't be seen, noses are made to sense odors and to tell whether something smells good, bad, or has no odor.

Learning About Transportation

PRINCIPLES

The more we know about transportation, the safer we will be.



MATERIALS

small sticks
rags
ropes
tagboard
tricycles
wagons
whistle
cardboard police officer's badge

WORDS TO DISCUSS

traffic
road signs

SCIENCE EXPERIENCE

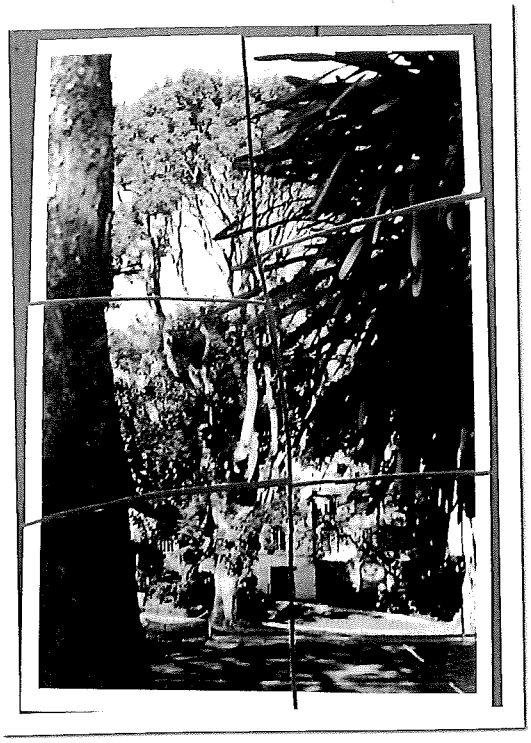
- Scratch a paved or dirt section of your playground to outline roads, or mark roadways with small sticks with bits of cloth tied onto the sticks on a grassy section.
- Make traffic signals from tagboard: Stop, Yield, Slow, Road Construction, No Right Turn.
- Appoint one child to be a traffic officer.
- After discussing the traffic signs and what they mean, let the children "travel the roads" on their tricycles and wagons.
- The traffic officer should be sure the signs are obeyed. The same physical setup may be used for a variety of games.

EXPLANATION

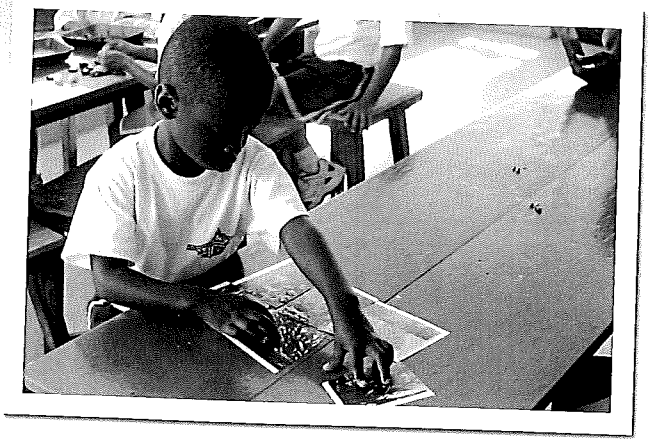
Talk about the meaning of traffic signs. Discuss how traffic laws keep people safe, and how police officers make sure people follow the laws.

Sample Lesson: Tree Puzzles

As part of the science unit Discovering Nature around School, our three- and four-year-old children took their very first photographs: pictures of trees that surround our school. My aim was to teach them that trees have different parts, just as people and animals have different body parts. To make a puzzle, I chose a picture I'd taken of a big, beautiful mahogany tree that stands in front of our school building. In my picture, the mahogany tree was framed on both sides by other trees, which made it easier for the children to recreate the whole picture. Notice the white edge around the picture, which also was helpful. Reassembling the six pieces of the photograph became a challenging task. The children had to use a lot of thinking skills in order to reassemble all the pieces accurately. For some of them, it was too difficult.



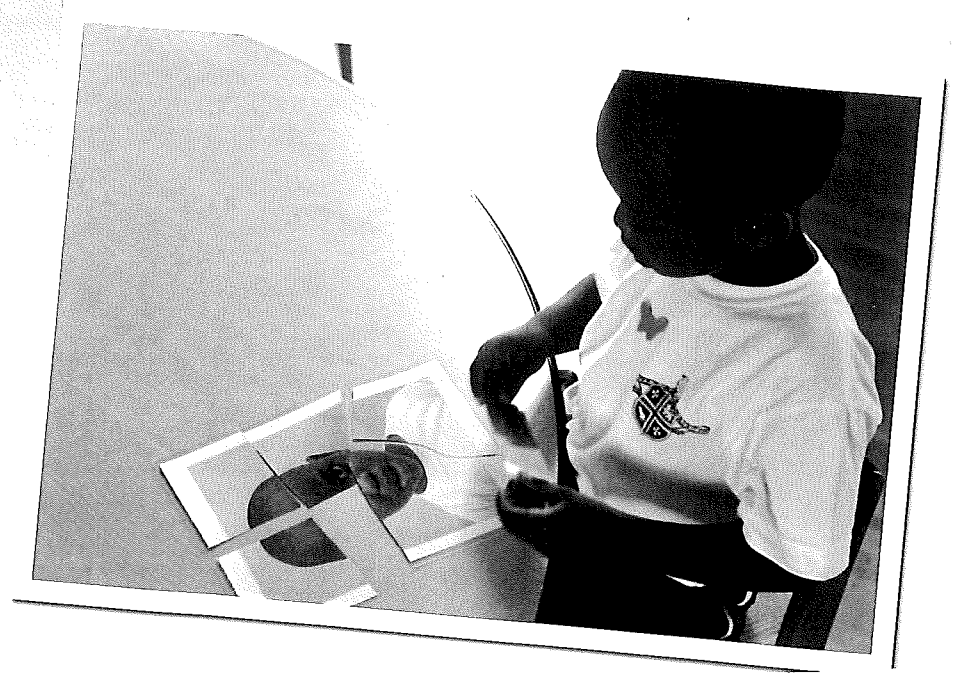
Putting the puzzle together offered the children a good opportunity to name the different parts of the tree and to think about the positions of those parts.

