

1. What is climate change?

The climate of the Earth is different than the weather, but like the weather it changes. In the past it has changed due natural causes, but in the recent decades the changes to the climate of the planet are the results of human behaviour.

The Earth is kept warm naturally due to the "the greenhouse effect". The greenhouse effect is essential to life on the planet, but the greenhouse gases that have been released by humans are detrimental to the climate because there are such huge quantities that are being released that it becomes a threat to the entire Earth's climate.

The term "global warming" is sometimes used, however, climate change is more appropriate as, although worldwide average temperature has increased and will increase further, the changes in the climate and the degree of warming will vary greatly around the globe. For example, some places will become drier while other will receive more rainfall.

Most of the greenhouse gases release by human activities is Carbon Dioxide (CO₂) produced by the burning of fossil fuels (coal, oil and gas formed from "fossilised" vegetation, buried beneath the earth's surface) but also included increased amounts of methane, nitrous oxide, and halocarbons. At the same time we have been cutting down trees - clearing forests - at an unprecedented rate. Trees, like most vegetation - and indeed 'life' forms - are largely made of carbon so their burning or rotting away releases what had been "stored" carbon, back into the atmosphere, as CO₂.

2. Can we stop it?

Climate change is well under way and the first effects have started to be felt in numerous places (it is a truly global issue) and in various forms (droughts, flood, crop losses, etc.)

The Greenhouse gases that cause climate change have a delayed effect, (the result are not visible or felt immediately). This means that we do not know how much irreversible damage we have done already - but we know that if we don't act now the effects will be many times more devastating still.

We cannot change a certain amount climate change (like mentioned above, the climate has varied since the beginning of time) but we have to try to control the extent of climate change so that we avoid the worst effect from it.

How much are temperatures going to rise this century? No-one really knows. The IPCC (Inter-governmental Panel on Climate Change) have suggested between 1.4 and 5.8 degrees Celsius. To understand what that means you have to bear in mind that the upper figure represents a 41% increase over today's global average temperature (the last ice age was brought by only a 21% decrease in temperature). Small temperature rises are more significant than they sound when you bear in mind the sensitivity and complexity of the earth's climatic systems.

3. What are some facts relating to climate change in the UK? (where did you find these facts - reference?)

What are the UKCIP02 scenarios?

From the BBC:

In April 2002 a new report, called UKCIP02, was released showing climate scenarios for the UK. These scenarios present four different possibilities of how our climate might change. The scenarios were based on four different scenarios produced by the Intergovernmental Panel on Climate Change following new information about predicted global emissions.

They take into account the possible changes in technology and lifestyle over the next 100 years. The scenarios do not claim to be definitive - our climate may not change in exactly the same way as is predicted. The four UKCIP02 climate change scenarios are known as 'Low Emissions', 'Medium-Low Emissions', 'Medium-High Emissions' and 'High Emissions'.

Temperature:

- Annual average temperatures look set to rise by between 2C and 3.5C by the 2080's. The south and east of the UK will most likely see the largest rise in temperature, in contrast to the north and west which will see the least.
 - Most of the warming will be in summer and autumn
 - Summer rises in southern England and south Wales are expected to be the highest
- In contrast, winter rises in the winter in the northwest of Scotland are predicted to be between 1C ('low emissions') and 2C ('high emissions').
- Temperatures in the south east may rise by as much as 5C on average, by 2080's, according to the 'high emissions' scenario and over 4C with the 'medium-high emissions'.

Precipitation:

- Precipitation in winter will increase in all areas of the country, in every one of the scenarios.
- The increase is predicted to range from between 10% and 20%, depending on the area of the country, for the 'low emissions' . For the 'high emissions' scenario, the range increases to between 15% and 35%.
- The summer will see less precipitation than we see now and will therefore be much drier.
- The 'low emissions' scenario predicts the country to become up to 35% drier. Whereas the 'high emissions' scenario forecasts 50% less rainfall than we experience now, by the 2080's.
- The largest changes are predicted for the southern and eastern part of England, the smallest changes are forecast to be in northwest Scotland.
- Less snow will fall throughout the UK - a decline of 60% in parts of Scotland and up to 90% elsewhere.

