

# Temperature

## Summary

Students build water thermometers out of straws and film canisters.

## Time Frame

1 class periods of 30 minutes each

## Group Size

Individual

## Materials

For the Teacher:

Put holes the size of straws into the lid of film canisters using a large nail and hammer or a drill.

For the each student:

35 mm film container with lid with hole

Clear plastic straw

Red food coloring

3X5 index card

White glue

## Background for Teachers

Atmospheric temperature can be affected by sunlight, wind, latitude, altitude, and the land surface.

Temperature can also be affected by surface reflections. Heat is a form of energy caused by the internal motion of molecules. The slower the molecules are moving, the less heat is present.

Temperature is a measure of heat energy in a substance.

## Intended Learning Outcomes

Use instruments to measure temperature.

Record data accurately.

## Instructional Procedures

Pass out materials to students.

As a class, make a thermometer according to the following instructions.

Fill containers full of very cold water.

Add two or three drops of red food coloring to the water.

Put the film canister lid back on the container.

Put a straw through the hole and then place white glue around the straw to seal it to the container. The thermometer needs to be air-tight.

As the water in the canister gets warmer, the water will rise in the straw. Place the container on a plate in case water spills out the top of the straw.

After the temperature of the water has stabilized at room temperature, tape the 3x5 card behind the straw and calibrate the height of the column of water by using a commercial thermometer.

Measure and record temperatures over the next week.

Graph the temperatures.

## Assessment Plan

Check the each student's thermometer for accuracy. If the thermometer measures temperature, the

student completed the assignment.

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