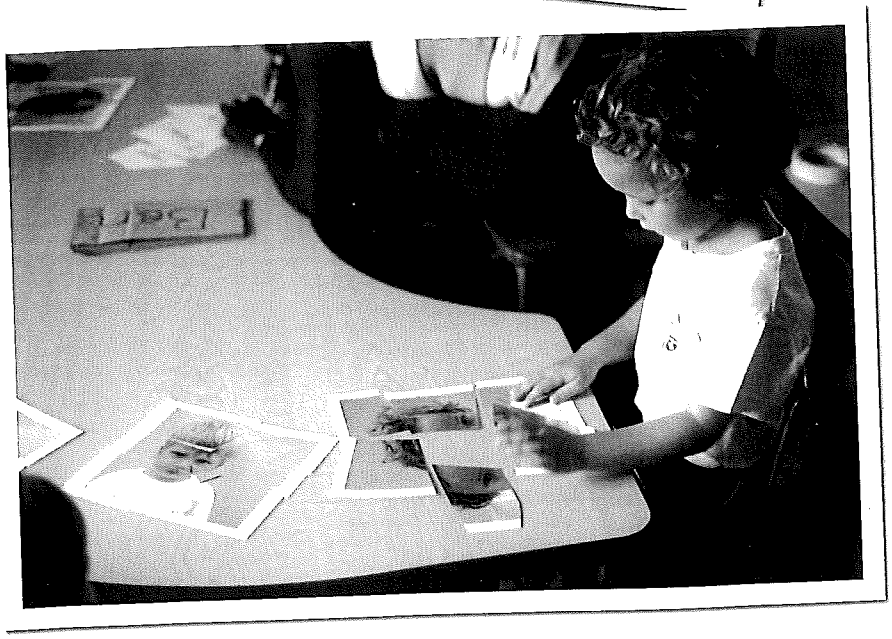


Jackson putting the puzzle pieces in place: "I did it!" (applause).

Sample Lesson: Face Puzzles

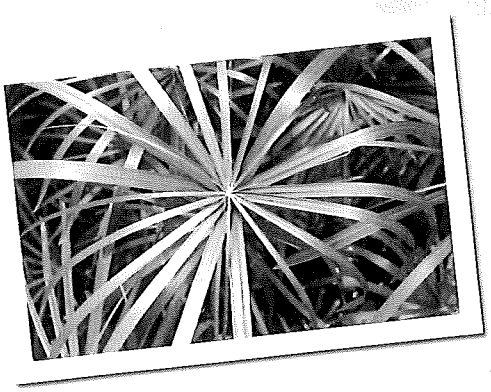
During our unit on the different body parts of people and animals, our youngest children (three- to four-year-olds) learned to name the different parts of their face. I took a picture of each child's face and made an individual puzzle for each child. I cut these large pictures into pieces and let each child re-create the whole picture of his or her face. Of course, the children could also work on puzzles showing the faces of their peers too.

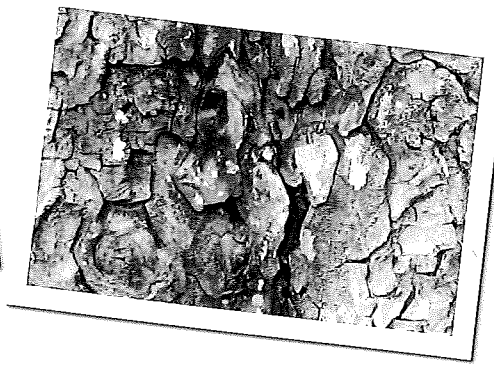




Sample Lesson: Scavenger Hunt

The following activity was part of our study of nature around the school. It was designed to develop awareness of details in our natural environment and to strengthen the children's ability to read the information provided in pictures.





To prepare for this activity, I took lots of close-up photographs of plants around the school and mounted them on cardboard. I produced various photo cards, all showing details of the plants I'd chosen.

With these photo cards in hand, the children embarked on an exciting scavenger hunt to find the matching plants. Each child was given one card at a time.

