Climate Change Assembly

These notes run alongside the PowerPoint presentation. They provide additional information (if required) and suggestions for interaction:

Slide 2: What is the difference between climate and weather?
Ask the children what they already know about the difference between climate and weather. Have they ever seen a weather forecast? What is it for? You might explain that a forecast is really only reliable / useful from a day or so ahead.

Climate is different to weather. Weather describes the day-to-day conditions in a local place and it can change very quickly - one day it can be dry and sunny and the next day it may rain. Climate describes the average weather conditions in an entire, wide region for a very long time - 30 years or more.

Slide 3: What is climate change and how is our climate changing?
Climate change is a large-scale, long-term shift in the planet's weather patterns and average temperatures. It's very important that we keep an eye on how the Earth's climate is changing as many things that are important in our lives could be changed by climate change in ways we've not seen before. The Earth's climate is definitely changing - it is heating up.

Slide 4: How do we know that climate change is happening?
Scientists keep very careful records of temperatures all over the world. It's normal for global temperatures to rise and fall over the years, but there is now a steady pattern in the temperature records which show that the Earth is heating up. It has warmed by an average of 1 degree Centigrade in under 200 years. This might not sound like very much, but it is having a very big effect on the people and animals on our planet. Rising temperatures **don't** just mean we'll get nicer weather.

Slide 5: What effect is climate change having?
We can already see the impacts of climate change. It is having an effect on millions of people around the world and it's happening far faster than many people thought possible. As the climate is changing, our weather is becoming more extreme and unpredictable.

Slide 6: Melting glaciers and rising sea levels
Earth's ice, frozen for thousands of years, is melting. Glaciers all over the world are melting and the rate at which they are decreasing has worsened in recent decades. Arctic sea ice has been declining since the late 1970s (although this doesn't affect sea levels because the sea ice is floating on the ocean). The Greenland and Antarctic ice sheets, which between them store most of the world's freshwater, are both shrinking at an accelerating rate. This water ends up in the oceans and affects people around the planet as sea level rises.

Slide 7: Unpredictable Weather - flood, drought and wildfires
Higher temperatures mean more water is evaporating from the oceans. This means there is more moisture in the air, leading to more frequent and more powerful rainfall and storm events around the world. In 2022, the monsoon rainfall in Pakistan was nearly three times higher than the 30 year average. Many people lost their homes and farmers' crops were washed away.

Whilst global warming is causing heavier rainfall events in some parts of the world, in others it is increasing the risk of drought. Drought can be a disaster for crops and animals. Scientists calculated that climate change made the droughts that hit the Northern hemisphere in the summer of 2022 twenty times more likely. Without human-caused warming, the event would only be expected to occur about once in 400 years. Now, it's once every 20 years. Rising temperatures also bring the risk of catastrophic wildfires, such as the one that hit Australia in 2019.

Slide 8: Displaced people...
As dramatic weather events and rising sea levels destroy homes, more and more people are forced to flee. Many of the world's cities are located in coastal areas and almost a quarter of the world's population live near the coast, so this is a huge concern. In 2017, 24 million people were displaced by weather related disasters. According to the UN Refugee Agency (UNHCR), there could be 1.2 billion climate refugees by 2050.

Slide 9: … and animals losing their habitats

Climate change is already seriously affecting our planet's wildlife, especially in polar areas. Experts believe that Arctic sea ice is melting at a shocking rate of 9% per decade. Polar bears need sea ice to hunt, raise their young and rest; but their icy natural habitat is melting.

It is not only animals in the polar regions that are under threat. In 2019, bushfires raged in Australia killing over three billion animals in what the World Wide Fund For Nature called one of "the worst wildlife disasters in modern history". Rising sea levels destroy nesting sites for sea turtles, while hotter sand affects the sex of the hatchlings, meaning that only females are born, so they cannot find a mate.

Slide 10: Climate change worsens widespread hunger

In 2022 over 800 million people faced hunger worldwide. Changes in temperature and rainfall patterns make it very difficult for farmers to know when best to sow, cultivate and harvest their crops. When crops fail, it's one of the reasons that people go hungry. Extreme events, such as storms and floods destroy crops. They also damage systems for transporting and distributing food. Very unfairly, it is often the people in the poorest regions, who contribute least to climate change, that suffer the most. It is estimated that the number of people at risk of hunger by 2050 could increase by 10-20% more than would be expected if it wasn't for the effect of climate change.

