WATER, NOW AND THEN

K-2

OBJECTIVE

At the end of this lesson, the students shall be able to do the following:

1. Describe, orally or in writing, ways people have depended on water during different periods of history.

SUBJECTS:
History, Art

TIME:
1 hour or two 30-minute periods

MATERIALS:
butcher paper
crayons
scissors
tape
4 pieces of white poster board

BACKGROUND INFORMATION

Throughout history people have depended on water. More than two hundred years ago many people came to America to start new lives. They had to cross the ocean to get here. The trip took many weeks. They had to bring fresh water in barrels for drinking and washing while they were on the ship.

During the next 150 years, many of the new settlers moved farther and farther across America to find new places to live. When selecting a place to settle, one of the main considerations was a fresh water supply. Most of them chose land near rivers, lakes, and springs. They needed the water for drinking, growing crops, raising farm animals, washing, and cooking.

By 1900, in addition to using water for drinking, washing, and cooking, people also began using water to manufacture products. During this period of history, factories were built and many machines were invented. Water was used to make steel and paper; it was used to create steam and to cool products.

Today we use water in many ways. In our homes, we use water for drinking, cleaning, cooking, and flushing. Irrigating farms, golf courses, and our lawns requires a tremendous amount of water. Industries use water to manufacture metal, glass, and wood products. They use water in canned foods, soft drinks, and many other products. Water is used to produce electric power. We enjoy the beauty of nature's rivers, lakes, and oceans. We use the bodies of water for swimming, boating, and fishing. Water is also used by firefighters to save lives and property.

ADVANCE PREPARATION

A. Gather materials.

PROCEDURE

I. Setting the stage

   A. Share background information.

II. Activities

   A. Divide the class into groups with 3 or 4 children in a group.

   B. Give group assignments.

      1. Each group will make a life size character by tracing around the body of one group member on butcher paper. Each group will research a different time period (1700's; 1800's; early 1900's and today) and use crayons to draw appropriate time period clothing on their character.

      2. The other four (4) groups will also research the same time periods (see above) and design a poster showing the ways water was used during that time period.

   C. Tape each character to the wall with the corresponding poster.

III. Follow-Up

   A. Decorate invitations. Send them to other classes inviting the students to visit the display.

IV. Extension

   A. Give each character (from above activity) a water related name.

      Examples: Silas Stillwater
      Walter Waverly
      Sam Springer
      Rhonda Rivers
      Carol Creekmore
      Whitney Wells, etc.

   B. Produce a play depicting different time periods in history and the importance and uses of water in that time period.

RESOURCE

World Book Encyclopedia, 1988, Vol 21, p. 116-118.

EXTRA EXTRA, READ ALL ABOUT IT

K-2

OBJECTIVE

At the end of this lesson, the students shall be able to do the following:

1. Identify orally facts about water learned from this lesson.

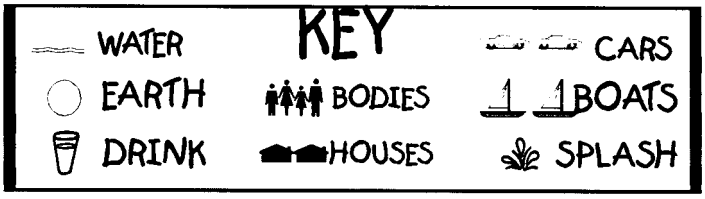
SUBJECTS:
Language, Art

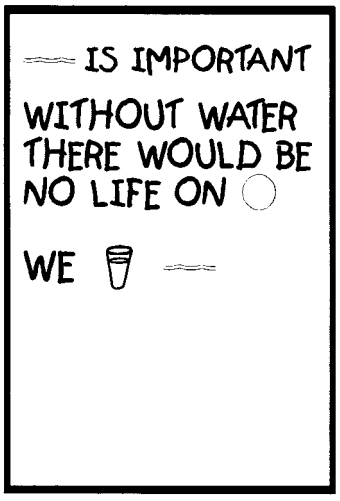
TIME:
30 minutes per day

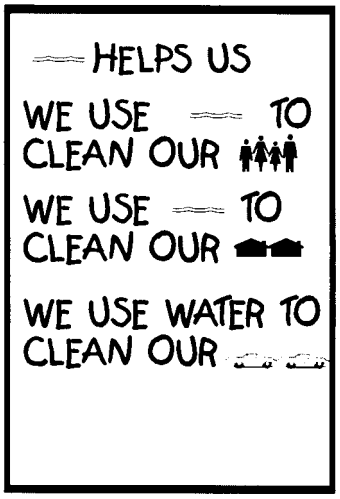
MATERIALS:
single sheet of newspaper and 4 sheets of plain paper for each child for journals
markers
sponges, cut in the shape of water drops
blue paint
4 pieces of lined chart paper

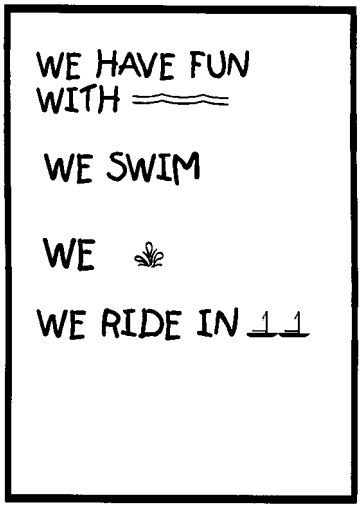
BACKGROUND INFORMATION

Display background information on four sheets of chart paper as shown below:









ADVANCE PREPARATION

A. Make Information Charts.

B. Gather materials.

PROCEDURE

I. Setting the stage

A. Explain the key.

B. Read the Information Charts to the students, allowing them to say the "picture words."

II. Activities (This can be done individually or as a whole group activity creating a class book.)

A. Have the students cut and fold a piece of newspaper, creating a "book cover." Suggested size is 9" x 11" or larger.

B. On the (newspaper) front cover write a water related title such as:

"THE DRIP DROP JOURNAL"
"THE WATER BOOK"
"THE H_2O BOOK"

C. Laminate the book covers (optional).

D. Over a period of several days, let the students add pages to their journals.

1. Give each student a piece of paper and let him/her write, "WATER IS WONDERFUL" (or some other water related phrase) in large letters. Let him/her sponge paint water drops around the words. This will be the first page of their water journal.

2. Write (or dictate) an original poem about water.

3. Glue water related newspaper or magazine articles to pages.

4. Draw or paint pictures about water.

III. Follow-Up

A. Let each child have an opportunity (over a period of days) to share one or more pages from his/her journal with the class. Discuss the information shared and add water facts to the "water chart," using pictures when appropriate.

B. Review the water chart facts each day.

RESOURCE

Water, World Book Encyclopedia, 1988, Vol 21, p. 116-118.

Original Activity by Beth Corum, Lauderdale County Schools.

WATER IS VERY SPECIAL

K-2

SUBJECTS:
Science, Art

TIME:
20-30 minutes

MATERIALS:
2 oz uncooked spaghetti
1 box macaroni and cheese
1 box jello
1 pack Kool-Aid
butcher paper
plate
glass

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Write or tell ways people use water for cleaning;
2. Write or tell ways people use water for eating or drinking; and
3. Write or tell ways people use water to have fun.

BACKGROUND INFORMATION

Water is very important to all living things. Without water all plants, animals, and people would die. We use water for drinking and for preparing food. We use water for cleaning our bodies, our homes, our pets, and our cars. We use water to have fun when we go swimming and boating. Water is used EVERY DAY.

ADVANCE PREPARATION

A. Gather materials.

PROCEDURE

I. Setting the stage

A. Sit on the floor with the children in a large semi-circle around the teacher. Show them a plate on which uncooked spaghetti noodles, dry jello powder, and macaroni noodles sprinkled with powdered cheese have been placed. In a clear drinking glass, empty a pack of Kool-Aid powder.

B. Point to the spaghetti and ask, “What is this?” (spaghetti). “Would you like to eat it?” “What does the spaghetti need to make it taste good?” (to be cooked).

C. Point to each of the other food items and ask the same questions.

D. On a dry erase or chalkboard, write:

Spaghetti Jello Macaroni and Cheese Kool-Aid

E. Ask, "How does a person cook spaghetti?" After someone answers, write the word "water" under the word "spaghetti" on the board. "How does a person cook macaroni?" Write "water" under "macaroni." Ask the same question about jello and Kool-Aid and write "water" under each word on the board.

Spaghetti	Jello	Macaroni and Cheese	Kool-Aid
water	water	water	water

F. "Look at the board. What do you notice?" (We use water to prepare all four of the food items). "Is water important when we are preparing food?" "Is water important at other times?" Discuss.

G. Read the poem written by Beth Corum:

WATER IS VERY SPECIAL

Water is in drippy drops,
Water is in soapy mops,
WATER IS VERY SPECIAL.

Water fills swimming pools,
Water fills fishes schools,
WATER IS VERY SPECIAL.

Water makes spaghetti floppy,
Water makes puddles sloppy,
WATER IS VERY SPECIAL.

Water keeps us all alive,
It's necessary to survive,
WATER IS VERY SPECIAL.

Read the poem a second time. Have the children say together "Water is very special."

II. Activity

A. Write the poem in a single line across the top of a long piece of butcher paper. Let the children work in groups to create a mural which illustrates each line to the poem. (Under the words).

III. Follow-Up

A. As each child completes his portion of the mural, he should join the teacher and answer these questions:

"What is one way we use water for eating or drinking?"
"What is one way we use water for cleaning?"
"What is one way we use water to have fun?"

B. Graph the results by letting the child paint or color sections which represent his/her answers.

IV. Extension

A. Have the children sit at their tables with paint brushes and art paper. Pour some dry tempera paint onto a paper plate in the middle of the table (or give them individual paint sets). Tell them to paint a picture. Someone will point out that they need water in order to paint. Discuss. Add water. Paint pictures.

B. Have children keep track of how water is used to prepare their dinner. Could be done for one night or a week.

RESOURCE

Water, World Book Encyclopedia, 1988, Vol 21, p. 116-118.

Original activity by Beth Corum, Lauderdale County Schools.

BEING A HYDROLOGIST

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Tell the different ways water is used at school and at home; and

2. Give a verbal definition of the new terms hydrologist and hydrology.

SUBJECTS:
Science, Social Studies, Math

TIME:
30 minutes over 2 days

MATERIALS:
clipboards or hard writing surface for half of the students
pencils
3 pieces of 12" x 24" paper
marker

BACKGROUND INFORMATION

Water is absolutely essential for life as we know it.
All living things require water for survival. Water is one of our most precious resources and, because of its importance in our lives, we must learn to respect water for what it is. Therefore, the practice of water conservation is an important concept to teach young children. The first step in teaching young children how to conserve water is helping them become aware of where water is used and how much water is used in daily living.

This lesson will help children become aware of the many different ways we use water in our daily lives. Water is used for food production, power generation, transportation, recreation, heating, cooling, fire fighting, cooking, and bathing. At school and at home, water is used both indoors and outdoors. Cleaning, cooking, drinking, and toilet water account for most of the water used indoors. Outdoors we use water for watering lawns and gardens, and washing cars. Much more water is used at school than in the home because of the size of the location and the number of people in the school, but water can be conserved in both places.

Have each child play the role of a hydrologist. Hydrology has become an important science because of the need to understand our water system on earth and its usefulness in helping to solve our water problems before we feel the effects of a water shortage. Therefore, children can become familiar with the role of the hydrologist and how he/she finds solutions to our water problems.

Terms

hydrologist: a person that applies scientific knowledge and mathematical principles to solve water-related problems in society such as problems of quantity, quality, and availability.

hydrology: the study of water, its properties, distribution on Earth, and effects on the Earth's environment.

ADVANCE PREPARATION

A. On three separate sheets of 12" x 24" paper, draw a large waterdrop and label as follows: **Waterdrop #1 - What we know about how we use water;** **Waterdrop #2 - What we would like to know about how we use water;** and **Waterdrop #3 - What we learned about how we use water.** Place them in a convenient location for writing.

B. Place paper on enough clipboards or hard writing surfaces with **List #1 WAYS WE USE WATER AT SCHOOL** and pencils for half the students. Divide the class into pairs.

C. Copy **List #2 - WAYS I USE WATER AT HOME** and **Letter to Parents** for all students. Staple together.

PROCEDURE

I. Setting the stage

A. Place the pictures of the waterdrops in a location convenient for adding information dictated by the students.

B. Begin by asking students where they use water at school and writing down what they say on Waterdrop #1. Ask the students where they use water at home and write down what they say on Waterdrop #2. Compare the school list to the home list. Then ask students if there is anything they would like to know about how we use water. Write what they say on Waterdrop #3.

II. Activity

A. Pair students into groups giving each group a clipboard with a copy of List #1 WAYS WE USE WATER AT SCHOOL and a pencil for recording. Begin by explaining to students that they are all going to be hydrologists. Explain what hydrologists do and what hydrology is. Tour the school recording all the ways water is used at school. Return to the classroom and discuss and add any new ways that were discovered and add to Waterdrop #1.

B. Give each student a copy of List #2 - WAYS I USE WATER AT HOME attached to a copy of the Letter to Parents. Explain to the students that they are to complete the list at home in the same manner they completed the list at school. The list is to be returned on the day specified.

III. Follow-Up

A. On the day the students return List #2, discuss the different ways the students used water at home and add any new information to Waterdrop #1. At this time discuss whether any of the things they would like to know on Waterdrop #2 could be answered.

IV. Extensions

A. Have students draw pictures of the different ways water is used to raise animals, produce a garden, and cook a meal.

B. Have students keep a list of the different ways they use water from the time they get up in the morning until the time they go to bed. Have students discuss how life would be different if they did not have water to do these things.

RESOURCES

Carroll, Jack. Water Conservation Checklist for the Home. Mississippi Cooperative Extension Service, Mississippi State University MS. 1989.

Owen, Oliver S. Natural Resource Conservation: An Ecological Approach. Macmillan Publishing Co., New York, 1985.