Finding matches was not an easy task. Some children ran around with their photo card in hand, overwhelmed by all the choices of plants around our school and not knowing where to start. Others immediately found the plant that matched their picture. I gave some of the children hints to lead them closer to the area where they might find their match. How accomplished they felt when they found it! After finding one correct match, all the children wanted more, so I gave them each another photo card and they continued their hunt.

If you play this game more than once, you can mix up the pictures and provide each child with a different picture, creating a totally new task for each child. It takes awhile before each child has found all the matching pairs.

You can organize a scavenger hunt in many ways. For example, you can provide the children with a map along with the photo cards, showing the places they have to go in order to find the matching objects. Or you can give the children just one picture to start with and hide an envelope with the next photo card at the site of the first match. You can continue on like this, leading them from place to place, until they arrive at their final destination.

There are endless ways to use and play with photo cards—all of them are active and task oriented, and all of them offer the potential for children to use their thinking skills. When they seek and collect different items, children are practicing basic scientific skills: searching, observing, and selecting among objects.

A Note on Games

Remember that children learn through play. If you integrate photography in your teaching, think about some playful ways to use it.

Games, including puzzles, are inherently motivating. They capture children's interest and provide opportunities to practice many skills important for success in school: problem solving, questioning, observing, communicating, sequencing, manipulating, and sharing.

Through games you can introduce the four basic concepts presented in this chapter, in addition to many more. With digital photography, you can let your imagination roam freely to create customized picture games for whatever you want to teach. Use these games to reinforce and strengthen what the children have learned from their own explorations. For young children, these games should be simple to use, clear, colorful, and fun to do.

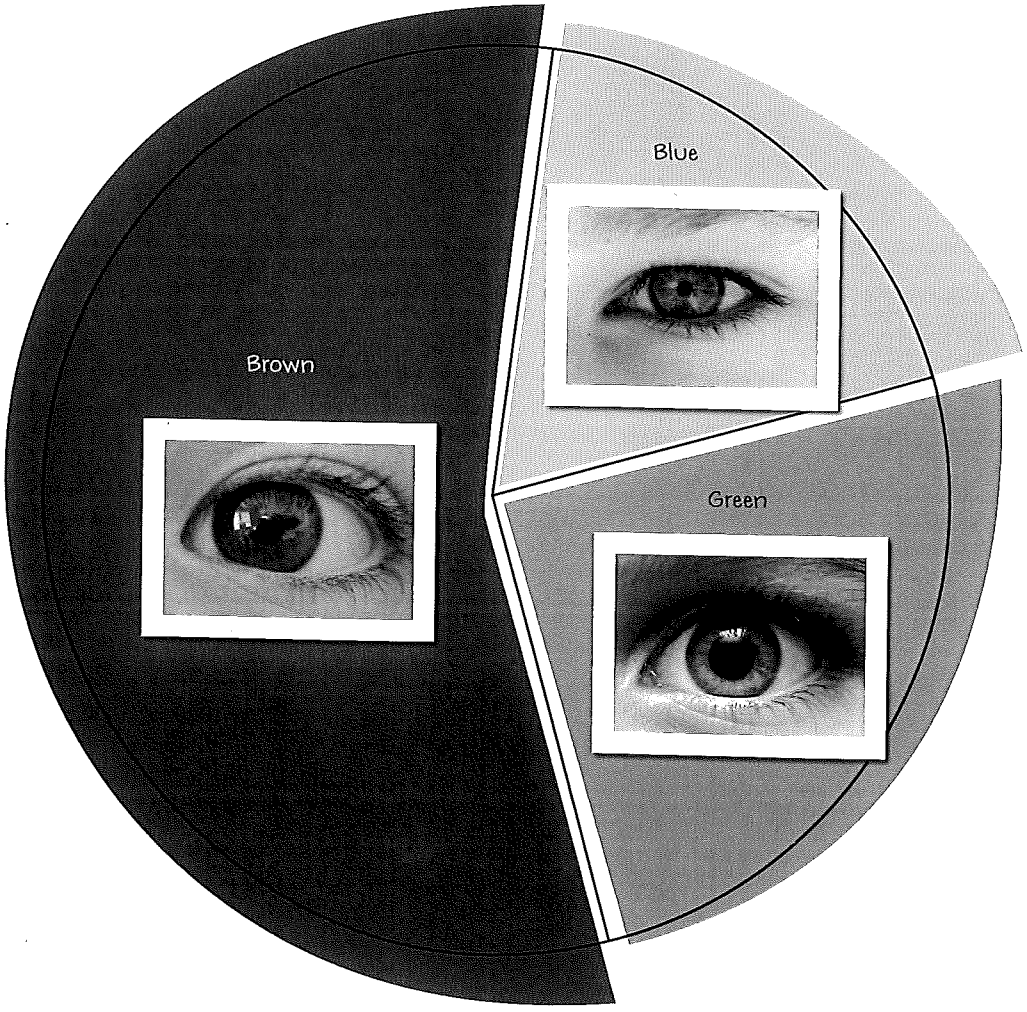
Using Photographs in Pie Charts

Pie charts depict parts as proportions of the whole, which is represented by a full circle. These charts can be used to demonstrate conclusions generated by "how many" questions:

- How many rainy or sunny days did we have last week?
- How many children in class have blue, green, or brown eyes?
- How many children in class have cats, dogs, birds, or rabbits as pets?

