



SESSION 1 – Why is climate change happening?

VIEW THE SLIDES in 'SLIDE SHOW' mode – and then all the links will work!!

Please do send us photos of your children enjoying this club!

(Resources required – White board / Paper + Pens. Optional – beanbags/bibs)

Slide 2 – What do you think climate change is?

How would you describe climate change? – for discussion amongst pupils

Definition of Climate Change: Climate change is the long-term shift in the planet's weather patterns and average temperatures.

Since the mid-1800s, humans have contributed to the release of carbon dioxide and other greenhouse gases into the air. This causes global temperatures to rise, resulting in long-term changes to the climate.

('Anthropogenic' Climate Change – means 'Human caused' climate change.)

This club is focused on 'climate change', but many of the actions we undertake to help tackle climate change, will also help address other environmental issues that are also really important and need to be addressed – ecological damage, biodiversity loss, pollution etc – and tackling them will help make a big difference to people around the world, especially the poorest – not just plants and animals.

Slide 3 – This is YOUR climate change club. What would you like it to be like?

Which of these words is most important to you – in terms of this Climate Change Club?

This Climate Change Club – should hopefully be

Fun and enjoyable – with games, video clips, and activities requiring input from everyone!

Informative – where you can learn a little more about one of the big issues of our time

Positive – enabling you to feel empowered, to be part of the solution – whilst learning about the many actions that are already being undertaken by others to combat climate change.

Empathetic – 'empathetic' means encouraging us to think about others all round the world – climate change is a global issue, and not just about ourselves, throughout the course we'll reflect on impacts of children around our world.

A safe space – for you to discuss anything you'd like in relation to climate change and our environment, where you won't be judged for your thoughts, worries or concerns.

Inclusive – everyone will have a chance to join in the discussions, share their views, and voice their opinions



Foster creativity – everyone is different, the best way to solve problems is by putting many heads together

Slide 4 – Why do you think climate change is happening?

In this session we'll look at why climate change is happening. It's really important to understand this bit before we move on (so time for a mini geography lesson!)

Slide 5 – Weather is becoming more extreme and unpredictable

Our planet's climate has changed naturally over thousands and millions of years. For example, in the past, the UK has experienced both freezing ice ages and warm tropical climates.

Climate Change that we are talking about today, however is human – induced (anthropogenic). That means that what we as humans are doing on our planet, is making a change to our climate.

Climate Change is meaning that weather is becoming more extreme and unpredictable.

What do you think extreme weather means?

Forest fires, droughts, excess rainfall, storms, hurricanes,

What do you think unpredictable means?

It means you can't tell when it's going to change, or how it's going to change.

Whatever happens might not conform to your normal expectations.

What is the difference between weather and climate?



WATCH THE VIDEO – (click the link on the slide in 'slide show' mode)

2 minute BBC bitesize clip

<https://www.bbc.co.uk/bitesize/topics/z849q6f/articles/z7dkhbk>

Weather is a description of what the conditions are like in a particular place. For example, it could be: hot or cold, wet or dry, windy or calm, stormy, with thunder and lightning

Climate is a description of the average weather conditions in a certain place for the past 30 or so years.

Different areas of the world have different climates. Climate is influenced by lots of different things, including: how near or far it is from the Equator, how near or far it is from the sea, how high or low the ground is, its position on a continent

Climate change is making our weather more extreme and unpredictable –

We are beginning to see more rainfall and storms, more droughts and forest fires, changing seasons, shrinking sea ice and rising sea levels.



Slide 6 – What is one of the main causes of Climate Change?

The burning of fossil fuels – which create greenhouse gases which form a thicker and thicker blanket around our planet.

What are fossil fuels?

- Crude oil, coal, petrol, diesel and natural gas are all fossil fuels.

How were they formed?

