

Five Senses

Prior Knowledge

The student has

1. described objects
2. sorted objects
3. counted orally to 10
4. pointed to pictures/objects that are the same or different.

Mathematics, Science and Language Objectives

Mathematics

The student will

1. summarize data on a graph
2. classify objects by shape, size and color
3. duplicate patterns
4. order objects by size
5. create and describe sets and subsets
6. determine quantity in sets and subsets up to five and two fives as 10, etc.
7. estimate number of objects they can see, feel in given sets.
8. explore idea of size in relation to distance.

Science

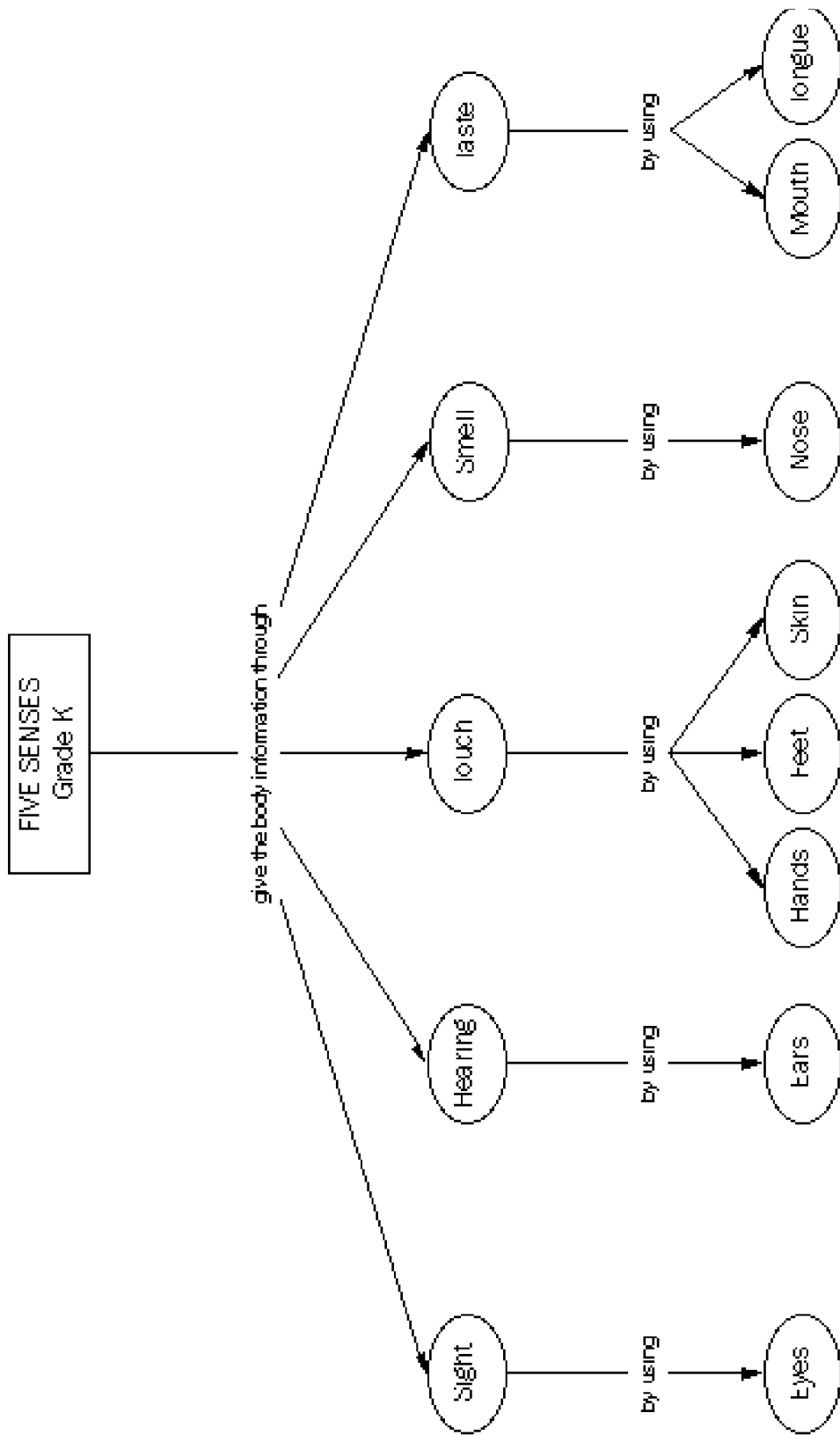
The student will

1. name the five senses
2. use one of the five senses to discover properties of objects in the environment
3. name a body part used for each sense
4. compare objects using only one sense
5. classify objects using only one sense
6. become aware of various physical impairments
7. describe how the five senses work together
8. describe ways to show proper care of eyes, ears and nose
9. practice safety procedures relevant to the five senses
10. describe how each sense works.

Language

The student will

1. create a class Big Book on the five senses
2. provide and use relevant theme vocabulary where appropriate
3. use relations such as top, bottom, direction, space and location (above/below, front/back, near/far)
4. listen to taped sounds and stories
5. match written text with illustrations of each of the five senses
6. develop predictable language/pattern reading.



V O C A B U L A R Y

touch el tacto	smell el olfato	taste el sabor	sight la vista	hearing el oído
odor olor	tongue lengua	eyes ojos	loud fuerte	skin cutis
rough áspero, a	nose nariz	see ver	smooth liso, a	strong fuerte
salty salado, a	shape figura	high alto, a	hard duro, a	weak débil
sweet dulce	color color	low bajo	soft suave	different diferente
bitter amargo	size tamaño	sound sonido	hot caliente	same igual
sour agrio	ears oídos	cold frío	feel sentir	texture textura

● ● ● Teacher Background Information

Without the information we receive through our five senses we could not function as the beings we are. Each sense is important in its own right, but each has limitations. On the other hand, one sense can be used to compensate for another. The most effective way to receive information, of course, is to use all our senses in harmony.

Another important aspect of learning about our senses is to become aware of physical handicaps that may cause difficulty for people who do not have access to these senses, though **this does not make people different or lesser**. These marvelous gifts of sensing the world we live in must be protected and cared for.

In this unit the teacher background information is quite lengthy and has been placed within each lesson. The teacher will have easier access to the information if it is closer to the other instructional material of the unit.

Perhaps more information has been added than a teacher may wish to provide the children. However, it is available; what the teacher deems reasonable should be made available to the children.

LESSON FOCUS**■ LESSON 1*****The Five Senses******BIG IDEAS***

We learn about the world through our five senses. The number five has other names.

■ LESSON 2***Sight******BIG IDEAS***

The sense of sight helps us recognize each other and learn about color, motion and distance.

■ LESSON 3***Hearing******BIG IDEAS***

The sense of hearing helps us learn from each other through communication. Sound can produce patterns.

■ LESSON 4***Touch******BIG IDEAS***

The sense of touch helps us learn about our world by feeling it and learning the size, texture and shape of things.

■ LESSON 5***Smell******BIG IDEAS***

The sense of smell helps us enjoy life and helps us learn about unsafe conditions.

■ LESSON 6***Taste******BIG IDEAS***

Taste helps us, among other things, to select and enjoy food. There are four familiar tastes.

■ LESSON 7***Altogether, Now******BIG IDEAS***

We learn best about our world when we use our five senses at the same time.

O B J E C T I V E G R I D

Lessons	1	2	3	4	5	6	7
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Mathematics Objectives

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|--|---|---|---|---|---|---|---|
| 1. summarize data on a graph | • | • | • | • | • | | |
| 2. classify or sort objects by shape, size, sound and/or color | | • | • | • | • | • | |
| 3. duplicate patterns | | | • | | | | |
| 4. order objects by size | | • | • | • | • | • | |
| 5. create, describe and count the objects in sets and subsets | | • | | | | | |
| 6. determine quantity in sets and subsets up to five and two fives as 10, etc. | • | • | • | • | • | • | • |
| 7. estimate number of objects students can see, feel in given sets | | • | | • | | | |
| 8. explore idea of size in relation to distance. | • | | | | | | |

Science Objectives

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. name the five senses | • | | | | | | • |
| 2. use the five senses to discover properties of objects in the environment | • | • | • | • | • | • | • |
| 3. name a body part used for each sense | | • | • | • | • | • | |
| 4. compare objects using only one sense | | | • | • | • | • | • |
| 5. classify objects using only one sense | | | • | • | • | • | • |
| 6. become aware of various physical impairments | | | • | • | • | • | • |
| 7. describe how the five senses work together | | | | | | | • |
| 8. describe ways to show proper care of eyes, ears, skin and nose. | | • | • | • | • | • | |
| 9. practice safety procedures relevant to the five senses | | • | • | • | • | • | |
| 10. describe how each sense works. | | • | • | • | • | • | • |

Language Objectives

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. create a class Big Book on the five senses | | | | | | | • |
| 2. provide and use relevant theme vocabulary where appropriate | • | • | • | • | • | • | • |

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Lessons**1 2 3 4 5 6 7**

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3. use relations such as top, bottom, direction, space and location (above/below, front/back, near/far) to describe | • | • | • | • | • | • | • |
| 4. listen to taped sounds and stories | | • | • | | | | |
| 5. match written text with illustrations of each of the five senses | | • | • | • | • | • | • |
| 6. develop predictable language/pattern reading. | • | • | • | • | • | • | • |

LESSON

1

The Five Senses

BIG IDEAS We learn about the world through our five senses. The number five has other names.

