

Topic: states of water

Overview

The students will observe (directly and through video-streaming) water in the liquid and solid forms, will sort and classify examples of each form, and will produce a class booklet with digital pictures of each form.

Grade: K

Time Allotment

Five 30-minute periods (note: this lesson must occur in the winter)
(1 half-hour block for group lesson and 4 half-hour blocks for small group activity)

Learning Objectives

On completion of this lesson students will be able to:

- Identify examples of two different states of water (solid and liquid)
- Classify examples of states of matter as solid or liquid
- Explore existing technology for reading and writing
- Sort and classify objects according to similar attributes
- Become familiar with computer related technologies in the classroom

This lesson addresses Va. SOLs: Science K.5, Math K.17, Computer/Technology K.1

Media Components

- Video clip - Water: A First Look. Rainbow Educational Media. (1999) October 12, 2004. <http://wvpt.unitedstreaming.com/index.cfm>
Segment 4—Phase Changes and Water: Liquid, Solid, and Gas (03:40)
- Computer w/ multi-media projection device
- Digital camera
- ClarisWorks word processing software
- Color Printer

Materials and Student Handouts

- ice cube – 1/ student
- paper towel – 1/ student
- a blindfold

Teacher Preparations

- Gather ice cubes and paper towels
- Download, preview, and cue video streaming selection
- Recharge batteries for digital cameras

Introductory Activity

Focus: Children should be seated on circle rug, with container of ice out of view of children. **SAY:** Boys and girls, I'm looking for a very responsible person to help me with this lesson. This person will get to wear a blindfold and will need to be able to describe something he/she can't see! Choose one child to assist and put a blindfold on him/her.

Activity: **SAY:** I need for you to hold out your hands so that I can put some water in your hand. All I need for you to do right now is hold the water in your hands without letting it spill. (To the rest of the class) Boys and Girls, I need for the rest of you to be very quiet so (student) can concentrate on not letting it spill. Winking to the rest of the class, put one ice cube in the child's hands.

Follow-up: At this point, encourage the child to describe the "water" in her hands. She may describe it as wet, cold, hard, slippery, drippy, etc. Invite descriptive words from the other children.

Learning Activities

1. Focus: Now I'm going to give each of you a little piece of "water" and a paper towel to hold in your hands. Your job is to study the water. See if you can come up with more words to describe the water. See if you can figure out why I'm calling this ice cube a piece of water.

Activity: Pass out an ice cube and a paper towel to each child. Instruct each child to watch what is happening with the ice cube. Invite quiet discussion of what is happening to the ice cube. Children may experience the "water" through any of their senses, including taste.

Follow-up: What is happening to your ice cube now? (It's melting, it's disappearing) Why do you think it is melting? (Because it's too warm) Why do you think I called this ice cube "water"? (Because when it melts, it makes water) How is the ice cube different from the water you drink? (It's colder, it's hard) How did the water become an ice cube? (You put it in the freezer) Continue to explain to the students that water can change the way it looks if it gets very cold. It is still water, but now we say that it is a solid because it is hard and it has its own shape. The water that we drink is called a liquid and it doesn't have its own shape—it just takes the shape of the container that it is in. Ask students if they can think of other things that are liquid or solid.

2. Focus: In this movie, I want you to watch for examples of liquid and solid forms of water.

Play: the video clip on Water Forms starting at 00:00:00.

Pause: at 00:00:58 after the sentence "The liquid water takes the shape of the glass into which it is poured." (showing a picture of a tall glass and a short glass)

Follow-up: Note for students that liquid water takes the shape of the container it is in. What would happen if I poured liquid water into tall, skinny glass? (have a tall, skinny shape) What would happen if I poured the same liquid water into a short, stubby glass? (have a short, stubby shape) What would the shape be if I just poured the liquid water on the floor? (It would spread out on the floor and would not really have a shape.)

3. Focus: Let's watch now for water as a solid.

Play: the video-streamed clip beginning at 00:00:58.

Stop: at 00:01:27 after the sentence "Solid ice and liquid water are two forms of water."
(shows a picture of ice cubes in a glass)

Follow-up: SAY: Now tell me about the shape of water as a SOLID. (It doesn't change its shape when you move it from one glass to another) Do you remember how the video showed the boy changing LIQUID water into SOLID water? (He poured water into an ice tray and put it in the freezer) Keep your eyes open for liquid and solid forms of water here at school and at home. Tomorrow, we are going to see if we can find both forms of water here at school.

Culminating Activities

Day 2

1. Focus: SAY: Yesterday we discovered that water can sometimes change the way it looks and feels. Who remembers what we call frozen water? (Solid) Who remembers what we call the water we drink? (Liquid). Continue to review and discuss the discoveries from the previous day.

Activity: SAY: Today, it's your turn to see if you can find water in both the solid and the liquid form. I'm going to take a group of five of you out searching our school for water. Each of you will be able to use the digital camera to take pictures of what you find. After everyone gets to take pictures, we will use these pictures to make a classroom book about liquid and solid water. Gather the first group of 5 children. (It may take two days to complete the project with the entire class.) If the small group of students needs suggestions, you may look inside the building at the bathroom, water fountain, kitchen, art room, etc. For the solid water, the small group will probably want to go outside or to the freezer or ice cream case. The children will take the digital pictures.

Follow-up: Later, the teacher will then download and print the pictures using the available software and equipment at his/her school. Print a duplicate copy of the pictures to be used for assessment. Allow students to sort the pictures by solid or liquid. Assemble into a booklet and have children label the pictures as solid or liquid. Give each member of the group a copy of the book to share with his/her family at home.

Assessment

- Using the duplicate copies of student pictures, individually ask each child to sort 8 pre-selected pictures (4 solid and 4 liquid) and tell how he/she sorted them (solid or liquid). One point will be given for each picture sorted correctly and 1 point each for correctly identifying the form of water. Students should have at least 7 points, or 70% accuracy.

Community Connections

- Plan a field trip to an ice cream shop. Have children observe the process of making ice cream, from milk (liquid) to final product (solid).



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Cross-Curricular Extensions

Language Arts

- Children may write sentences to describe the digital pictures and include the sentences in their booklets.
- Children may use the same words that were used to describe solids and liquids while writing or journaling about other things, such as the weather.

About the Author

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