



Pintail duck photo by Peter LaTourette

Climate Change, Wildlife, and Wildlands

Science Activities

Experiments



Sea Level Rise

The Greenhouse Effect



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Science Activities — Experiments

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Sea Level Rise

(See “Climate Detectives” fact sheet)

Materials:

Electric hot plate, heat-resistant drinking glass, cake pan, water, ice cubes.

First Part—To Prove That:

Water expands when heated. As the Earth’s atmosphere traps more heat, the oceans will warm and expand—and sea level will rise.

Procedure:

Fill the glass with very cold water. Make sure to fill the glass almost to overflowing, so the water is right at the rim’s edge. Place the glass in the cake pan, put the pan on the hot plate, and turn the heat to the lowest setting. Wait several minutes.

What happens to the water?

Does it expand?

Second Part—To Prove That:

Ice that is already floating on the ocean does not raise the sea level when it melts. Melting glaciers, however, do raise sea level slightly.

Procedure:

Put two ice cubes in the glass and then fill with water, almost to overflowing. Watch the water level as the ice melts.

What happens?

Does the water overflow?

After the ice has melted, put another piece of ice in the glass.

What happens?

Why would sea level rise from a melting glacier, but not from a melting iceberg?

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Science Activities — Experiments

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The Greenhouse Effect

(See "Check out the Greenhouse Effect" fact sheet)

Use either I or II



I

Materials:

1 empty plastic soda bottle (two-liter size) with a cap, a nail, two thermometers.

To Prove That:

A transparent or semitransparent covering traps heat, just as gases in the atmosphere trap heat like a greenhouse.

Procedure:

Both thermometers and the bottle should be outdoors on the ground in full sunlight. Using the nail, make a hole near the top of the plastic bottle. Place one of the thermometers in the hole. Place the other thermometer outside the bottle, next to it on the ground. Be sure that both thermometers are receiving the same amount of sunlight.

What happens?

Do both thermometers register the same temperature?

If not, which one is higher?

Why?

II

Materials:

2 thermometers, use of a car.

To Prove That:

A transparent covering traps heat, just as gases in the atmosphere trap heat like a greenhouse.

Procedure:

Take the class or group to the presenter's or teacher's car. Place one of the thermometers in the car. Place the other thermometer outside the car. Be sure that both thermometers are receiving the same amount of sunlight.

What happens?

Do both thermometers register the same temperature?

If not, which one is higher?

Why?