

# Greenhouse Effect Experiment

## Objective

This experiment visually demonstrates how greenhouse gases trap heat in Earth's atmosphere by comparing temperature changes inside covered and uncovered containers exposed to a light source.

## Materials Needed

- Two clear plastic bottles
- Two thermometers
- One desk lamp with an incandescent or heat lamp bulb
- Plastic wrap or clear plastic lids
- Stopwatch or timer
- Notebook for recording data

## Procedure

1. Place one thermometer inside each plastic bottle.
2. Cover the top of one bottle with plastic wrap, sealing it tightly to simulate the effect of greenhouse gases.
3. Leave the other bottle open as a control.
4. Position both bottles the same distance from the lamp.
5. Turn on the lamp and record the initial temperatures.
6. Observe and record temperatures every 2 minutes for 20 minutes.
7. Analyze the temperature difference between the two bottles.

## Expected Results

The covered bottle should show a higher temperature over time, mimicking how greenhouse gases trap heat in the Earth's atmosphere.

## Discussion Questions

### Classroom Discussion Questions

- Why does the covered bottle warm up faster than the open one?
- How does this model relate to real-world climate change?
- What other factors could influence the accuracy of the results?

## Extension Activities

- Repeat the experiment using different light intensities or materials (e.g., glass jars).
- Use a data logger or graphing software to visualize temperature trends.

## **Greenhouse Effect Experiment**

- Research how the greenhouse effect is amplified by increased CO<sub>2</sub> levels.