

## Global warming and climate change

by Adrian Tennant

**Level:** Intermediate +

**Age:** Teenagers / adults

**Time (approx):** 10-20 minutes for Activities 1-3; 30 minutes for Activity 4

**Preparation:** Activity 1: One photocopy for each student OR one copy per 20 students; Activities 2 & 3: One photocopy for each student; Activity 4: One photocopy for each group of 5 students

### Activity 1

- 1 Put students in pairs or groups of three.
- 2 Hand out a copy of Activity 1 and ask students to match the words and the definitions.
- 3 Do not check at this stage – explain to the students that they will check their ideas in the next stage of the lesson when they read the text.

### Alternative procedure

- 1 Cut up all the words and the definitions, so that you have a total of twenty pieces of paper (10 words and 10 definitions).
- 2 Divide your class into groups of 20. If you have fewer than twenty, choose the words you think will be most important for your students. If you have more than twenty students, duplicate some of the words and definitions.  
**Note:** Make sure you have matching words and definitions.
- 3 Give each student one piece of paper (either a word or definition). Explain that they have to find their partner, i.e. if they have a word, they need to find the person with the matching definition.
- 4 Monitor and help where necessary.
- 5 Once students finish, put them in small groups of six to eight, i.e. three or four pairs, and ask them if they agree with the matches.
- 6 Do not check at this stage but explain to the students that they will check their ideas in the next stage of the lesson when they read the text.

*Answers:*

1.f; 2.a; 3.g; 4.i; 5.d; 6.j; 7.c; 8.e; 9.b; 10.h

### Activity 2

**Note:** There are two parts to this activity.

- 1 Hand out the text to the students.
- 2 Tell them to read the text and check their answers to Activity 1. Explain that they should find the words in the text and try to work out the meaning from the context.
- 3 Put students in pairs and have them check together.
- 4 Monitor and help where necessary.
- 5 Check as a class and then move on to the second part.
- 6 Tell students that the five headings are missing from the article. Their task is to put the headings in the correct place.
- 7 Have students read the article again and match the headings and paragraphs.
- 8 Put students in pairs and get them to check together.
- 9 Check as a class, asking students to explain the reasons for their choices.

*Answers:*

1. b; 2. d; 3. e; 4. c; 5. a

### Activity 3

- 1 Hand out the true / false statements and ask students to read them.
- 2 Get students to answer the ones they can.
- 3 Put students in pairs and ask them to discuss their answers.
- 4 Then, ask students to read the text once again and check their answers.
- 5 Encourage students to work together in pairs.

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- 6 Monitor and help where necessary.
- 7 Check answers as a class.

*Answers:*

1.F; 2.T; 3.F; 4.F; 5.T; 6.T; 7.T; 8.F

### Activity 4

- 1 Put students in groups of five and then label the students A, B, C, D and E.
- 2 Tell students to remember who was in their initial group and then regroup the students according to their letters, e.g. all As together, all Bs together etc.
- 3 Hand out a role card to each student – so all As get the Scientist role card, all Bs the renewable energy expert etc.
- 4 Tell students to read their role cards and make any notes. Encourage students to discuss their ideas in their groups.
- 5 Explain that you want students to do some research to find out more information to support their 'role'. Give the students the web addresses (the research can be done in class on computers or set for homework).
- 6 After the research has been completed (probably by the next lesson) regroup students in their letter groups and ask them to share their ideas.
- 7 Then, put students back in their original groups of five (each student should have a different 'role').
- 8 Have groups hold a debate with each student playing their 'role'.
- 9 Monitor and help where necessary.
- 10 Ask a few students to report back on their group discussion.

### Useful websites

There are hundreds of websites on the Internet that take a look at climate change and global warming. Here are four that are very clear and easy to understand and contain many of the key points.

- 1 [www.bbc.co.uk/sn/hottopics/climatechange/](http://www.bbc.co.uk/sn/hottopics/climatechange/)
- 2 [www.open2.net/climatechange/](http://www.open2.net/climatechange/)
- 3 [www.greenpeace.org.uk/climate/climatechange/index.cfm](http://www.greenpeace.org.uk/climate/climatechange/index.cfm)
- 4 [www.panda.org/about\\_wwf/what\\_we\\_do/climate\\_change/index.cfm](http://www.panda.org/about_wwf/what_we_do/climate_change/index.cfm)

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### Activity 1

Match the words (1-10) with the definitions (a-j).

