

Subject: Geography – Year 6, Unit 2, Climate Change



Enquiry Question:

What is causing climate change?

What is the impact of climate change on the World?

NC/POS:

Locational knowledge

- Locate the World's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities.
- Identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime/Greenwich Meridian and time zones (including day and night).

Place knowledge

- Understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America.

Human and physical geography

- Describe and understand key aspects of:
 - Physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle.
 - Human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.

Geographical skills and fieldwork

- Use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied.
- Use the eight points of a compass, four and six-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider World.
- Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.

Prior Learning (what pupils already know and can do):

- Children know what climate is and can name the different climate zones of the world.
- Children know what deforestation is and the impact it can have on a location.
- Children know the positive impact of people reducing, reusing and recycling.
- Children know the difference between non-renewable and renewable energy and how they have an impact on the environment.

End Points (what pupils MUST know and remember):

- Know that the Arctic is a cold desert located at the northernmost part of the planet.
- Know that Antarctica is located at the southernmost part of the planet.
- Know that Antarctica is an ice-covered continent surrounded by the Southern Ocean.
- Know key physical and human features in Antarctica.
- Know what climate change is.
- Know activities which create climate change.
- Know the effects of climate change on the World.
- Know the impact of climate change.
- Know how climate change will affect our lives.
- Know ways of managing climate change.
- Know that we have a shared responsibility.
- Know that evergreen trees have leaves all year round and so are efficient at reducing carbon dioxide.
- Know how to identify and use contour lines, six figure grid references and topography on a map.

Know that because evergreen plants keep their leaves all year that they are better at collecting carbon dioxide than deciduous plants.	
Key Vocabulary: biome, tundra, polar desert, glacier, ice sheet, climate, climate, greenhouse gases, carbon dioxide, cause and effect, impact, consequence, environmental, social, economic, glaciers, carbon footprint, renewable energy, reduce, reuse, recycle, cause, consequence, deciduous, evergreen, photosynthesis, solar panel, topography, relief, six figure grid reference, contour.	
<u>SESSION 1: Where in the world is the Arctic and Antarctica?</u> <u>How are they similar and different from each other?</u> Where in the World is Antarctica? Where in the World is the Arctic? What are their similarities and differences? - Using a range of maps, compass points, focusing on locational knowledge, longitude and latitude and where they are placed in relation to the Equator, Southern and Northern hemisphere, the tropics of Cancer and Capricorn and the Greenwich Meridian. - Look at the difference of the land-based Antarctica and iced Arctic - Compare the number of inhabitants and animals. - Look at the countries within each. What is it like in Antarctica? Look at human and physical features. Look at the biomes – Tundra and polar desert biome.	<u>End points covered in this session:</u> Know that the Arctic is a cold desert located at the northernmost part of the planet. Know that Antarctica is located at the southernmost part of the planet. Know that Antarctica is an ice-covered continent surrounded by the Southern Ocean. Identify key physical and human features in Antarctica. Vocabulary: biome, tundra, polar desert, glacier, ice sheet, climate.
<u>SESSION 2: What are the causes of climate change?</u> Recap from previous topic – what is climate change? Go into more depth about what climate change is: - Children recap the difference between weather and climate. What is climate change? WaterAid - YouTube ENQUIRY QUESTION: What is causing climate change? Look at natural causes and human causes. The greenhouse effect and the enhanced greenhouse effect. - Video on the greenhouse effect - Young People's Trust For the Environment (ypte.org.uk) Investigate the human causes - generating power, manufacturing goods, cutting down forests, using transportation, producing food, powering buildings, consuming too much. Look at how these cause climate change e.g. deforestation – chopping down trees releases carbon dioxide. Look at possible solutions to some of these causes: children sort statements in causes/consequences and solutions.	<u>End points covered in this session:</u> Know what climate change is. Identify activities which create climate change. Vocabulary: climate, greenhouse gases, carbon dioxide, cause and effect.
<u>Session 3: What is the impact of climate change?</u> This session introduces the impacts of climate change, what they mean for our planet and how they might change over time. ENQUIRY QUESTION: What is the impact of climate change on the World?	<u>End points covered in this session:</u> Know the effects of climate change on the World. Know the impact of climate change.

