



WORKING TOGETHER  
TO INSPIRE YOUNG  
PEOPLE TO SPEAK  
OUT FOR OUR PLANET



# Understanding Climate Change

## Lesson Plan

<b>Workshop</b>		<b>Length: 2 hours</b>
<b>Objectives:</b> <ul style="list-style-type: none"> <li>• Understand the difference between climate and weather</li> <li>• Understand the causes and effects of climate change</li> <li>• Understand the human contributions to climate change</li> <li>• Understand the term Net Zero and how it is being achieved</li> <li>• Explore solutions to achieving Net Zero</li> </ul>		<b>Outline:</b> <ul style="list-style-type: none"> <li>• Description of climate change, its causes and effects.</li> <li>• Explore human contributions to greenhouse gases</li> <li>• Discuss solutions to achieving Net Zero</li> <li>• Create and deliver presentation on solutions</li> </ul>
<b>Materials:</b> Flip chart/A3 paper, post-it notes, stationery		
<b>Lesson Plan:</b>		
Slide	Time	Activities
1	30 sec	Introduce the form time activity using the outline above.
2	1 min	Play video – an introduction to WWF <a href="https://vimeo.com/385956974/3b274d03d5">https://vimeo.com/385956974/3b274d03d5</a>
3	30 sec	Introduction to Shout Out UK
4 - 6	3 min	These slides include a short quiz to engage students in the topic of climate change.
7	2 min	Ask students for 'buzz' words related to climate change.  Write on post it notes or flipchart paper. Use this as a display/reminder and invite students to add through the session.
8 - 9	1 min	In order to understand climate change, students first need to understand the difference between climate and weather. Read definitions.  <i>If time allows:</i> With these definitions in mind, ask students if they have a different idea of what is meant by climate change to before (if they were not clear when asked in slide 7).
10	2 min	Read definitions.
11	1 min	Introduction side to the topic of the effects of climate change.
12	5 min	Ask students what they think this colour graph is showing. ( <i>Global temperature change/rise</i> )  Ask students to consider the significance of the RATE of global temperature rise. <ul style="list-style-type: none"> <li>• Temperatures have rising higher and faster</li> <li>• Impacts become greater and more extreme.</li> <li>• We are less able to predict and prepare for the impacts.</li> </ul> <p><i>Further Notes. Source:</i> <a href="https://www.bloomberg.com/graphics/climate-change-data-green/temperature.html">https://www.bloomberg.com/graphics/climate-change-data-green/temperature.html</a></p> <p><i>2019 was the second hottest on record. The five hottest years have all occurred since 2015. Direct monitoring dates back to 1880.</i></p>



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		Ask students to discuss in groups and announce to the class what they think the long-term impacts of climate change may be.
13	5 min	<p>Discuss any bullet points that may have been missed in the group discussions.</p> <p>What connections can be made (<i>i.e. melting ice caps = rising sea levels / melting ice caps = biodiversity loss (polar bears rely on ice caps to hunt / Extreme weather (drought) = desertification</i>).</p> <p>Ask students what consequences from these effects of rising temperatures may mean for humanity. (Examples on next slide).</p>
14	3 min	<p>Discuss any bullet points that may have been missed in the group discussions.</p> <p>Do any of these affect us on the UK? (<i>Floods, hose pipe ban, warmer winters (less snow), hotter summers</i>)</p>
15	5 min	<p>Case Study: Australian Bushfires. <i>This activity can be adapted depending on time and class size available. Please see Teacher Overview for more suggestions.</i></p> <p>Ask students what they have heard about the Australian bush fires and how they may have been made worse by climate change.</p> <p>Important note: Australia experiences bush fires every year however this summer they have been worse than average.</p> <p>Prompts:</p> <ul style="list-style-type: none"><li>• Estimated more than 12 million hectares of land have been burnt.</li><li>• Estimated up to 1.25 billion mammals, birds and reptiles have been killed.</li><li>• Homes and businesses have been burnt down. Tourism is struggling.</li><li>• Volunteers and charities have been helping put out fires, taking aid to cut of communities, rescue and treat wildlife.</li><li>• Tens of millions of pounds have been raised to help those affected (donations, charity concerts and sporting events, people knitting pouches and socks for injured/burnt wildlife).</li><li>• Australia has been experiencing hotter summers and longer droughts meaning vegetation is dry.</li><li>• Dry vegetation ignites easily and lightning strikes are thought to have started some fires.</li></ul> <p><i>Further Notes.</i></p> <p><i>Explanation video / How you can help -</i> <a href="https://www.wwf.org.uk/updates/how-you-can-help-australia-fires">https://www.wwf.org.uk/updates/how-you-can-help-australia-fires</a></p> <p><i>See 'Resource Overview' for further activities.</i></p>
16	2 min	Introduction slide: How human beings contribute to climate change.
17	5 min	<p>Introduce greenhouse gases (GHGs)</p> <p>Ask students if they know what is meant by the term 'the Greenhouse Effect'</p> <p>Natural greenhouse effect:</p> <p>'The greenhouse effect is a natural phenomenon allowing life to occur on the planet. It is caused by a series of greenhouse gases (water vapor, carbon dioxide, methane and nitrous oxide) that absorb part of the energy, while the remainder escapes into space. This means that some of the sun's energy becomes trapped – thus making the lower part of the atmosphere, and Earth, warmer'</p>



