

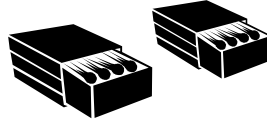
Activity 1 | **Excuse me! The problem with methane gas**

**Warming Earth with the greenhouse effect: An experiment**

Do greenhouse gases really warm the Earth? Find out by measuring the greenhouse effect in a 'mini-Earth'.

*Materials*

- the inside (sliding part) of 2 matchboxes
- cling film (plastic food wrap)
- 2 thermometers
- plasticine
- paper towel



*Procedure*

1. Use a pen to poke a hole through one end of a matchbox (this is your mini-Earth) just large enough to fit a thermometer through.
2. Slide the bulb of a thermometer into the box, making sure it doesn't touch the surface of the box (you may need to seal the hole with plasticine).
3. Repeat with another matchbox and thermometer.
4. Cover the top of one box with a single layer of cling film.
5. Place both boxes in a warm place on a windowsill, under a heat lamp or outside.
6. Record the temperature in both boxes every 5 minutes for 25 minutes.

| Time (mins) | Air temperature (without cling film) | Air temperature (with cling film) |
|-------------|--------------------------------------|-----------------------------------|
| 0           |                                      |                                   |
| 5           |                                      |                                   |
| 10          |                                      |                                   |
| 15          |                                      |                                   |
| 20          |                                      |                                   |
| 25          |                                      |                                   |

7. Graph your results and answer the following questions.
- a) What was the effect of covering the mini-Earth with cling film?
  - b) What does the cling film represent in Earth's atmosphere?
  - c) Design a controlled experiment to test the warming effect of one of the greenhouse gases (*Note*: you do **not** need to conduct your experiment).