When making pie charts for young children, remember to include no fewer than two and no more than eight segments. Include a photograph to illustrate the subject of each segment.

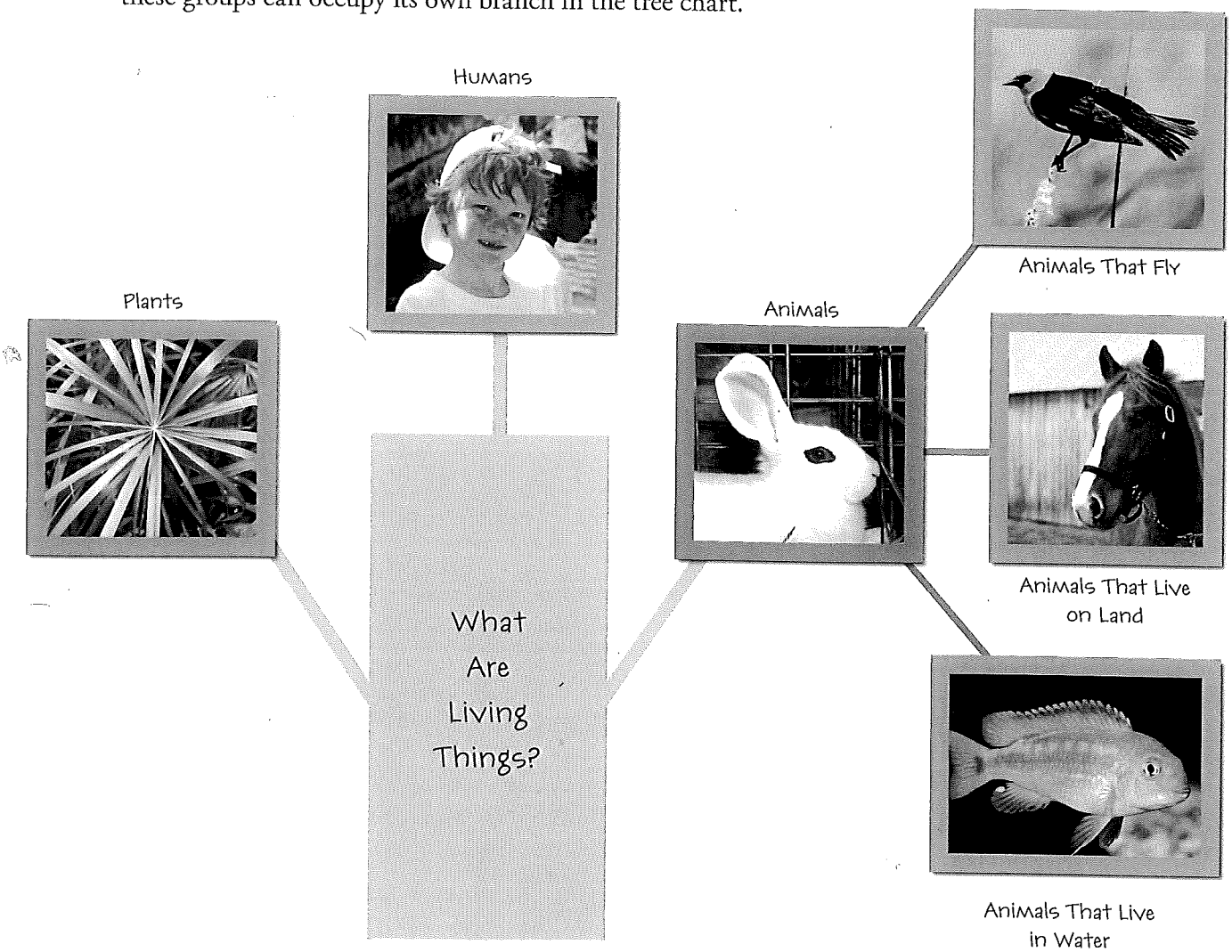
What Color Eyes Do the Children in Our Class Have?



Using Photographs in Tree Charts

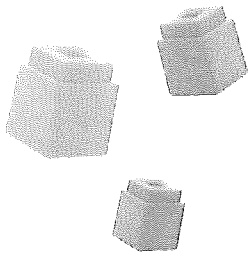
Tree charts help children to demonstrate conclusions that branch out from general to specific. A common example is the family tree chart, which begins with the name of the family (such as "The Keane Family Tree") on the trunk and then branches out to show siblings, parents, grandparents, aunts, uncles, and cousins. Other relationships can be shown in the same way.

For instance, the trunk (center) of your tree chart can be the key question *What are living things?* Photos of a person, an animal, and a plant can be connected to this question as separate branches. Images of animals can then be grouped into those that live on land, in water, and in air. Each of these groups can occupy its own branch in the tree chart.