Hydrologist_____

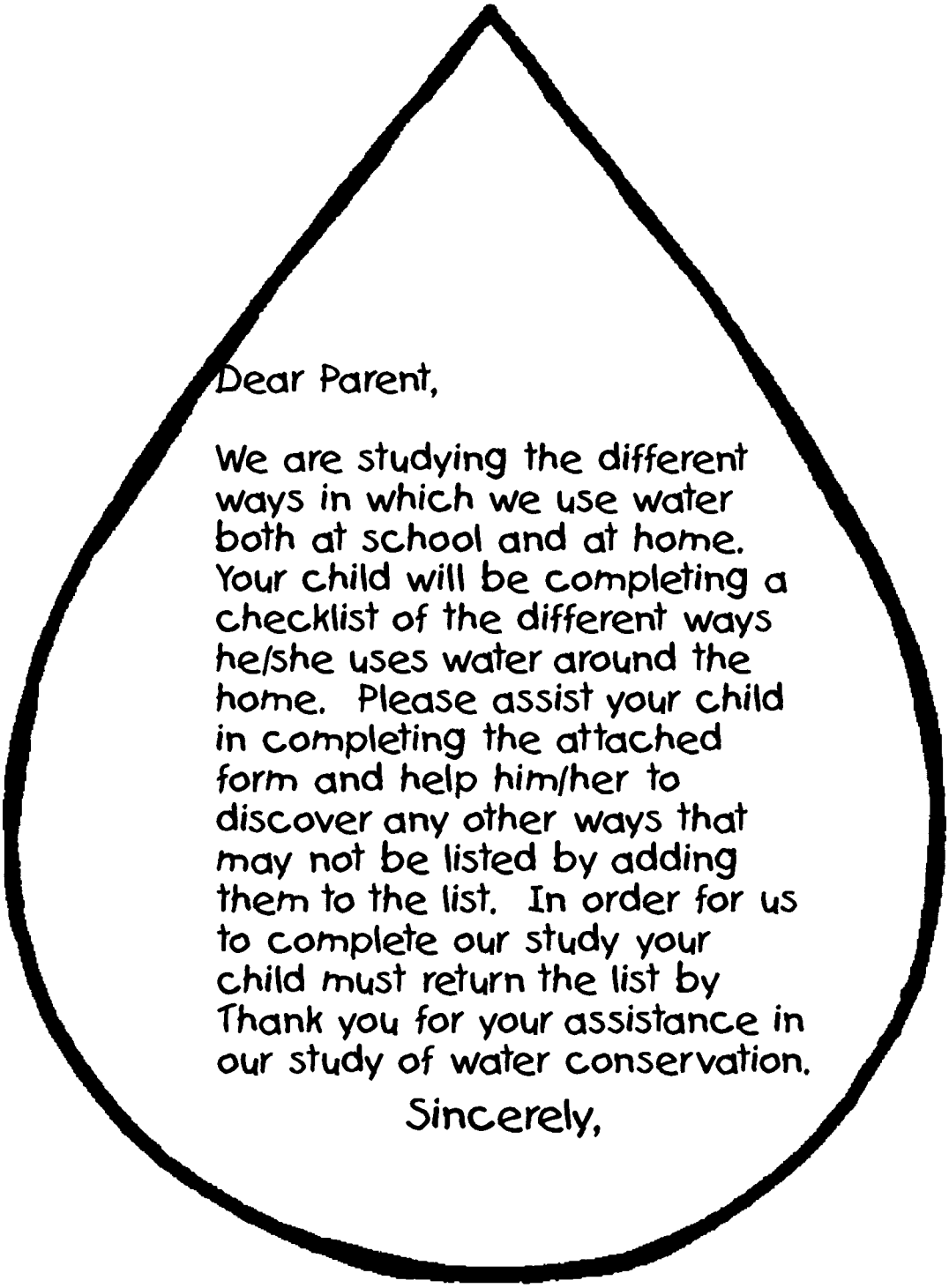
List #1-WAYS WE USE WATER AT SCHOOL

	Tally how many	How many in all?
drinking fountains		
toilets		
sinks		
dishwashers		
ice cube makers		
water heaters		
washing machines		
sprinkler system		
outside fountains		
outside water faucets		
others		

Hydrologist_____

List #2-WAYS I USE WATER AT HOME

	Tally how many	How many in all?
sinks		
toilets		
bathtubs/showers		
water heaters		
dishwashers		
ice cube makers		
washing machines		
steam iron		
humidifiers		
outside water faucets		
pools		
others		



Dear Parent,

We are studying the different ways in which we use water both at school and at home. Your child will be completing a checklist of the different ways he/she uses water around the home. Please assist your child in completing the attached form and help him/her to discover any other ways that may not be listed by adding them to the list. In order for us to complete our study your child must return the list by Thank you for your assistance in our study of water conservation.

Sincerely,

DRINK IT UP!

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Illustrate that the human body needs a lot of water by graphing water consumption for a day;
2. Describe orally how the human body gets water;
3. Tell why the weight of an apple decreases over a period of time; and
4. Give an oral or written definition of dissolve.

SUBJECTS:
Science, Math, Health, Music

TIME:
30 minutes
Extension activity extends through a school day
Follow-up activity extends over several days

MATERIALS:
clear cup
Kool-Aid
container of water
4-6 apples, depending on number of children in class
2 pint jars
1 quart jar
1 clear pitcher
disposable 8 oz cup for each child
measuring cup
balance scale
unifix cubes or bear counters for weights

BACKGROUND INFORMATION

Water is very important to us. All living things must have water to stay alive and healthy. We must take care of our bodies and give them plenty of water. The body gets its water from things that we eat and drink. The human body needs eight glasses of water a day. Seventy percent of a child's body is water.

Term

dissolve: to make a solution of, as by mixing with a liquid; blend with a liquid.

ADVANCE PREPARATION

A. Gather materials.

B. Label a cup for each child with his/her name.

C. Cut the apples into fourths.

PROCEDURE

I. Setting the stage

A. Have a clear 8 oz. cup of water in your hand and seven more 8 oz. cups in front of you.

B. Sing the song:

CUP OF WATER
(Original tune: I'm a Little Teapot)

Here's a cup of water
Clean and pure.
It is very good for me
I am sure.
Eight cups a day, feeds and cleans you up
So tip your cup and
Drink it up!

C. Drink the water in the clear cup at the end of the song.

D. Explain the background information to the students.

E. Tell the students that the following activity is going to show them that water is inside their bodies and that it gets there by eating and drinking.

II. Activities

A. With the students in a group, let them help prepare a clear pitcher of Kool-Aid. The students can pour cups of water into pint and quart containers according to the recipe on the Kool-Aid package. Ask the students how many cups make a pint? How many pints make a quart? How many cups make a quart? (Actually let them use the water to determine the answers.) Also, let the students measure the sugar.

B. Count the number of stirs it takes to dissolve the powdered Kool-Aid into the water. Explain dissolve.

C. Serve the Kool-Aid and apple wedges to the students.

D. After the snack, ask the students questions such as:

1. How much water did we use to make our Kool-Aid?

2. Where is the water now? (Inside you)

3. Did we put water in our bodies when we ate the apple?

4. How can we find out if the apple had water?

III. Follow-Up

A. Weigh an extra apple wedge on the balance scale. Place unifix cubes on opposite side of scale to balance. Let the students predict what will happen to the apple's weight, what the apple will look like, and how many cubes will be needed to equal the weight of the apple each day.

B. Let the apple dry for several days. Weigh and record the difference every few days. Discuss the results with the students. Also discuss the appearance of the apple. "Would people weigh more or less if they had no water in their bodies?"

IV. Extensions

A. To reinforce the concept of how much water a child's body needs daily, set eight disposable or non-breakable 8 oz. cups in the water play or science center for the students to fill.

B. Give each child an 8 oz. disposable cup labeled with his/her name. Have the students tally and graph, by stacking unifix cubes together, each time they drink a cup of water or liquid. At the end of the day, let the children compare the trains of unifix cubes by placing them side by side. Determine who drank more, less, or equal amounts.

RESOURCE

Hone, Elizabeth and Geraldine Thompson, Water is Your Best Friend, California Department of Water Resources, p. 1.

WHAT SHAPE IS WATER?

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Identify orally a liquid and a solid;

2. Give an oral or written definition of a liquid and a solid;

3. Demonstrate, orally or in writing, the difference i in liquids and solids; and

4. Give an oral or written definition of the terms: liquid, solid, vapor, and water.

SUBJECTS:
Science, Language Arts, Writing, Art

TIME:
45 minutes

MATERIALS:
clear plastic containers, various shapes
spaghetti
spoon
water
different liquids (3 per group)
ketchup, vinegar, milk, juice
solids (1 per group)
marshmallows, marbles, unifix cubes
tub or box (1 per group)
chart paper or blackboard
tag board for book
crayons or markers
food color
Shapes by Shel Silverstein

BACKGROUND INFORMATION

Water is a substance that can be found in three forms: a liquid, a solid, and a vapor. Water can be found most often in its liquid form and becomes a solid when the temperature drops below freezing 32^0 F or 0^0 C. Water becomes a vapor when it escapes into the air. The more heat that is applied to water the faster it vaporizes. Water is in a constant cycle of changing from a liquid to a vapor because it is made up of millions of molecules that are in constant motion.

Water has no shape. In its liquid form it borrows the shape of the container it occupies. Simple experiments can help students become more aware of the properties of water as well as the importance of water in their lives.

Terms

liquid: a free flowing substance that borrows the shape of its container.

solid: a hard substance that keeps its own shape.

vapor: a substance in the form of a gas having no fixed shape.

water: a clear liquid, or gas made up of tiny molecules of two parts hydrogen and one part oxygen.

ADVANCE PREPARATION

A. Collect all materials listed.

B. Preselect heterogeneous groups. There should be 3-5 students in each group, but can be done as a whole group activity with younger children.

C. Have the different liquids and containers divided into tubs or boxes for the number of groups.

D. Have the water droplets precut with the text written on them. List the different liquids and solids on the board or chart paper for the students to copy.

PROCEDURE

I. Setting the stage

A. Read the poem Shapes by Shel Silverstein in A Light in the Attic. Discuss the poem. Discuss different shapes: square, circle, rectangle, triangle, cube, cylinder, and sphere. Discussion depends on your student' knowledge of shapes.

B. Have different objects available as examples of these shapes. Look around the room and have the students find objects in the room that are these shapes.

C. Ask students "What shape is water?"

II. Activities

A. Pour colored water and dry spaghetti into different clear plastic containers (pitchers, jars, cubes) to demonstrate the difference between a solid and a liquid. Have students pour the water and spaghetti into different containers until they decide that water takes the shape of its container and that water has no shape of its own.

B. Introduce the term "liquid." Discuss other substances that are liquids (milk,juice). In small groups let students experiment to see if all liquids have the same properties. Give each group three different shaped containers and three different liquids (milk, juice, pancake syrup, honey, cooking oil, etc.) and one solid object (marbles, marshmallows, unifix cubes). Let each group decide which items are liquid and which are solid. Have each group tell the class why the items they chose were liquid or solid.

C. Have students dictate a definition of a liquid and a solid. Record these responses on a blackboard or a large sheet of paper. After they have defined a liquid and a solid, make a permanent record of their definitions.

III. Follow-Up

A. Have students make their own big book in the shape of a raindrop to describe the different liquids they have learned. Use the text "_____ is a liquid." "_____ is not a liquid."
Students will fill in the blank and draw an illustration of the substance he/she is describing. Be sure to include a front cover, title page, and dedication page if more pages are needed for the book.

IV. Extension

A. Water Races. Have students save milk cartons. Put one hole with the same size nail in a side of the carton. Compare each carton and determine which one, when filled with water, will shoot the farthest stream. Tape each hole with masking tape. Fill the cartons with water. Line five cartons on a table with a tub below or outside on a step. Have students pull off their tape at the same time. Determine which stream went the farthest. Repeat with other students to determine the farthest stream. Discuss why the carton won the race. Let students make another attempt the following day. See if any student determines that water has weight and the more weight the longer the stream. Other considerations for discussion and experimentation:

1. Does the volume of water determine the pressure?

2. Does the depth of the container make a difference?

3. What size of hole is most efficient?

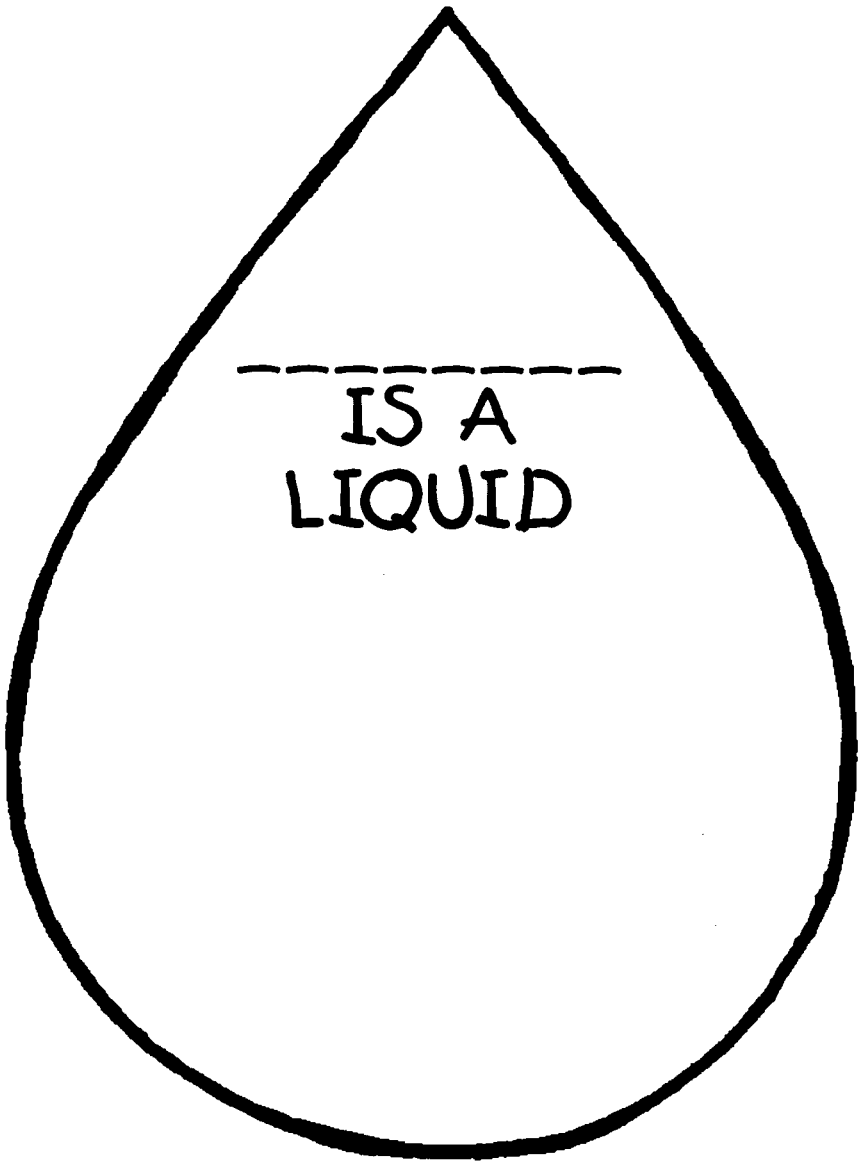
4. Where appears to be the best location for the hole and why?

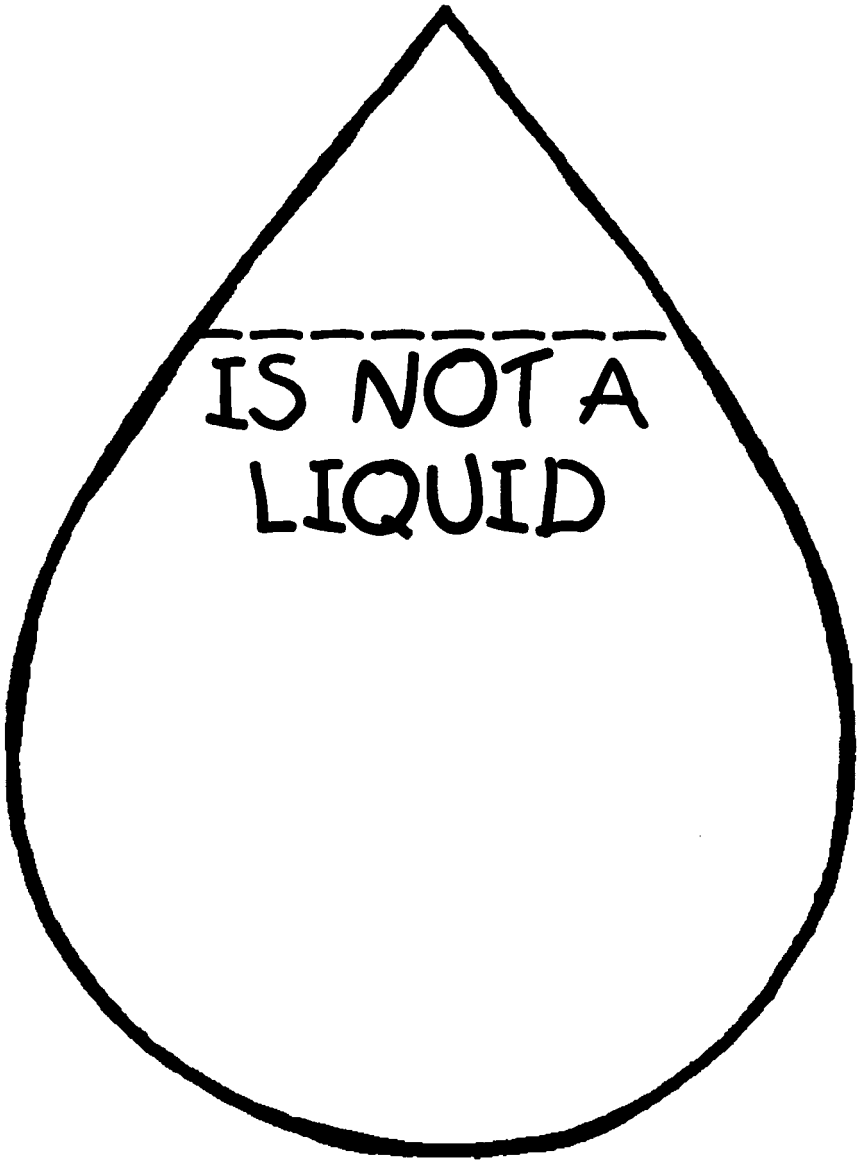
RESOURCES

Broekel, Ray, Experiments with Water, Childrens Press, Chicago, IL, 1988.