Source: <http://www.ukcip.org.uk/>

4. What is our Government doing to slow down the process?

Not enough! Despite many announcement and press releases that the threat of climate change is considered to be one of the priority for the government, few actions and results have materialised so far.

However the 'Climate Bill' which was launch in March 2007 by Mr Miliband, the then

environment secretary, is a good step toward slowing down the process of climate change. The bill was designed to set the framework for moving the UK to a low-carbon economy, and demonstrate the country's leadership in fighting against climate change. The bill set out targets for cuts in UK carbon emissions and made them legally binding (i.e. by law, the government be responsible for reducing emissions). The bill set a target for a 60% reduction in greenhouse gases emissions by 2050 (based on 1990 levels). This is obviously a very good initiative however the bill could be greatly improved further. The 50% reduction should be increased to 80% (at least), and aviation and shipping should be included in the bill (at the moment they will not be part of it).

There are also some recent government's decisions that seem to go in the direct opposite direction of what the bill was initially set out to do. For example, the government has agreed to open the first of a whole new wave of coal-fired power stations, at Kingsnorth in Kent. Coal is the biggest single fossil fuel source (coal, oil, gas) of greenhouse gases globally. The government should instead invest in renewable sources of energy (solar, wind, tidal) which do not produce more greenhouse gases. Also, the government wants to build a third runway at Heathrow airport. Aviation is the fastest growing source of greenhouse gas emissions. If aviation continues to grow at the current rate, by 2050 it would cancel out all the reductions that had been made up to then. Curbing aviation growth will not prevent the destabilisation of global climate on its own - but there's no way we can get serious about tackling climate change until we get serious about tackling the runaway expansion in aviation. The current trend in the expansion of aviation is just not compatible with any realistic plan to prevent a climate catastrophe.

5. Is it adequate or do we need to do more?

No it is not adequate. Much more should, and could, be done. The only meaningful and useful action to fight climate change should be based on science and scientific evidence.

The Intergovernmental Panel on Climate Change (IPCC) was set up in 1988 to assess information on climate change and its impact. Any decisions taken by our government should be based on the IPCC reports.

Also, it is very important that an agreement between all countries in the world is signed to reduce greenhouse gases emissions. If only one government or a few take actions, it risks being cancelled out by others who do not.

6. What are the biggest things we can do to assist? (What can we do at school or home?)

There are many things you can do to assist.

For example, at home or school the most useful and effective actions you can take are:

- Making sure you turn off all appliances when you are not using them (i.e. do not leave computer screens or TV set on stand-by) and switch off the lights when you are leaving a room.
- Replace all traditional light bulbs for energy efficient ones
- Encourage your parents and school to switch to a green energy supplier (i.e. a

supplier that gets electricity from renewable sources such as wind turbines)

- Reduce your car journeys and either take public transport, cycle or walk where possible
- Reduce your meat and dairy consumption as their production represent a great source of greenhouse gases emissions.
- Reduce, re-use and recycle.

You can also find 10 ways to save energy, money, and help prevent climate change at this websites:

http://www.energysavingtrust.org.uk/what_can_i_do_today/cheap_and_simple_tips

http://www.environment-agency.gov.uk/yourenv/639312/1361980/?lang=_e

It is also very important to talk to your friends and family about climate change and discuss it with them. Also, try to go to demonstrations in the street to demand that the government take urgent action to fight climate change. These demonstrations are peaceful and family friendly so they can make a great day out.

7. Any more important information we should know?

Climate change is global issue. The UK is not entirely responsible for causing it nor should it be responsible to fix on its own. Everyone on the planet is responsible for causing it, however small one's contribution is, but everyone also has the power to change things and be part of the solution. Climate change will require everyone to collaborate, work together and help each other to find solutions that are efficient and fair to all.

Climate change represents the greatest challenge that humans have ever face, but it also represents the greatest opportunity for people to work together for the benefit of everyone in the world!