Quantity Sorting

for ONE or MORE children



Materials and Setup

- ☐ 20 to 25 clear, identical, unbreakable jars with lids
- ☐ Assorted small objects of different sizes and types in quantities of 1 to 5. Examples include cotton balls, buttons, marbles, balls of aluminum foil, paper clips, toy race cars, beans, grains of rice
- ☐ Key cards for numbers 1 to 5. (See page 13 for more information on key cards.) Younger children figure out the quantity pictured on the cards. Older children read the numerals

Basic Activity

1. Place the objects in the jars in quantities of 1 to 5. You should create 4 or 5 jars for each quantity. The items within each container should be identical.
2. Children lay out the key cards in order from 1 to 5.
3. They examine the objects in each container and place the container near the card that pictures the same quantity.

Extensions and Variations

- Use picture cards (see page 13 for more information on picture cards) instead of jars filled with objects. Picture cards can be made by gluing pictures or stickers in different quantities on tagboard or cardboard. These cards can then be sorted under the key cards according to quantity. Remember, however, that objects are more real to young children than pictures of them.
- Give each child in a group a set of jars containing the quantities 1 to 5. Hold up one of the key cards and ask, "Can you each show me a jar that has this many?" or "Can you show me a jar that has more/less than this one?"
- One child holds up a jar or key card and says, "Can you find a jar that has this many?" The second child selects a jar that matches the quantity and puts it next to the first child's container or key card. The children then switch roles.
- Children retrieve different quantities of objects from around the room and put them near the appropriate key cards. For example, someone might bring 3 blocks from the block area and put them under the 3-card. The child returns the objects when the activity is over.
- For children who can count without using the key cards, ask, "Can you show me the jar that has three?"

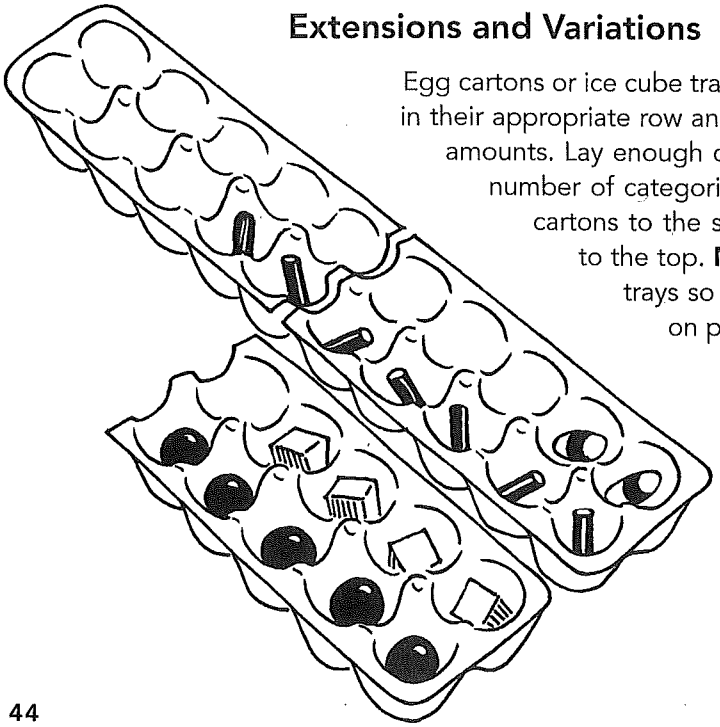
Graphing Mats and Voting Boxes

Materials and Setup

- ☐ Graphing or sorting materials (see "Extensions and Variations" below for the materials needed to make them)

Basic Activity

1. Voting occurs frequently in the classroom—for example, what book to read next, whether to go outside or stay in, how many people should be able to use the reading corner at a time. You can also take a poll surveying hair color, number of siblings, number of family pets, or children's birth month. When children vote for preferences or take a poll, give them materials such as those listed below to create a visual representation (that is, a graph) of their responses. These graphing materials help the children line up items side-by-side so that they're spaced equally in straight columns. Such an arrangement helps children make visual comparisons of quantities. Children need help remembering to place one object per space under the appropriate label.
2. For children who do not yet read, it is best to label columns using picture icons in place of (or in addition to) written labels.
3. Once children have sorted out and lined up the materials, they can visually compare the lengths of the columns to see which category contains more. Children who can count can determine how many items are in each column, how many more objects one column contains than another, and how many items there are all together.



Extensions and Variations

Egg cartons or ice cube trays work well to hold small, sorted objects in their appropriate row and column for easy comparison of relative amounts. Lay enough cartons or trays side-by-side to equal the number of categories. More categories needed? Add more cartons to the side. A column is full? Add more cartons to the top. **Note:** I like to cut the cartons or ice cube trays so I have two rows of five—see Ten Frames on pages 61–63.

Say that a child wants to sort the colored beads in a bead-stringing basket. She sits down with the basket of beads and a stack of egg cartons. Taking a red bead from the basket, she picks up one of the egg cartons, sets it in front of her so it is 2 compartments wide and 5 compartments tall, and

Telephone Dialing

Materials and Setup

- ☐ One or two touch-tone or rotary telephones
- ☐ A Rolodex or list containing the children's first names and telephone numbers
  Note: Include only phone numbers for children whose parents have given permission.

Basic Activity

1. A child looks up the name of the child he wishes to call in the Rolodex or on the phone list located in the dramatic play area.
2. The child dials the number on the telephone and carries on conversation with the imaginary person who answers.