Look at how climate change impacts humans, animals and plants, and how this can have a knock-on effect to our World – what might the world look like if climate change continues? Refer back to the Arctic and Antarctica – what impact does climate change have on these places? Shrinking ice sheets, habitat loss, warming oceans, sea levels rising. Link back to the Amazon rainforest: how does Antarctica link to the Amazon Rainforest? They are both important in terms of climate change. Interpret data about climate change – sea level rise, ocean acidification, warming oceans, shrinking ice sheets, extreme weather and effects on health – impact on different locations include Antarctica and the Arctic. Look at climate change in the UK and Warrington. Reference the flooding in Sankey Bridges/extreme weather. Impacts of climate change WaterAid – YouTube	Know how climate change will affect our lives. Understand how the Amazon and the Poles are linked in relation to climate change. Vocabulary: impact, consequence, environmental, social, economic, glaciers.
<u>SESSION 5: How do we stop climate change?</u> What will happen if we do nothing? What can the government do? - Look at what government and international committee plans are to reduce climate change e.g. reduce greenhouse gases by at least 40% by 2030. - Explore The Committee for Climate Change, the Paris agreement and the International treaty on climate change. What can we do? - This session should introduce the idea of shared responsibility – highlight the shared responsibilities for protecting the environment; how everyday choices can affect the environment. - What is our carbon footprint and how can we improve it? Look at ways in which we can help climate change – reducing electricity, central heating, renewable energy, food choices, travel, reduce, reuse, recycle. Based on extensive research into the causes and consequences of global warming, complete persuasive posters encouraging the public to reduce their carbon footprint. - Use persuasive language – slogans and questions – to catch the readers attention. - Include causes and consequences of climate change and ways in which someone can reduce their carbon footprint. <i>This task will build curiosity and knowledge of place, location, interconnectedness, physical and human geography in a memorable way.</i> <i>The knowledge developed will allow the children to be open-minded, balanced and to have considerate worldview, by equipping pupils to be responsible, respectful, active citizens.</i> <i>Children will make a series of connections between topics, showing that the curriculum provided is sequenced effectively for them to understand deeply a difficult geography world issue and concept of global warming.</i>	<u>End points covered in this session:</u> Know ways of managing climate change. Know that we have a shared responsibility. Vocabulary: carbon footprint, renewable energy, reduce, reuse, recycle, cause, consequence.
<u>SESSION 6: Investigation linked to Light (Science), Animals Including Humans /Electricity /Classification: (Science) The Amazon (Geography)</u>	<u>End points covered in this session:</u>

To help deepen children's understanding of the importance of plants in helping to combat global warming, the children will investigate whether our school grounds are made up of more deciduous or evergreen trees. The children will understand that evergreen trees are more efficient at absorbing carbon, as they can do this all year around. Working collaboratively and thinking critically, children observe, collect, measure, record, analyse, communicate and reflect on geographical information in a variety of ways, numerical and quantitative skills, debating and writing at length. • With support, the children will be able to classify leaves into deciduous and evergreen. • Write at length about their findings, suggesting ways we could make our school eco-friendlier. • Use mathematical skills to convert their data into percentages and create pie charts by hand and by using computing software. <i>They will be able to inter-connect between the scientific processes of photosynthesis and the importance of the rainforests in helping to combat climate change.</i> <i>Make connections between Y5 topics of sustainability and Global Trade and Y6 topics of the Amazon (rainforest) and Antarctica (Climate Change)</i> Fieldwork Step by Step: 1. Children recap the process of photosynthesis in plants and how this is linked to respiration in animals. 2. Children recap how carbon emissions thicken Earth's atmosphere and lead to global warming. 3. Children recap whether deciduous or evergreen leaves absorb more carbon each year. 4. Children investigate whether the school grounds contain more evergreen or deciduous trees – children collect leaf samples from the grounds and classify them into evergreen/deciduous. 5. Children analyse school solar panel data to see how much carbon dioxide has been saved by the school installing solar panels.	Know that evergreen trees have leaves all year round and so are efficient at reducing carbon dioxide. Vocabulary: deciduous, evergreen, photosynthesis, solar panel.
<u>SESSION 7: Additional fieldwork linked to Todmorden residential</u> In preparation for the children's residential to Todmorden and to learn more about the topography of Warrington and Todmorden, using ordnance survey maps, the children pick 12 of the activities from a list of 50 and used the map to plan where they would do each of the activities in Todmorden or Warrington. Developing independent enquiry and thinking critically, the children need to use complex keys to find certain information and give a six-figure grid reference for each of the locations they selected.	<u>End points covered in this session:</u> Know how to identify and use contour lines, six figure grid references and topography on a map. Vocabulary: topography, relief, six figure grid reference, contour.

Together, with a partner the children present their findings to the rest of the class, explaining why they had selected each location for each activity.

Children need to understand the terms topography, relief and how contours are used on a map. They need to understand how the topography of the land has affected the development of the different locations.

Compare topography maps of Warrington and Todmorden: colour topographic maps - <https://en-gb.topographic-map.com/>

This investigation will help the children to develop: a deeper 'sense of place'; building their understanding of what Warrington and Todmorden are like; allowing detailed comparisons to be made between places

Future learning this content supports:

This unit will support future learning on trade, distribution of resources and the human and physical geography of locations around the world. It will support learning on the future of climate change and how this might change over time.