Fossil fuels were formed over millions of years, from the remains of dead organisms:

- coal was formed from dead trees and other plant material
- crude oil and natural gas were formed from dead marine organisms

Over time these organisms were buried underneath layers and layers of soil, mud and rock. This increase of heat and pressure turned them into coal, oil and gas.

Why are they burned? – Fossil fuels when burned release energy – and also carbon dioxide.

How did the carbon get into the fossil fuels?

All living organisms contain carbon compounds inside their cells.

Did you know – human bodies are 18% carbon!

Carbon can exist within different compounds at different times and be recycled between living organisms and the environment

You may have already studied the Carbon Cycle – and understand the basics of the processes of Photosynthesis and Respiration.

Combustion – the burning of materials to produce energy – releases carbon dioxide into the atmosphere

A big downside of using fossil fuels for energy, is that the carbon dioxide that they release is a major greenhouse gas.

So let's move on to look at greenhouse gases and why they matter in terms of climate change.

Slide 7 – What are greenhouse gases?

Do any of you know how a greenhouse works?

Have any of you been inside a greenhouse or a conservatory?

Can you imagine yourself standing in a greenhouse – if the sun is shining it can get nice and toasty inside. This is because the sun's rays can come through the glass, but not all of them escape back out again – so they stay inside trapped as heat – and so the greenhouse warms up. It is precisely because it gets warmer than the outside temperature that greenhouses are used for growing tomatoes, peppers, seedlings – plants that need warmer weather to thrive.



Climate change happens because 'greenhouse gases' in the Earth's atmosphere trap the heat from the sun – it's like putting a blanket around the Earth – or like putting our Planet in a greenhouse.

The diagram shows how the sun's heat gets trapped in our atmosphere.

Now in some ways this is a good thing – our atmosphere helps to keep our planet warm, and without it our planet would be too cold for humans to live here.

HOWEVER, the problem is that as we pump out more and more greenhouse gases – like carbon dioxide – they are staying in our atmosphere and making the blanket thicker – and so the earth is getting warmer and our weather is becoming more extreme and unpredictable.

(There are other 'Greenhouse gases' aside from carbon dioxide – methane, nitrous oxide, chloro-fluorocarbons and water vapour and we will find out a bit more about these, especially methane, on another day.). Carbon dioxide, is one of the biggest causes of man-made climate change. Cutting 'carbon emissions' is shorthand for cutting all 'greenhouse gas emissions'. Scientists have come up with a clever way of comparing the impact of the different greenhouse gases, so they can all be referred to as 'carbon emissions' .

Slide 8 – Could you now explain why climate change is happening to your friends / classmates /parent/carer?

Optional – There are two climate change introductory movies here which might help if you're still not sure.



Possibly WATCH VIDEOS / or one of them? (click the links on the slide in 'slide show' mode)

Climate change: Earth's giant game of Tetris – 3 minutes

<https://www.youtube.com/watch?v=ztWHqUFJRTs>

Climate Change according to a kid – 2 minutes

<https://www.youtube.com/watch?v=Sv7OHfpIRfU>

Do you think these videos were helpful?

Do you think you could now explain what causes Climate Change is to your friends / classmates / or your parent / carer?

Slide 9 – Who is helping us combat climate change?

Many hands make light work (14th century English idiom (proverb/expression/saying), that means ' many helpers can make a task easier to accomplish.)



If we all work together and take small steps then overall we can have a big impact. – Lots of small actions = one big action

Can you fill a white board (or piece of paper) with suggestions! (maybe alternate the scribe?)

There are literally hundreds of thousands of people involved – all around the world! Governments, businesses, communities, scientists, engineers, designers, farmers, financiers, campaigners, teachers and individuals are all working to help combat climate change.

In the coming weeks we will look in more detail at some of the amazing things these people are doing – here are just a few examples – I'm sure you can add many more!

The UK Parliament – issued a Green Ten Point Plan – November 2020, and has set targets for cutting our country's carbon emissions .