Extensions and Variations

Provide a second role-playing phone so the child whose number is dialed can answer and make the call a two-way conversation.

Concepts and Skills Being Learned

- Matching numerals in the Rolodex or on the list to those on the phone.
- Finding numerals in sequential (rotary) and patterned (touch-tone) arrangements.

ADVICE COLUMN

A wide variety of numerals in children's environments don't actually represent quantities. Phone numbers are a case in point. Home addresses and sports players' jerseys are other examples. These numerals nonetheless afford opportunities for the child to practice recognizing and naming numerals.

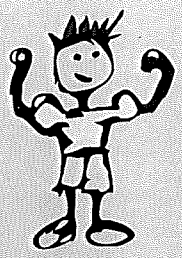
2. Alternatively, the spinner can tell a child how may steps or hops to take (if the child is on the 3 and spins a 2, she hops to the 5). Putting multiple players on the board is another way to make the game interesting.

Blizzard

1. Put two colored dot stickers on 6 clear plastic cups (one at the bottom of each cup and one on the side). Label each pair of stickers with the numerals 1, 2, or 3. There should be 2 cups for each numeral.
2. Cluster the cups randomly on the floor. From chest level, a child sprinkles 10 Styrofoam peanuts from a bowl into the cups.
3. After the peanuts have landed, the child looks to see how many peanuts landed in each of the cups. Each peanut that lands in a cup is worth the number of points written on the cup (for example, if 3 peanuts land in the 2 cup, the child gets 6 points). **Note:** Children may need to be supplied with counters in order to add up their total scores.

ADVICE COLUMN

Young children are developing physically and mentally. Find something that challenges them on both of these levels and you've almost certainly got a hit on your hands. You're only limited by your imagination.

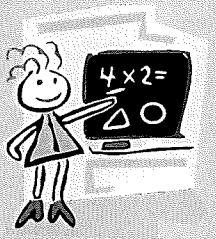


Healthy Me!

Do you eat like a grasshopper?: Grasshoppers eat plants and live in the undergrowth. Each species favors specific plants. Some eat plants that grow in a garden. Others eat only "weeds." Not surprisingly, many types of grasshoppers prefer to eat grass. Grasshoppers don't drink water. They get water through the plants they eat. How is your diet the same as that of a grasshopper? How is it different?

Helping Hands

Handling Grasshoppers: People are bigger and stronger than grasshoppers, so it is our responsibility to treat them with extra care. When handling them, be very gentle. Use two fingers on either side of the middle section, or thorax to hold them firmly without squeezing them. Do not pick a grasshopper up by its leg. The leg would probably come off. Do not pull on its antennae. They may come off too. A grasshopper without a leg or an antenna would have a difficult time surviving. Grasshoppers may not feel comfortable if held for long periods. If you hold one, make sure to give it a rest after a few minutes.



Mighty Math

How Far Can You Jump?: (Make a masking tape line on the floor or draw a chalk line on a paved surface outside.) How far can you jump? Take turns standing at the line and jumping as far as you can. We'll mark the distances (with tape or chalk). Measure the distances with a tape measure. Who jumped the farthest? How do our jumps compare to the jumps of a grasshopper? (Make a line that measures 20 times the length of your grasshoppers.) Grasshoppers are small. How far could they jump if they were as large as us? (See Take Me Outside!)

Home Connections

Grasshopper Safari: ***Survey your yard or a nearby park for grasshoppers. Write down what you find. Tell how many grasshoppers you found. Illustrate their colors. Describe the place where you found them. Identify what they are eating. Discover where they hide. Bring your findings back to the classroom to share. How are they the same or different from the grasshoppers you are studying in school?***

See page 98 for a take-home Home Connections card.

Cloth

Materials
gray, black
per student (brown, green, yellow)

Encourage children to paint a clot
and grey paint. Allow to dry. If chil
according to the following instructi
twisting two 4" chenille stems arou
Bend the stems to make leg joints.
stem around the body behind the
bend. Bend again to make the hin
antennae that stick up from the to

Animals Smaller and

Materials and Prep: large rectangu

Fold a large piece of paper into th
section at the top: smaller, grassho
grasshopper. In the section on the
smaller than a grasshopper. In the
larger. Write the n

Mu

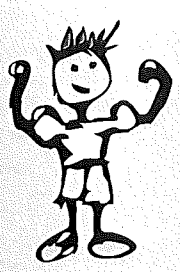
Sound like a Grasshop

The best time to hear grasshoppers
summer. They chirp to attract a mat
likely heard them before, but did yo
males sing? A male short-horned gr
comb-like structure on the inside of
looks like a row of sharp teeth. Whe
section of its legs against its wings, it
sound. Try to make a grasshopper s
comb and a stick. Quickly move the
comb to create your own chirping s

Move Like a Grasshop

Explore the motion of a grasshopp
chant. First use slow deliberate mo
then use a sudden burst of mover
can be used during transitions, wh
one activity to another.