Goldin, Augusta, The Shape of Water, Doubleday & Company, New York, 1979.

Silverstein, Shel, Shapes, A Light in the Attic, Harper & Row, New York, 1981.


_____
IS A
LIQUID


_____
IS NOT A
LIQUID

THE WATER FREEZE

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Predict, orally or by writing, the time it takes for water to freeze and sequence the predictions;

2. Predict, orally or by writing, whether water expands upon freezing and develop a classroom hypothesis;

3. Form water creations and develop their own experiments with their creations; and

4. Give an oral or written definition of new terms: expand, evaporate, freeze, melt, solid, and sublimate.

SUBJECTS:
Science, Math, Music, Art

TIME:
45 minutes on 2 different days

MATERIALS:
The Freeze by Greg and Steve on the album Musical Moves or fast beat music
poster board or tag board
ice cube in dish
ice cube poster
small clear cup with water
ice cube predictors (included)
freezer thermometer
egg timer
science chart (included)
large freezer bags, tray
salt, sugar, sand, sawdust, charcoal
large tub
block of ice in bucket
red, yellow, blue food coloring or tempera paint
small zip-loc bags

BACKGROUND INFORMATION

Water freezes when its temperature falls below 32 F (0 C). When water freezes it takes the shape of the container it occupies. As a solid, the molecules in water slow down and expand. When water expands it becomes lighter and floats. The water will keep the same solid shape until it melts, the temperature rises above freezing, or it evaporates into water vapor.

Terms

expand: to take up more space.

evaporate: to change from a liquid to a vapor.

freeze: to harden into ice or into a solid body; to change from the liquid to the solid state by loss of heat.

melt: to change from a solid to a liquid usually through the process of heating.

solid: a hard substance that keeps its own shape.

sublimate: to change from a solid to a vapor.

ADVANCE PREPARATION

A. Collect all materials listed.

B. Cut out an ice cube shape from a large piece of tag board or poster board. (See Figure 3.) Label it with "What we know," "What we would like to know," and "What we learned about frozen water" leaving space to write the students' responses.

C. For the first experiment, fill a clear plastic cup with water and mark the level of the water with tape or a permanent marker. Copy and cut out the ice cube predictors (see Figure 1) and choose a place to sequence the students' predictions. Copy "The Water Freeze Log"(see Figure 2) for each student to record the times and temperatures or have one classroom log.

D. Make a generic science chart. You may use this for other activities with predictions. (See diagram). For younger students it is good to give them only two choices (Yes, the ice will expand; No, the ice will not expand.) Allow first graders three choices (the ice will expand, the ice will shrink, and there will be no change). For second grade, use three and allow them to make up a fourth choice. This poster may be laminated for changing the hypothesis and choices to fit different experiments.

E. Freeze a block of ice a day before using. Mix the materials for the ice caves. (See IV. Extension.)

PROCEDURE

I. Setting the stage

A. Play the song The Freeze by Greg and Steve on the album Musical Moves or play fast beat music and instruct the students to move with the beat of the music. When the music stops they must stop moving. Instruct them to "freeze" and not move a muscle. Play the game several times using the word "freeze."

B. Students may want to express how they felt during their "freeze." Have them explain some of their experiences in playing the game.

C. Discuss ice with the students while they examine an ice cube. Write on chart paper or on poster board shaped like an ice cube "What we know about frozen water," "What we'd like to know about frozen water," and "What we learned about frozen water." List things the students discuss and place them under the appropriate title leaving the last title blank until the end of the lesson.

II. Activities

A. Pour water into a small clear plastic cup until it is half full and take the temperature of the water marking the level with a permanent marker.

B. Have the students predict how long it will take the water to freeze. Let them write their predictions on an ice cube predictor. Anything they predict from minutes to days to years is acceptable. (No names on the predictors eliminates any competition or blame and helps students realize estimating, even if wrong, is okay.) Help students sequence their predictions from the shortest time to the longest time placing them in a convenient area for later referral.

C. Put a thermometer in a cup of water and place both in a freezer. Using an egg timer, check the cup every 15 minutes keeping a log of the time and temperature. When a thin layer of ice forms on the top of the water, discuss how long it took and the temperature at freezing. (It will take approximately 45 minutes to one hour for the water to begin to freeze.) Discuss which guesses were more and less than the time of actual freezing.

D. Place the cup back in the freezer and continue to freeze completely to note the final level of the ice. On your generic science chart, have the students predict if they think one level of the water will change. On one side write "Yes" and on the other side write "No." Develop a statement or hypothesis using the students' predictions. (Yes, the level of the water will change when all of the water is frozen.) Check the level of the water at the end of the day and discuss the results.

E. Discuss what was learned and record on the ice cube chart "What we learned about frozen water."

III. Follow-Up

A. Have students choose non-glass containers in the room. Tell some students to fill their containers completely, placing lids on them, and tell others to partially fill their containers. Place the water-filled containers in the freezer in plastic bags or on a tray to catch any overflow and leave them overnight.

B. The next day, remove the containers from the freezer and observe them. Discuss what happened to the water in the various containers. Note how some water overflowed as it froze. Create a class definition of the word "expand."

C. Have students create their own experiments with their new creation.

1. Some students may want to determine their creation's melting time.

2. Take some creations from the containers to show that the solid ice has taken the shape of the container and place them in a bigger container to show that the solid can keep its shape.

3. If any creations are similar in size, break up one and leave the other one whole to determine which melts faster.

4. Place salt, sugar, sand, sawdust, or charcoal on different creations to observe the effects on the ice.

IV. Extension

A. Ice Caves.

1. Freeze a large block of ice in a bucket or other large container. Remove the ice from its container and place in a bigger tub.

2. Mix the following ingredients in a small zip-loc bag:

   1/4 cup warm water
   food coloring or powdered tempera paint
   1/2 cup salt (ice cream salt works best)

3. Make three bags using the primary colors and seal the bags closed. Cut a small hole in one of the bottom corners of the bag. Pour water over the block of ice to make it slick.

4. Allow students to squirt small amounts of the mixture onto the block of ice. Watch how the ice develops small colorful caves. Discuss the different colors the primary colors made in the ice.

5. Rinse with a cup of water to start the procedure over.

6. Discuss why salt is used to melt ice on roads in the winter.

RESOURCES

Arnold, Caroline, Bodies of Water, Franklin Watts, New York, NY, 1985.

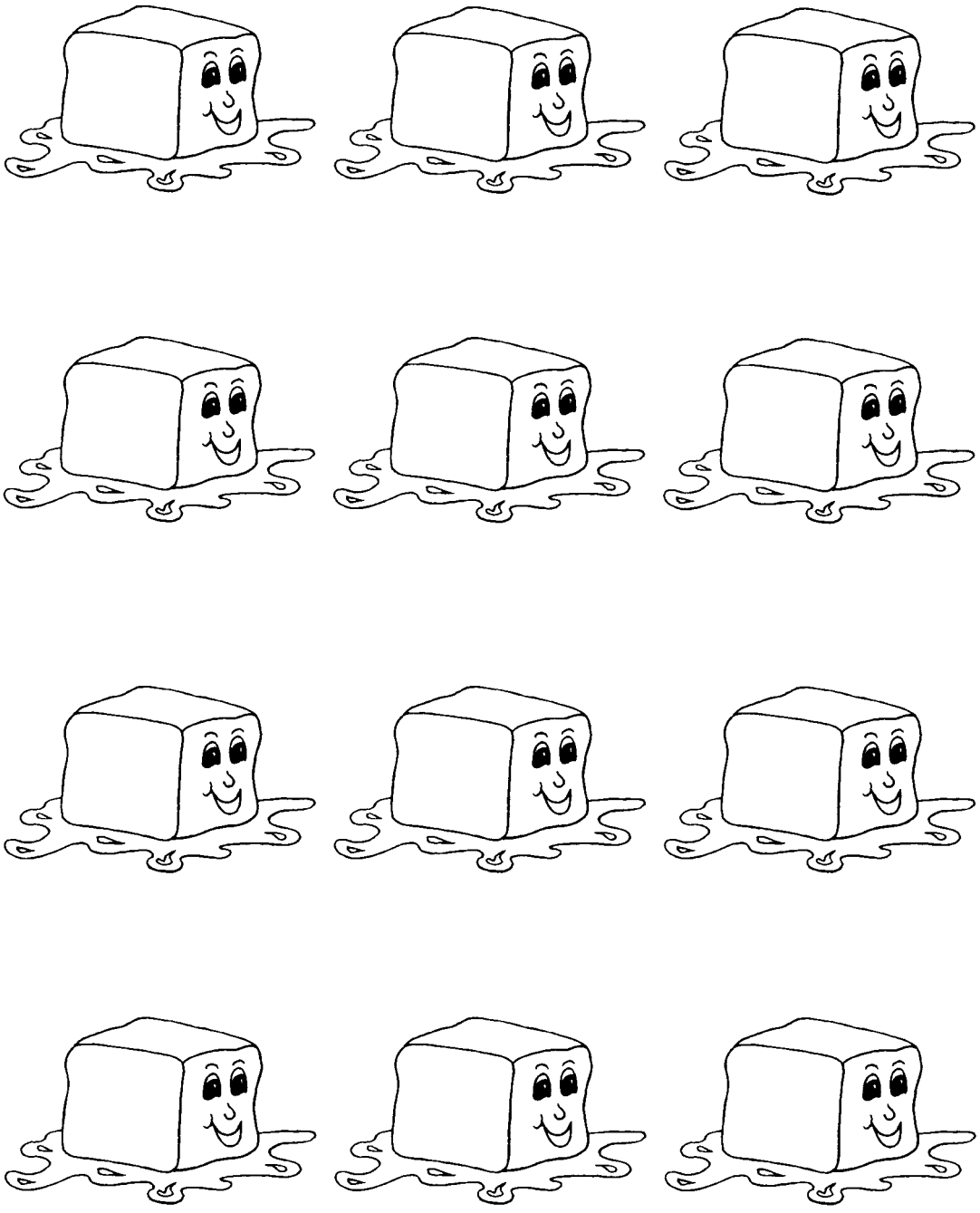
Broekel, Ray, Experiments With Water, Childrens Press, Chicago, IL, 1988.

Goldin, Augusta, The Shape of Water, Doubleday & Company, New York, NY, 1979.

Nichols, Wendy and Kim Nichols, Wonder Science, Learning Expo Publishing, Los Altos, CA, 1990.

Figure 1

ICE CUBE PREDICTORS



The Water Freeze Log

Time started:_____ Temperature:_____

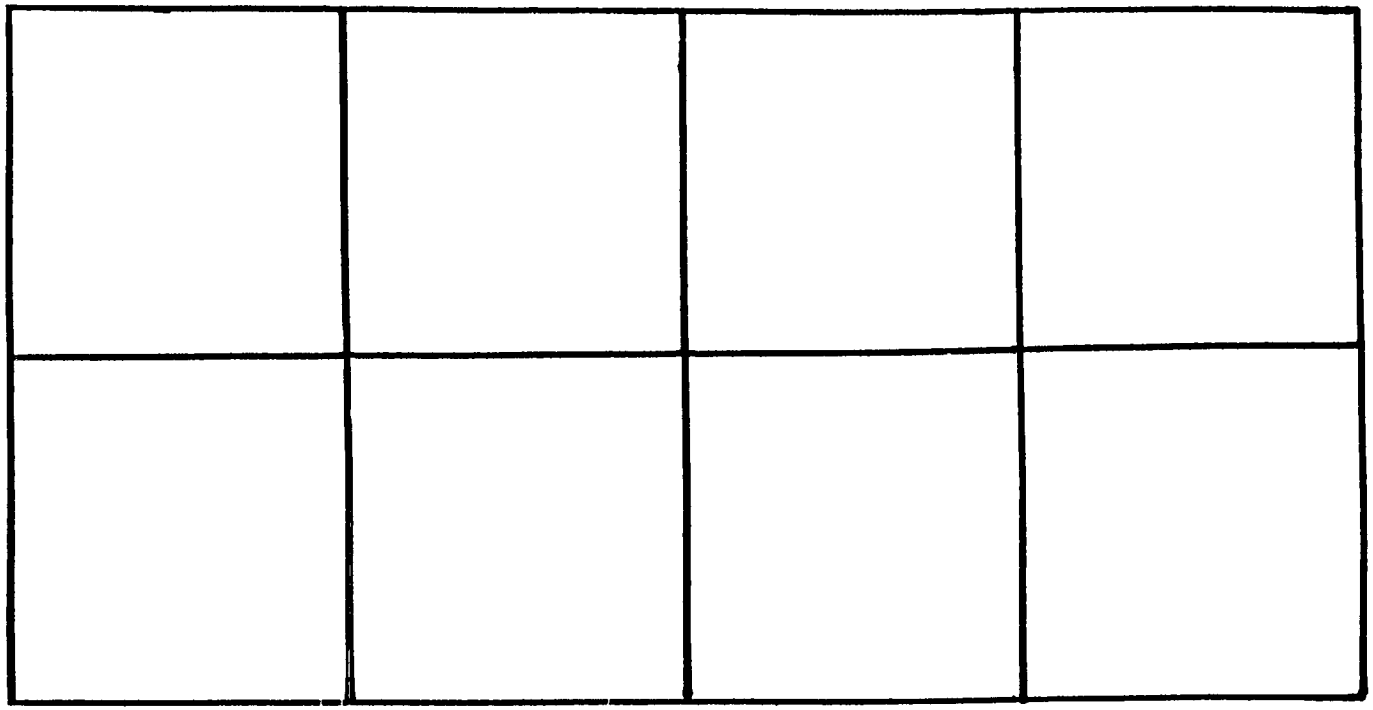
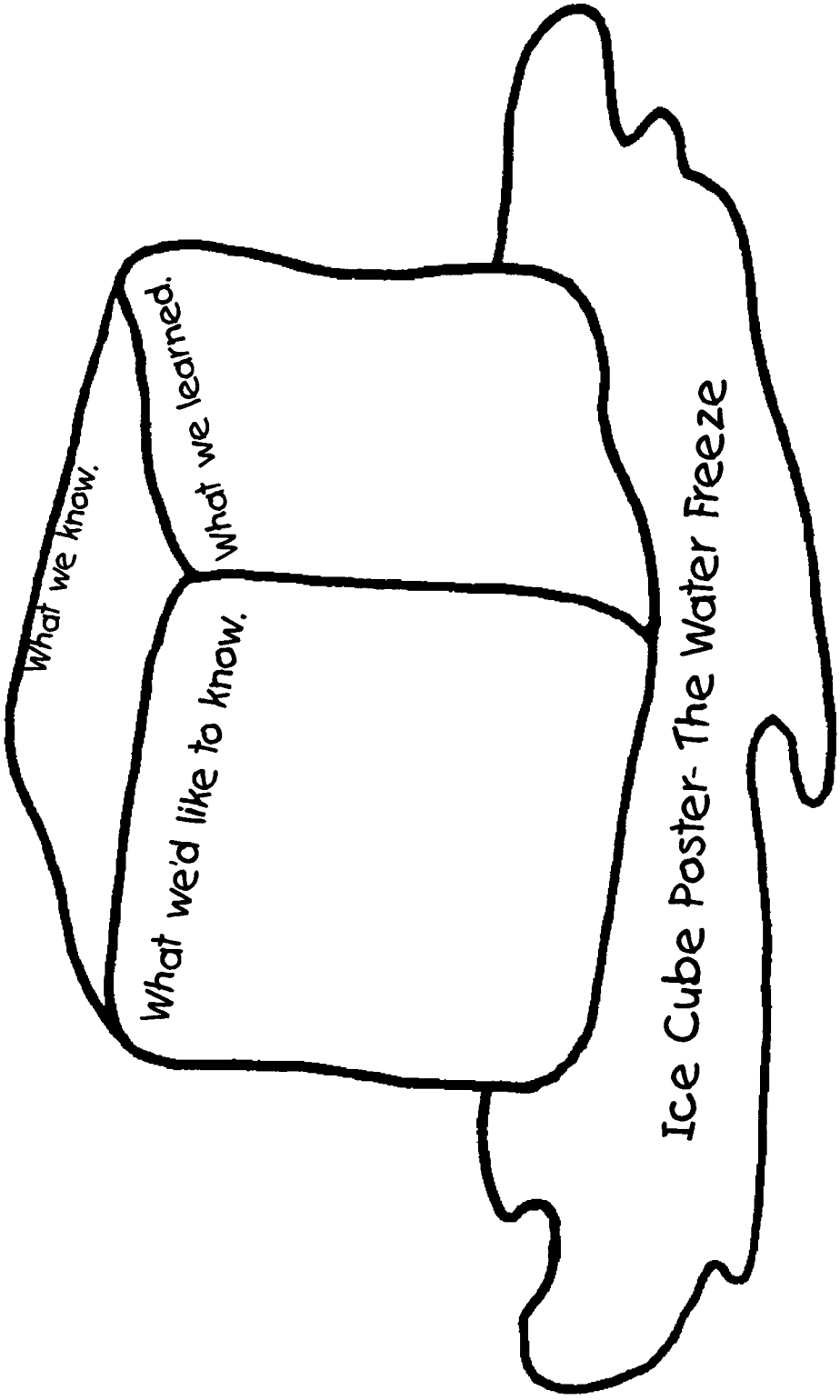


