



# Debate Team 2

You are the Climate Change Sceptics.  
You know that Earth's climate **IS**  
changing, but you do not think that we  
need to worry about it.



## Climate Change Facts

### FACT 1

Earth's climate is not constant. It has constantly fluctuated, warming and cooling for billions of years.

### FACT 2

Natural processes, like volcanic eruptions, the Earth's orbit and the solar sunspot cycle influence the climate on Earth.

### FACT 3

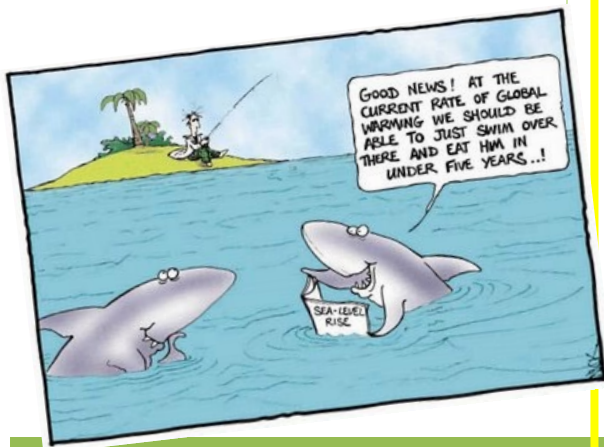
Renewable and nuclear energy sources are still more expensive than oil or gas.

Climate Scientists are advising of what could happen due to climate change, and we are being advised to reduce our 'carbon footprints'. Can we be sure it is due to people? Do we need to worry about it? Sceptics say no.

### Things to remember:

- You are **not** arguing that the climate is not changing
- Some points are more valid than others! A simple statement claiming that 'climate change is a hoax' is not a valid argument. Back up your points with examples and statistics.
- Even if you do believe that climate change is caused by humans and that we need to try and prevent it, try to think from a sceptic's **point of view!**
- There are 3 main arguments
  - Recent climate change is not caused by people
  - We don't know what's going to happen, so we shouldn't try to do anything about it.
  - People will cope with, or even benefit from, climate change.

Divide yourselves into 3 groups to research these 3 arguments.



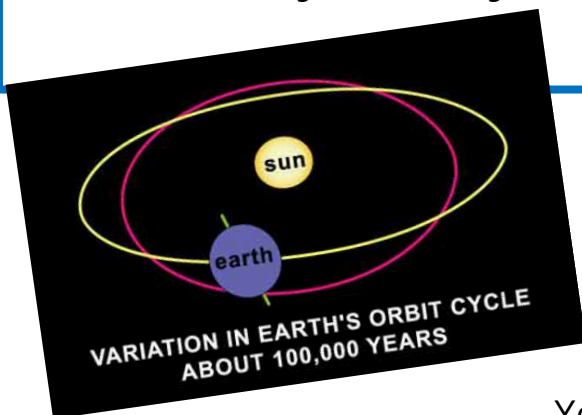
Your mission is to gather **evidence** and information to **CONTRADICT** the people who say that we need to do something about climate change now. You need to look at the sceptics' theories carefully and organize your argument in a way that you can present it clearly to your audience. Remember, a debate means that you will be taking part in an open discussion. You must be prepared to argue your points, **using evidence to support what you are saying** and to contradict the opposing team!

"Climate Change is not caused by humans": you should consider:

- The climates of the past: Has climate change **happened before**?
- Does anyone have absolute '**proof**' that humans are causing climate change?
- Do **extreme weather events** mean the climate is changing? Or are people just looking for something to blame?

Other things to think about:

- Can we really be sure we know what the climate was like a long time ago?
- Can we possibly understand something as complicated as the Earth?
- Are there any other reasons why scientists or politicians might want us to think that we are causing climate change?



### Ice ages

Ice ages are episodes in Earth's history where 'glaciation' has occurred. This means that the poles of the planet become much **cooler** and large ice sheets and glaciers spread across much of Earth's surface.