Slowly, slowly, oh so slowly, move lik
Lowly, lowly, hide in the grass, just lik
Loudly, loudly, it's a lawn mower, move
Quickly, quickly, jump so quickly, move

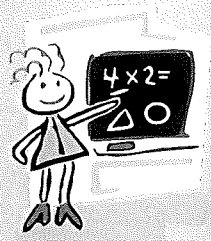


Healthy Me!

Sea Foods: (Bring in an assortment of foods that come from the ocean—a can of tuna or sardines, a jar of clams, a package of dried seaweed, a shaker of sea salt, and so on.) Look at these different foods. What do you think is the same about all of them? All of these foods came from the ocean. What ocean foods have you eaten? Are there any others you would like to try sometime? People eat many delicious and healthy foods that come from the ocean.

Helping Hands

Keeping Oceans Clean: When litter and other trash is not put where it belongs, it can end up in the ocean (or other waterway). Plastic bags, plastic bottles, plastic can rings, and other litter can get washed into the ocean and hurt ocean animals. We can help the animals that live in the ocean by putting litter in the recycling bin or trash can. Let's put on gloves and pick up litter around our school or neighborhood—and help keep the ocean clean (keep safety in mind). Where should we put the trash we find? Let's recycle the cans and bottles.



Mighty Math

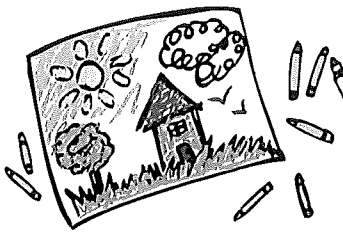
Comparing Seashells: Here is a collection of different seashells. They came from animals that used to live in the ocean. Can you arrange the seashells by size (small to large)? Can you group shells that have the same shape? Can you group shells that are just one piece and those that are two, such as a clam. Use a balance scale to see which seashells are heaviest and which are lightest. Try to find a group of seashells that balances with another group of seashells. What other ways can you sort or arrange the shells?

Home Connections

Aquarium Watch: ***Visit an aquarium or view a fish tank at a pet store or a friend's house. Watch how the fish and other animals move. Ask to see the fish being fed. In your journal, draw what you see.***

Fish for Dinner: ***Ask if you can have fish or other seafood for dinner. What is your favorite way to eat fish or seafood? What kind of seafood did you eat?***

See page 100 for a take-home Home Connections card.



Art

Handpr

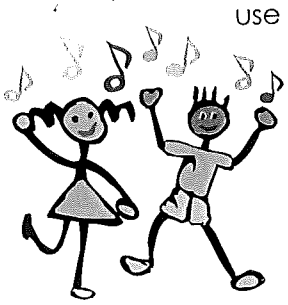
To make a h
a separate pro
and press one hand onto paper. Positi
so that the palms overlap and fingertij
making a crab body with eight legs a
repeat, but overlap the sides of the p
creatures to dry and encourage child
seashells and other ocean elements t
animal shapes with their hands. How

Sea Sponge Painting

Obtain natural sea sponges from a ph
animal—a sea sponge). Invite childrer
colors of paint (on mural cut outs or se

Salty Scene

Have children draw an ocean scene
of 1 cup warm water, 1/3 cup table
use it to paint a wash
evaporate, leav



Mus

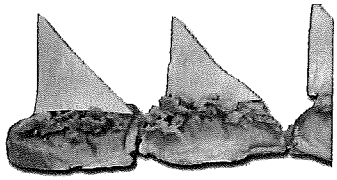
Did You Ever See a Se

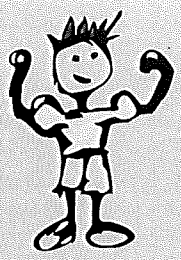
(to the tune of "Did you Ever See a

Did you ever see a fishy, a fish
did you ever see a fish
swim this way and tha
(children move like a fish s
Swim this way and that way, and that w
Did you ever see a fishy swim this

Did you ever see a crab, a cr
did you ever see a cr
crawl this way and th
(children crawl like a
Crawl this way and that way, and that
Did you ever see a crab crawl this

(Continue with other ocean animals and
float, lobster—pinch, clam—snap, gull—



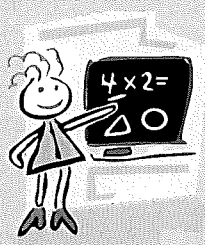


Healthy Me!

Every Breath You Take: People, fish, and other animals all need oxygen to live. Fish have gills that help them "breathe" oxygen underwater. First, they use their mouths to take in water and move it across their gills. Then, the gills take oxygen from the water. What parts of your body help you breathe? Take a big breath, in and out. How does it feel when air comes into your body? How does it feel when air leaves your body? Our bodies use noses, mouths, airways, and lungs to breathe air and take in oxygen!

Helping Hands

Clean Up!: Did you know that trash could hurt fish? Pieces of paper, gum wrappers, plastic bags, fishing line, and Styrofoam cups can wash into a pond, stream, or lake when it rains. There, trash not only makes the water dirty, but can choke fish and kill them. Help keep water clean for fish. Pick up litter around your play yard, home, or favorite fishing spot and set a good example for others. Be safe. Have an adult pick up sharp objects.