Figure 2

Name: _____

Figure 3


What we know.
What we learned.
What we'd like to know.
Ice Cube Poster- The Water Freeze

LET'S WEIGH SNOW

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Demonstrate or tell how to measure and weigh snow;

2. Demonstrate or explain that snow is a solid form of water; and

3. Give an oral or written definition of precipitation.

SUBJECTS:
Science, Math, Art, Language Arts

TIME:
45 minutes

MATERIALS:
measuring cups
balance scales
teddy bear counters or substitute counters
stopwatch/timer/clock
recording sheet
snow or crushed ice (1 cup for each child)
The Snowy Day by Ezra Jack Keats
winter hats (assortment)

BACKGROUND INFORMATION

Snow crystals are formed when water freezes inside the clouds. When these crystals join together, snowflakes are formed. When the flakes become heavy enough they will fall.

Term

precipitation: forms of condensed water vapor that are heavy enough to fall to Earth (rain, sleet, snow).

ADVANCE PREPARATION

A. Collect materials.

Note: If snow is not available, use crushed ice.

PROCEDURE

I. Setting the stage

A. Introduce this lesson with a bag filled with hats that would be appropriate to wear in snowy weather. Read The Snowy Day by Ezra Jack Keats. Discuss what happened to Peter's Snowball when he came indoors. Discuss solid and liquid forms of water in this story.

B. Sing the song:

WINTER WEATHER
(Tune: Are You Sleeping?)

Winter weather, winter weather
See it snow.
See it snow.

The flakes come down and cover the ground.
They fall from the sky without making a sound.
We love snow.
We love snow.

II. Activities

A. Collect one cup of snow and bring indoors. Use shaved ice if snow is unavailable.

B. Set timer and follow directions given on student activity sheet (included).

III. Follow-Up

A. Watch the video The Snowman.

1. Take the pictorial version of The Snowman and create text to go with the pictures. Record the text and paper clip to the original book. Put the book in the listening library.

B. Make Snowflake Snowmen.

1. To make snow mix 1 cup of water and 2 cups of Ivory soap flakes. Add more water if needed. Mold the mixture into 3 balls for each child. Have the students roll and stack their balls onto a piece of cardboard. Create a face on the snowman. Let it dry for a couple of days.

IV. Extensions

A. Marshmallow Snowman. Give each child two marshmallows. Secure together with toothpicks. Make a face and buttons with minature chocolate chips. Push tiny twigs or toothpicks in to make arms. Tie a scarf, handmade out of scrap fabric, onto the snowman. Snowman will "melt" in your mouth.

B. Snow Creme. Put one cup of clean snow in a bowl. Pour 1/2 cup of Eagle brand milk over snow. Serve a little snow creme to each student.

RESOURCES

Briggs, Raymond, The Snowman, (book and video), Clarion.

Burton, Virginia Lee, Katy and the Big Snow, Houghton Mifflin.

Crowell, Branley Franklyn, Snow is Falling, 1986.

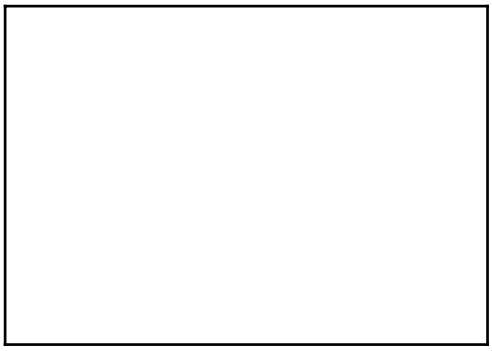
Gibbons, Gail, Weather Words and What They Mean, Holiday, 1990.

Keats, Ezra Jack, The Snowy Day, Viking, 1962.

Shecter, Ben, When Will the Snow Trees Grow?, Harper Collins, 1993.

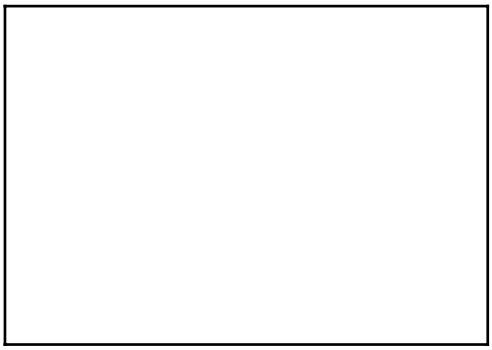
Name:_____

1. My snow weighs the same as _____ teddy bear counters.



Draw a picture of the collected snow.

2. It took _____ minutes and _____ seconds for the snow to melt.



Draw a picture of the melted snow.

3. One cup of snow equals _____ cups of water.

4. How did it change?

5. Is snow a liquid, solid, or gas?

Weigh the snow (water) after it melts. Before weighing, predict whether it would weigh the same, more, or less than the collected snow.

NOW YOU SEE IT, NOW YOU DON'T

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. List, orally or by writing, substances which dissolve in water;

2. Classify, orally or by writing, substances into categories "will dissolve" and "will not dissolve" in water; and

3. Give an oral or written definition of dissolve and liquid.

SUBJECT:
Science

TIME:
30 minutes

MATERIALS:
styrofoam egg carton
clear plastic cups
muffin pan or ice cube tray filled 3/4 full of water for each child
craft sticks or plastic spoons for each child
newspapers to cover tables
dry materials: salt, sugar, sand, fine gravel, corn meal, flour, seeds
cooking oil
jar with lid
Kool-Aid
sugar
spoon
pitcher
measuring cup
cup for each child
container of water
chart paper

BACKGROUND INFORMATION

Water is a liquid. There are substances that will blend or mix into water, and there are substances that will not mix or blend into water. A solution forms when one substance dissolves in another substance. When a substance dissolves, it breaks down into molecules. These molecules mix with the molecules of the other substance. A mixture in which particles of a substance are scattered in another substance but not dissolved is called a suspension. An oil-and-vinegar dressing is a suspension. Orange juice that has not been strained is another type of suspension.

Two hydrogen atoms join with an oxygen atom to form a new substance, water. A mixture is made of materials that are mixed, not joined chemically. You use many mixtures every day.

Terms

dissolve: to make a solution of, as by mixing with a liquid; blend with a liquid.

liquid: a free flowing substance that borrows the shape of its container.

ADVANCE PREPARATION

A. Cut lids off of the styrofoam egg cartons.

B. Fill egg cartons or similar container sections 3/4 full of water.

C. Put newspaper on tables.

D. Add dry ingredients to containers (4 containers for each material). Place on tables.

PROCEDURE

I. Setting the stage

A. In a whole group have students watch as you make a pitcher of Kool-Aid. Name the ingredients as you add them. Give each child a cup of Kool-Aid. Ask the children questions such as: "Where is the sugar?" "Where is the powdered Kool-Aid?" "Can you feel them?" "Can you see them?" "Is it still there?" "Can you taste them?" Listen to answers and give correct responses as needed.

B. Explain the concept "dissolve" to the students.

C. Tell the students that they are going to add different materials to water. Ask them to predict which materials will dissolve in water.

II. Activities

A. Divide students into groups of four.

B. Tell students to put a spoonful of salt in one section of their container. Stir it with the craft stick or plastic spoon. Ask questions such as: "Can you see the salt?" "Can you feel it?" "Where is it?"

C. Have the students try all of the other dry ingredients.

D. Discuss the results.

III. Follow-Up

A. Let the containers set for a while. Recheck and discuss the results.

B. Classify items as "Dissolves in Water" and "Does Not Dissolve in Water." Record on chart paper.

IV. Extension

A. As a whole group activity, fill a clear jar half-full of water and add some oil and food coloring. Put the lid on tight and shake the container of water and oil. Discuss the results. Let the container set for a while. Recheck and discuss the results.

RESOURCES

Cohen, Michael Dr., et al, Discover Science, Scott, Foresman and Company, Glenview, IL, 1989, p. 147-149.

Walpole, Brendan, 175 Science Experiments to Amuse and Amaze Your Friends, Random House, New York, NY, 1988, p. 40.

HOW BUOYANT!

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Describe, orally or in writing, the effect of fresh water and salt water on the buoyancy of objects;

2. Record in writing or tell the effect of fresh water and salt water on the buoyancy of objects;

3. Compare and contrast, orally or in writing, the effect of fresh water and salt water on the buoyancy of objects; and

4. Give an oral or written definition of buoyancy.

BACKGROUND INFORMATION

Because salt water is heavier than fresh water, objects float more readily in it. Salt water supports more weight and allows things to float more easily than fresh water.

(Note: In this experiment it will take a little more than 1 tablespoon of salt per cup of water to make the egg and carrot float. To make the potato float, it will take 1 1/2-2 tablespoons of salt per cup of water.)

Term

buoyancy: the ability of water to support weight and the degree to which it can support that weight.

SUBJECTS:
Science, Art, Music, Language Arts

TIME:
40 minutes

MATERIALS:
fresh water/salt water
recording sheet #1, 1 per child (included)
swimming figure, (sheet #2)1 swimmer per child (included)
crayons for each child
2 clear 1-1 1/2 quart wide-mouth containers
water
salt
tablespoon for measuring
teaspoon for stirring
small wood block
large marble (or stone of that size)
egg
small potato
2"-3" piece of carrot
small label with word "fresh water"
small label with word "salt water"
song "I Went for a Swim" (included)
recording sheet #3 for extension activity (optional, included)
additional sink/float objects for extension activity (optional)

ADVANCE PREPARATION

A. Gather materials listed above.

B. Make copies of Recording Sheet #1 and swimmer (Sheet #2.)

C. Put 3-4 cups of water in each of the two clear containers. Add one tablespoon of salt to one container.

D. Make copies of Recording Sheet #3 for extension activity (included, optional).

E. Gather additional objects to test for buoyancy in extension activity (optional).

PROCEDURE

I. Setting the stage

A. Have the students color the water on Recording Sheet #1. Color and cut out the swimmer (Sheet #2).

B. Determine experience background of students.

1. "Do you go swimming?" "Do you wear life jackets or use flotation devices?" "Can anyone float or swim without using any of these devices?"

2. "Where do you swim?" (Hopefully, someone will have been swimming in both fresh water and salt water.) "Did you notice a difference in the ease of swimming?" "The taste of the water?"

C. Explain that today we are going to see how well some things float in water.

II. Activity

A. Show the students the two clear containers with water in them. Add salt to one container. Explain that the class is going to observe what happens when various objects are placed in each container. If the object sinks, it will be put in one pile. If it floats, it will be put in another pile.

1. Drop an object in container 1 (fresh). What did it do?

2. Drop the same object in container 2 (salt). What did it do?

3. Does it go in the sink or float pile?

4. Continue the same procedure with all five objects.

B. If some students discovered that it was easier to float objects in salt water, discuss the reason for this. If not, tell the students that the next experiment will try to make the egg float by adding more salt to one of the containers of water.

1. Place the egg in container 2.

2. Add salt, one tablespoon at a time, stirring after each spoonful. Count how many spoons of salt it takes to make the egg float.

3. When the egg finally floats, explain to the class that adding more salt made the water heavier and therefore, it can support more weight.

4. Put remaining objects in the salt water, one at a time, to determine if they now float. Sort them into sink and float piles. Remind the students that the salt water is more buoyant so it can give more support to objects in the water. That is why the egg and carrot now float, but did not in the fresh water.

5. Ask students if it might be possible to make the potato float by adding more salt. Add two more tablespoons of salt to container 2. Stir well. Put the potato in the salt water. Does it float now? (It should.) Why? (Adding more salt increases the buoyancy of the potato.)

6. Add the marble or stone to container 2. What happened? (It sank.) Ask students if adding more salt might make the marble float? Add more salt and stir well. Did the marble float? (No.) Explain that some things will not float because they are too heavy for the salt water to support.

C. Put the "fresh water" label on container 1 and the "salt water" label on container 2. Test the objects in each container again as the students record the results. Explain that it is very important for a scientist to draw or record exactly what he/she sees so that others will know exactly what happened.

1. Put the egg in container 1 (fresh water). What happened? (It sank.) Demonstrate drawing an egg at the bottom of the fresh water on the recording sheet. Direct students to do the same.

2. Put the egg in container 2 (salt water). What happened? (It floated.) Demonstrate drawing an egg at the surface of the salt water. Direct students to do the same. Why did the egg float in the salt water? (The egg is more buoyant in salt water.)

3. Repeat this procedure for the remaining four objects.

D. Discuss the results of this experiment.

1. Which objects floated in fresh water?

2. Which objects floated in salt water?

3. Why did more objects float in the salt water?

4. Were there any objects that did not float in salt water? Why?

E. Explain that we have recorded the results of this experiment. Do all of our recordings have the same answers? (Yes.) Why? (We all saw the same thing and recorded the same conclusion.)

III. Follow-Up

A. Remind students of the earlier discussion about swimming. Is it easier to float in a swimming pool or the ocean? (Ocean.) Why? (Objects are more buoyant in salt water.)

1. Direct students to look at their Recording Sheet #1 and explain. Pretend the fresh water side is a swimming pool. How high would you float? Place a swimmer at the level you think he/she would float.

2. Pretend the salt water is the ocean. Place a swimmer where he/she should be. Did you place him/her slightly higher in the water? Why?

B. Sing song "I Went for a Swim" (included). Have students place swimmer on correct water at appropriate level in the water. Gently move the swimmer in a swimming motion.

1. Where else could people swim? (Accept any reasonable answer.) Is it fresh or salt water? Place swimmer in correct water and at correct level. Sing the song again.

2. Direct the students to set the papers aside and go to the circle area. Tell the students to pretend they are in a lake. Is a lake fresh water or salt water? Would people float easily or need more energy to swim? Have students act out the words to the song as you sing it again. (Sing the ocean verse as well for the students to contrast motions.)

3. Ask students where else people could swim? Sing song again inserting their words in the song.

4. Discuss the importance of water safety wherever people swim.

IV. Extensions

A. Place the salt water and fresh water containers in the science center. Let students experiment on their own. They may use the objects used in the class demonstration or use additional objects gathered by the teacher. (Caution students to wash their hands when they are finished with this activity. It is painful to rub salty water in an eye.)