Whole Group Work**Materials**

Book: **My Five Senses** by Alik

Word tags: see, hear, feel, taste, smell, texture

Collection of various objects that students can sort by shape, size, texture

Chart for relevant words

Laminated picture/diagrams of the ear, eye, nose, tongue, finger (to show feeling)

Counters

Encountering the Idea

Tell the students they will begin the new unit by going outside to take a little barefoot walking trip. Ask them to talk to each other about their experiences on the trip to help them remember everything they can about the trip. Students go on a walk for at least 15 minutes. Ask questions during the trip.

Once the class returns to the classroom, have students brainstorm by describing what they experienced, describing their trip. If the students don't mention each of the five senses, ask questions: Did you smell something? What did you hear? See? What did you feel? When you smelled the cafeteria food, could you taste it? Did you see a dog (some other animal)? How did you know it was a dog? Did you see the mountains? How far are they? What color is the sky? Did you see any cars? What were they doing? What parts of your bodies did you use to get all this information? Discuss how they learn from seeing, hearing, touching, smelling and tasting.

The teacher develops a word bank or a chart using student responses. Tell students that at the learning centers they will complete many different activities that will help them learn more about how humans learn.

Exploring the Idea

At the **Art Center** students cut out pictures from magazines that show people using the five senses.

At the **Writing Center** students complete frame sentences: "I see _____ with my eyes, I hear _____ with my ears," etc. Students supply the words. The teacher writes the words on a chart for students to use for this lesson and subsequent lessons.

At the **Mathematics Center** students sort objects by color, size, shape, texture, etc.

Students use the laminated pictures of the body organs that represent the five senses to show that the number five has other names such as two plus three and

one plus four. Using the pictures to group, the students show that one plus four is the same as four plus one. Using cube counters, the students show that one row of five red cubes matches a row of four white and one yellow, three brown and two black, etc.

Getting the Idea

1. After students complete their activities, ask them to review their experiences on their walk. What did they learn about the world on their trip? What did they use to learn on their trip? What is in the world besides people? How do you know? What kinds of sounds are there? How do you know? What is important about our senses? We learn about the world.
2. Read the book **My Five Senses** by Aliko to the students. Discuss the book. The students show the class the pictures they cut out of the magazines at the **Art Center** and why they chose those pictures. How were the people using their senses?
3. Collect student work for a class Big Book.
4. The students show the other members of the class how they sorted the objects in the **Mathematics Center** and explain why they chose those categories. How many categories did they form? How many objects did they put into each category? Did they put some objects into more than one category? Which ones? Why?

Closure and Assessment

Oral Assessment

1. Why do we need our five senses?
2. What can we do with our senses?
3. Tell me two other names for the number five.

Performance Assessment

1. Assess the students' performance on the sorting task at the **Mathematics Center**.
2. Assess the students' performance on the writing task at the **Writing Center**.
3. The students, using cubes, show two other names for the number five.

LESSON

2

Sight

BIG IDEAS The sense of sight helps us recognize each other and learn about color, motion and distance.

Whole Group Work**Materials**

Book: **Brown Bear, Brown Bear, What Do You See?** by B. Martin, Jr.

Various leaves; a small plant or flower; a diagram of the eye; pieces of carpet, floor tile and sandpaper; binoculars; a microscope with prepared slide; hand lenses; a telescope; action pictures cut in half; photos of people wearing glasses; a seashell; an insect; several wind-up toy cars; a stapler; toy telephones; attribute blocks

Word tags: iris, pupil, eyebrow, eyelid, eyelashes

Encountering the Idea

Students, here we have a collection of leaves. Call your friend in and describe this leaf to your friend over the telephone. One or two students demonstrate and then students continue at the **Science Center**. You can't touch the leaves, only describe what you see.

Exploring the Idea

1. At the **Science Center**, using the sense of sight **only**, a student describes the properties of a leaf. At the center, the students take turns comparing the properties of various leaves. In describing a leaf, students use numbers such as one, two, three as appropriate to describe the leaf. This leaf is dark green. Look, you can see its veins. This one has five points on it. This one has only three. This one has some fuzz on it. This leaf has jagged edges, but this one has smooth edges. After they have finished their work at the center they will report to the class.
 2. The students go on a "sighted" (eyes open) walk and a "non-sighted" (blindfolded) walk. The students choose partners and take turns being blindfolded. The students compare the two walks, stressing the important role the eyes play in our everyday lives. When taking the walk, the students take care to observe the colors in the environment. They also note if they saw things moving, and if they saw things that were far and close. On returning they contribute to a list of objects observed and objects' colors. Teacher writes the responses on a chart.
 3. Students do **Activity** — Blind Man's Bluff.
 4. Students begin **Activity** — Colorful Eyes.
 5. Students do **Activity** — Eye Care.
- On another day the students go outdoors to use binoculars and a telescope, alternating between the close-up and distant lenses. On returning to class, the

students use hand lenses to observe their hands and fingers. They describe to each other what they see with the binoculars, telescope and magnifying lens that they can't see without them.

In small groups, the children contribute to a list of occasions (or draw illustrations) when binoculars, telescopes and magnifying lenses are used. They share the lists with the class.

At the **Mathematics Center**:

1. Students make a list of colors observed on a seashell (or on an insect, a small plant or a flower.) They count the number of colors. They compare the sizes and shapes of the shells, and other objects.
2. Students sort objects by color.
3. Students sort attribute blocks or jar lids by size. Order them from smallest to largest.
4. Students begin **Activity** — Colorful Eyes.

At the **Art Center** the students:

1. use colors made by mixing different tempera paints in their drawings. They say which color they want to make and then proceed to experiment with the colors until they get the one they want.
2. make a class mural of a rainbow first by cutting out magazine pictures of one

the opening, letting in more or less light. The lens focuses the light rays on the **retina**; the **cornea** protects the lens. When you look at your eyes in the mirror, you're only seeing a part of them. The whole eye is shaped like a round ball, most of it is inside your head and protected by your skull. Your **eyelids** and **eyelashes** protect your eyes too. Your eyelids make it possible for you to close your eyes, shutting out the light when you are tired. Closing your eyes makes it easier for you to go to sleep.

Light strikes something and bounces off. This reflected light, the light that bounces off the thing you are looking at, travels into your eyes through the pupil. As the light enters the eye, it passes through the lens. The lens helps to take out the fuzzy look of the thing you are looking at, focusing the image. As the light goes through the lens, it turns upside down! When the upside down image shines on the back of your eye, it strikes the **retina**. The **retina** contains the **optic nerve** that sends the message of what you are looking at to the brain. The **rods** and **cones** help us see shapes and colors and are a part of the retina. The **optic nerve** carries the message to your brain.

Then the brain decides what you are seeing. The brain decides what to do. When you look at the word **CAT**, your eye sends a message to your brain that you are looking at some writing in your book. Then your brain figures out or remembers the word, and you read **CAT**. Look at this word tag: **EYE**. Can your brain, with the help of your eyes, tell you what the word is?

Are **tears** important? Why? Yes, they keep your eyes wet, but they also help them stay clean. Did Brown Bear shed tears? Every time we blink, we wash the surface of the eye with tears. We can wash out dust and other things that get into our eyes. We should not rub them when they itch, though. What do you think we should do? Well, we can blink several times to make the dust or other object come out. We can also get help in cleaning out our eyes, but that should be done by an adult with clean water and cotton.

Let's try this now. Hold your head straight and look straight in front of you. Now, without moving your head, look over here. (Point to a spot that will require the students to move their eyes only.) How did you get your eyes to move? Yes, the eyes have **eye muscles** that move your eyes from side to side and up and down and around without moving your head. Let's try that. Can you feel your eye muscles moving your eyes? How does moving your eyes help you read?

Some people cannot see things as well as other people. Young people can usually see better than older people. When they have trouble seeing things that are close but can see things that are far away easily, they are called **farsighted**. When the opposite happens, and they can't see things that are far away but can see things that are near, they are called **nearsighted**. Wearing glasses helps correct seeing problems.

Organizing the Idea

1. Students complete **Activity** — Colorful Eyes.
2. Discuss and compare the class graph with that of another class.
3. Draw and label the parts of the eye.
At the **Writing Center**:
4. Given action pictures that have been cut in half, children imagine what the other half of the picture might look like. The children then select a picture they would like to illustrate and complete the missing half. The children dic-

tate a sentence about the picture. Example: I see a (boy, girl) running.

5. Students make a class book based on **Brown Bear, Brown Bear**. They draw a picture of a classroom object, then write their names and the name of the object under the picture. All the students' pictures are bound together and read using the pattern of **Brown Bear**.

Example: "Ricky, Ricky, what do you see?"
"I see a flag waving at me."

6. Cellophane glasses activity. Students make cutout glasses using different colors of cellophane paper. The students write or illustrate a story about what they saw with their glasses.