Slide 11: How are humans affecting climate change?

After nearly fifty years of research, the evidence shows that the warming of our Earth is caused by human activities, in particular the use of fossil fuels. By burning fossil fuels, humans are increasing the amount of greenhouse gases in the Earth's atmosphere and contributing to a change that is causing it to heat up - this is called global warming.

Slide 12: What are fossil fuels?

Fossil fuels are formed from the remains of ancient plants and animals, buried deep inside the Earth for millions of years. Over a long, long time, heat and pressure has turned these remains into the fossil fuels that we call coal, oil and natural gas. Today, fossil fuels such as coal, gas and oil are mined and burned to release the energy stored inside them. We use these fuels to make electricity for our homes, schools and businesses, and to power most of the vehicles used around the world.

Slide 13: Carbon dioxide and the greenhouse effect
When fossil fuels are burned, a gas called carbon dioxide is released into the atmosphere as a waste product. It then acts as an invisible 'blanket', trapping heat from the sun and warming the Earth; this is called the greenhouse effect. As more and more fossil fuels are burned, the blanket of warming gases becomes thicker, trapping more heat. Records show that global temperatures have been rising more rapidly since the time we started burning fossil fuels in large amounts.

A more detailed explanation of the greenhouse effect can be found on YPTE's video which can be downloaded using this link:
http://ypte.org.uk/videos/the-greenhouse-effect

Slide 14: Deforestation
Burning fossil fuels is a huge cause of climate change but it's not the only one.

Deforestation (the process whereby trees are cut down to use as fuel, building materials or to create space for farms) is another contributor. Forests absorb huge amounts of carbon dioxide from the air - they store a third of our emissions, in fact. They also release oxygen back into the atmosphere, so they help keep the planet's climate stable.

But humans are cutting down huge areas of forest for timber and to make way for farmland, roads and oil mines. When trees are burned, even more carbon dioxide is released. Trees are being cut down and burnt at such a rate it is thought that at least a third of global carbon emissions are now caused by deforestation. A study published by Nature Sustainability in 2022 shows that carbon loss from tropical deforestation in the last two decades has doubled and continues to rise.

Slide 15: Intensive farming

Intensive farming is another major cause of greenhouse gas emissions. In the last 50 years, the population of the planet has doubled, but the amount of meat we eat has tripled. Billions of animals are eaten every year. Agriculture (farming animals and crops to eat) causes around 25 to 30% of Earth's greenhouse gas emissions each year and meat, poultry and dairy farming creates around three quarters of that. When cows eat, methane gas builds up in their digestive systems and is released in the form of a burp or fart! Each cow can produce between 250 and 500 litres of methane

per day! Methane is a powerful greenhouse gas and contributes to global warming.

Slide 16: What is the COP and is it helping?
In 1992, The United Nations Framework Convention on Climate Change (UNFCCC) met in Rio de Janeiro at the Earth Summit and 154 countries signed a treaty agreeing to try to stop rising greenhouse gas emissions from causing irreversible damage to the climate. Each year, a Conference of the Parties (COP) takes place to discuss the latest findings and to make suggestions for improvements. In 2015, the countries at the COP signed what was called 'The Paris Agreement' where they agreed to try to keep greenhouse gas emissions at a level that would mean the Earth heated up by no more than 1.5 degrees C.

Sadly, at the 2021 COP (COP26) which was held in Glasgow, it was clear that the agreement made in Paris is still far from being met and this temperature rise now seems very likely. COP 27 (held in Cairo in 2022) made little progress. Governments need to work together to help carry out real action.

Slide 17: Alternative sources of power
To reduce the negative impacts that using fossil fuels have on climate change, people are thinking of new and better ways to make electricity using natural resources such as the sun, wind and water. As these energy resources make use of natural forces which will never run out, they are called 'renewable' energies. They are also clean energies as they do not produce harmful pollution, so they are referred to as 'zero-carbon'.