There is good evidence that the main causes of an ice age are:

- The Earth's **orbit** around the sun (which can differ across long periods of time)
- Changes to CO<sub>2</sub> and Methane levels in the atmosphere
- Continental drift

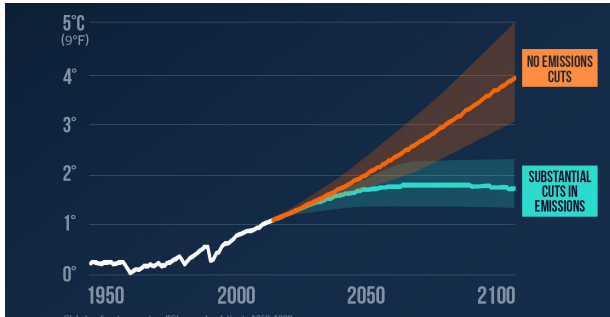
There have been 4 major ice ages over the past 600 million years. Humans cannot possibly have caused these ice ages and the intervening warm periods in between.

Our climate changed then, what's to stop it from changing again in the same way?

You might find these links helpful to gather information:

[www.skepticalscience.com](http://www.skepticalscience.com)

<https://xkcd.com/1732/>



### Other things to think about:

- It is what happens **locally** that has an effect on people, rather than big global changes.
- There is a lot more **uncertainty** about local changes – in most countries, scientists don't know what is most likely to happen.
- It is **extreme events** that have the biggest impact on people, e.g. storms, heat waves. Scientists don't know where and how they are most likely to change.
- Is it **simpler or cheaper** to try to reduce greenhouse gas emissions, or to try to prepare for a changing climate?
- Is it fair to tell **developing countries** that they can't use cheap oil to develop in the same way that developed countries did?

### Uncertainty

We don't know how the world is going to develop over the next decades and how much greenhouse gas is going to be emitted.

We don't know exactly how those greenhouse gases are going to affect the Earth's climate.

We don't know what else people are going to do that might change the climate.

We don't know what the Sun is going to do over the next 100 years, or whether any big volcanoes are going to erupt.

The figure on the left shows a range of projections for how the Earth's temperature might change – from the bottom of the blue shading, to the top of the orange shading. There is a 4°C difference! What actually happens could be outside this range of projections.

You might find these links helpful to gather information

[https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18\\_headline\\_findings\\_v4\\_aug22.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18_headline_findings_v4_aug22.pdf)

<https://www.newscientist.com/round-up/climate-knowns-unknowns/>

"People will cope with climate change": You should consider:

- The climates of the past: Have people dealt with climate change **before**?
- Are there **benefits** to climate change?
- Might it be **cheaper** to adapt to climate change than to prevent it?
- Does the world have **higher priorities**, e.g. eliminating diseases, peace, dealing with poverty?

Other things to think about:

- Consider how species (including humans) might be able to **adapt** to changes in climate?
- Who has a **financial** or **political** interest in wanting us to reduce our use of fossil fuels?
- Does it cost us money to '**go green**'? - think about the cost of electric and petrol cars.

## 21<sup>st</sup> Century Climate Change

- Continued emissions of greenhouse gases will continue to change the Earth's climate.
- Global sea level will continue to rise, and the rise will probably be faster than it has been over the last few decades.
- The ocean will continue to warm through the century.
- It is very likely that the amount of sea ice in the Arctic will continue to reduce and the amount of snow cover in the Northern Hemisphere will fall.
- Wet areas will get wetter and dry areas will get drier, on the whole.

Psst! Need a hint?

If you have an idea of the arguments that you think the other team might use, then you can be prepared with a response to that argument. (This does not mean that you should spy on the other team! Do your research!)

You might find these links helpful to gather information:

[www.epa.gov/climatechange/kids](http://www.epa.gov/climatechange/kids)

<https://www.thegwpf.org/>

[https://youtu.be/4TmeRU\\_L0mo?feature=shared](https://youtu.be/4TmeRU_L0mo?feature=shared)