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		<p>Global warming caused by human activity:</p> <p>'Global warming is the <b>unusually rapid increase</b> in Earth's average surface temperature over the past century primarily due to the increase in greenhouse gases being released. The global average surface temperature rose 0.6 to 0.9 degrees Celsius (1.1 to 1.6° F) between 1906 and 2005, and the rate of temperature increase has nearly doubled in the last 50 years'</p> <p>Ask students what human activities may contribute to more GHGs in the atmosphere.</p>
18	3 min	Read slide and discuss any bullet points that may have been missed.
19	1 min	<p>Students will 'vote with their feet' regarding the next three statements.</p> <p>Read each statement and ask students to the side of the room which best matches their view.</p> <p>Pick 1 or 2 students from each side to explain their decision.</p> <p>After hearing other arguments and the prompts below has anyone changed their mind? <i>Adjust to time available.</i></p>
20	5 min	<p>Businesses should take responsibility for their impacts on the environment</p> <p>Prompts: choice</p> <ul style="list-style-type: none"> <li>● Coca Cola and plastic bottles</li> <li>● Fast food packages</li> <li>● Supermarket packages</li> </ul>
21	5 min	<p>What I eat affects climate change</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>● How far has your food travelled?</li> <li>● Packaging</li> <li>● Energy, land use, water</li> </ul>
22	5 min	<p>Climate change is affecting my life right now</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>● Extreme weather – flooding in UK</li> <li>● Price of goods / availability</li> <li>● Warmer winters, hotter summer (records)</li> </ul>
23	3 min	Ask students if they know what is being done by Governments to help tackle climate change.
24	5 min	<p>Read slide.</p> <p>Ask students to explain what is meant by 'Net Zero'. (Explanation on next slide).</p>
25	2 min	<p>What is Net Zero? Read explanation.</p> <p>Ask students if they know what the UK Government is doing to achieve Net Zero.</p>
26	2 min	Read slide
<p>Hackathon. The timings below allow one hour, but this can be shortened or lengthened depending on the time available. Please see resource guide for more information on ways to run a hackathon.</p>		
27	2 min	Task: How can we achieve Net Zero.
28	1 min	Example: Electric cars



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SHOUT OUT UK  
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		<p>Ask students what the pros and cons of electric cars are.</p> <p>Prompts:</p> <p>Pros:</p> <ul style="list-style-type: none"><li>• Zero emissions from the exhaust.</li><li>• Government grants towards new electric cars and home charging points.</li><li>• Save money on fuel and time waiting at the petrol station.</li><li>• Cheaper to maintain (fewer moving parts, no oil checks etc).</li><li>• Most electric cars are tax free.</li></ul> <p>Cons:</p> <ul style="list-style-type: none"><li>• Charges with electricity which could come from fossil fuels.</li><li>• Cost (but prices are coming down).</li><li>• Number and location of charging points available (and cost to use).</li><li>• Time it takes to charge.</li></ul> <p><i>Further Notes.</i></p> <p><i>The UK government announced in 2017 that it would end the sale of all new petrol and diesel cars and vans by 2040. 49</i></p> <p><i>Scotland announced in 2017 that it would phase out new petrol and diesel cars and vans by 2032.</i></p> <p><i>If 60% of new cars on UK roads were electric by 2030, it would save 26 million tonnes of CO2.</i></p>
29	10 min	<p>Put students into groups and give each a sheet of paper and stationery.</p> <p>Ask each group to brainstorm as many ideas as possible to achieve Net Zero. Ideas can be on a global, national or local scale.</p>
30	5 min	<p>In their groups, ask students to discuss their ideas and pick their best.</p>
31	15 min	<p>On the flip side of their paper ask students to create a poster or presentation outlining their idea in more detail.</p>
32	20 min	<p>Ask each group to present their idea to the class.</p>