Mighty Math

Measure your Catch: (Post a sign showing fish at the size at which they are legally large enough to keep.) Go fishing again. This time compare or measure each fish to see if it is legal. If it is, you may decide to keep it. If it is not, you must release it back into the fishing hole. How do size limits help both fish and people who want to catch them?

Fish School: For protection, many fish swim together in a group called a school. Take the top card from a stack of number flash cards. Count out that number of small plastic fish to make a school. How big is your school?

Home Connections

Go Fishing!: ***Use what you've learned about fish and fishing to help plan a family fishing adventure.***

Places to See Fish: ***Visit a local fish hatchery, city aquarium, pet store or seafood market. How many different kinds of fish can you see?***

Eat Up!: ***Enjoy fish for dinner!***

See page 100 for a take-home Home Connections card.

Ar

Gyota

Use a real h
grocery store
prints, an ancient Japanese art form
time to explore the fish. Encourage tl
fish. What does its body look like? Fe
the gills? (See page 79 for a fish diag
questions about the fish.)

To begin gyotaku, encourage a chil
of tempera paint. Help the child lay
the fish. Lift paper to reveal the print.

***Tips and Safety Notes: If using a re
children wear disposable non-latex g
the fish will be at room temperature
more printing later, rinse off the pain
overnight, wipe it off, make the print
up and bury it in your garden as ferti***

Fishing Permits

In most states, people over age 16 r
permits using index cards, crayons, c
(optional), and other materials they
What information would they like to

Mus

Fishy Swimming Schoo

Fish use their bodies to swim through
can turn their fins and twist their bodi
move up, down, left and right. Encou
to try moving their bodies like fish. Wh
together in a group, the group has a
A group of fish is called a "school." Th
together to stay in the group, withou
each other for protection from predc
swimming as a school of fish too. Be c
fish friends while we swim together. A

Practice Casting

In an open area outside, set out hu
empty kiddie pools to be "ponds" c
children fishing poles with reels and
plastic plugs and help them practic
aiming toward the targets.

t Projects

ku—Japanese Fish Printing

nead, fins, scales and tail-on fish from the (or a rubber fish replica) to make gyotaku ı. Before children begin printing, give them hem to, but don't require, that they touch the el like? How many fins are there? Where are gram designed to help you answer children's

d to paint the surface of the fish with a light coat a piece of paper on the fish and pat it over

eal fish, place it on a surface that can be sanitized. Consider having gloves. Make sure that they wash hands well after the activity. As for a time, it should not be used for human food. To save the fish for t, double-bag it in zippered bags, and freeze it. To reuse fish, thaw it s, and then refreeze it. When you are done with the fish, you can cut it lizer.

ıeed a permit to fish. Invite older children to create their own fishing a washable stamp pad (for fingerprints), a photo of each child choose. If possible, provide a real fishing permit for children to explore. include on their permit? Support their efforts at writing as requested.

ic & Movement

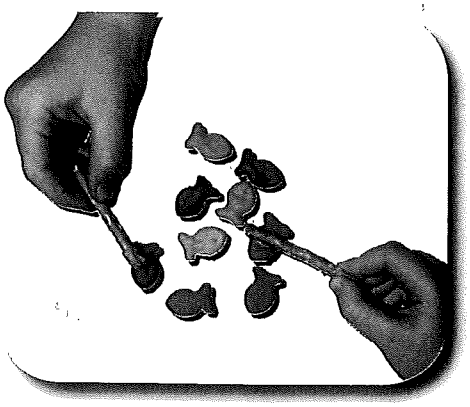
l

he water. They es to help them rage children en fish swim special name. ıe fish move bumping into ıtors. We can try ıware of your ll together now!

a hoops or ır "lakes." Give weighted e casting,

Goin' on a Fishin' Trip

Do this call-and-response variation to "Goin' on a Bear Hunt" with your group (see page 80).



Centers & Extensions

Animal Science
Set up a fish bowl or tank in your classroom so children can watch how fish move, eat, and breathe.

Cause and Effect
Anglers use bobbers and sinkers to position bait in the water. Explore the concept of sink/float with different sizes and types of fishing bobbers and sinkers in a pan of water.

Bait and Lures
Tie artificial bait and lures to lengths of fishing line and let children pull them through a pan of water to see how they move. Try flies, rubber worms, and spinners (without hooks). Why might fish be attracted to these?

Language Development
On the board, draw a picture of waves along the top and a fishing line, with hook and worm down the center. Using fish from the activity, have children take turns positioning the fish according to a direction such as "Place the fish to the left of the hook." Vary the directions, substituting to the right of, under, above, far from, near, and so on.

Special Visitor
Invite a parent or guest (a wildlife agency officer, avid angler, bait shop owner, etc.) to share what he or she knows and loves about fishing.

Fish Puzzle
Place **Fish Puzzles** (see page 80) at a center. Invite children to put the puzzles together. They may choose to glue the pieces to construction paper and draw in habitat components (food and shelter).

Snack

Fish Tasting: Offer crackers with different foods made from fish, such as grilled fish fillet, fish jerky, smoked salmon (or lox), tuna salad, sardines, and so on. Watch for seafood allergies.

Pretzel Poles: Use pretzel sticks for fishing poles and bean spread or cream cheese for bait. Have children "fish" for fish-shaped crackers.

