

Key Vocabulary...




Climate	Climate means the usual condition of the temperature, humidity, atmospheric pressure, wind, rainfall, and other meteorological elements in an area of the Earth's surface for a long time. In simple terms climate is the average condition for about thirty years.
Natural causes	These are natural occurring, NOT influenced by humans. For example, Orbital changes, Volcanic activity and Solar output
Human causes	These are causes influenced by human activity for example, Burning fossil fuels, deforestation, dumping waste in landfill and agriculture.
Impacts	Impacts can be social (people), economic (money or environmental). It is how climate change effects us and our surroundings
Sustainable management	Sustainable management means ensuring that it is a sustained in a way for future generations to use. Sustainable management also involves making sure local people are not disadvantaged, and ensuring that management is environmentally friendly.

Did you know..?

Methane is a greenhouse gas and it is produced by cows. In fact methane enters our atmosphere when a cow passes wind! Due to our growing population and more people than ever eating meat, we need more cows to feed everyone; therefore more methane in our atmosphere. Scientists believe by eating just one meat free meal a week can help reduce the effects of climate change on our planet!



Key summits...

Kyoto Protocol		The Kyoto Protocol was adopted on 11 December 1997. It is an international treaty among industrialized nations that sets mandatory limits on greenhouse gas emissions.
Doha Amendment		The Doha Amendment refers to the changes made to the Kyoto Protocol in 2012. The Amendment adds new emission reduction targets for Second Commitment Period (2012-2020) for participating countries.
Paris Agreement		The Paris Agreement is a pact within the United Nations Framework Convention on Climate Change (UNFCCC) between 197 countries that focuses widely on reducing greenhouse gases emissions, adapting to the impacts of climate change, and to provide financial assistance to developing countries affected by a changing climate.

Sea levels will rise...

According to an IPCC report, parts of London could be submerged if the sea levels rise by more than two metres. Coastal and low-lying areas will be the affected the most, meaning large areas of the North East could also disappear if ice caps melt.



Picture this...



Agriculture	
Deforestation	

The BIG questions..

1. Explain the social, economic and environmental impacts of climate change
2. Do you think climate change is a more natural or human cause? Discuss your answer

Deeper Learning...

Everywhere on Earth ice is changing. The famed snows of Kilimanjaro have melted more than 80 percent since 1912. Glaciers in the Garhwal Himalaya in India are retreating so fast that researchers believe that most central and eastern Himalayan glaciers could virtually disappear by 2035. Arctic sea ice has thinned significantly over the past half century, and its extent has declined by about 10 percent in the past 30 years. NASA's repeated laser altimeter readings show the edges of Greenland's ice sheet shrinking. Spring freshwater ice breakup in the Northern Hemisphere now occurs nine days earlier than it did 150 years ago, and autumn freeze-up ten days later. Thawing permafrost has caused the ground to subside more than 15 feet (4.6 meters) in parts of Alaska. From the Arctic to Peru, from Switzerland to the equatorial glaciers of Man Jaya in Indonesia, massive ice fields, monstrous glaciers, and sea ice are disappearing, fast.

Activity: You live on a coastal town effected by rising sea levels in the UK. Write a letter to your local MP informing them of the impacts (S,E,EN) and what management strategies they should put in place to help your community.

COP 26

For nearly three decades the UN has been bringing together almost every country on earth for global climate summits. In that time climate change has gone from being a fringe issue to a global priority. 2021 was the 26th annual summit – giving it the name COP26. With the UK as President, COP26 took place in Glasgow. In the run up to COP26 the UK worked with every nation to reach agreement on how to tackle climate change. World leaders arrived in Scotland, alongside tens of thousands of negotiators, government representatives, businesses and citizens for twelve days of talks. Not only was it a huge task, but it was also not just yet another international summit, with most experts believing that COP26 had a unique urgency.

The importance of the Paris Agreement

COP21 took place in Paris in 2015.

For the first time ever, something momentous happened: every country agreed to work together to limit global warming to well below 2 degrees and aim for 1.5 degrees, to adapt to the impacts of a changing climate and to make money available to deliver on these aims.

The Paris Agreement was born. The commitment to aim for 1.5 degrees is important because every fraction of a degree of warming will result in the loss of many more lives lost and livelihoods damaged.

Under the Paris Agreement, countries committed to bring forward national plans setting out how much they would reduce their emissions – known as Nationally Determined Contributions, or 'NDCs'.

They agreed that every five years they would come back with an updated plan that would reflect their highest possible ambition at that time.

Glasgow was the moment for countries to update their plans

The run up to the summit in Glasgow was the moment when countries updated their plans for reducing emissions.