B. Place Recording Sheet #3 in the science center so students can record their observations. (Students can use invented spelling to fill in the blank.)

C. New inquiries may arise:

1. Did anyone notice salt crystals left behind when water drops evaporated?

2. Did the salt water have a corrosive effect on any of the objects? Investigate rust. Place two tin cans in each tub of water to see which one rusts first or more.

3. Did the fresh water appear to become more buoyant as objects were move back and forth between the two containers? Why?

RESOURCE

Orii, Eiji and Masako Orii, Science Experiments With Water, Gareth Stevens Children's Books, Milwaukee, 1989.

I WENT FOR A SWIM

(Tune: My Bonnie Lies Over the Ocean)

I went for a swim in the lake.
Lake swimming is fun for me.
In the lake I float low in the water.
The lake has fresh water, you see.

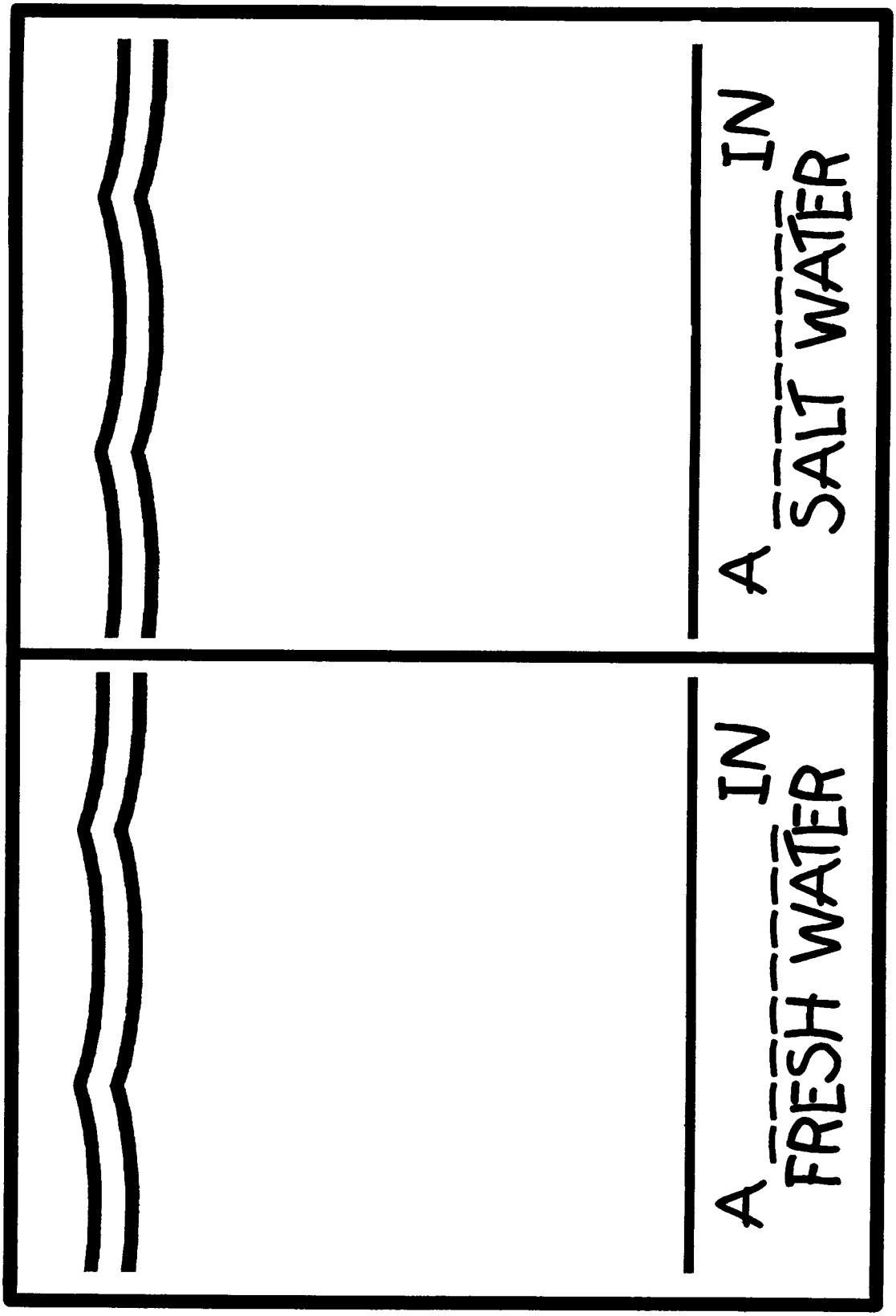
Swimming takes more energy.
I float low in the water you see, you see.
Swimming takes more energy.
I float low in the water you see, you see.

I went for a swim in the ocean.
Ocean swimming is fun for me.
In the ocean I float high in water.
The ocean is salty you see.

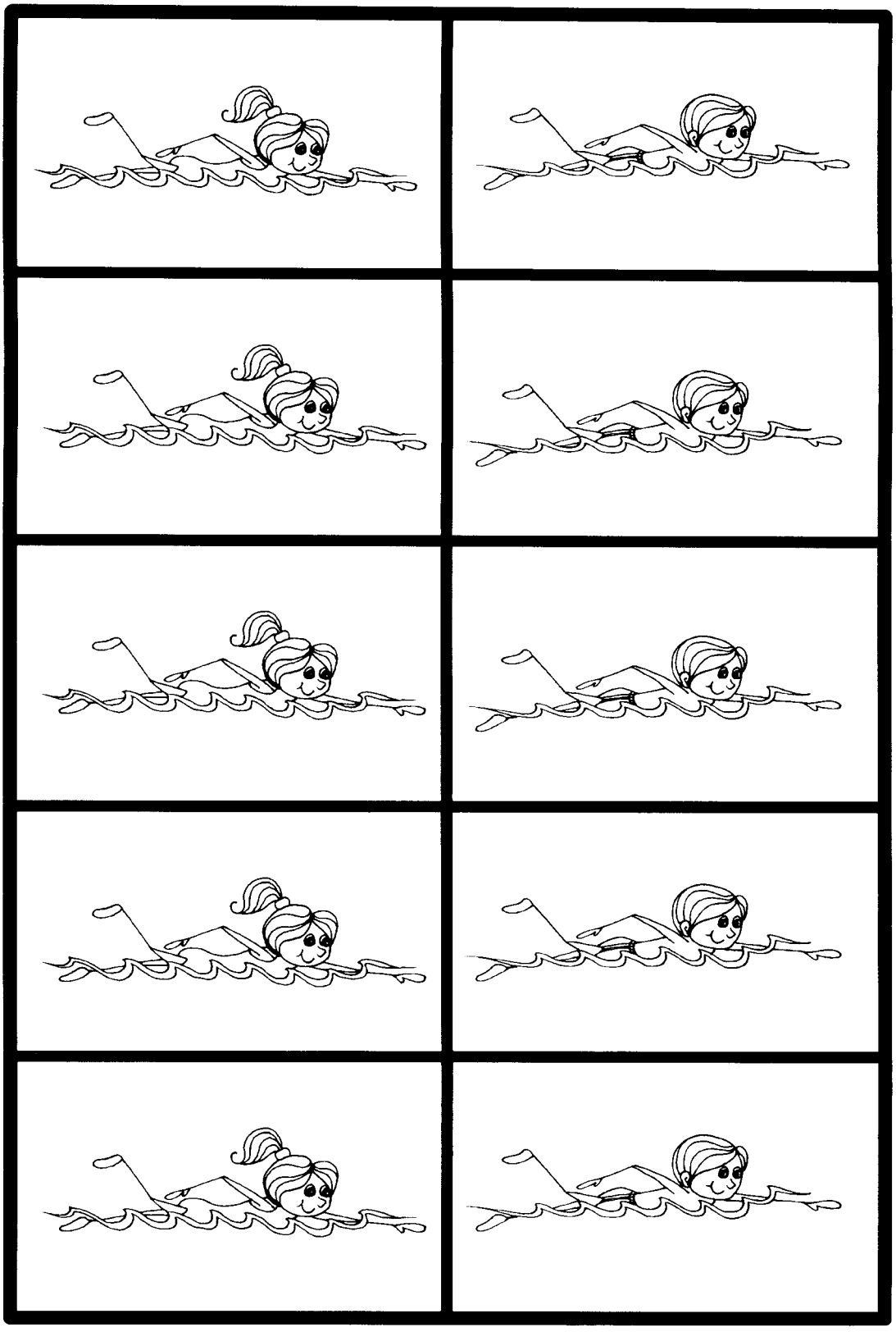
Swimming, easily;
I float high in the water you see, you see.
Swimming, easily;
The ocean is salty you see, you see.

(Note: In the first verse, you can substitute the word "lake" with pool, river, pond. The word "ocean" can be substituted with other salt water bodies and still work well.)

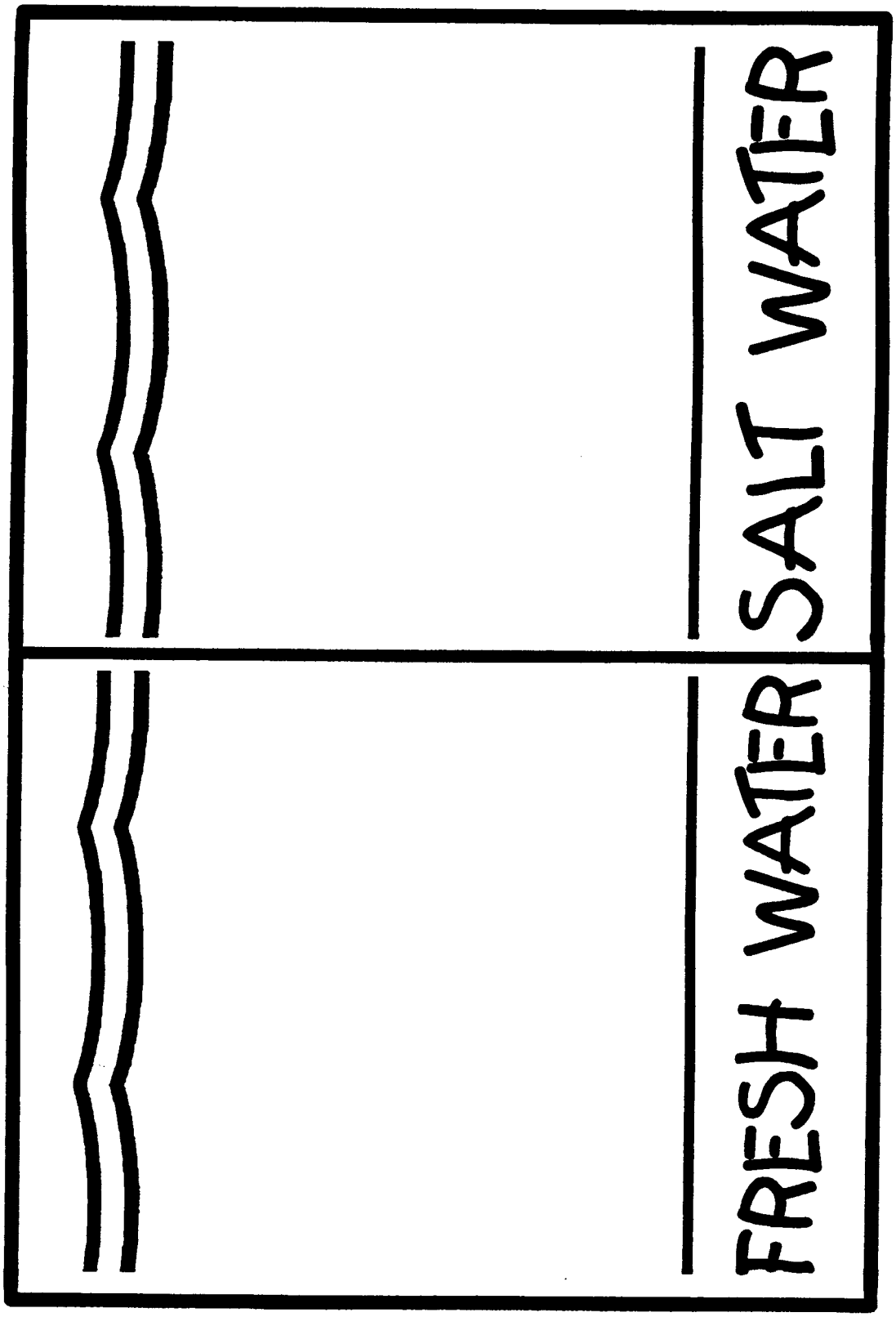
Recording Sheet #1



Recording Sheet #2



Recording Sheet #3



GREAT BALLS O' WATER!

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Define, orally or in writing, the physical characteristics of water (cohesion and surface tension);

2. Demonstrate that water likes to "hold together" to form drops of water (as in rain);

3. Demonstrate the effects of liquid soap on water tension; and

4. Give an oral or written definition of the terms cohesion and surface tension.

SUBJECTS:
Science, Math, Art, Writing

TIME:
1 hour

MATERIALS:
straws
water droppers
bowl
flour
wax paper
pepper
food coloring (red, blue, green, or yellow)
water
toothpicks
liquid detergent
Water by Brenda Walpole or similar book suitable for K-3
Great Balls O' Water record sheet (one per student)
needle

BACKGROUND INFORMATION

Solids have definite shapes, but liquids usually take the shape of the container that holds them. The basic property that makes the water behave as it does is often neglected. Learning about the attraction of molecules to each other (cohesion and surface tension) can help the students have a much better understanding of water. The molecules on the surfaces of water drops are so strongly attracted to each other that they will move to "hold together" and form one large drop (cohesion). If you put a few drops of water on a flat surface, they will spread out at first, but will not continue to spread until flat. The surface of the water is said to have "tension." With water in any amount larger than a drop, the cohesion pulls on the molecules on the surface. This force pulls the molecules in from the sides and down. This causes the surface of the water to form a "film" or "skin." This helps in making raindrops in the atmosphere and in the way water is able to travel through rocks and soil. However, when a raindrop falls from the sky, it flattens (doesn't stay round) because air is pushing against the drop of water as it falls. In addition, this film/skin that holds the water together is so tight that the surface of the water can even "hold up" some objects that shouldn't be able to "float" (because they are heavier than the water).

Terms

cohesion: the force by which the molecules of a substance are held together.

surface tension: a property of liquids in which the exposed surface tends to contract to the smallest possible area, as in the formation of a meniscus; caused by unequal molecular cohesive forces near the surface.

ADVANCE PREPARATION

A. Assemble materials.

B. Add several drops of red food coloring to one cup of water. Add several drops of blue food coloring to one cup of water.

PROCEDURE

I. Setting the stage

A. Ask the students to describe a drop of water. Ask the following questions and record all answers:

1. What shape is a water drop?

2. What happens when one drop of water gets close to or touches another drop of water?

3. What shape is a raindrop? Why?

B. Read the book Water by Brenda Walpole or a similar book suitable for K-2.

II. Activities

A. Activity I

1. Allow the students to explore and practice using a water dropper. If water droppers are not available, use straws. If straws are used, practice picking up water with the straw and letting it go, one drop at a time. (Straws may be used as a water dropper by folding over the top of the straw 1/2" to 1" then pinching the folded part as you would a water dropper.)

2. Put some flour on a square of wax paper. Blow gently at the flour through a straw. What happens to the flour? Did it stick together or did it scatter into small bits?

3. Have the students follow along as you read the record sheet together. Set a purpose for the experiment, "What can we learn about water by working with water drops?"

4. Follow the directions on the record sheet. Check off each step as it is completed.

5. Ask questions listed in "A" again. Compare answers after the experiment to the answers before the experiment.

B. Activity II

1. Fill a bowl with water.

2. Sprinkle some pepper onto the water. It should be floating on top of the water. Draw a picture to show how it looks.

3. Insert a toothpick into the water. The surface tension does not break.

4. Have students dip a toothpick into some liquid detergent.

5. Have them insert the soapy toothpick into the middle of the bowl of water. Describe what happened. (The pepper scattered to the edges of the bowl because the surface of the water was broken. Surface tension is like a "skin" or "film" on the water.)