1. **carbon dioxide** /,kɑːbən daɪ'ɒksaɪd/ noun [Uncountable] ★
2. **climate** /'klaɪmət/ noun ★ ★
3. **deforestation** /diːfɒrɪ'steɪʃn/ noun [Uncountable]
4. **drought** /draʊt/ noun [Countable/Uncountable]
5. **emission** /ɪ'mɪʃn/ noun [Countable] ★ ★
6. **flooding** /'flʌdɪŋ/ noun [Uncountable]
7. **fossil fuel** /'fɒsl ˌfjuːəl/ noun [Countable/Uncountable]
8. **greenhouse effect, the** /ðə 'ɡriːnhaʊs əˌfekt/ noun
9. **ozone layer** /'əʊzəʊn 'leɪə/ noun [singular]
10. **renewable energy** /rɪ'njuːəbl 'enədʒi/ noun

- a) the general weather a country or region experiences
- b) a layer of oxygen in the Earth's atmosphere that protects the planet from the sun
- c) coal or oil, made from plants or animals that lived millions of years ago
- d) a substance, often a gas, that goes into the air
- e) the process where heat is unable to escape from the atmosphere and causes the temperature to rise
- f) a gas produced when people breathe and by burning things that contain carbon, i.e. coal, petrol
- g) the process of cutting down trees from an area of land
- h) sources of power that naturally replace themselves and so are never completely used up
- i) a long period of time when there is not a lot of rain
- j) a situation when water from a river, the sea or rain covers a large area of land

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### Activity 2

Read the text and check your answers to Activity 1.

(1) \_\_\_\_\_  
Climate change is not new. In fact, the Earth's climate is always changing. Sometimes the temperatures increase and at other times they fall. The amount of rainfall changes as well. In the past these changes were the result of natural events, but now many of the changes in our climate are a result of human behaviour.

(2) \_\_\_\_\_  
In the last fifty years the number of cars and aeroplanes has increased a lot. We are also using more and more energy in our everyday lives, to heat and light our homes, to travel, to watch TV and all the other things that we do today. One of the ways in which we get our energy is by burning fossil fuels like coal and oil. The problem is, these fuels release carbon dioxide into the atmosphere and this increases the temperature of the planet.

(3) \_\_\_\_\_  
The biggest problem is that we are producing more carbon dioxide than ever before. Emissions of gasses from cars and aeroplanes go into the atmosphere and are trapped by the ozone layer that protects us from the heat of the sun. These gasses heat up in the same way as the inside of a greenhouse when it's sunny, this is called the greenhouse effect. The ozone also has holes in it caused by the pollution humans are creating. Although these holes let some of the gasses escape they also mean that the heat from the sun can get through more easily. Another problem is that we are cutting down lots of trees. Deforestation causes two problems. The first is that when we burn the trees we increase the greenhouse gasses in the atmosphere. The second is that trees absorb carbon dioxide. So, the fewer trees we have the more natural CO<sup>2</sup> there is.

(4) \_\_\_\_\_  
The first thing that will happen is that the temperature of the Earth will increase. A small increase of 1°C doesn't sound like a lot, but the consequences could be really bad. This small increase can cause the ice caps in the Arctic and Antarctica to start to melt. This will then lead to a rise in the sea levels. Cities like London and New York might be flooded. In fact, the risk of flooding around the world, with large areas of land under water, is one of the biggest problems. People everywhere will experience extreme weather conditions. There will be lots of droughts with animals and plants dying because there is no rain. There will be more hurricanes. Summers will be hotter and winters wet or very cold.

(5) \_\_\_\_\_  
Yes, there are lots of things we can do. We can start by using more renewable energy like wind and solar (sun) power. At the moment these kinds of energy can be expensive, but in the future they will become cheaper, especially as they will never run out. We can try and save energy in our homes by using less electricity and we can think more about what we do in our everyday lives. One simple thing to do is to calculate our personal 'Carbon footprints' – the amount of energy we use – and try to reduce it. It might be too late, but we have to try.

Now read the text again. Put the paragraph headings (A-E) in the correct places (1-5).

- |    |                          |
|----|--------------------------|
| A. | Can we do anything?      |
| B. | What is climate change?  |
| C. | What will happen?        |
| D. | What is happening?       |
| E. | Why is it a problem now? |

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### Activity 3

Read the text again. Are these sentences true (T) or false (F)?

- |    |   |       |
|----|---|-------|
| 1. | Climate change is a new thing.                                  | T / F |
| 2. | Climate change is caused by natural events and human activity.  | T / F |
| 3. | Emissions of gasses are heated up by the ozone layer.           | T / F |
| 4. | The holes in the ozone layer have a positive effect.            | T / F |
| 5. | Trees keep the natural CO <sup>2</sup> level in balance.        | T / F |
| 6. | 1°C increase in the Earth's temperature will melt the ice caps. | T / F |
| 7. | A rise in sea levels will mean some cities will be flooded.     | T / F |
| 8. | Renewable energy won't make any difference.                     | T / F |

### Activity 4

#### Role cards

You are an expert on renewable energy. You think people aren't taking climate change seriously enough. You want to point out that all the fossil fuels will be used up in the next 35 years and that renewable energy is the only alternative.

You are a scientist. You are really worried about climate change. You think people must do things now or the problems will be terrible. You want people to stop driving cars, and to use less energy in their houses.

You are worried about climate change. You don't understand the problems and you want people to explain things to you. You don't want to spend lots of money and you don't want to stop driving your car or watching TV.

You are the manager of an energy company. You think there are alternative solutions and that people don't need to use less energy. You are worried that your company might close and that 150 you employ will lose their jobs.

You are very worried about climate change and will do whatever is necessary to help. You think everyone else should behave sensibly, stop using their cars and use renewable energy. You don't care how much it will cost as long as we survive.