Model the greenhouse effect

Concept—Greenhouse effect

Curriculum Link:
Geography Curriculum and Science Curriculum—Environmental Awareness and Care strand
Energy books—*Energy Resources in Ireland*, page 7

Experiment

You will need:

- 2 clear plastic 2l bottles
- 2 thermometers
- Thin cardboard
- 3 cups of compost
- Masking tape
- Clear plastic/cling film
- Rubber band
- Clip-on lamp with 100W light bulb
- Book or piece of wood to secure the lamp

1. Cut the top off the plastic bottles.
2. Tape the thermometers to the inside of the bottles.
3. Tape some cardboard over the bulb of the thermometers (to block the direct heat from the 100W bulb).
4. Put about 1½ cups of potting compost into each bottle.
5. Cover one of the bottles with the clear plastic and secure with the rubber band.
6. Put the bottles on a table about 20cm apart.
7. Place the bulb between the bottles using the book or wood for the lamp clip.
8. Take the temperature in each of the two bottles (it should be the same).
9. Turn on the bulb and monitor the temperature over about 10 minutes.

The covered bottle should heat up more than the open one. The same thing is happening in the earth's atmosphere. Greenhouse gases act as a heat trap for the sun's energy, causing our planet to heat up. This is known as the greenhouse effect.

Modelling the greenhouse effect