Closure and Assessment

Oral Assessment

1. What part of the body do we use to see?
2. What are some things you can see?
3. How could you tell what an object was if you couldn't see it?
4. Name at least three important parts of the eye.
5. Why is our eye like a camera?
6. Why do we need tears?
7. How do you care for your eyes?
8. Why is it important to take good care of your eyes?
9. What part of the eye gives the color?

List of Activities for this Lesson

- ▲ Blind Man's Bluff
- ▲ Colorful Eyes
- ▲ Eye Care

Objective

Students count to five.

Materials

Two blindfolds; bean bag

Procedures*Part I*

1. One child is blindfolded. The other children sit close together in a circle on the floor.
2. Spin the blindfolded person around three times, then release.
3. The children clap hands to signal to the blinded student where they are.
4. The blinded student finds another child and sits on the child's lap.
5. The blinded student feels the child's face, shoulders, arms, hands, legs and clothing. The blinded student tries to relate shape, size, and texture of the mystery child's hair and facial features to those of a child she/he knows.
6. The blind person tries to identify the child on whose lap he/she is sitting.

Part II

1. Working in pairs, one student is blindfolded. The partner leads the blindfolded student around the room.
2. After being blindfolded, the students make a list of things heard, felt and smelled.

Part III

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Objective

Students investigate eye color found most frequently among the boys and girls in the classroom.

Materials

Prediction graph; eye marker for prediction graph; eye color graph; eye markers for eye color graph; glue stick; small mirror; model of the eye

Procedures

1. Students predict which eye color they think will be found most often in the classroom by placing an eye marker on the prediction graph under the eye that is colored the color that they think will be found most often.
2. Students take turns looking into the small mirror to determine their eye color.
3. Students place an eye marker with their name on it onto the eye color graph under the color of their own eyes.

Discussion

1. Did the color that you thought we would find most often turn out to be the one that we did?
2. If we visited another classroom, would we find the same eye color more than any of the others? Why? Why not?
3. Would we find the same eye color to be the most common if we had looked at the girls' eyes? Boys' eyes?

ACTIVITY *Eye Care*

Objective

Students list different ways of caring for their eyes.

Materials

Magazine photos of people wearing glasses

Procedures

1. Use magazine photos to make a display showing people wearing glasses.
 - Are there famous entertainers or politicians shown?
 - How does wearing glasses change how people look? What do glasses make them look like?
 - What eye care products do you find advertised in magazines?
2. Discuss good eye care and list examples, such as using protective gear in sports and on the playground, and avoiding dangerous toys and pointed objects. Students make a list of ways to keep eyes safe.
3. Organize eye exams for your class. Ask the school nurse for her assistance.

LESSON

3

Hearing

BIG IDEAS The sense of hearing helps us learn from each other through communication. Sound can produce patterns.

Whole Group Work**Materials**

Book: **Hearing** by M. Rius, J. M. Parramón and J. J. Puig, then placed in the **Library Center**

Bag of large lima beans for the **Mathematics Center**

Sticks, balls and bells that produce sound

Sealed containers each holding one object or several different objects

Tape recording of five different sounds; pictures of corresponding objects

Radio

Earplugs

Yogurt containers or paper cups

A pencil

Lengths of string at least 12-feet long

Language chart

Tape recording of a fire alarm, a police siren, a shout for help; or other sounds signaling danger

Pamphlets showing a diagram of an ear, which can be obtained from an ear doctor

Encountering the Idea

The teacher goes behind a desk or tall bookcase so the students **cannot see** what she is doing. She rings a bell and asks the students to guess what she did. She repeats this with various objects that students cannot identify. She then writes a note on a piece of paper, and again, asks what she did. The students say they don't know because they can't see or hear. What sense were you using before? Hearing. Without hearing it is hard to learn about the world. We would have to use another sense.

What causes sound? You have to hit something? Is that the only way? You can talk. What else? These are the questions we are going to investigate in the centers, today, but before going to the learning centers, we are going to have group play.

1. The teacher claps her hands, taps her foot, rings a bell, etc., a certain number of times. The students count and tell how many times they heard a sound.
2. A child creates a pattern with different sounds (clapping, snapping his/her fingers, dramatic sound effects, high or low voices, loud or soft voices, musical instruments, stamping feet, etc.). Students repeat the patterns and create their own.

Tell students that sounds help us identify things. In one of the activities, students will try to identify sounds. They will then select their favorite sound and graph the information.

Exploring the Idea

At the **Science Center**, the students

- complete **Activity** — Sound is Vibration.
- complete **Activity** — Talking Tubes.
- complete **Activity** — Objects Vibrate.
- complete **Activity** — Hold the Phone, as below.

Students do the following:

1. Each pair of students receives two yogurt containers and a length of string.
2. The students make a hole in the bottom of each container with a pencil.
3. The students thread the ends of the string through the holes in the containers from the outside in, making a knot at each end of the string to keep the string ends from slipping out of the holes.
4. One partner stands at one end of the classroom while the other partner moves as far away as needed to make the string taut.
5. Each partner takes a turn speaking into the “phone” while the other listens at the other end. Keep the string taut.

At the **Mathematics Center**:

- The teacher prepares several sealed containers holding one object or a combination of several different objects. Students shake the containers and describe the sounds they hear. They predict what’s inside. They record their predictions and then open the containers and compare predictions with actual results.
- Students shake several sealed containers and predict what’s inside. They then try to find and match one container with another that has the same objects inside.
- Students take turns wearing blindfolds and listening to a partner drop beans on the table. One player drops one then two beans in succession, for example: drop ... drop drop. The blindfolded student says three - why? One plus two or one plus one plus one. The students use different sound patterns through five.

At the **Listening Center**, students listen to a prepared tape of various sounds and then guess what objects made the sounds, by matching sounds to picture cards. Then they sort the picture cards of sounds by soft and loud. Students listen to the sounds and arrange the pictures in the order in which they heard them.

At the **Music Center** the students identify the deepest, highest, loudest and softest sound in the taped sounds.

At the **Writing Center**, children wear earplugs to experience being hearing-impaired. Discuss and record emotions they felt on a language chart or individual sheets that can be compiled into a class book. The students discuss lip reading and sign language.

Getting the Idea

1. Read the book **Hearing**. The students discuss hearing as one of the five senses that we use to learn about the world we live in. They discuss the things they heard on their outdoor walks. Were all the sounds they heard pleasant? Was there noise? Music? Did they hear laughter? Crying? What did they learn about the world through the sense of hearing? Students make suggestions that are written on a chart to be used later in the **Writing Center**.
2. After discussing with the students the activity with the paper “phones”, ask for suggestions as to how they work. After the students have given their ideas,

explain that when the talking partner speaks, the air in the container vibrates. The string carries the vibrations to the container at the other end, and the listening partner hears them as sounds.

3. What makes the sounds that our ears pick up? (Vibrations that travel in the air.) Things need to vibrate before we can hear them. Did the paper phones vibrate? The rubber band? Your throat?
4. As you show a diagram of the external and internal ear, describe how the **ears** work. Play the tape recording of one of the sounds, or play a radio. Ask the students to place their hands on the radio to feel the vibrations. Tell them we can hear the music or the voice coming from the radio or tape player because it is vibrating — it is making the air vibrate or move back and forth. As the air moves back and forth, or vibrates, it makes **sound waves**. The sound waves travel through the air in all directions. The waves reach the **outer ear** and travel through the **ear canal**. As they travel in the ear canal, they strike the **eardrum**, and make it begin to vibrate. These vibrations make other parts of the ear, called the **middle ear**, vibrate.

As the middle ear begins to vibrate, a small part in the **inner ear**, called the **cochlea**, begins to vibrate. The cochlea is a small bone shaped like a seashell that is filled with liquid. As the shell, or cochlea, begins to vibrate it makes the liquid inside it vibrate. The vibrations of the liquid tickle tiny hairs that line the cochlea, causing them to vibrate and send a message to the **auditory nerve**. This nerve also acts like an electrical wire and sends the message to your brain. Remember, all of this has to do with vibrations.

When the brain receives the sound message, again it figures out what the sound is, what is making the sound (the vibrations from the radio) and what you should do about it (enjoy it if it is your favorite group). In the morning if you hear your mother telling you to get up to go to school, you get up and hurry.

Your ears do more than just hear sounds — they help us keep our balance. The **inner ear** helps us know if we are sitting, standing, lying down, or hanging upside down! You know also that you can make yourself very dizzy and even sick to your stomach by spinning yourself around for a long time.

Sounds can also help us get away from danger. Ask the students to describe the process that they follow when there is a fire drill. What warns us of danger?

5. Ask students why they think that the class favorite sound was _____ in the survey. After their explanations, ask them if all the sounds they hear are pleasant? unpleasant? What does their sense of hearing tell them about sounds?
6. What else does our sense of hearing do for us? (It warns us of danger.)

Organizing the Idea

1. Students study a sign language chart and pick out three words that they learn to sign. They show what they have learned to the class.
2. Working in pairs, students practice lip reading from each other. They decide on a message first and say it without sound, and the partner reads the lips.
3. Discuss with the students the proper care of ears. They make posters for hall display indicating proper ear care and safety. At the **Writing Center**, students dictate sentences listing what you should do and should not do to your ears.

Applying the Idea

Invite a piano tuner to demonstrate to the class how the sense of hearing helps him or her perform the job. What kind of training does it take to become a piano tuner?