6. Draw a picture to show how the bowl looks after the soapy toothpick is inserted into it.

C. Activity III

1. Fill a bowl with water.

2. Push the needle halfway into the bowl of water. The water "film" or "skin" seems to be higher on the sides of the needle.

3. Remove the needle and carefully float the needle on the water. Why does the needle float? The tension or "skin/film" of the water causes the needle to float.

III. Follow-Up

A. Review the steps of the record sheet. Discuss the answers.

B. Have a "water-drop race." Have each student select a friend.

1. Put down some wax paper in front of each pair of students.

2. Each student should put one drop of colored water on the wax paper.

3. Instruct students to blow the drop across the paper with a straw.

4. Determine whose drop crosses the wax paper first.

IV. Extensions

A. Repeat the "water-drop race" activity using tempera paint instead of colored water (Follow-Up B).

B. Repeat the “water-drop race” activity using soapy water drops. Could you have a race?

C. Art: “Splash Art”

   1. Mix water with food coloring: one bowl of red, one bowl of blue, and one bowl of yellow.

   2. Hold the droppers or straws high above some paper.

   3. Drop drops of two different colors of water on the same paper.

D. Repeat “Splash Art” using a variety of liquids. Did the different liquids splash the same way? Which one made the smaller splashes? Larger splashes?

E. Repeat “Splash Art” from different heights. How are the splashes from different heights?

F. Investigate how the insect “water strider” stays on top of the water. (The surface tension of the water is strong enough to support the weight of the insect.)

G. Visit a pond. Look very carefully at the surface of the water. Use a nature book to see how many different insects you can count skimming across the pond’s surface.

H. Ask students to search and find an occurrence of cohesion and surface tension at home. List and bring to school. (Example: water beading on a waxed car.)

RESOURCES

3-2-1 Classroom Contact—”Water Cycle: Go With the Flow”, (Video).

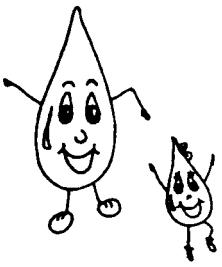
Markle, Sandra, A Rainy Day, Orchard, 1993.

Van Rose, Susana, Eyewitness Science: Earth, Dorling Kindersley, 1994.

Walpole, Brenda, Water, Garrett Educational, 1990.

Watson, Philip, Science Club: Liquid Magic, Walker Books Ltd., 1982.

Great Balls O' Water



Materials: food coloring, dixie cups, toothpick, waxpaper eyedropper

1. Add a few drops of food coloring to your cup of water. Use the eyedropper. Put 5 large drops of colored water onto the waxpaper. Draw how the drops look.

2. Use the toothpick. Pull one drop on the paper and make it touch another drop. Draw what you observe.

3. Using the toothpick, pull the other drops so that they touch the large drop. Draw what the water looks like now.

4. Using the toothpick try to pull a drop out of the big drop. Draw what the big drop looks like as you are pulling on it.

Do drops of water stay apart or do they try to stick together?

UP, UP AND AWAY!

K-2

SUBJECTS:
Science, Math, Music

TIME:
1 day and 30 minutes to measure and record

MATERIALS:
containers with various size openings (milk jugs, bowls, quart jars) one container for every 4 students
recording sheet
a graduated cylinder for exact measurement
measuring cups, either metric or standard
ruler (one for each group)

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Record, orally or in writing, that changes in evaporation depend on the size of the container's opening;

2. Use a ruler to measure the size of the opening and the amount of water; and

3. Give an oral or written definition of evaporation.

BACKGROUND INFORMATION

The molecules of liquid water are always in motion. Molecules with sufficient energy that escape the water's surface and go into the atmosphere are said to evaporate. At ordinary temperature, evaporation is slow because fewer molecules have enough energy to escape the liquid's surface. As water molecules absorb heat energy, the molecules speed up. Then more molecules have sufficient energy to escape the water's surface. With increasing temperatures the evaporation rate increases. When water evaporates, it enters the atmosphere in the form of water vapor.

Term

evaporation: process in which the heat energy of the sun causes the water on the Earth's surface to change into a vapor.

ADVANCE PREPARATION

A. Part of this activity should be done in the morning, so the containers can be exposed to a full day of sunlight. Then the other half should be done toward the end of the school day.

B. Have the materials on a table accessible by the students.

PROCEDURE

I. Setting the stage

A. Read the story Listen to the Rain by Bill Martin, Jr. Ask the students, "Where do the rain puddles go?"

II. Activities

A. Divide the class into groups of four Let each group choose its container, and get a ruler, measuring cup, and recording sheet.

1. Using a graduated cylinder, decide on the amount of water to be used for the experiment. Let the students determine the amount of water their containers will hold and, as a class, decide on a common amount. Have students fill their containers. Record this amount.

2. Using the ruler, have students measure the dimensions of their opening. If it is round, introduce the concept of diameter. Let them record this on their recording sheets.

3. Have each group find a sunny place to put their container. Have them check on their container periodically during the day to make sure it is not in the shade.

4. After several hours, have students collect their containers and bring them inside. Carefully, let them pour out the water and measure it in the graduated cylinder. Have students report and record the amount of water remaining.

III. Follow-Up

A. Begin a discussion on the effect that the size of the opening had on the amount of water which evaporated. Have students record the final amount.

1. How long did it take the water to disappear?

2. Keep a weather graph of the weather each day. Does the water evaporate more on a sunny or cloudy day?

3. Draw a line down the chalk board. Wet each side with a wet sponge. Fan one side of the board and let the other side dry naturally. Which side dries first? Why?

IV. Extensions

A. Find a puddle or make a puddle. Using a ball of yarn, outline the puddle. Cut and tie the ends together. Secure the yarn to the area by sticking hairpins into the ground. Ask, "What do you think will happen?" Come back the next day. Is the water still there? Where did the water go? Write your ideas in your journal.

B. Using the data collected make a large class graph of the amount of water remaining in the containers.

C. Make subtraction problems using the initial amount of water and the remaining amount.

D. "Magic Wand" Math Review. Use a Q-tip dipped in water as "Magic Wand." Squeeze the excess water out of the "Magic Wand." Write math number sentence (8 + 6, 3 x 4, 18 - 9) on chalkboard. Call on a student to answer question before the number sentence disappears. Ask "What happened to the number sentence?" "Where did the water go?"

RESOURCE

Namowitz, Samuel N. and Nancy E. Spaulding, Earth Science, p. 437, D. C. Heath and Company, Lexington, MA, Toronto, 1985.

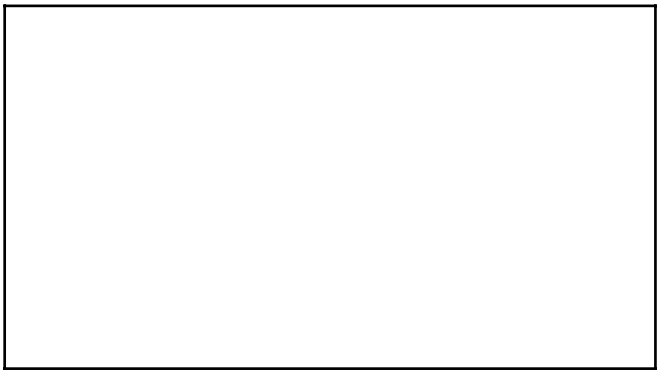
EVAPORATION RECORDING SHEET

Group Members:

_____ _____

_____ _____

1. This is how our container looks:



2. We put _____ water in our container.

3. The opening of our container is shaped like this:

4. The dimensions are _____.

5. At the end of a sunny day, we had _____ water left in our container.

6. Does the size of the opening have an effect on the amount of water evaporated?

_____

_____

WATER GOES UP AND DOWN

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Demonstrate, through role play, the steps of the water cycle; and

2. Give an oral or written definition of evaporation, vapor, and the water cycle.

SUBJECTS:
Science, Language Arts, Music

TIME:
30-40 minutes

MATERIALS:
chart paper

BACKGROUND INFORMATION

When it rains, the rainwater runs down drains or into rivers, streams, lakes, or oceans. Some of the rainwater makes puddles on sidewalks or on the ground. Some of the water soaks into the ground to become ground water. After the rain stops, the sun warms the water, turning some of it into tiny, invisible drops of water called vapor. The vapor rises into the sky, condenses back to water, and joins other water droplets to form clouds. When the water droplets are heavy enough they fall to the Earth as rain, snow, ice, or hail. Then the process repeats itself. We call this continuous movement of water "the water cycle."

Terms

evaporation: process in which the heat energy of the sun causes the water on the Earth's surface to change into a vapor.

vapor: a substance in the form of a gas having no fixed shape.

water cycle: continuous movement of water from the oceans and fresh water sources to the air and land and then back to the oceans.

PROCEDURE

I. Setting the stage

   A. Share background information about the water cycle.

B. Sing the song:

WATER GOES UP AND DOWN
(Tune: The Farmer in the Dell)

Water goes up and down
Water goes up and down
High Low is how it goes
Water goes up and down.

First it falls down
First it falls down
High Low is how it goes
First it falls down.

Then it makes a stream
Then it makes a stream
High Low is how it goes
Then it makes a stream.

The stream joins a river
The stream joins a river
High Low is how it goes
The stream joins a river.

The river joins the ocean
The river joins the ocean
High Low is how it goes
The river joins the ocean.

The sun warms the water
The sun warms the water
High Low is how it goes
The sun warms the water.

The water turns to vapor
The water turns to vapor
High Low is how it goes
The water turns to vapor

The vapor forms a cloud
The vapor forms a cloud
High Low is how it goes
The vapor forms a cloud.

The rain falls again
The rain falls again
High Low is how it goes
The rain falls again.

Water goes up and down
Water goes up and down
High Low is how it goes
Water goes up and down.

Original song by Beth Corum

II. Activity

A. Divide the children into groups and place them in the role play positions:

1. Have a few children stand on a low table. They will be "the raindrops."

2. Have a few children stand side by side holding hands. They will be "the river."

3. Have several children stand together in a group. They will be "the ocean." Of this group, choose a few children who will become "vapor" at the appropriate time.

4. Choose one child to be "the sun."

B. Read the narration slowly, allowing time and providing direction for role playing.

Narration (to be read by the teacher)

"One day a gray cloud formed in the sky. Thunder could be heard."
(All children make thunder sound)

"Raindrops started to fall."
(One by one the children on the table "fall" to the floor.)

"The raindrops joined together to form a stream."
(These children hold hands and start walking slowly, winding around the room.)

"The stream flowed into a river."
("Stream children" join hands with "river children.")

"The river flowed into the ocean."
("River" joins "ocean.")

"Some of the water got so warm it turned into vapor and rose into the air."
(Designated "vapor children" carefully climb onto the table.)

"The vapor got cold and joined together to form a cloud."
(Children on the table move close together.)

"Raindrops started to fall."
(One by one the children on the table "fall" to the floor.)

III. Follow-Up

A. Ask the students to tell you the steps of the water cycle.

1. List their responses on chart paper.

2. Let the students work in pairs, illustrating the steps of the water cycle. (Each pair illustrates one step.)

B. As the class sings "Water Goes Up and Down" let one student point to the corresponding step on the chart paper.

IV. Extensions

A. Fill three jars half-full of water. Mark the water line on each by placing a rubber band around each jar.

1. Place one jar on a sunny windowsill.
Place one jar inside a cabinet or closet.
Put lid on the third jar and sit it on a shelf.

2. Observe the jars over a period of time. Discuss.

B. Paint with water on a sidewalk on a sunny day. Discuss evaporation.

C. Sing the song:

WATER CYCLE SONG
(To the tune of "Clementine")

Evaporation, condensation, precipitation on my mind.
This is the water cycle and it happens all the time.

MOTIONS:

Students form a circle, squatting. When they sing evaporation they should rise, slowly. For condensation they hold hands together, and for precipitation they squat down to original position.

RESOURCES

Bittinger, Gayle, Learning and Caring About Our World, Warren Publishing House, Inc., Everett, Washington, 1990.

Mayes, Susan, What Makes it Rain?, Usborne Publishing, 1989.

RAIN, RAIN GO AWAY

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Describe, orally or in writing, how water moves in a never ending circle or cycle; from sky to Earth, over and over again;

2. Name and explain, orally or in writing, the steps in the water cycle; and

3. Give an oral or written definition of the new terms: condense, evaporate, gas, hail, liquid, sleet, snow, solid, and water.

SUBJECTS:
Science, Music, Math, Geography, Language Arts, Art

TIME:
25 minutes

MATERIALS:
tea kettle or sauce pan
1/4 filled with water
hot plate
aluminum pie pan
ice cubes
large zip-loc baggie
water
globe

BACKGROUND INFORMATION

Water falls from the sky to the Earth in different forms; rain, snow, sleet, and hail. Some of the water soaks into the ground and becomes ground water. The rest flows into streams, lakes, rivers, and oceans. The sun's heat changes some of the water to a gas called water vapor. This process is called evaporation. The water vapor rises into the sky and forms a cloud. Clouds are made of trillions of water droplets. The droplets are tiny and light enough to float. When the clouds get very cold, the water droplets freeze and get so heavy they can't float anymore. They fall out of the cloud and melt on the way down to Earth. They fall as rain. If the air is too cold on the way down, the drops of water will fall frozen as snow or sleet.

Terms

condense: water vapor that changes into a liquid.

evaporate: to convert or change into a vapor.

gas: substance having no fixed shape.

hail: precipitation in the form of hard pellets of ice or hard snow.

liquid: a free flowing substance that borrows the shape of its container.

sleet: precipitation consisting of generally transparent frozen or partially frozen raindrops.

snow: solid precipitation in the form of white or translucent ice crystals of various shapes originating in the upper atmosphere as frozen particles of water vapor.

solid: a hard substance that keeps its own shape.

water: a clear liquid, solid, or gas made up of tiny molecules of two parts hydrogen and one part oxygen.

ADVANCE PREPARATION

A. Gather information.

PROCEDURE

I. Setting the stage

A. Sing the song:

HERE COMES THE RAIN by Amy Pochodaj
(To the tune: The Green Grass Grows All Around)

Here comes the rain— (Echo.)
The wettest rain. (Echo.)
The heaviest rain. (Echo.)
That you ever did see. (Echo.)
And the water keeps going all around, all around.
And the water keeps going all around.

And from that rain
There is a puddle—
The biggest puddle
That you ever did see.
Puddle from the rain.
And the water keeps going all around, all around.
And the water keeps going all around.

Here comes the sun
To dry the puddle—
The hottest sun
That you ever did see.
Sun dries the puddle, puddle from the rain.
And the water keeps going all around. . . .

Now forms the cloud
Up in the sky—

The biggest cloud
That you ever did see.
Cloud from the puddle, when the sun dries the puddle, puddle from the rain.
And the water keeps going all around. . . .

Here comes the rain—
The wettest rain.
The heaviest rain
That you ever did see.
Rain from the cloud, cloud from the puddle, when the sun dries the puddle, puddle from the rain.
And the water keeps going all around. . . .

Used with permission of Amy Pochodaj, Humpty Dumpty Day Care, Ypsilanti, MI.

II. Activity

A. Place ice cubes in the tea kettle or sauce pan. Discuss that ice is water in the solid form.

B. Heat the ice. Observe and discuss the change from a solid to a liquid. Discuss with the students that the liquid takes the shape of the container. The solid form, ice, did not.

C. Boil the water until it changes into water vapor. A cloud will form just beyond the spout of the kettle or above the sauce pan. The clear area nearest the spout or pan is steam or water vapor.

D. Hold the aluminum pie pan that is filled with ice cubes in the cloud area.

E. Ask the students to watch beneath the pie pan and comment on what is happening. It is raining!

F. Ask the students the question: "What happened when the warm water vapor touched the cold pan?" (The water vapor was cooled and condensed into water drops that got heavy and fell.)