YPTE's video provides a comprehensive guide to renewable energies. It can also be downloaded with the following link:
http://ypte.org.uk/videos/renewable-energy

Slide 18: Can children have an impact?
It can feel overwhelming to think about all the changes that need to be made to help protect our ecosystems. You may feel that no one is listening to you, because you are young. However, more and more young people are grouping together to make their voices heard.

One of the best known European climate activists is Greta Thunberg. As a school girl she became very worried about the consequences of climate change and upset that adults were not doing enough about it. At the age

of 15 she began protesting outside the Swedish parliament for immediate action to combat climate change. She attracted media coverage and has done a great deal to help spread the word that something needs to be done. She also initiated the School Strike for Climate movement and, on 15 March 2019, an estimated 1.4 million students in 112 countries around the world joined her call by striking and protesting. Ask older students if they remember this - maybe they even took part!

Slide 19: Teach The Future
In 2019 a group of young people from the UK Student Climate Network formed the Teach The Future campaign. They began campaigning to include climate change as a topic on the school curriculum, to make 'green skills' a key part of vocational (work based) courses and to make educational buildings more eco friendly. The student volunteers worked with support to draft the first ever education bill written by students themselves, and they presented this to Parliament in 2020.

So there are ways for young people to make their voices heard and their actions can make a real difference.

Slide 20: What can we do each day to help fight climate change?
These actions all sound quite big and dramatic, but there are things that we can do every day to help reduce the emissions that create and worsen climate change. Ask the children whether they can suggest any daily actions that they know of (or do) to cut down carbon emissions.

Slide 21: Reduce electricity use
Ask the children to think about their average day - how many items do they use that need electricity to make them work? Are there some things they could manage without? Could they be more careful about switching things off when they're not using them? Small changes by everyone can together make a big difference.

Other small changes could include switching to energy-saving light bulbs, turning off electrical appliances when not in use and switching off gadgets at the mains (this can cut electricity use in the home by up to 10%). If your school is already signed up to YPTE's Better Planet Schools programme then you will already be learning to become energy saving experts!

Slide 22: Change the way we travel
Ask children to raise their hand if they have travelled by car in the past week. One of the ways we can help cut down greenhouse gas emissions is to think more carefully about the way we travel. Transport was responsible

for 37% of global carbon dioxide emissions in 2021. If you live near school you could try to walk or cycle to school instead of driving. Sharing a lift with a friend can also help as it means there are fewer vehicles travelling on the roads. Perhaps your family might consider having a holiday in the UK instead of flying somewhere. Planes use huge amounts of fossil fuels and make a significant contribution to greenhouse gas emissions.

Slide 23: Reduce, re-use, recycle
Ask the children which packaging materials they already recycle at home. Do they know of any other products apart from things like paper, tins and glass that can be recycled locally? They might know about textile banks or a place at the local tip that can collect electrical items. Charity shops are also a great place to take unwanted items and to buy things second hand to extend their life.

Most things we might throw away can be reused or recycled. This saves energy and the use of fossil fuels, as fewer new products need to be made, packed and transported. Many schools now have facilities to recycle their paper, pens and batteries - does yours?

Slide 24: Cut down on food waste
It's been estimated that a massive 35% of global human-created greenhouse emissions come from the production and transportation of food. Take a loaf of bread for example: farming the ingredients; transporting those ingredients in trucks, planes or ships; making the packaging; transporting the loaves to shops and supermarkets; and lighting and heating the supermarkets where they are sold.

Yet, in the UK alone, 9.5 million tonnes of food is wasted in a single year. A lot of this food ends up in landfill instead of being put in the right food waste bin. This causes even more greenhouse gas emissions as the food rots in the ground.

Slide 25: Find ways to support green energy
There are now many energy providers that aim to use 100% renewable energy. Perhaps the children could ask their parents whether the energy they use at home is green. How about the energy company used by your school? This could be something that your eco committee would like to investigate. Does your school or home use any solar panels to help generate some of its electricity from the sun?

Slide 26: Pause for thought

“ I have learned you are never too small to make a difference.”

- **Greta Thunberg**

YPTE’s video on climate change can be found here:
https://ypte.org.uk/videos/climate-change