Community groups are actively involved in helping raise awareness and understanding of climate change, they are involved in encouraging and inspiring a love for nature, promoting local eco-friendly businesses, wildlife projects, tree planting schemes, walk / cycle initiatives.

Businesses, engineers and designers are pushing hard to improve, create and design new types of transportation, to develop new ways of heating homes, to design more efficient ways of creating electricity.

Scientists have been working for decades and still are on understanding the impacts of climate change and developing and harnessing new technologies to reduce carbon emissions, and adapt to our changing climate.

Individuals, campaigners, teachers – everyone has a role to play – to help increase awareness, education, and encourage a change in behaviours and the way things are done.

Slide 10 – 2021 is a big year for Climate Change.

The United Nations – There is a big United Nations conference happening in Glasgow – November 2021. It's called COP 26 (the 26th Conference of Parties). Governments from over 200 countries will attend.

(2020 was supposed to be a 'Year of Climate Action' – but the Covid pandemic slightly intervened and has caused a delay to proceedings.)

At COP 26 Presidents and prime ministers from around the world will be reporting back on progress since the Paris Agreement – which 196 countries signed in 2015.

The Paris Agreement committed those countries to reducing their National emissions and helping the planet adapt to the impacts of climate change.

IPCC (Intergovernmental Panel on Climate Change)



You might hear or read about the IPCC. It is the United Nations body for assessing the science related to climate change – and comprises over 400 scientists from all over the world.

Slide 11 – Greenhouse gas Dodgeball

Optional 'outside' activity.

Sourced from : Learning through Landscapes – www.ltl.org.uk/free-resources

AIM: to help show how greenhouse gases trap heat from the sun.

You'll need –

Set of bean bags – if you don't have any – maybe children could improvise – use pairs of socks to make bundles? Scrumple up a piece of paper each – that they can then use to draw on?

Bibs – possibly use children with jumpers and without jumpers, and then one person to be the 'sun' – who could borrow a hat / scarf / coat?

Circular marking on playground – this could be established with a chalk drawn circle? Or use jumpers / skipping ropes to create the two circles.

Find 20 beanbags (or make out of scrunched paper)

2/3 pupils in centre of a circle – the earth (jumpers on)

1/3 pupils around circle – the atmospheric greenhouse gases (jumpers off)

Teacher (or one pupil) – the Sun – throws 'rays' into the Earth.

Earth pupils try to throw rays back to out beyond the atmosphere, but many get caught by the greenhouse gases.

The 'round' ends when all bags are outside the atmosphere.

Play again – this time with more 'greenhouse gases'

'As the quantity of greenhouse gases increases, it is increasingly difficult for Earth to reflect the Sun's warming rays and so the Earth's temperature rises'.

Slide 12 – Let's sign up!

Solving climate change is not just down to the experts or even just down to adults – you and I also have a role to play!

We will be learning more about Climate Change, over the course of the next few weeks. Let's sign up as Young Climate Warriors to see what we can do to help combat climate change – and to start receiving the weekly challenges!

Can you try and sign up to the Young Climate Warriors website this week – and have an explore to see the sorts of things they do.

Slide 13 – Challenge for the week!



Make your own 'I am a Young Climate Warrior' image using items from around your house, and send us a photo (school social media account?)

For examples – Link to YCW Gallery page – scroll down to the bottom of the Gallery.

<https://www.youngclimatewarriors.org/gallery>



Take-away points from this session:

- This is YOUR climate change club – it should be 'fun' as well as a great place for positive open discussion.
 - Climate change is the 'long term shift in the planet's weather patterns and average temperatures'.
 - Climate Change is making our weather more extreme and unpredictable.
 - One of the main causes of climate change is the burning of fossil fuels.
 - When burned fossil fuels create greenhouse gases which are forming a thicker and thicker blanket around our planet.
 - Many thousands are people are helping us to combat climate change.
 - 2021 is a big year for climate change – UN Conference in Glasgow, November 2021.
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