

K-2 Physical Science



Southern Nevada Regional Professional Development Program

The Changing States of Water

INTRODUCTION

The most important and interesting liquid on our planet is water. It covers close to seventy-five percent of Earth's surface, and yet it is still our most treasured substance.

WHERE'S THE SCIENCE?

Water is unique because it is the only material known to occur naturally on Earth's surface in all three basic states of matter: **solid, liquid, and gas.**

MATERIALS

The following list of materials is for a pair of students:

- Plastic bag (quart size)
- 2 large ice cubes
- 1 Clear plastic cup
- 2 Hand lenses
- Black Permanent marker
- Science notebook

Classroom materials:

- Large pitcher for water

PROCEDURES

Lesson One

1. Call the students to the group area and hold up a quart sized plastic bag filled with water. Ask the students what is inside the baggie. Once someone has identified it as water, pose the following question: “How can water change?” Chart responses.
2. Tell the students that today they are going to investigate how water changes. Their first task is going to be to observe water in the liquid state, recording observations in their science notebook.
3. Send the students back to their seats and pass out 1 clear plastic cup containing water, hand lenses and science notebooks.
4. As students work, move from group to group checking their observations and ensuring they are recording in their science notebooks.
5. When the students are finished, call them back to the group area with their science notebooks and discuss and chart what they observed.
6. Next, hold up an ice cube and tell the students that this, too, is water. Ask them to identify what state the water is in when frozen. (Solid)
7. Send the students back to their seats and pass out ice cubes for them to observe. Repeat steps 4 and 5.
8. Explain to the students that they will be going outside to observe what happens to the water and ice cube when left in the Sun’s heat. Allow time for the children to discuss what they think will happen.
9. Once outside, instruct the students to locate a sunny area away from buildings and trees which may shade their investigation later. Demonstrate how to set up their investigation by pouring a small amount of water on the ground and marking the remaining water level on their cup

- with a black permanent marker. Next, instruct them to place one of their ice cubes on the ground and leave one in a clear plastic cup.
10. After everyone has set up their investigation, have them note the time and record observations in their science notebook.
 11. When the students are finished, return to the group area in the classroom with their science notebooks and discuss and chart what they observed.
 12. Repeat outdoor observations every hour throughout the school day to allow students to observe change over time.
 13. After the final observation, collect all materials and return to the class. Allow students time to discuss observations with their partners and summarize their learning.
 14. To wrap up the lesson, call the students to the group area and discuss and chart what they observed once more.
 15. Instruct the students to draw a line below the last entry from this activity and write what they learned about “How water changes?” in their science notebook.

Vocabulary

Freeze To change from a liquid to a solid state as a result of cooling.

Gas A state of a substance with no definite shape or volume: usually invisible.

Ice The solid state of water.

Liquid A state of a substance with no definite shape but a definite volume.

Matter Anything that has mass.

Melt To change from a solid to a liquid state as a result of warming.

Solid A state of a substance with a definite shape and volume.

Water A liquid earth material made of hydrogen and oxygen.

Additional Resources

<http://ga.water.usgs.gov/edu> U.S. Geological Survey Water Science for Schools website. This site is an excellent resource for developing your own content knowledge regarding water.

Nevada State Standards

P2B1 Students know some properties of materials can be changed by heating, freezing, mixing, cutting, or bending. E/S

E2A1 Students know the Sun is a source of heat and light. E/S

E2A2 Students know water on Earth can be a liquid (rain) or a solid (snow and ice), and can go back and forth from one form to the other. E/S

N2A1 Students know how to make observations and give descriptions using words, numbers and drawings. E/S

N2A2 Students know tools can be used safely to gather data and extend the senses. I/L

N2B2 Students know that, in science it is helpful to work in a team and share findings with others. E/L

Safety Reminder: N/A