Invite a police officer, fire fighter or soldier to tell the class what the hearing requirements are for the type of work he or she does. Why is the sense of hearing important for each one of these jobs?

Closure and Assessment

Oral Assessment

1. How do we communicate with each other?
2. What part of your body do you use to hear?
3. Could you communicate if you couldn't hear? How?
4. How would you feel if you couldn't hear? Why?
5. Why and how do you have to take care of your ears?

Performance Assessment

Put pictures of objects in a box. Students sort them by things they can hear (that make noise) and things they can't hear (don't make noise).

Written Assessment

Given labels for ear parts and a diagram of the ear, students place labels on a ear diagram.

List of Activities for this Lesson

- ▲ Sound is Vibration
- ▲ Talking Tubes
- ▲ Objects Vibrate
- ▲ Favorite and Alarming Sounds

ACTIVITY *Sound Is Vibrations*

Objective

Students can say that sounds are caused by vibrations in things.

Materials

Different-size bottles; same-size bottles; water; wooden spoon or stick; seven-eight glasses that are the same shape and size

Procedures

The teacher demonstrates that the vibration of air in a container causes sound.

1. Fill bottles of different sizes and bottles of the same size with the same and with different amounts of water.
2. Students predict what will happen if they blow across the tops of the bottles. The students then go ahead and blow on the bottles, trying to see if there is a pattern among the different sounds the bottles make.
3. The students try to sequence the sounds from lowest to highest.
4. If the students are interested, they can make a water marimba. Fill several same-size drinking glasses with water at different levels and strike lightly with a wooden spoon or stick.
5. Students discuss high and low tones in relation to the amount of water in the identical containers.

Getting the Idea

1. What was vibrating that was causing the bottles to make different sounds? (The air inside the bottle.)
2. Did all the bottles have the same amount of air in them? (No, the ones that had a lot of water had only a little bit of air at the top.)
3. When you were hitting the glasses in the water marimba, what was vibrating? (The glasses and the air were vibrating. That is why all the glasses have to be the same shape and height, otherwise the sounds would be different.)

ACTIVITY *Talking Tubes*

Objective

Student can say that sound travels.

Materials

Paper-towel tubes; a ticking clock or timer; plastic tubing six feet to eight feet in length (available at hardware or pet stores); two funnels; masking tape

Procedures

1. Place a ticking clock or timer on one end of a wooden table. Place one opening of a cardboard tube on the other end of the table. The students take turns holding an ear to the other end of the tube to hear the ticking coming through the tube.
2. Attach a funnel to each end of the plastic tubing, using masking tape. Partners stand six to eight feet apart while one whispers a message to her/his partner too quietly for the partner to hear. The first child then whispers the message into one of the funnels while the second child listens through the other. The partners take turns listening and whispering.

Getting the Idea

Explain to students that the ear is something like a tube with a funnel. Sound comes in through the outer part of the ear — which is like the funnel — and travels through a tube called the auditory canal.

Ask the students to list every object that was vibrating to make the sound heard. (The clock, when it ticked, vibrated, and because it was sitting on the table made the wood vibrate; the sound traveled through the wood and through the air in the cardboard tube to the person's ear.) When the students whispered without the aid of the funnel, the sound was not loud enough to be heard from that distance, but it did cause vibrations, otherwise you could not have heard whispering. The sound waves also traveled through the air and through the funnel.

After this activity, the teacher gives the rest of the explanation of the way the ear functions in hearing.

ACTIVITY *Objects Vibrate*

Objective

Students can say that sound is produced when objects vibrate.

Materials

Tuning fork; pan with water; cereal flakes; rubber band; drum; radio; paper towels

Procedures

Students:

1. Strike a tuning fork and dip it in water.
2. Sprinkle cereal flakes on a drum, then tap the top of the drum.
3. Stretch a rubber band between two fingers and pluck it; stretch the elastic farther and pluck it again.
4. Put your hand on the top of a playing radio. Describe sounds and changes of sounds of different objects.
5. Put your fingers on the front of your throat, very close to your “voice box.” Be careful that you don’t press hard enough to hurt yourself. Make a noise. Describe what you felt in your throat as the noise was coming out.

Questions

- What did you feel when you touched the tuning fork after you hit it?
- What did the rubber band do when you plucked it? What did it do when you stretched it farther and then plucked it?
- What was each one of these objects doing as it was making a sound, including your throat?

▲ ACTIVITY *Favorite and Alarming Sounds*

Objective

Students say that sounds can warn us of danger.

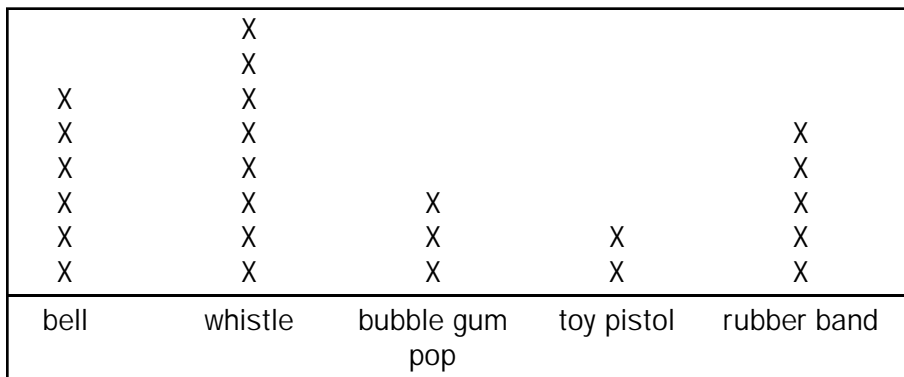
Materials

Sticks; balls; bells

Tape of sound of the siren, cry for help, fire bell, etc.

Procedure

Hide several objects (sticks, balls and bells that produce sound) behind a box or board. Students listen to the sounds each object makes and guess what it is. The students make a graph of the number of students that prefer a particular sound; they graph the data and from the graph, select the class favorite sound.



Students listen to the sounds of the siren, cry for help, etc. How are these alike? People are in danger and our sense of hearing helps us detect that danger.

LESSON

4

Touch

BIG IDEAS The sense of touch helps us learn about our world by feeling it and learning the size, texture and shape of things.

Whole Group Work

Materials

Book: **Touch** by M. Rius, J. M. Parramón and J. J. Puig.

Paper and pencil for each student; fingerpaints; four or five boxes, each having different-textured materials; paper towels

One-inch squares of sand paper, cotton cloth, plastic, wool cloth, silk, orange peel, hand lotion (greasy), tape (sticky), piece of adhesive tape with dirt stuck on it (grainy); other things of different textures

Three pans of water; one is at room temperature, one is cold, and the other is fairly warm, the differences being sufficient for the students to sense them. In one of the pans put some sand, in another small pebbles and in another some other objects they can feel; it doesn't matter which material goes into which pan.

Word tags: smooth, soft, hard, grainy, rough, skin, etc

Encountering the Idea

Ask the students what part of the body they use to see. Eyes. To hear? Ears. Taste? Tongue. Feel? All over the body? Does your hair "feel" it when you cut it? What about your fingernails? Why doesn't it hurt when you cut your fingernails? You feel with your skin. Only the skin? If you break a bone does the bone hurt inside? Can you feel under your skin? Yes, your sense of feeling is everywhere in your body. We will discover a lot of the answers to these questions as we perform our activities.

After this discussion, begin the lesson by going on an outing. Students go out into the playground and take several sheets of paper and a pencil. Students select things to trace on paper, e.g., brick wall, sidewalk, leaf, penny, etc. When the students return to the classroom, they describe the textures using appropriate adjectives and write about the textures in their journals. What did you trace on this paper? (A wall.) How do you know this is a leaf? Is it rough, smooth?

At the **Science Center**, the students work on these activities:

1. Each child removes a shoe and sock and feels the inside of several "feeling" boxes with a bare foot. The students describe what they feel.
2. The students put their hands in a pan of cold water and describe how it feels. Then they put their hands in a pan of water at room temperature and describe how it feels. Then they put their hands in a pan of warm water (make sure it is not too hot) and again they describe what they feel. Can they feel **the water temperature and the texture at the same time?**

3. Ask students to put a bare foot into the pan with water at room temperature and ask them what they feel. Again, can they feel that they are touching something wet and something rough **at the same time**? Ask the students, if they were to put their **bare foot** into the cold water would it feel colder than if they touched it with their hands? Why do they think that cold (or warm) feels colder (or hotter) on the soles of the feet than on the hands? Do they like to walk bare foot on grass? rough stones? Why? Why not?
4. Place several objects of various sizes and shapes in a bag. Ask a child to reach into the bag to find an object and to identify it using only the sense of touch. The child shows the object, then asks another child to find a bigger or smaller object than the first. Can they feel several things **on the same object**?
5. Read the book **Touch** by M. Rius, J.M. Parramon and J.J. Puig to the class. Discuss the main idea of the book. Tell students that they will investigate more about the sense of touch in several activities. The first activity involves going outside to discover more about the sense of touch.

