

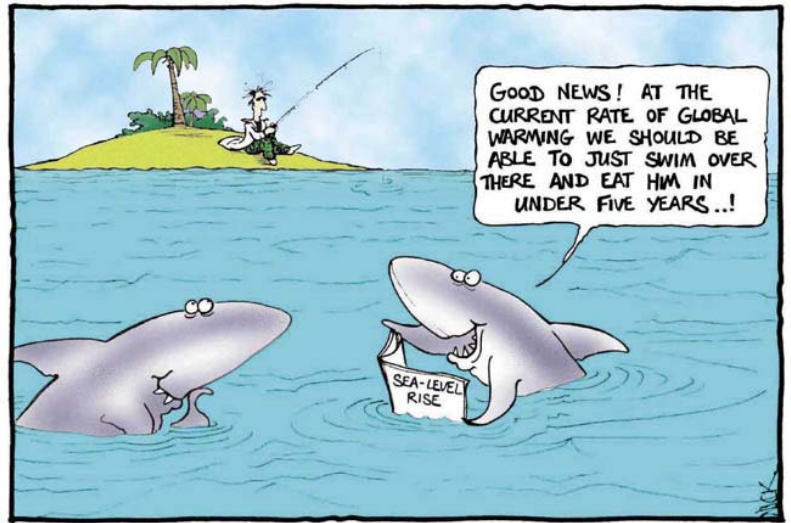
GEOGRAPHY Y9 Independent Learning Project

Term 4: Global Warming

In this ILP you are asked to respond to a number of questions regarding global warming. You need to carefully read the text included here before writing your answers. You are encouraged to ask your teacher for additional help as well as to do your own research in order to provide more detailed and thorough answers.

What skill do you need?

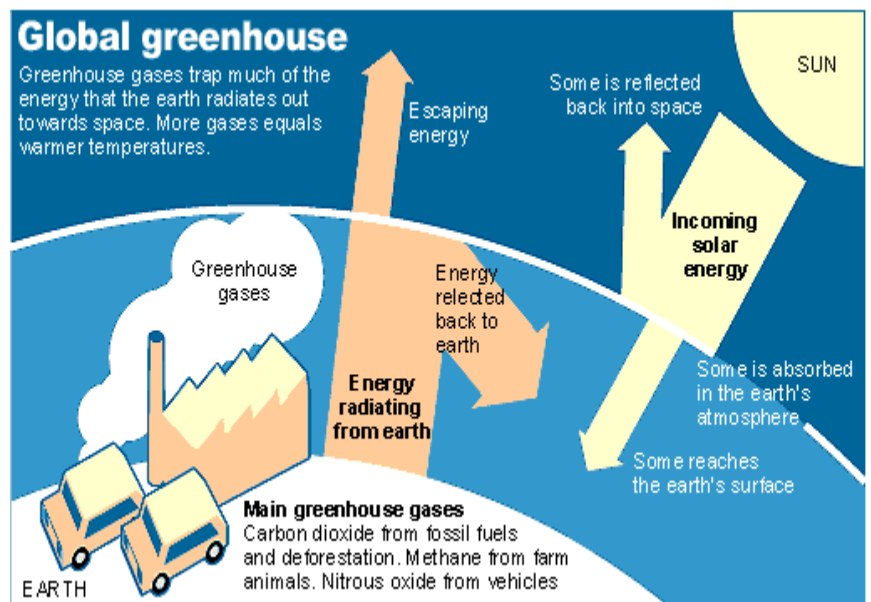
> The ability to extract relevant information from different type of sources (texts, graphs, diagrams, images, class work) and use this in your writing. You will need to interpret and explain.



Try to avoid simply copying a chunk of text (unless you simply need a definition)! This gives the impression that you have not actually thought about the information presented and that you haven't really understood it!

The greenhouse effect

The **greenhouse effect** is a naturally occurring process that aids in heating the Earth's surface and atmosphere. It results from the fact that certain atmospheric gases, such as **carbon dioxide**, **water vapour**, and **methane**, are able to change the energy balance of the planet by absorbing **longwave radiation** emitted from the Earth's surface. Without the greenhouse effect life on this planet would probably not exist as the average temperature of the Earth would be a chilly -18° Celsius, rather than the present 15° Celsius.