III. Follow-Up

A. Place 1/2 cup of water in the bottom of a zip-loc baggie. Make sure no water gets on the sides of the bag. Tell the students that this is a pretend puddle that will help us know what happens to the water in a real puddle.

B. Tape the bag that is zipped tight to a sunny window.

C. Watch the bag for several hours. Let the students feel the water through the bag. What does it feel like? (Warm)

D. Tiny drops of water will form on the sides of the bag. Condensation has occurred. Tell the students that clouds are made of tiny water drops.

E. Hold a bag of ice against the top of the bag. Tell the children that the ice will do the same thing as cool air high in the sky. More condensation will occur. Some drops will get heavy and fall like rain as the students watch.

F. Within the plastic bag you can continue the rain cycle for as long as you like.

G. When you are finished with the experiment, open the bag. Ask the students to predict what they think will happen to the water. Mark the water level on the bag with a permanent marker each day. Record the water level until the water is gone. Discuss the graph on the bag with the children. Ask: "What makes more water evaporate some days and not others?" (temperature) Discuss.

IV. Extensions

A. Read What Makes It Rain by Keith Brandt. Give the students pre-cut raindrops. Ask the students to use their imaginations and write and illustrate on their raindrops what they were and where they had been before they were a raindrop.

B. Watch and listen to a televised weather broadcast. Using a globe or map, point out places where it is raining. Discuss the fact that it does not rain everywhere at the same time.

C. Read the story Rain Talk by Mary Serfozo. Using a water table or dish pan and a variety of objects such as strainers, funnels, slit spoons, plastic medicine droppers, and watering cans, let the children rain on various objects such as tin cans, wood blocks, plastic butter tubs, or milk cartons. Let the children describe the "rain talk" or different sounds they hear.

D. Rain Collage. Have the students create a rain scene by gluing confetti or paper hole punch-outs on paper. Let the students cut from magazines things that benefit from rain and glue them on paper. Examples: animals, people, plants, etc.

RESOURCES

Pochodaj, Amy, Here Comes the Rain, Humpty Dumpty Day Care Center, 1212 Washtenaw, Ypsilanti,MI, 48197.

The Education Center, The Mailbox, Pre-K, April/May, 1995.

Victor, Edward, Science For the Elementary School, Macmillan Publishing Company, 1980, p. 385.

RAIN, RAIN GO AWAY, PART II

K-2

SUBJECT:
Science

TIME:
25 minutes

MATERIALS:
water cycle poster
activity sheets (water cycle wheel #1 and #2)
water cycle song on chart paper
paper plate
scissors
brad
crayons

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Construct a water cycle wheel;

2. Name the three major components of the water cycle; and

3. Give an oral or written definition of the terms: condensation, evaporation, precipitation, and transpiration.

BACKGROUND INFORMATION

Nearly 70% of the Earth's surface is covered with water. The Earth never gets more water added to it. The same water keeps circulating and recirculating through the water cycle.

Terms

atmosphere: envelope of gases surrounding the Earth.

condensation: process by which vapor changes back into a liquid.

evaporation: process in which the heat energy of the sun causes the water on the Earth's surface to change into a vapor.

precipitation: forms of condensed water vapor that are heavy enough to fall to Earth; rain, sleet, snow.

transpiration: process in which water absorbed by the root systems of plants moves up through the plants, passes pores (stomata) in their leaves or other parts, and then evaporates into the atmosphere as water vapor; the passage of water vapor from a living body through a membrane.

ADVANCE PREPARATION

A. Display a water cycle poster.

B. Print the Water Cycle Song on chart paper.

THE WATER CYCLE SONG
(Tune: Are You Sleeping?)

Clouds have drops,
Clouds have drops,
That fall to the ground,
That fall to the ground.
Some drops fall in lakes and streams,
Others land on you and me.
Drip, Drop, Drip,
Drip, Drop, Drip.

Then the drops evaporate,
Then the drops evaporate,
And travel to the sky,
And travel to the sky.

There the drops will condensate,
Stick together with a mate,
And down they fall again,
Again, again, again.

C. You may wish to pre-cut or trace the squares onto the paper plates.

PROCEDURE

I. Setting the stage

A. Display a poster of the water cycle. Introduce the Water Cycle Song.

II. Activities

A. Have students construct a water cycle wheel.

1. Use a large paper plate and trace the squares on it. Cut these out. See the pattern.

2. Color the raindrops blue.

3. Draw land and sea on the bottom of the plate.

4. Draw clouds and sun in the upper left, draw rain clouds in the upper right.

III. Follow-Up

A. Construct a classroom terrarium to illustrate a miniature water cycle.

1. In the bottom of a fish bowl or aquarium (any size), lay 1 1/2 inch of gravel, followed by soil.

2. Place a variety of plants in the aquarium, water slightly, cover with plate glass, and place in a warm place. If the cover fits tightly, students should observe that no additional water needs to be added. Point out that water has evaporated from the soil, transpired from the plants, condensed, and returned to the soil.

B. Read the story Looks Like Spilt Milk by Charles Shaw. Give each student a sheet of blue construction paper. Have students tear white construction paper into various shapes to represent clouds.

C. Read the story Cloudy With a Chance of Meatballs by Judi Barrett. Give each student a paper plate to divide into sixths. Have them cut out pictures of food from magazines to correspond with the food pyramid.

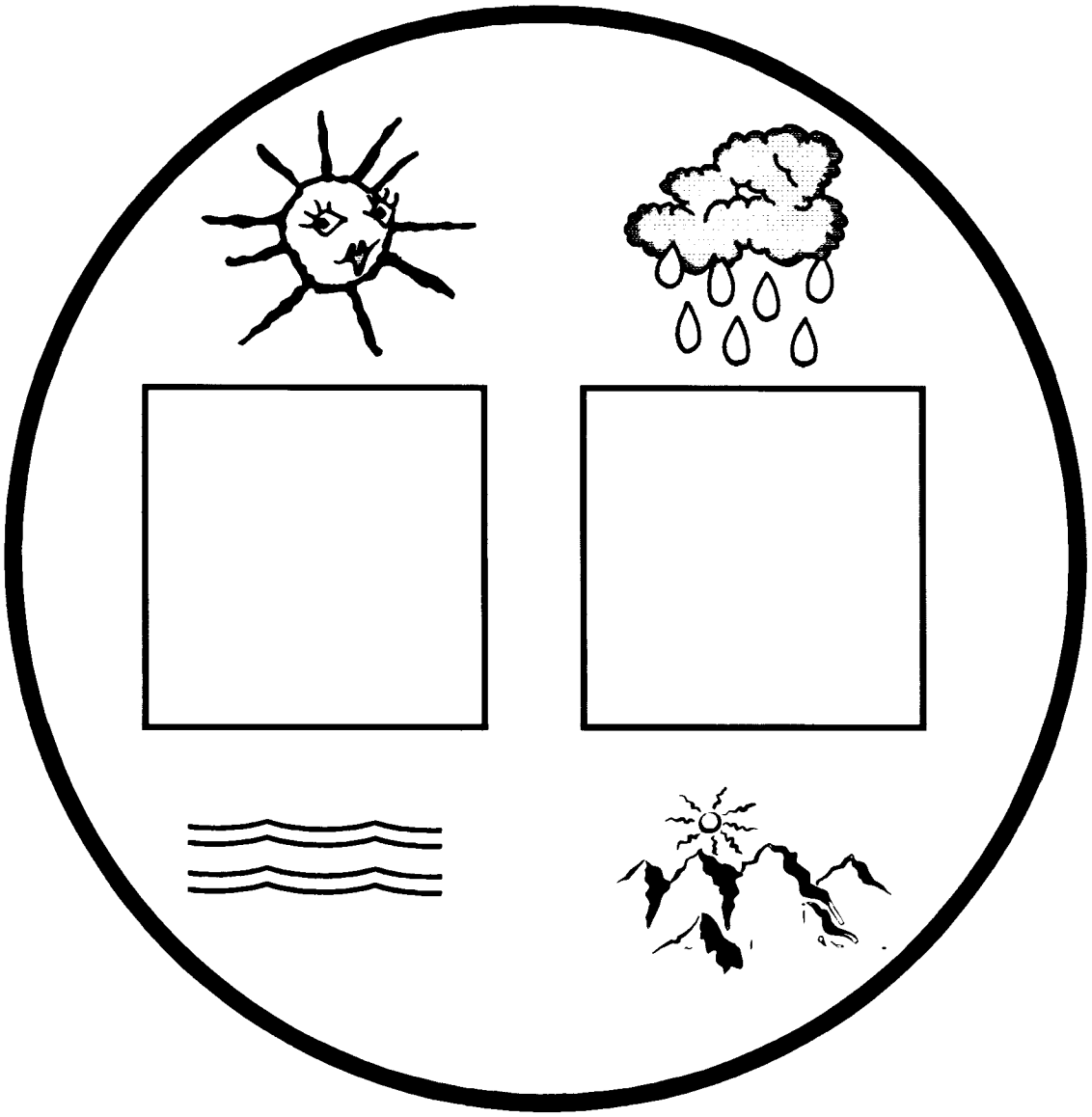
RESOURCES

Barrett, Judi, Cloudy With a Chance of Meatballs, Atheneum Publishers, 1987.

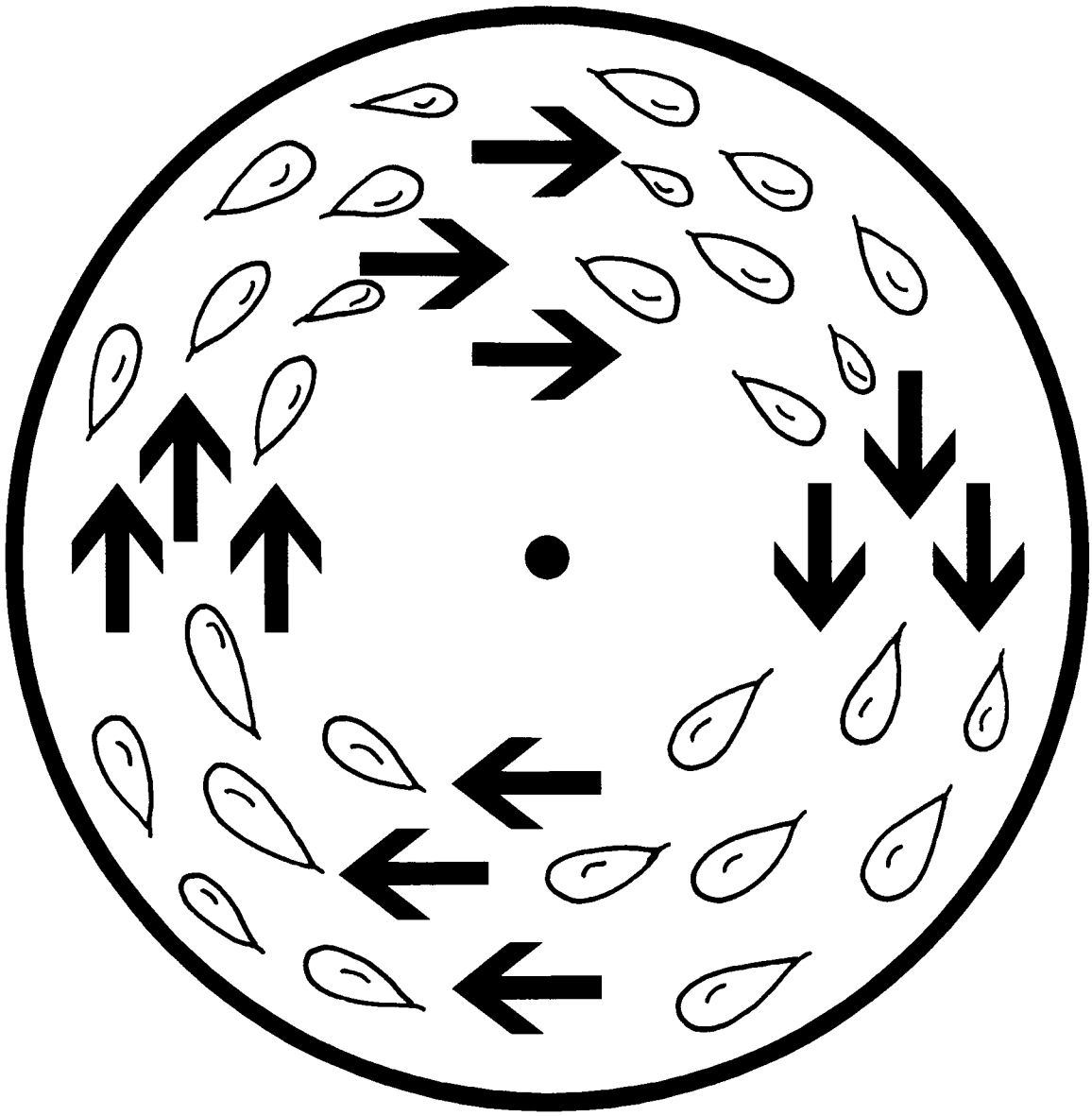
Polacco, Patricia, Thundercakes, Putnam Publishers.

Shaw, Charles, It Looks Like Spilt Milk, Harper Collins.

WATER CYCLE WHEEL
PATTERN 1



WATER CYCLE WHEEL
PATTERN 2



DRIP AND DROP'S ADVENTURE

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Name or in writing, at least three ways to conserve water;

2. Construct a "Big Book"; and

3. Give an oral or written definition of what it means to conserve.

SUBJECTS:
Science, Health, Language Arts

TIME:
15 minutes

MATERIALS:
puppet
puppet play "Drip and Drop's Adventure" (included)

BACKGROUND INFORMATION

People use water in numerous ways such as bathing, washing clothes, drinking, cooking, washing cars, washing dishes, cleaning, watering plants, watering yards, flushing the toilet, and many more. People, businesses, factories, and farms use millions of gallons of water each day. People have to pay for clean, safe water. There is a limited amount of clean, safe water because water in nature may no longer be safe enough to use. At times, there is a shortage of usable water due to a shortage of rain, overuse of water by people, or pollution.

Term:

conserve: save, protect, keep; to use a resource wisely and efficiently.

ADVANCE PREPARATION

A. Make puppet (Figure 1).

B. Make copies of book cover "Ways I Will Save Water" (included).

PROCEDURE

I. Setting the stage

A. Read or tell the first narrator's part of "Drip and Drop's Adventure."

II. Activity

A. Perform the puppet play “Drip and Drop’s Adventure.”

III. Follow-Up

A. Ask the students questions such as:

1. Can you name ways that Drip and Drop helped Johnny save water?

2. Can you think of other ways to save and conserve water.

IV. Extensions

A. Let students make their own little book, “Ways I Will Save Water.” Allow the students who cannot write to draw pictures or dictate their story to an older student.

B. Have the class construct a “Big Book.”

1. Divide the students into groups of two or three.

2. As a whole group decide on a different water conservation idea for each group.

3. Pass out large sheets of paper and markers to each group.

4. Instruct each small group to make an illustrated page for their water conservation idea.

5. Take dictation from groups that need your assistance.

6. Allow each group to share their page with the whole group.

7. When the pages are complete, punch holes and bind with a book binder, rings, or yarn.

RESOURCE

Taking Care of the Earth, A Golden Book, New York, Western Publishing Company, Inc.

DRIP AND DROP'S ADVENTURE

(Original story by Cindy Taylor)

Narrator: One day when Johnny was drying after his bath, he didn't dry behind his ear very good and left 2 drops of water behind his ear. He didn't know they were there.

