

Greenhouse Effect Bulldog

Time: 30 minutes

You will need: A playground. Chalk or similar. Hats or sashes (see below).

This playground game demonstrates the way Greenhouse gases return energy to the Earth's surface

1. With chalk or similar, mark a Sun and an Earth at opposite ends of the school playground. If possible also draw a line across the playground, about a third of the way between the Earth and the Sun.
2. Choose 2 students to be greenhouse gases – if possible give them a hat or sash to identify them. Which greenhouse gases have they heard of? One could be water vapour and the other carbon dioxide. They are allowed to move only along the line you have drawn. Their role is to try and touch the other students as they run past but **only** when they are running from the Earth towards the Sun!
3. The other students are all 'energy' and start off by the Sun.
4. The 'energy' should run to the Earth and back again, repeatedly. If the 'greenhouse gas' students manage to touch them, then they have to run 10 times between the greenhouse gas line and the Earth before being allowed to return to the Sun.
5. After a few minutes of doing this, stop the students and increase the numbers of 'greenhouse gas' students – you could add a methane, or another water.
6. Again, let them play this for a while, then stop them and ask what has changed. They should notice that there is now more 'energy' trapped near the Earth.
7. You could increase the amount of greenhouse gas again and let them see what happens.
8. Finish by talking about how greenhouse gases are essential to maintaining our climate, but that increasing the amount of greenhouse gas leads to heating. You may need to talk a little bit about the different forms energy can take – light, heat etc.