Remember the greenhouse effect and global warming are not the same!

Global warming is the increase in the greenhouse gas emissions that are unnatural and are therefore causing the climate to warm up as they are trapped in the atmosphere. The biggest worry is the rising levels of CO_2 since the industrial revolution.

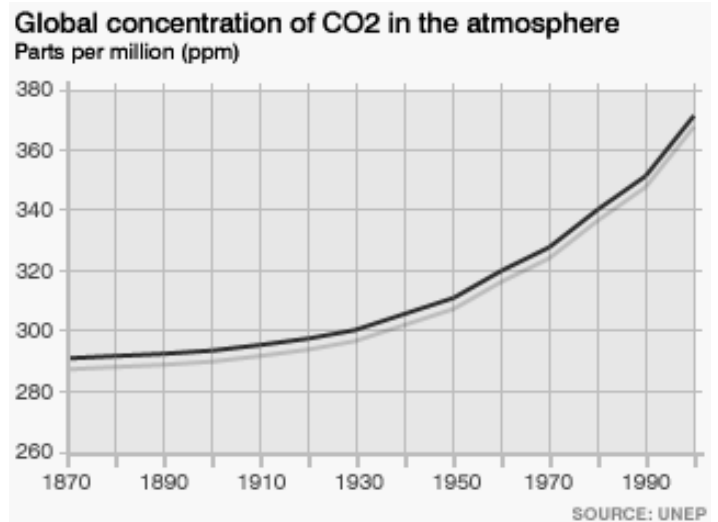
How do we know?

Temperature records go back to the late 19th Century and show that the global average temperature increased by about 0.6°C in the 20th Century.

Sea levels have risen 10-20cm - thought to be caused mainly by the expansion of warming oceans.

Most glaciers in temperate regions of the world and along the Antarctic Peninsula are in retreat; and records show Arctic sea-ice has thinned by 40% in recent decades in summer and autumn.

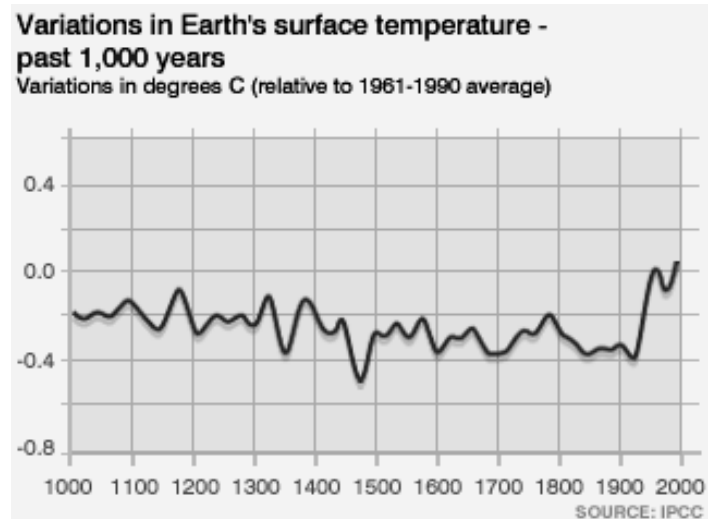
There are exceptions however - parts of the Antarctic appear to be getting colder.



How much will temperatures rise?

If nothing is done to reduce emissions, current climate models predict a global temperature increase of 1.4 - 5.8°C by 2100.

Even if we cut greenhouse gas emissions dramatically now, scientists say the effects would continue because parts of the climate system, particularly large bodies of water and ice, can take hundreds of years to respond to changes in temperature.



It also takes greenhouse gases in the atmosphere decades to break down.

It is possible that our emissions have already condemned the Greenland ice sheet to melting, which would cause an estimated 7m rise in sea levels.

There are also indications that the west Antarctic ice sheet may have begun to melt, though scientists say that further research is necessary.

How will the weather change?

Globally, we can expect more extreme weather events, with heat waves becoming hotter and more frequent.

Scientists predict more rainfall overall, but say the risk of drought in inland areas during hot summers will increase.

More flooding is expected from storms and rising sea levels.

There are, however, likely to be very strong regional variations in these patterns, and these are difficult to predict.

What could happen?

The potential impact is huge, with predicted freshwater shortages, sweeping changes in food production conditions, and increases in deaths from floods, storms, heat waves and droughts.