Exploring the Idea

At the **Mathematics Center**:

1. The students graph the class's favorite texture. Discuss which is favorite, least favorite, etc. Students graph the class "Touch" preference and discuss during the **Getting the Idea** phase.
2. The students working in pairs take turns giving each other beans to count. One student is blindfolded and puts hands over his/her ears. The partner gives the student the beans, again in patterns, for example: $1 + 1 + 2 = 4$, but is very careful not to make noise that would give away the number of beans he/she has. The students count the beans **using only the sense of touch**.
3. Students make patterns by using rough, smooth, bumpy textures, for example, rough, rough, soft, sticky, rough, rough, soft, sticky, etc. They describe their patterns verbally and draw in journals.
4. Students order by size the various objects they selected from the bag during the whole group activity, from largest to smallest and then smallest to largest.
5. The students sort the objects by shape into categories, or if the objects are not geometric shapes, then students sort in any way they wish — function, color, etc.

At the **Writing Center**, the students construct a barefoot book in which they draw and write about how things feel with bare feet — which feelings they like and which they don't.

At the **Science Center**, the students construct a "Feelie Book" in which they tape or glue a different material or object on each page. Students label each page

2. At this time, the students report on the work they did at the **Mathematics Center** and show their graphs. They explain their graphs and describe the patterns they made using the appropriate adjectives.
3. What did we learn about our world by touching? Can we touch the moon? Can we touch a star? What sense do we need for that? Can you touch thunder? Can you touch a cloud? What senses do we need for that?
4. What did we learn about size and shape of things using our sense of touch?
5. Show the students the diagram of the epidermis. Tell them: The sense of touch is also very important. We use it in several ways. Since our **skin** covers all of the body, our skin protects us, and at the same time it gives us information about what is around and outside your body. When we touch something our skin tells us if that thing is strange or familiar, wet or dry, hot or cold, rough or smooth, hard or soft. Many times it gives us messages about all of these things—all at the same time. The skin protects our body in another way—it keeps out harmful organisms that cause disease and infection. For example, if we cut a finger, we put a Band-aid over the finger to keep out dirt that carries organisms that cause infection. The skin is like a giant Band-aid over our body that helps keep out organisms.

All the information we receive by our sense of sight and by our sense of hearing comes to our brain through **nerve endings**. It is the same with our skin. The **epidermis**, or the top layer of your skin, contains many, many nerve endings all over your body. These nerve endings send messages to your brain telling you what kind of thing you are feeling. Then your brain figures out what it is, and if there is something you need to do about it. For example, if your friend puts a piece of ice on your neck, the nerve endings in the skin of your neck send a message back to your brain that says: **ICE!** Your brain decides that you don't want ice on your neck and it sends a message back to your body to **move** and maybe even **yell**.

Your sense of touch can do several things. When someone or something touches you, you can feel that it is touching you, but you can feel that you touch it back. You can also feel how hard something is touching you. We use special nerve endings to feel pressure. Sometimes, if we press too hard, we get a bruise on our skin.

One thing that we don't like about our sense of feeling is that we can feel pain. If we touch something that is hot, it hurts us, and we immediately take our hand away. That is one way our sense of touch protects us.

Body hair and fingernails are also part of the skin. Your hair does not have nerve endings on it and does not send messages to the brain. Cutting our hair and nails when they get too long causes no pain. Fingernails and hair, however, also protect our bodies.

Applying the Idea

Something for you to think about and research

Invite a physician to speak to the class about how she or he uses the sense of touch to help diagnose illness. What do they touch when a person is well, or when they are sick? Why does a doctor put a thermometer in your mouth? What does a thermometer do? Why does a person's skin feel hot when he or she is ill?

Closure and Assessment

Oral Assessment

1. How does the sense of touch help us learn about the world we live in?
2. How can you tell if one thing is bigger than another if you can't see it?
3. What else can you learn about something that you can't see, but you can feel?
(Shape: round, straight, bent, curved, broken.)
4. What part of your body do you use for the sense of touch?
5. How do you take care of your skin?

Performance Assessment

1. Count and tell how many apples there are in this bag, without looking. Tell your teacher how you did it.
2. Can you tell if I have more apples or more oranges in this bag without looking? Show your friend and if he or she agrees your idea is correct, then show your teacher.
3. Put on a blindfold. Using these shapes, sequence them by making a pattern; then, tell your teacher what pattern you made.

LESSON

5

Smell

BIG IDEAS The sense of smell helps us to enjoy life and helps us learn about unsafe conditions.

Whole Group Work

Materials

Book: **El cuento de Ferdinando** by M. Leaf

Matches; diagram of the nose; sandpaper; cinnamon stick; cutout pictures of flowers; cotton ball or fabric; pictures or picture books of animal noses; various pieces of food (apple, potato, orange, lemon, grapefruit, etc.); four containers with clear liquid (water, mineral oil, vinegar, alcohol)

10 baby food jars, each one containing a scent (alcohol, garlic powder, onion, cinnamon, etc.) for the **Science Center**

Encountering the Idea

1. Read and discuss **Ferdinando**, a story of a bull who loves to smell flowers. Identify the smells in the story. List them on a chart as pleasant and unpleasant for use at the **Writing Center**.
2. Give students four containers with clear liquid (water, mineral oil, vinegar, alcohol). Students classify the content in the containers according to whether it **smells or does not smell**.
3. Light a match. Ask students what they smell. What does the smell tell them? Discuss and list how the sense of smell warns us of danger. Example: smoke from fire, bad smell in rotten foods, smell of gas from stove. Brainstorm other ways the sense of smell helps us in times of need.
4. Use pictures or picture books of animal noses and have the children name the animal that goes with the nose.

Exploring the Idea

At the **Science Center**:

1. Students complete **Activity** — Using Your Nose.
2. Each child opens one baby food jar at a time and sniffs. Each child places a picture of what she thinks is inside on top of the jar. Then students compare results and decide on the correct match after discussion.
3. Working in pairs, students take turns being blindfolded and trying to identify food substances given to eat. Next, they pinch their noses and remain blindfolded while they eat the food (apple, potato, orange, lemon, grapefruit, etc.). They check to see which foods they could identify without smelling them.

At the **Mathematics Center**:

1. The students graph which nose the class liked the best.
2. Create sets of noses (snouts, trunks, etc.) by sorting pictures.
3. Create nose patterns (with pictures or prints of noses).

At the **Art Center**, the students

1. mix aromatic oils or extracts into tempera paints and use to paint pictures.
2. rub a piece of sandpaper with a cinnamon stick. Students cut the sandpaper into squares and punch a hole at the top of each square. They put a piece of yarn through the hole to make a necklace. Students verbally express what a cinnamon smell reminds them of.
3. draw or trace and cut out pictures of flowers. In the center of each flower, glue a cotton ball or fabric dipped in aromatic oil or extract. Children display their flower garden and describe it using appropriate vocabulary related to the senses. Students write descriptive words on butterfly cutouts and hang or staple around the flowers. Students discuss why butterflies are attracted to flowers (sight, smell).

At the **Drama Center**, the students pantomime smelling different smells such as flowers, smoke, mud, perfume, dirty socks, rotten eggs, etc. One of the students pantomimes one event, and a partner guesses what the smell is. They take turns.

Getting the Idea

1. Use the diagram of the nose to explain the following about the sense of smell:

The sense of smell is very important to a person. Our nose helps us know more about the world we live in than we do when we just touch things and people or just see them. We say that some things smell good and that some don't. We say that some foods taste good and some don't. How can the nose do this?

The sense of smell starts with your nose, but it includes other parts of your head and your brain. Let's use the example of the burning match to help us understand how this sense works.

Here is how your nose works. When the match started to burn, tiny little particles of ash that came from the match floated through the air. These small pieces of material are too small for us to see, but the nose is sensitive to them and can smell them as they travel through the air into your nose. When the small pieces of ash "tickle" the nerve endings of the **olfactory nerve**, which is like an electrical wire on a telephone, the olfactory nerve carries the message to your brain telling it that you are smelling a burning match. This nerve is located (here, pointing on the diagram) high up on the nasal passage. We don't always smell an odor right away because it takes time for the small particles to travel in the air and then into your nose to the nerve endings. When you have a cold, and your nose is all stuffed up, why do you think you can't smell something like perfume or taste your food?

Human beings have a very weak sense of smell. As people evolved and began to use reason more, they didn't need to smell things quite as well as other animals did. They could use their eyes and their brains in a different way. There is one way your sense of smell is different from all your other senses. After sensing a particular smell for a while, your sense of smell gets tired. When you first come into the house, you can smell dinner cooking, but after that your olfactory nerves get overtired and then you don't smell anything at all.

Some people develop their sense of smell for a special use. A perfume maker can tell all the different flowers from each other by their different smells. A wine maker has the same talent for telling wines from each other by their smell.

Smell is one of the ways we have of knowing about our world and enjoying what it has for us. Close your eyes and smell a rose, or after a long winter, go outside. That nice green smell tells you spring is here.

2. Discuss the use of noses by animals and by people.
3. Which senses do you use in tasting? Can you taste something if you can't smell it? Which of the foods can you still taste even if you can't smell them?

Organizing the Idea

At the **Writing Center**, classify the pleasant and unpleasant smells listing them on a chart for later reference. Students choose an animal they would like to be and fill in the frame sentence: If I were a _____, I'd like to smell a _____.

