



Science
Age 9-11

Climate change dodgeball

- Energy sources
- Climate change
- Sustainability



● Previous learning required

- A basic understanding of climate change and the effect of greenhouse gases on temperatures

● Learning outcomes

- To consolidate understanding of the effects of greenhouse gases on the Earth through physical activity
- To begin to explore what we can do to prevent/mitigate the effects of climate change caused by humans
- To work together as a team

● Equipment

- A class set of bean bags
- A circle drawn in chalk or pre-existing circular marking on the playground

● Activity

1. Divide the pupils into two groups, with twice as many standing in the centre of the circle as those forming a circle around them.
2. The pupils in the centre represent the Earth. Those on the outside represent greenhouse gases swirling in the atmosphere.
3. Choose one individual pupil to represent the Sun outside the atmosphere and ask them to throw 'rays' (bean bags) at the pupils representing the Earth. Explain that the Sun's rays warm up everything on Earth, which then gives out heat.
4. The 'Earth' pupils should repel the bean bags by throwing them back out of the circle. This represents the heat being reflected from the Earth's surface.

5. The 'greenhouse gas' pupils should try to catch or block the bean bags from leaving the circle and throw them back to Earth. This represents greenhouse gases trapping heat in the Earth's atmosphere.
6. The game ends when all of the bean bags are outside the circle (since most of the pupils are in the centre, this should happen quickly).
7. In subsequent games, increase the number of 'greenhouse gas' pupils, explaining that there are more in the atmosphere due to human actions. This will make it harder for the 'Earth' pupils to repel the bean bags, representing the increase in greenhouse gases trapping more heat in the Earth's atmosphere.

● Check for understanding

1. Ask pupils to discuss what this game demonstrates. Why did it become more difficult to repel the bean bags when there were more greenhouse gases? What does this tell us?
 - Heat reflected from the surface of the Earth is absorbed by greenhouse gases and stays in the atmosphere. The more greenhouse gases in the atmosphere, the hotter the Earth becomes.
2. As a class, discuss what causes an increase in greenhouse gases. What impact will increasing temperatures have on the Earth? What can we do to prevent or mitigate the impacts of climate change?

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