Poorer countries, which are least equipped to deal with rapid change, will suffer most.

Plant and animal extinctions are predicted as habitats change faster than species can adapt, and the World Health Organization has warned that the health of millions could be threatened by increases in malaria, water-borne disease and malnutrition.

Questions to complete:

1) What is the greenhouse effect?

2) What is Global Warming?

3) What evidence is there for Global Warming?

4) Describe the changes in global concentration of CO₂ since 1870 (the first of the two line graphs on page 2)

5) By how much could the temperature rise by 2100?

6) List some of the possible effects of Global Warming.

7) Give 3 suggestions for how we can help prevent Global Warming? You need to also briefly explain how each of your suggestions would work (hint: do a Google search on 'stop global warming')

1: _____

Explanation: _____

2: _____

Explanation: _____

3: _____

Explanation: _____

8) Add a paragraph to go with the images below. Include the terms in the word box. A title is already given and one of the words is used already in the opening sentence.



WORD BOX:

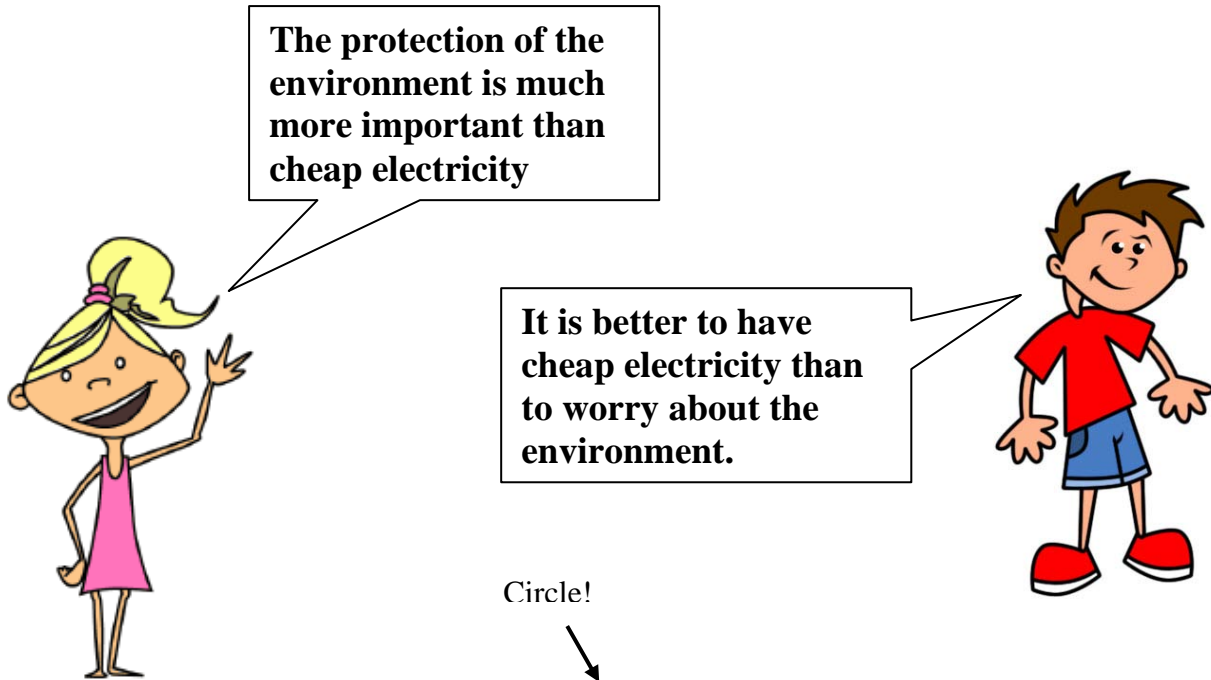
- Global Warming
- CO2 emissions
- melting polar ice caps
- flooding
- renewable energy
- greenhouse effect
- loss of habitat



TITLE: OUR EARTH COULD BE IN DANGER!

Our planet is under threat from global warming. What is happening is that

9. Which of the two opinions given in the cartoon below do you think is more important? Give reasons for your answer.



I think that the opinion of the girl/boy is more important because _____

10. What do you think the photo below is trying to tell us?