Applying the Idea

Discussion

Present this situation to your students:

You go on a trip in your car with your family. You take sandwiches to eat, but you stop at a restaurant to have dinner. The next day you want to eat your sandwiches, but when you open the package, the sandwich smells "funny." What should you do?

Closure and Assessment

Oral Assessment

1. How can the sense of smell warn us of danger?
2. If a person is blind, how can he tell if there's a fire or other danger?
3. Why is the sense of smell so important?
4. Describe the best smell and the worst smell you've experienced. How did it make you feel?
5. What part of your body do you use to smell with?
6. How does the sense of smell help us enjoy life?

List of Activities for this Lesson

- ▲ Using Your Nose

ACTIVITY *Using Your Nose*

Objective

Students investigate the relationship between how a given food looks and how it tastes.

Materials

One enveloped unflavored gelatin; sugar; food coloring (different color for each group); water

Procedures

Day 1 — Divide class into small groups. Each group makes unflavored gelatin and places it in the refrigerator overnight to set.

Day 2 —

1. Each group looks at one color of gelatin and guesses possible flavors simply by sight. They graph their favorite color gelatin.
2. Repeat using only sense of smell and graph favorite-smelling gelatin.
3. Finally, taste and brainstorm possible flavors. Graph favorite-smelling and favorite-looking gelatin.

Ask students:

1. What did the graphs show?
2. Did you change your minds about your favorite gelatin **after you had tasted and smelled it?**
3. What role did your eyes and nose play in tricking your senses?
4. What foods look better than they taste?

LESSON

6

Taste

BIG IDEAS Taste helps us, among other things, to select and enjoy food. There are four familiar tastes.

Whole Group Work

Materials

Book: **Taste** by M. Rius, J. M. Parramón and J. J. Puig

Mirrors (one for every two students, at least); chart; fruits to cut into small pieces; toothpicks; Q-tips, two for each student; pictures of people eating; pictures of foods people can eat and foods **people should not** eat; small pieces of various foods for taste test (including sweet, sour, salty, bitter; e.g., cookie, lemon, cracker, banana peel); glasses of salt, sugar, lemon, and baking soda dissolved in water; individual, small diagrams of the tongue; water and cups for cleaning tongue; bag of M&M candies; Sweet Tarts candies; fruits to cut into small pieces (include lemons and banana peel or grapefruit peel); small pieces of pear, apple and potato for each child

Word cards: sweet, sour, salty, bitter, tongue, taste

Encountering the Idea

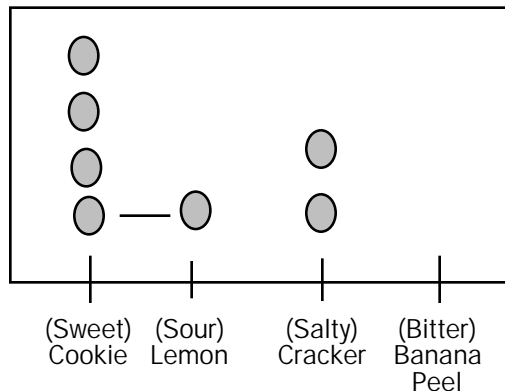
Introduce the lesson by having students dip one end of a Q-Tip in the solutions of salt, sugar, lemon, and baking soda, one substance after another, and having students taste each. After each student has tasted the liquid, the students describe the flavors. Students clean their tongues after each tasting. Ask the students to explain what helps them taste the different tastes that were in the solutions. Help them speculate about what happens on the tongue for them to be able to taste. As the students give suggestions, write the relevant ones on the chart to be used later in the **Writing Center**. The students relate each taste to foods that have similar tastes making a list to be used later.

Before reading **Taste** to the students, ask them what they think it might be about. After reading the book, have them compare their predictions with the content of the book. Caution students that they need to be careful about what things they taste. Tell the students that in the learning centers they will learn more about taste.

Exploring the Idea

Students collect data to be used in selecting the class favorite taste. They predict which among the common flavors such as salty, sweet, sour, or bitter is preferred. Several small pieces of various foods can be prepared and offered to the students to eat. This way, there is a common sample from which to select the foods they like and those they do not. They make a tally of how many people like a particular food by grouping by fives (| | / | |). Tell the students that in collecting this information they have to make sure that everyone's vote is counted. They can do

this by making one and only one mark for each person's vote, such as drawing a happy face if they like. Ask the students: Did each person draw one and only one face? Does each happy face have a person who drew it? If that's true, then we know that everyone voted, and voted only once. What do you do to see what the **favorite** food is? Yes, count the happy faces for each food and compare. Which food got the most votes? How do you know? How can we tell when one number is greater than another? What is one way? Yes, you can match the happy faces to see which taste received more votes. What about Banana Peel? How many voted for that? What number tells us that Banana Peel did not get any votes? Yes, the number zero.



At the **Mathematics Center**:

1. The students, working in small groups, use the taste graph to select the class favorite food and decide whether it is salty, sweet, sour or bitter. They report their selection to the class during the "Getting the Idea" phase of the lesson.
2. Children wash and cut different fruits into small pieces and sort the pieces of fruit in as many ways as possible. They discuss the outcomes.
3. After the fruit is cut, each child is given a wooden skewer or toothpick and creates a patterned fruit kabob focusing on a number such as five, six (one more than five) or some other number.

At the **Writing Center**:

1. The students locate and label the taste spots of the tongue.
2. Students complete sentences:
 _____ tastes like _____. (This is relating one taste to some other similar taste).
 You can taste _____. You should not taste _____. (Three things that can be tasted and one that should not be tasted.)

At the **Science Center**, students complete **Activity** — Taste Areas.

Getting the Idea

1. Discuss why it is difficult to try counting by using **taste only**.
2. Compare and discuss the results of the favorite food survey. Which foods do more people like and do not like? How do you know?
3. When you looked through the magazines for pictures of people eating, which tastes did these foods have: sweet, sour, salty, or bitter? Which pictures were the easiest to find in the magazines? Can you guess by looking at the pictures, which taste is in most common foods?

4. The students verbally describe the pattern each created using taste vocabulary — salty, sweet, bitter, sour. Example: salty, salty, sweet, sour, etc.
5. Provide each student with one or two M&Ms candiers and Sweet Tarts, a piece of lemon and a piece of banana peel or grapefruit peel, a piece of apple or pear and a piece of potato. Display the diagram of a tongue and describe the function of the tongue. The **tongue** is the main body part we use for tasting food. Remember, we already talked about the nose helping us in tasting food, but it is the tongue that carries messages about what you are eating to the brain. We know that the senses such as sight, hearing, touch and smell are possible because the nerve endings in the eye, the ear, in the skin and in the nose send messages to the brain, and the brain decides what to do about the message. It is the same with the tongue.

The tongue is a muscle covered with many small bundles called **taste buds** that have many nerve endings. Different parts of the tongue have small bundles, or taste buds, that perform different jobs. We can only taste four different flavors — sour, salty, bitter and sweet— because the taste buds can only perform those jobs. For example, at the front of the tongue, taste buds mostly taste **sweet** tastes like sugar and honey. Now, let's all taste the piece of lemon you have at your desk. Can you tell where you are tasting it? Yes, sour tastes make the sides of your mouth begin to water because the sides of the tongue taste **sour** tastes like lemons or vinegar. Now, try tasting the banana peel. Where can you taste it? In the back of your tongue? Yes, the taste buds at the back of the tongue taste **bitter** tastes like grapefruit or banana peel. The taste buds for **salty** tastes are all over the tongue. We can taste salt on every part of the tongue.

There is another important thing to remember about taste — it is the part **saliva** plays in helping you taste your food. Get one of the M&Ms and put it on the top of your tongue. Can you taste the candy? No, we have to get it wet with saliva, chew it and mix more saliva with the candy before we can begin to taste it. The saliva mixes with the food and spreads the flavors all over the tongue. The different taste buds begin their jobs and you can tell if the candy is sweet, sour, salty or bitter. Let's taste the Sweet Tarts. Where can you taste them?

Remember, we said that being able to smell something we are eating is an important part of tasting it. When you have a cold and your nose is stuffed, can you smell your food? Does your food have a good taste, or does it all taste the same? Try this experiment: Close your eyes and hold your nose. Now, taste the pieces of pear, apple and potato you have. If you don't smell the food, can you tell the difference between the taste of pear, apple and potato?

Do you think it is a good idea to taste something that is not familiar to you to find out what it is? Why? Yes, it could be something that is not good to eat. Some things look good, but **can be very dangerous**. If we are offered food we don't know about (for example, when we go trick-or-treating during Halloween) or we want to find out what kind of food something is, we should not taste it. We should ask a parent or relative if it is safe to taste it.

 Organizing the Idea

At the Science Center:

1. The students cut out pictures of foods and glue on appropriate areas of the tongue.
2. Provide students pictures of many different foods. Students sort the pictures in as many ways as possible related to tastes. Provide pictures of things that **should** and **should not** be tasted.
3. Students, using a mirror, look at and describe their tongues. Encourage them to describe the texture, color, etc. of the tongue using the vocabulary learned in previous lessons.

 Applying the Idea

Do animals have a sense of taste? Design an experiment to see if a cat (or dog) has a sense of taste.