Drop: Hey Drip!
Drip: What Drop?
Drop: Johnny's towel didn't get us.
Drip: Yea! We'll get to go everywhere Johnny goes and see things.
Drop: What fun!
Drip: I wonder where we're going?
Drop: Looks like Johnny's going to brush his teeth.
Drip: Oh no! Look Johnny's left the water running while he's brushing his teeth!
Drop: Yea! Look at our little buddies going down the drain.
Drip: Johnny turn the water off while you brush. You're wasting gallons of us!
Johnny: Who said that?
Drip: Shhhh! Don't tell him, he might wipe us away.
Drop: Hey Johnny, you need to put a plastic soda bottle filled with water in your toilet tank. The bottle takes up space and saves us, I mean saves water.
Johnny: OK I will, but I wish I knew who was whispering in my ear.
Drip: I wonder where we are going now Drop?
Drop: We're in the kitchen, and Drip look at the water dripping out of the faucet. It won't cut off.
Drip: I see.
Drop: There goes our friends down the drain. What a waste!
Drip: Johnny, please tell your mom to get the leaky faucet fixed.
Johnny: I don't know who said that, but OK. Mom, you need to get the faucet fixed. It's leaking and wasting water!
Drop: Now what's Johnny up to?
Drip: He's getting a drink and it's water.
Drop: He's a smart kid. Water is good for his body.
Drip: Oh, he didn't drink all of it and he's going to pour the rest down the drain!

Drop: Stop! STOP! Johnny, save that water. Put it in the refrigerator for later, or water your mom's plants with it. Please don't waste it!

Johnny: OK! Someone or something sure is watching out for water. I'll save it for later.

Johnny: Mom, I'm going to the park to play.

Drip: Oh good! We're going to the park!

Drop: Drip, look at those people have a picnic. Doesn't that look like fun!

Drip: But look, they're throwing their trash in our friend lake.

Drop: Johnny help us! Tell those people to please throw their trash in the can.

Johnny: Hey folks, please put your trash in the trash can. I still don't know who's whispering in my ear, but they sure do care about water!

Drip: It's raining Drop.

Drop: I love seeing so many of our friends all at one time.

Drip: Me too!

Drop: Look at all that rainwater. It's watering the Earth and making things grow.

Drip: Johnny, why don't you collect some of the rainwater. It sure would be good for your aquarium. You could water the house plants with it or your family could use it to wash their hair. It makes hair soft and shiny.

Johnny: OK, I will. I'll catch a big bucket full and use it for all those things.

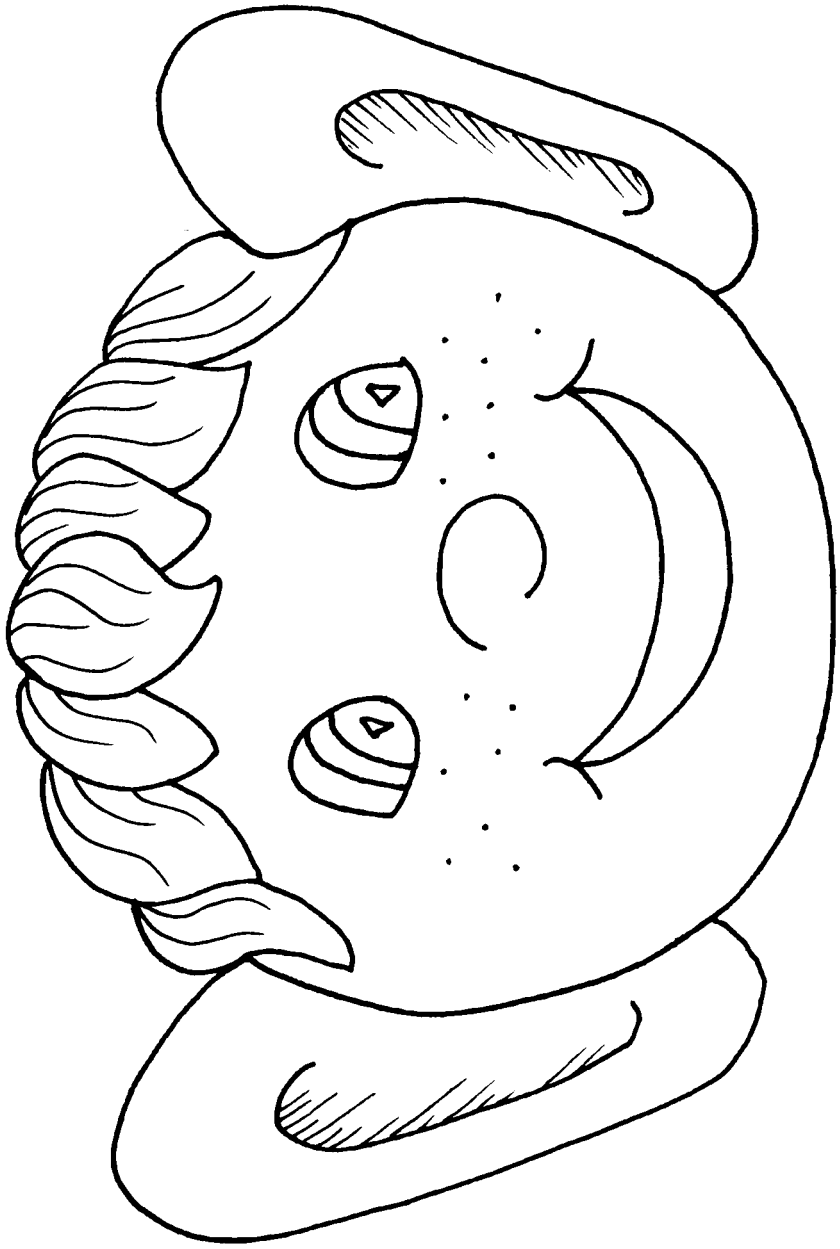
Drip and Drop: Good-bye Johnny. We sure have enjoyed our adventure with you today, but we're about gone! Thanks for all you've done to save our friend Water!

Johnny: I've learned a lot today about conserving and taking care of water.

Narrator: Drip and Drop have evaporated into the air but not before they taught Johnny some valuable ways to take care of and to conserve water. Don't worry boys and girls, Drip and Drop are not gone forever. They will return again. They will always be spreading the word of saving and taking care of water over and over again.

PUPPET

A. Xerox, color, cut out, and attach to a tongue depressor.
B. Add blue construction paper raindrops to back of ear. Use glitter for a sparkling effect or for a special effect add blue teardrop shaped gems.



WAYS I WILL SAVE WATER

DRIP AND DROP PUBLICATIONS

1-82

AUTHORED AND ILLUSTRATED BY

I WILL_____________ 1

I WILL_____________ 6

I WILL______________ 5

I WILL______________ 2

I WILL______________

3

I WILL______________

4

WATER WORKS FOR EVERYONE

K-2

SUBJECTS:
Math, Art, Music, Social Studies

TIME:
30-40 minutes

MATERIALS:
occupation strips (included)
butcher paper
tape

OBJECTIVE

At the end of this lesson, the students shall be able to do the following:

1. Identify, orally or in writig, at least one occupation for which water is important.

BACKGROUND INFORMATION

People have many different kinds of jobs. Some jobs help keep people safe. Some jobs provide people with food or other things. Some jobs take care of people who are sick or hurt. Some jobs help people in other ways.

There are many different things that help people do their jobs better. Some jobs require special equipment or clothing. Almost every job uses WATER in one way or the other.

ADVANCE PREPARATION

A. Draw the attached blank graph on butcher paper.

B. Cut apart the occupation strips and conceal them in a box or bag.

PROCEDURE

I. Setting the stage

A. Share the background information with the students.

II. Activity

A. Let each child pull an occupation strip from the box or bag and read it aloud. Ask “How is water used in this job?” After class discussion, let the student tape the strip to the graph in the appropriate column. Let each student have a turn.

B. Discuss the completed graph:

Column 1 shows the jobs in which water is extremely important.
Let's count the jobs in Column 1 together - 1, 2, . . . "
Repeat with Columns 2, 3, and 4.
Continue the discussion until someone observes that there are no jobs in Column 4.

C. Sing the song:

WATER WORKS FOR EVERYONE by Beth Corum
(Tune: BINGO)

Every job that people do
Sometimes uses water
W - A - T - E - R
W - A - T - E - R
W - A - T - E - R
Water works for everyone ! !

III. Follow-Up

A. Let each student tell the teacher one occupation for which water is important. The teacher will write the response on an "occupation badge" and let the student decorate it.

IV. Extension

A. Write a class letter to your local fire station, explaining your recent study of water. Include bumper stickers which the students have made and ask the fire fighters to display them on their fire trucks.

Possible bumper sticker:

Water is important to fire fighters.

Water is important to EVERYONE

B. Have the students write a sentence or tell about why water is important to the occupation they choose. Draw a picture at the bottom of the paper to illustrate the chosen occupation.

GRAPH TO BE PLACED ON BUTCHER PAPER

Water is extremely important in this job	**Water is important in this job**	**Water is sometimes used in this job**	**Water is seldom used in this job**

SECRETARY

LIFEGUARD

WHALE TRAINER

CONST. WORKER

PAINTER

HOUSEKEEPER

FOOTBALL COACH

FARMER

SOLDIER

ZOO KEEPER

WEATHER MAN

HAIR STYLIST

POLICEMAN
FIREFIGHTER
TEACHER
FISHERMAN
PREACHER
BUS DRIVER
COOK
WAITRESS
DOCTOR
DENTIST
VETERINARIAN
LAWYER

DO YOU KNOW MY JOB?

K-2

OBJECTIVES

At the end of this lesson, the students shall be able to do the following:

1. Identify, orally or in writing, water related careers;
2. Identify water-related careers based on job descriptions; and
3. Give an oral or written definition of career, related, and water.

SUBJECTS:
Science, Social Studies

TIME:
1 hour or 2 separate days, 30 minutes each

MATERIALS:
career picture cards, blackline masters
career description cards, blackline masters
2 transparencies

BACKGROUND INFORMATION

Water-related careers offer a variety of job opportunities ranging from those requiring simple on-the-job training to those requiring an advanced degree. Young students need to be aware of water-related careers and become familiar with the tasks performed.

Terms

career: a chosen pursuit or life's work; a job or profession one is trained to do.

related: having a connection; going together.

water: a clear liquid, solid, or gas made up of tiny molecules of two parts hydrogen and one part oxygen.

ADVANCE PREPARATION

A. Duplicate blackline masters.

B. Make a transparency of each blackline master.

C. Locate book The Divers or another book that presents a water-related career.

PROCEDURE

I. Setting the stage

A. Discuss the definition of water-related.

B. Read The Divers. Ask how a diver's career is water-related.

C. Have students help make a list of careers they know of that are water-related.

II. Activities

A. Use transparencies of the blackline masters to introduce the water-related career game.

Career Picture Cards
Career Job Descriptions

1. Cut the transparencies apart (bold lines) so that pictures can be matched with job descriptions.

B. After naming each of the careers depicted on the career picture cards, place the cards on the overhead.

1. Read different job description cards and call on students to identify the matching picture card.

III. Follow-Up

A. Pass out blackline masters (picture and job description cards) and have the students cut the cards apart.

The cards can be used as follows:

1. Matching - match job description cards to the correct career picture cards.

2. Concentration - for this game students will work in groups of 2-3 and use one set of cards. Place all cards face down. Each student (in turn) turns over two cards trying to match a job description with the correct picture card. If a match is made, the student keeps the cards and gets another turn. If no match is made, the play moves to the next student.

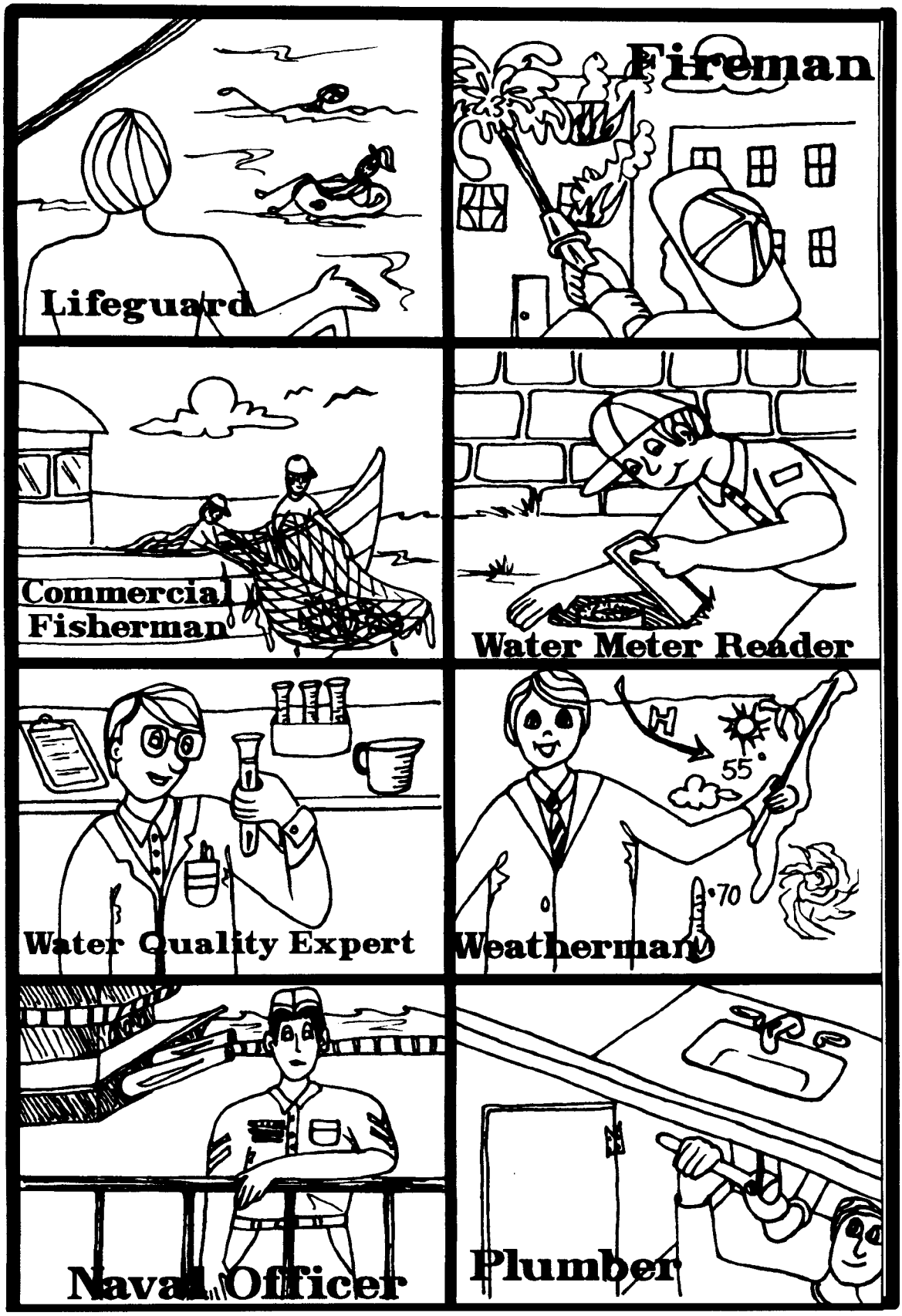
IV. Extensions

A. Students may select a water-related career and make a poster illustrating the job responsibilities.

B. Invite speakers who have water-related careers to talk with the class.

RESOURCE

Midjas, Bente, The Divers, The Wright Group, 1993.


Lifeguard
Fireman
Commercial Fisherman
Water Meter Reader
Water Quality Expert
55°
70
Weatherman
Naval Officer
Plumber

1. I help to protect your country. I am in the armed services. What is my career?	2. I catch fish and bring them to market. What is my career?
3. I prevent, tend to, and control fires. What is my career?	4. I forecast weather. What is my career?
5. I find out how much water your family uses. What is my career?	6. I repair your pipes and make sure your toilet, faucets, and showers are working. What is my career?
7. I watch while you swim to make sure you are safe. What is my career?	8. I test your water to make sure it is clean and safe to drink. What is my career?

ANSWER KEY

1. NAVAL OFFICER
2. COMMERCIAL FISHERMAN
3. FIREMAN
4. WEATHERMAN
5. WATER METER READER
6. PLUMBER
7. LIFEGUARD
8. WATER QUALITY EXPERT