

Guidance for teachers

What do you know?

Downloads

- Guidance for teachers
- PowerPoint presentation
 - slide 1 – stimulus (optional – melting glacier suggests climate change – you could use this without the questions on show)
- What do you know? question sheet
- What do you know? answer sheet

Running the activity

This activity may be used as a starter or revision activity to assess students' prior knowledge and to familiarise students with the facts and misconceptions about the greenhouse effect.

The questions could also be used as:

- material for a cover class
- a quiz, in groups or individually
- an internet search to find evidence to back up answers.

Label each side of the room or allocate a separate colour to each of the answer options.

A - true

B - can't be sure

C - unlikely

D - false

Choose which questions you will use. You may wish to give a 'quick fire' quiz or read out a question from the question sheet and give students 10 seconds to decide on their answer. When you raise your hand students move to their answer or hold up a coloured card. (You could use a timer.) Ask specific students why they chose that particular answer. Ask if anyone had other reasons for choosing their answer and discuss. You may choose to give the students the question sheet first for a set time and then the answer sheet.

Differentiation

Suggestions for students who may appreciate additional challenge

Direct students to websites (see weblinks) or ask them to research the topic further, finding a number of additional questions (maybe 2 or 3) and answers that could be added to the list. Where the answer is not known, students could suggest reasons.

Suggestions for students who would benefit from additional support

Give small groups of students a few of the questions (maybe 4 or 5) and answers and ask them to match the question to the answer. They could use the internet (see weblinks) or other search facilities to check their answers.

JJ needs your help

Downloads

- Guidance for teachers
- Activity sheet – JJ needs your help, student worksheet
- Information sheet A – The greenhouse effect
- Information sheet B – The greenhouse effect (simplified version)
- PowerPoint presentation
 - slide 3 – the greenhouse effect
 - slide 4 – changing concentration of carbon dioxide in the atmosphere

Running the activity

This is an exercise to get students thinking about structuring revision notes on the greenhouse effect. Encourage them to try a method that they wouldn't normally use.

Give students 'Information sheet A – The greenhouse effect' and 'Activity sheet – JJ needs your help' and ask them to write a reply to guide JJ through his homework. The reply needs to include:

- causes of the greenhouse effect – what are they?
- effects – what could happen?

Students should choose one of the methods suggested on the 'Activity sheet – JJ needs your help' to write their response. They are also told that it would be helpful to give JJ a website address or textbook which may help him further to research the topic. You may choose to ask them to follow this instruction or ignore it at this stage and use it for differentiation.

Differentiation

Suggestions for students who may appreciate additional challenge

'Information sheet A – The greenhouse effect' may be given as a starting point or students could be asked to find the information from a variety of sources as appropriate (see weblinks in Overview). Students could be asked to identify the website that they have found most useful; add this to the information they have prepared for JJ along with the website address.

Suggestions for students who would benefit from additional support

'Information sheet B – The greenhouse effect' is a simplified version. The sheet has key words in bold to help students identify the main points. You could ask students to highlight these key words and then use them in their response to JJ.

Does it matter? – TV programme

Downloads

- Guidance for teachers
- Activity sheet – Does it matter?
- Role cards A
- Role cards B (with prompts for support)
- Information sheet A – The greenhouse effect
- Information sheet B – The greenhouse effect (simplified version)

Running the activity

This activity could be developed to cover more than two lessons.

Part 1

- Introduce the activity and allocate roles.
- You will need several sets of the audience and researcher role cards depending on the size of the class. Give the host and each guest one or two researchers and pair up members of the audience.
- The students should now prepare questions/answers to produce a script for their part of the programme. Internet access may be useful for research. Students could use 'Information sheet A – The greenhouse effect' or 'Information sheet B – The greenhouse effect (simplified version)' if they have not already completed the activity 'JJ needs your help'. The question preparation could be set for homework.

Part 2

- Carry out the debate.
- Have a vote and follow up with debriefing / discussion.

You may also wish to:

- display photos on a board or loop them on a PowerPoint cutting to a slide of the debate title when you are ready to start
- set up a digital video camera to record the debate. The debate could be used on open evenings.

Differentiation

Suggestions for students who may appreciate additional challenge

These students could write detailed scripts after research (see weblinks in Overview).

Suggestions for students who would benefit from additional support

Role cards B with questions and answers are included in the downloads. These will help students prepare scripts before the debate. You could also reduce the number of roles.

Making a difference? Board game

Downloads

- PowerPoint presentation
 - slide 1 – starter stimulus
 - slide 2 – starter stimulus (definition of carbon footprint)
 - slide 5 – board for the game
 - slides 6–53 – copies of the making a difference cards
- Making a difference board
- Making a difference cards (48)

Running the activity

Show students PowerPoint stimulus slide 1. You may need to use slide 2 to help explain the meaning of 'carbon footprint'. Alternatively, you can ask students to research the term by going to the website, <http://www.carbonfootprint.com/>

Hand out copies of the board to each group of students (one board to three or five students). Hand out copies of the cards (one pack/set to each group). Each student will also need different coloured counters or markers to indicate their position on the board.

Show students PowerPoint slide 5 (copy of the board) and explain how the game will work. Students take a card from the set and discuss whether to mark it as 1, 2 or 3 steps backwards; stay put; or 1, 2 or 3 steps forward. Once they have agreed, they mark the card. They continue through the pack discussing and marking each card in turn. (To cut down the time this takes, you could give each group five or six cards to discuss and agree allocation of points or use this part for homework.) Then go through the PowerPoint slides and discuss the allocation of points as a class. There will be some disagreement, which can be used to discuss issues further. Students then use the cards to play the game, shuffling the cards and then taking a card from the top of the pile and moving the specified number of steps marked on the cards.

Differentiation

Suggestions for students who may appreciate additional challenge

Students can go to the website, <http://www.carbonfootprint.com/> and use the calculator to estimate their own carbon footprint and then choose five ways (which they sort in order) to minimise their own carbon footprint.

Suggestions for students who would benefit from additional support

Students may need help in deciding how to allocate points for each card. You could go through the PowerPoint slides of the cards and discuss allocation of points before students play the game. You may also wish to reduce the number of cards.