 Closure and Assessment

Oral Assessment

1. What are the four familiar tastes?
2. What part of the body do we use to taste?
3. What does the sense of taste teach you about the world we live in?
4. How does taste help us select and enjoy food?
5. What would happen to you without the sense of taste?
6. Describe how the sense of taste and the sense of smell are related.
7. What are some things that should not be tasted?

Performance Assessment

1. Tell your friend how the sense of taste and the sense of smell are related.
2. Using a mirror, point to the places on your tongue where you would most likely taste a candy bar, potato chips, lemon juice, and a grapefruit peel.
3. Using these two-color chips, show your partner all the ways you can make four, five, six or any number you want to show.

**List of Activities for this Lesson**

- ▲ Taste Areas

ACTIVITY *Taste Areas*

Objective

The students say that they taste different flavors on different parts of the tongue.

Materials

Variety of food samples; water; paper cups (one for each type of food); chart paper; box of toothpicks; markers; blindfold

Procedures

Students work in pairs.

1. One partner wears a blindfold.
2. Using a toothpick, place a small amount of one type of food on the region of the tongue identified as "1" in the illustration. The blindfolded student judges the taste with the mouth still open so the food sample is not spread to other regions of the tongue.
3. Record the judgment each time. Rinse the mouth with water between tastes.
4. After placing the first food type on all four regions of the tongue and recorded, taste the next food.
5. The partner performs the test.
6. Students draw and write about the flavors the tongue tastes.

LESSON

7

Altogether, Now

BIG IDEAS We learn best about our world when we use our five senses at the same time.

Whole Group Work**Materials**

Book: **El País de los Cinco Sentidos** by E. Larruela

Small package of candies, such as M&Ms, chocolate kisses, or Skittles, wrapped so the candies can't be seen

Objects such as an alarm clock, telephone, peanuts, a picture of a television, a bell, a whistle

Pictures of people using more than one sense

A peanut in the shell for each student

Chart

Five boxes placed in **Science Center**

Encountering the Idea

Begin the lesson by giving each student a peanut. Ask the students to describe the peanut to the class. If they do not report on all of these observations ask: How does it look? How does it feel? How does it smell? Sound? The students crack open the peanut. Repeat the questions. The students taste the peanuts. The students dictate simple sentences and an experience with peanuts. Write the relevant words on a chart for later use at the **Writing Center**.

Tell the students that in the centers they will work with all the five senses to see how the senses work together to give us more information than is available when we use only one sense.

Exploring the Idea

At the **Science Center**, students label each of five boxes with the name one sense. Several objects such as an alarm clock, a telephone, peanuts, a picture of a television, a bell, a whistle, etc. are sorted by one sense used with these objects. The categories will vary among students. Discuss how we often use more than one sense when using objects and classifying them.

Student complete **Activity** — We Need Five Senses.

Students complete **Activity** — All Five.

At the **Mathematics Center**, students working in groups of four receive a small package of candy. Students describe what they see; estimate how many candies are in the package; smell the package and describe the smells. They graph the class favorite; first based on sight (do not open wrapped candies), second on smell (smell unwrapped candies). After opening the package, count the pieces to check the number estimates. Then students taste the candy and graph their favorite.

At the Writing Center:

1. Students write about their experiences with food as a story with the title “Foods That Taste Better Than They Look” or about “Foods That Look Better Than They Taste.”
2. The students write and complete frame sentences such as:
I can (*smell*) a peanut and I can (*taste*) a peanut.
I can (*feel*) a flower, and I can (*smell*) a flower.
I can (*smell*) a (*pizza*). But I can't (*smell*) a (*glass of water*).
I can (*feel*) air, but I can't (*smell*) it.

At the **Drama Center**, in an oral presentation, students try to persuade the rest of the class to try their favorite fruit in a different manner. Examples: putting red pepper on an orange; eating bananas with peanut butter and mayonnaise in a sandwich.

8. Is it easier or harder to live without all five of the senses? Why?
9. What part of our body do we use for the sense of sight? Hearing? Touch? Smell? Taste?

Getting the Idea

Read and discuss the book **El País de los Cinco Sentidos** by E. Larruela.

Organizing the Idea

1. Students draw or cut out pictures showing people using more than one sense. Students tell what senses the pictured people are using. How many pictures could students find for each sense?
2. Student compile completed work into a class Big Book.

Applying the Idea

Problem Solving

Working in pairs or in small groups, students show with two-color counters that 0 plus five and five plus zero are other names for five. Can they show another name for four? Another name for zero?

Closure and Assessment

Oral Assessment

1. How can we identify each fruit without looking?
2. Can you feel color? Smell it? Hear it?
3. Can you feel light? Smell it? Hear it? Taste it?
4. Can you feel a star? Hear it?
5. What are the five senses?
6. Why is it important to use all five senses?
7. What would happen to someone who didn't have all five senses? Why? Can a person substitute one sense for another?

Performance Assessment

Using these counters, show all the different names for five.



three plus two



two plus three



one plus four



four plus one

List of Activities for this Lesson

▲ We Need Five Senses

▲ All Five

ACTIVITY *We Need Five Senses*

Objective

Students say that they obtain more information if they use more than one sense to identify substances.

Materials

Five blindfolds; chart paper and marker

Five baby food jars, each containing one of the following: salt, sand, granulated sugar, powdered sugar and cornstarch

Procedures

1. Choose five volunteers who have not seen the jars containing the five substances.
2. Seat the volunteers at a table, blindfold them and give each one a paper and pencil.
3. Place one of the jars in front of each volunteer.
4. Ask each student to feel the content of the jar and whisper it to the teacher. The volunteers are not to taste what is in the jar, and they are not to say aloud what they think it is.
5. The teacher records the written responses on a chart.
6. Rotate the jars one position to the right.
7. Again have the volunteers feel the contents and whisper to the teacher what they think the substance is. Record the results on the chart.
8. Continue until each of the volunteers identifies all five substances using only the sense of touch.
9. Be sure the chart is where volunteers will not see it, and remove the blindfolds.
10. Place the jars in front of the volunteers in a different order from that of step 4.
11. Ask each volunteer only to look at the substance in the jar and whisper to the teacher what it is. The volunteers are not to taste or feel the substance. They are not to give their answers aloud, and they must not look at each other's responses.
12. Again rotate the jars, recording the responses of each participant.
13. When all five substances have been identified by all five participants by both touch and sight, let them use other ways to identify the substances. If they suggest tasting, assure them that none of the substances is harmful to taste.

Discussion

How accurate were the responses from the sense of touch alone? From the sense of sight alone? From a combination of these, and possibly with help from the sense of taste? How do the senses depend on each other? How do all five senses help us to know what is happening around us?

ACTIVITY *All Five*

Objective

Student say that we can learn more about the world if we use our five senses at the same time.

Materials

Pieces of orange, carrot, celery, cantaloupe, grapefruit, potato, apple, pear, banana, with the peel of each cut off; wrap each piece in a piece of paper napkin; names of each fruit or vegetable on cards

Blindfolds for $\frac{1}{3}$ of the children in the class

Procedures

1. Do not show the students the food or tell students which foods you are using; tell them that they are to identify each food using only one sense at a time.
2. Blindfold one group of students (about $\frac{1}{3}$ of the class) and give them a combination of three wrapped pieces of food (for example, apple, pear, potato) to identify by smell only.
3. After identifying the foods by smell, the children pick out the cards with the names of the foods they guessed, open the packages and check the results.
4. Next, blindfold another group (about $\frac{1}{3}$ of the class) and give them a combination of three wrapped pieces of food to identify by touch only.
5. After identifying the foods by touch, and selecting the appropriate name cards, the children open the packages and check the results.
6. The last group does not wear blindfolds. Give this group the three wrapped pieces of food to identify by touch, smell and appearance. They, too, select the appropriate name cards.

Discussion

- Which group of children was able to identify the foods most easily? Why?
- If this had been a contest, would it have been fair to award the prize to the last group? Why?
- What does this activity tell you about the way we learn if we use our five senses?
- Which foods were the easiest to guess? Why?
- Which foods were the hardest to guess? Why?

References

Annotated Children's Books

Aliki. (1962). *My five senses*. New York: Harper Collins Publishers.

This book gives a good overview of the five senses and explains that sometimes we use just one or two senses, sometimes all five.

Brenner, B. (1977). *Caras*. New York: E. P. Dutton.

Photographs show the reaction of the senses to both pleasant and unpleasant stimuli.

Broekel, R. (1988). *Tus cinco sentidos*. Chicago: Children's Press.

The book explores the five senses through photographs and answers questions posed by the author.

Larreula, E. (1984). *El país de los cinco sentidos*. Madrid: Editorial Teide, S.A.

In this fantasy world all senses are separate and only one sensation can be experienced at a time. The senses unite and become what we are today.

Sight

Brown, M. (1979). *Arthur's eyes*. Boston: Little, Brown and Company.

Arthur's friends tease him when he gets glasses, but he soon learns to wear them with pride.

Flores, R. (1979). *Caracolitos: Ojitos*. Oklahoma City: Economy Company.

Carlota meets an octopus with eight eyes that tells how he sees different things with each eye.

García Sánchez, J. L. (1978). *El niño que tenía dos ojos*. Madrid: Ediciones Altea.

