

Name _____ Date _____

Student Worksheet 4.4 (side 1)

The Greenhouse Effect and Global Warming

Objectives

To model and observe a simplified "Greenhouse Effect."

Materials (for each team)

- 2 two-liter plastic soda bottle "experimental chambers" (one vented, the other intact)
- 2 thermometers
- 150-watt floodlight bulb
- clamp-on, portable reflector lamp
- stand for lamp set-up
- graph paper

Procedure

1. Place caps with the opening for the thermometers on both bottles.
2. Place a thermometer inside each bottle with the bottom of the thermometer above the bottom of the bottle. (Laboratory thermometers can be taped to remain suspended or use the anti-roll device to hang the thermometer on the cap. If there is a gap between the thermometer and the cap use clear tape to tape up the opening.)
3. Write a hypothesis in your WEATHERlog explaining what you think will happen inside each bottle.
4. Place both bottles approximately six inches away from the lamp with the thermometers facing away from the light.
5. Record the starting temperature for each bottle.
6. Turn on the light and record the temperature inside each bottle every minute for 20 minutes.
7. Graph your results.

Conclusions

8. Was your hypothesis correct?
9. Compare the data from the vented bottle to the data from the intact bottle.
10. Compare your results with the results from other teams.
11. Explain why you received the results you received.
12. Compare the plastic greenhouse to big glass greenhouses and then relate it to the Earth as the biggest greenhouse of all. How is your plastic greenhouse similar and dissimilar to the greenhouse effect on Earth?