

Kemnal Keys: Geography — Weather hazards and climate change

What you should know	What you should be able to do
The features of the global atmospheric circulation	<p>Describe the characteristics of the Hadley, Ferrel and Polar Cells</p> <p>Describe the location of the Hadley, Ferrel and Polar Cells</p> <p>Explain how differences in heating results in differences in air pressure</p> <p>Explain how wind is formed</p> <p>Explain why the differences in heating result in differences in climate</p> <p>Explain why differences in climate result in differences in ecosystems</p> <p>Describe the difference between weather and climate</p>
How circulation cells and ocean currents transfer and redistribute heat energy across the Earth	Explain how heat is transferred around the oceans
How climate has changed in the past over different time scales: glacial and interglacial periods during the Quaternary period and the causes and impacts of these changes	<p>Describe the changes in climate before and during the Quaternary period</p> <p>Describe the difference between glacial and interglacial periods</p> <p>Explain how Milankovitch cycles change global temperatures</p> <p>Explain how solar variation change global temperatures</p> <p>Explain how volcanic activity can affect global temperatures</p> <p>Explain how humans know global temperatures were different to what they are today</p> <p>Describe the greenhouse effect</p> <p>Explain the enhanced greenhouse effect</p> <p>Explain how human activities have led to global warming</p> <p>Explain how global warming has led to climate change</p> <p>Assess the effects of climate change on contrasting locations</p>
The UK's climate today and changes over the past 1,000 years	<p>Describe the UK's climate in winter and summer</p> <p>Explain the role of latitude in the differences in the UK's climate</p> <p>Explain the role of altitude in the differences in the UK's climate</p> <p>Explain how ocean currents influence the UK's climate</p>
How and why tropical cyclones form in specific parts of the world, their impacts, and the differences of impacts between developing and developed countries	<p>Describe the distribution of tropical cyclones</p> <p>Explain how a tropical storm is formed</p> <p>Explain how climate change might affect the distribution, frequency, and intensity of tropical cyclones</p> <p>Assess the significance of development levels on the socio-economic impacts of tropical cyclones</p>
The characteristics of arid environments compared to the extreme weather conditions associated with drought	<p>Describe the distribution of global arid environments</p> <p>Explain the location of deserts</p> <p>Describe the characteristics of a drought</p>
How and why droughts occur, their impacts and attempts to mitigate against them in developing and developed countries	<p>Describe the causes of the 3 main types of droughts: meteorological, hydrological, and human</p> <p>Explain why some people and places are more vulnerable to drought than others</p> <p>Assess how droughts have more long-term impacts than tropical cyclones</p>

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<p>Quiz 1</p> <ol style="list-style-type: none"> Which convection cell is closest to the Equator? What is the difference between low pressure and high pressure? Air sinks at 30° north and south of the equator. Which two convection cells are involved? Air rises at 60° north and south of the equator. Which two convection cells are involved? What kind of weather is associated with sinking air at 30° north and south of the equator? What causes wind? What is the Coriolis effect? Which direction do winds bend in the northern hemisphere? What do ocean currents do? What is responsible for the movement of warm water from the Caribbean and keeps Western Europe warmer than it otherwise would be? 	<p>Quiz 2</p> <ol style="list-style-type: none"> State 3 greenhouse gases and give their chemical formula What physical changes to the atmosphere does the increase in greenhouse gases lead to? What was the Earth's climate like before the Quaternary period? What happened to global temperatures during the Quaternary period? What is the change in the Earth's orbit from circular to elliptical called? What is the change in the Earth's angle known as? What is 'wobble' of the Earth on its axis known as? What other natural causes of climate change are there? What evidence can humans use to show the Earth's climate has changed? What part did the Industrial Revolution play in changing Earth's climate?
<p>Quiz 3</p> <ol style="list-style-type: none"> What gas do rice paddies emit? How does deforestation change climate? Which mineral is most responsible for the increase in global temperatures since 1750? Which gas does waste landfill emit? How does population increase lead to an increase in global temperatures? How does electricity generation lead to changes in climate? What is the difference between renewable and non-renewable energy sources? How much have sea-levels risen since 1901? How does warmer oceans lead to flooding in coastal areas? What is ozone and why is it both a useful greenhouse gas and a harmful greenhouse gas? 	<p>Quiz 4</p> <ol style="list-style-type: none"> What is a 'hockey stick' graph? What is the IPCC? What is the ITCZ? What are the characteristics of a monsoon climate? Where are hot deserts located? Why are rainforests located where they are? What is the name given to the UK's climate? Why are few crops grown in north-west Scotland? Where are the trade winds? How did the trade winds lead to colonialism?
<p>Quiz 5</p> <ol style="list-style-type: none"> How will the UK's economy be affected by climate change? How will climate change affect people in the UK? What are climate models? Why is there a degree of uncertainty in the reliability of climate models? How can we manage climate change? What does mitigation mean? What does adaptation mean? How can we mitigate climate change? How does planting trees mitigate climate change? How does carbon capture and storage mitigate climate change? How can we adapt to climate change? How can we change agriculture patterns to avoid food shortages? 	<p>Quiz 6</p> <ol style="list-style-type: none"> What is the global distribution of tropical storms? What is needed for a tropical storm to form? How does a tropical storm form? What happens when a tropical storm approaches land? What are the features of a tropical storm? What are the conditions like in the eye of the storm? Why do tropical storms spin? What direction do tropical storms spin in? How is a tropical storm measured? How might climate affect the distribution of tropical storms? How might climate affect the frequency of tropical storms? How might climate affect the intensity of tropical storms?
<p>Quiz 7</p> <ol style="list-style-type: none"> What is an extreme weather event? What are the primary effects of a tropical storm? What are the secondary effects of a tropical storm? What are the intermediate (or short-term) responses to a tropical storm? What are the long-term responses to a tropical storm? How can the effects of tropical storms be reduced through monitoring and prediction? How can the effects of tropical storms be reduced through protection and planning? What is a storm surge? How can a tropical storm cause a landslide? What physical reasons make some places more vulnerable to tropical storms than others? What social reasons make some places more vulnerable to tropical storms than others? What economic reasons make some places more vulnerable to tropical storms than others? 	<p>Quiz 8</p> <ol style="list-style-type: none"> What is a drought? How has the pattern of drought changed over time? What is a meteorological drought? What is a hydrological drought? What is an agricultural drought? How can agriculture increase the risk of drought? How can dam-building increase the risk of drought? How can deforestation increase the risk of drought? What causes El Nino? What causes La Nina? How might El Nino cause drought? How might La Nina cause drought?