This is the beautiful story of a boy born with two eyes on a planet where all inhabitants have one eye. He learns to overcome his "defect" and lives a full life.

Holt, J. (1977). *All eyes*. Oklahoma City: The Economy Company.

Jana meets an octopus with eight eyes that tells how he sees different things with each eye.

Martin, B. Jr. (1970). *Brown bear, brown bear, what do you see?* New York: Holt, Rinehart and Winston.

A predictable rhyming book that explores sight, colors, animals, etc., in an entertaining manner.

Hearing

Alexander, M. (1978). *Pigs say oink: The first book of sounds*. New York: Random House.

Cole, J. W., & Welch, K. (1977). *All ears*. Oklahoma City: The Economy Company.

Rena and Nathan meet Listen Bug, an insect that helps them become aware of sounds they had never stopped to listen to.

Murphy, C. (1986). *Tus sentidos*. Boston: Editorial Norma, S.A.

This pop-up book of the senses describes the location of each of the senses and how each helps us know our world.

Radlauer, R. S., & Perez, W. (1960). *About four seasons and five senses*. Chicago: Melmont Publishers.

This volume contains many illustrations. The text for each subsection is followed by an open-ended question.

Sands, S. (1991). *Kids Discover: The five senses*. New York: Kids Discover, 1(3).

This magazine issue discusses each sense separately with diagrams, photos and pictures. It also stresses the need for using all five senses in experiencing life.

Tymme, J. (1978). *I like to see: A book of the five senses*. Racine, WI: Western Publishing Company.

Rius, M., Parramón, J. M., & J. J. Puig. (1983). *La vista*. Hauppauge, NY: Barron's Educational Series.

This book explores, through beautiful illustrations, the wonders of our sense of sight.

Rius, M., Parramón, J. M., & J. J. Puig. (1985). *The five senses: Sight*. Hauppauge, NY: Barron's Educational Series. (Translated from Spanish: *La vista*)

A short scientific explanation of our sense of sight, with a diagram of the eye.

Smith, K. B., Crenson, V., & Sorms, R. S. (1988). *Colección mil preguntas: Viendo*. Buenos Aires: Editorial Sigmar.

The sense of sight is explored through questions and answers with interesting explanations and illustrations.

Williams, L. (1985). *¿Qué hay detrás el árbol?* Madrid: Ediciones Hyma.

Before discovering the truth, two children allow their imagination to run freely as they try to guess what could possible be behind a tree.

Colección Piñata: Sonidos y ritmos. (1985). Mexico: Patria.

This book explores the wonders of sound.

Flores, R. (1979). *Caracolitos: Escucha*. Oklahoma City: The Economy Company.

Nora and Gabriel meet Escuchi, a small animal that helps them become aware of sounds they had never stopped to listen to.

Gerson, S. (1987). *La orquesta*. México: Editorial Trillas, S.A.

While listening to the instruments play, a cat and mouse become music lovers, not enemies.

Knight, D. (1988). *Colección quiero conocer: El mundo del sonido*. Mexico: Sistemas Técnicas de Edición, S.A. de C.V.

Experiments and colorful illustrations are used to explore sound.

Rius, M., Parramón, J. M. & Puig, J. J. (1983). *El oído*. Woodbury, NY: Barron's Educational Series.

This book illustrates the most enjoyable sounds in the world.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *The five senses: Hearing*. Hauppauge, NY: Barron's Educational Series.

A short scientific explanation of our sense of hearing, with a diagram of the ear.

de Podendorf, I. (1979). *Sonidos*. Chicago: National Textbook Company.

Touch

Aliki. (1962). *My hands*. New York: Thomas Y. Crowell.
Describes the parts of the hand and all the things our hands help us to do.

Brighton, C. (1984). *My hands, my world*. New York: MacMillan Publishers.

Cole, J. W., & Welch, K. (1977). *Toco Toucán's touch book*. Oklahoma City: Economy Company.
Toco Toucán introduces us to the world of touch.

El rey Midas. (1980). Madrid: Editors S. A.
This is the classical story of King Midas.

Flores, R. (1979). *Caracolitos: El libro de Toco el toucán*. Oklahoma: The Economy Company.
Toco the toucan explores the world of touch.

Goor, R., & N. (1984). *All kinds of feet*. New York: Thomas Y. Crowell.
Presents the different types of feet found in the animal kingdom in the text and photos.

Kline, S. (1985). *Don't touch*. Chicago: Albert Whitman & Company.

Smell

Allington, R., L., Cowles, K., & Thrun, R. (1980). *Smelling*. Milwaukee: Raintree Children's Books Publishers.

Brown, M. T. (1976). *Arthur's nose*. Boston: Little, Brown and Company.
Unhappy with his nose, Arthur visits the rhinologist to get a new one.

Cole, J. W., & Welch, K. (1977). *My nose knows*. Oklahoma City: Economy Company.
Sniffwell is told that his nose is for smelling, and he learns to enjoy the smells found in his environment.

Flores, R. (1979). *Caracolitos: La nariz de Pepito*. Oklahoma City: The Economy Company.

This is an interesting presentation of sounds and how they are a part of our daily lives.

Smith, K. B., Crenson, V., & Storms, R. S. (1988). *Colección mil preguntas: Oyendo*. Buenos Aires: Editorial Sigmar.

The sense of hearing is explored through questions and answers with interesting explanations and illustrations.

Smith, K. B., Crenson, V., & Storms, R. S. (1988). *Hearing*. New Jersey: Troll Associates.

Questions and answers provide basic information about hearing and the ear.

Wolf, B. (1979). *Ana y su mundo de silencio*. Philadelphia: J. B. Lippincott.

This is a true story of Ana's daily life experiences as a deaf child.

Wood, N., Rye, J. (1991). *Listen...What do you hear?* New York: Troll Associates.

Discusses the phenomenon of sound, how it varies in volume and pitch, how it travels and how it is perceived by the ear.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *El tacto*. Hauppauge, New York: Barron's Educational Series.
This book illustrates and describes the different textures we find in the world.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *The five senses: Touch*. Hauppauge, New York: Barron's Educational Series.
A short scientific explanation of our sense of touch, including a diagram of the skin.

Smith, K. B., Crenson, V. & Storms, R. S. (1988). *Colección mil preguntas: Tocando*. Buenos Aires: Editorial Sigmar.
The sense of touch is explored through questions and answers with interesting explanations and illustrations.

Wood, N., & Willey, L. (1991). *Touch...What do you feel?* Mahwah: NJ: Troll Associates.
Explores the world of touch, examining how it works and what it tell us about our surroundings.

Mother rabbit tells Pepito that his nose is for smelling and he learns to enjoy many smells.

Leaf, M. (1962). *El cuento de Ferdinando*. New York: Scholastic.

Ferdinando, unlike other bulls, prefers to sit and smell the flowers, rather than display his strength and ferociousness.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *El olfato*. Hauppauge, NY: Barron's Educational Series.
This book vividly illustrates the most memorable smells in life.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *The five senses: Smell*. Hauppauge, NY: Barron's Educational Series.

A short scientific explanation of our sense of smell, with a diagram of the nose.

Pluckrose, H. A., & Fairclough, C. (1986). *Smelling*. New York: Franklin Watts.

Taste

Flores, R. (1979). *Caracolitos: Lo sabroso sabroso*. Oklahoma City: The Economy Company.

All of the different tastes that our tongues can distinguish are depicted with illustrations of children and food.

Lasa, M. (1988). *Voy a cocinar*. México: Sistemas Técnicas de Edición, S.A. de C.V.

This recipe book for children has recipes that are culturally appealing.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *El gusto*. Hauppauge, NY: Barron's Educational Series.

This book beautifully illustrates all the different tastes.

Rius, M., Parramón, J. M., & Puig, J. J. (1985). *The five senses: Taste*. Hauppauge, NY: Barron's Educational Series.

A short scientific explanation of our sense of taste.

Smith, K., Crenson, V., & Storms, R. S. (1988). *Colección mil preguntas: Oliendo*. Buenos Aires: Editorial Sigmar.

The sense of smell is explored through questions and answers with interesting explanations and illustrations.

Smith, K., Crenson, V., & Storms, R. S. (1988). *Colección mil preguntas: Gustando*. Buenos Aires: Editorial Sigmar.

The sense of taste is explored through questions and answers with interesting explanations and illustrations.

Vallarta Velez, L. (1983). *Colección Piñata: El azúcar*. (1985). México: Patria.

Everything about sugar is explored through beautiful illustrations depicting Mexican society.

Vallarta Velez, L. (1983). *Colección Piñata: El chocolate*. (1985). México: Patria.

Interesting facts are presented about the origin and the characteristics of chocolate with illustrations depicting Mexican society.

Teacher Resources

Abruscato, J., Fossaceca, J. W., Hassard, J., & Peck, D. (1984). *Holt science*. New York: Holt, Rinehart and Winston.

Poppe, C. A., & Van Matre, N. A. (1985). *Science learning centers for the primary grades*. West Nyack, NY: Center for Applied Research in Education.

Trostle, S. L., & Yawkey, T. D. (1990). *Integrated learning activities for young children (Getting Started)*. Boston: Allyn and Bacon.