

Changing Water States

This activity is designed to simulate the changes in the states of water. It includes list of supplies, directions, extension questions, and an activity sheet to copy for students to record data.

Supplies

pan	timer
hot plate	balance
gallon sized resealable bag	copies of activity below
freezer	

Directions

1. Gather materials. Since this activity involves a heat source, it is best done as a demonstration.
2. Pour the water into the pan, and begin heating. Time how long it takes to begin creating water vapor. Record.
3. Gather water vapor into a gallon sized resealable bag. Seal.
4. Answer the questions together as a class and discuss.
5. Set aside to cool. Time how long it takes to change into the next state. Record.
6. Answer the questions together as a class and discuss.
7. Place the bag into the freezer. Time how long it takes to change into the next state. Record.
8. Answer the questions together as a class and discuss.
9. Allow the bag to sit out. Time how long it takes to change into the next state. Record.
10. Answer the questions together as a class and discuss.

Extension Questions

Extension questions are included. They may be answered as a class whole, or in small groups.

Georgia Performance Standards

S4E3. Students will differentiate between the states of water and how they relate to the water cycle and weather.

- a. Demonstrate how water changes states from solid (ice) to liquid (water) to gas (water vapor/steam) and changes from gas to liquid to solid.
- b. Identify the temperatures at which water becomes a solid and at which water becomes a gas.

Changing Water States

State A

The teacher will boil water in a pan. Time how long it takes to change into the next state

Gather water vapor in a gallon sized resealable bag. Seal tight.

How long did it take to change states? _____

What is this process called? _____

Which state is observed? _____

Measure the weight. _____

Describe what you see and feel. _____

State B

Set aside to cool. Time how long it takes to change into the next state.

How long did it take to change states? _____

What is this process called? _____

Which state is observed? _____

Measure the weight. _____

Describe what you see and feel. _____

State C

Place the bag into the freezer. Time how long it takes to change into the next state.

How long did it take to change states? _____

What is this process called? _____

Which state is observed? _____

Measure the weight. _____

Describe what you see and feel. _____

State D Allow the bag to sit out. Time how long it takes to change into the next state.

How long did it take to change states? _____

What is this process called? _____

Which state is observed? _____

Measure the weight. _____

Describe what you see and feel. _____

Water becomes a solid at _____, and becomes a gas at _____.

Extension Questions

What is the heat source in nature that causes evaporation?

Explain the changes in the bag as the temperature changed.

Does the amount of water in the bag ever change? Explain.

As the water changed from a solid to a liquid state, water collected on the outside of the bag. Where did this water come from? Explain.

If you left a bowl of water out in a room, the water would eventually disappear. Where did it go?