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Spring 2005

Properties of Water
(Antarctica Unit)

Grade Level: K-1

Abstract

This lesson will focus on the three physical properties of water-solid, liquid and gas. The goal of the lesson is to have the students distinguish between the three forms.

Knowing about the properties of water is important because it is a part of the world around them. Utah's diverse weather includes snow, ice, rain, and fog. Student need to know how they are related and why.

Materials: water, plastic glove, access to stove and freezer, science notebooks, pencils, crayons.

Objectives

1. Students will be able to classify materials as solids, liquids, and gases.
2. Students will be able to define the terms solids, liquids and matter.
3. Students will be able to explain that when materials are manipulated, they can take on different properties.

Terminology: prediction, properties of water, solid, liquid, gas, frozen, boiling.

State Core Standards:

Standard #3: Students will develop an understanding of their environment.

Objective #2: Investigate water and interactions with water.

Science Benchmark:

B. The Earth: 2. Water can be a liquid or a solid and can go back and forth from one form to the other.

Preparation:

Day before lesson: Fill a plastic glove with water and place in freezer. Make sure it is left overnight so that it can freeze.

Prior Knowledge

Three KWL charts will be created on Day 1, one for solids, one for liquids, one for gases. We will fill in the "K" column of what the students already KNOW and the "W" column for WHAT the students want to learn. This will be used to review what the students

already know, as well as provide me with information regarding addressing what the students want to know about water properties.

Procedures

After completion of KWL charts, students will be invited to observe various items on the science table. There will be samples of solids and liquids (gases will be covered minimally since this concept is taught at higher grade levels) such as rocks, water, cloth, paper, shells and candles. Students will classify these items into different groups depending on certain characteristics (to be determined by the students). We will discuss how things (like heat and cold) can be applied to materials in order to change their properties, and how not all materials respond the same way. Examples will be given (such as: what happens to a candle when the wick is lighted? Does the wax melt into a liquid?).

Students will have science journals in which to write solids, liquids, gases and illustrate the items on the science table in their journal. I will ask questions, asking students what they think a solid object is and what it means to be considered a solid. The same would be done for a liquid and a gas (smoke, steam, etc). They will then have time to explore the classroom and find things in the class that may be classified as solids, liquids or gases to record into their journals (inventive spelling/illustrating). Students will make a prediction of what will happen to water when it is put in the freezer overnight, when it is put on a stove (conducted in cafeteria or on a burner in classroom), and to water left out at room temperature. They will draw or write their predictions one half of a piece of paper (titled "prediction"), and leave the other side, titled "findings", blank for now.

Bring out frozen glove, and allow children to make conclusions (what happened to it?). Boil water over the stove and point out the steam as being a gas. Remove plastic from frozen hand and slowly place in the boiling (or hot) water. Have students witness what is happening.

Students complete their paper under the "findings" heading. Ask students if their predictions were similar to the actual findings of the lesson. Discuss.

Assessment

Students will be assessed on their writing and understanding of the concepts. They will be asked to write down some characteristics of the solids, and liquids. They will be asked to explain why ice hand sculpture melted and how it was frozen to begin with. Worksheet requiring labeling of solids and liquids will also be given as a formal assessment. Full points are awarded for accurate drawings or words for each gas, liquid and solid. Half credit for some words and drawings accurately displayed, and no points for failure to participate and complete work.

Modifications

Most of the lesson is conducted orally and visually. If a child is blind, they would feel the ice as a solid and the water as a liquid. If the child is deaf the could still see and feel the

different states of water, and communication could also be possible through sign language or writing. Technology would be of use, as there are websites that outline experiments through pictures, aiding other disabled students. Magnifying glasses would also be used to see how fast the ice melts, and to see what happens to the consistency of the ice as heat is added.

Source: Lorraine Pascucci – original author

ASLO Teaching Tools website: <http://aslo.org/education/teaching/tt-k8-0002.html>