But that's not all. The commitments laid out in Paris did not come close to limiting global warming to 1.5 degrees, and the window for achieving this is closing.

The decade out to 2030 will be crucial.



Task...

Define the sustainable.

Name the physical causes of climate change.

Explain the effects climate change is having on the UK.

Discuss the ways in which people could make their ways of living more sustainable.

Task...

1. What evidence is there to support the idea that climate change is caused by humans? How reliable is this?
2. Using the diagram below identify and state the advantages of using this as evidence for climate change?



Question: Choose **either** the risk of reduced water supply or rising sea level. For the issue chosen, evaluate examples of strategies used to manage them.

1. BUG the question by boxing the command word and underlining the content you need to write about.
2. List the key vocabulary you will use.
3. Create a plan of what you would write in each paragraph.
4. Practice writing your answer from memory.

Key Term	Definition
Development	Any improvement in the standard of living of people in a specific country. Social and economic indicators are used to measure a country's level of development.
Conflict	A state of disagreement caused by the perceived or actual opposition of needs, values and interests between people.
Tourism	An industry that drives people to travel for recreation and leisure. The growth of tourism has had an economic, environmental and social effect on many countries. Geography.
Drought	A drought is a period of time when an area or region experiences below-normal precipitation.
Biome	A biome is an area classified according to the species that live in that location.
Climate change	Long-term shifts in temperatures and weather patterns.



Who owns Antarctica?

People from all over the world undertake research in Antarctica, but Antarctica is not owned by any one nation. Antarctica is governed internationally through the Antarctic Treaty system. The Antarctic Treaty was signed in 1959 by 12 countries who had scientists in and around Antarctica at the time.



Who lives in Antarctica?

Halley Research Station is an internationally important platform for global earth, atmospheric and space weather observation in a climate sensitive zone. Built on a floating ice shelf in the Weddell Sea, Halley VI is the world's first re-locatable research facility. Temperatures at Halley rarely rise above 0°C although temperatures around -10°C are common on sunny summer days. Typical winter temperatures are below -20°C with extreme lows of around -55°C.

Positives of Tourism:

- Increase the appreciation of the nature in Antarctica
- Helps scientists to discover vital information about wildlife
- Preservation can be helped by having people there to protect the wildlife

Negatives of Tourism:

- Tourists need services to be provided for them such as toilets, equipment hire shops etc.. Which changes the use of the land from the natural environment to buildings
- Animals become stressed because of the crowds of people causing them to abandon eggs or their young
- Discharge of sewage into the sea and leaving rubbish behind
- Cruise ships have struck icebergs causing oil spills which damages the environment and poisons the wildlife

What is the future of Antarctica?

The vast ice sheets in Antarctica are set to undergo "rapid and unstoppable" melting in coming decades as a result of climate change. Worse: come 2060 a sudden jump in ice melt will raise sea levels precipitously worldwide, inundating low-lying coastal areas.

The Middle East...



The Middle East is a geographical and cultural region located primarily in western Asia, but also in parts of northern Africa and southeastern Europe. The western border of the Middle East is defined by the Mediterranean Sea, where Israel, Lebanon, and Syria rest opposite from Greece and Italy in Europe.

The climate of the Middle East is generally hot and arid (dry), however, snow and low temperatures are common in the mountains. Much of the Middle East is desert. Daytime temperatures can reach over 52°C! At night, the deserts cool quickly, sometimes to below 0°C.



The region of Middle East is one of the most vulnerable to climate change. The impacts include increase in drought conditions, aridity, heatwaves, sea level rise. If greenhouse gas emissions are not reduced, the region can become uninhabitable before the year 2100.

The Middle East is composed of people from many ethnicities, including Arabs, Persians, Turks, Kurds, and Armenians. The oil industry has helped the Middle East develop rapidly over recent decades. Qatar is one of the richest countries in the world according to GDP per capita.



Tasks...

Describe the location of the Middle East.

Describe the location of Antarctica.

Who lives in Antarctica and why?

Describe the climate in the Middle East.

Explain the impact of tourism on Antarctica.

How has oil impacted the development of the Middle East?

How will climate change impact Antarctica and the Middle East?

Question: For an Extreme Environment you have studied, assess whether the future of that Environment is sustainable. You should consider Social, Economic and Environmental impacts on them.

1. BUG the question by boxing the command word and underlining the content you need to write about.
2. List the key vocabulary you will use.
3. Create a plan of what you would write in each paragraph.
4. Practice writing your answer from memory.

Homework Task...

Create a A4 poster on the future of Antarctica.

Use prior knowledge of climate change and the COP26 to help.

What does the future hold for Antarctica? How will this impact people around the world?

Key Terms:

Ice Age - A time period when ice advances from the north and south poles towards the equator.

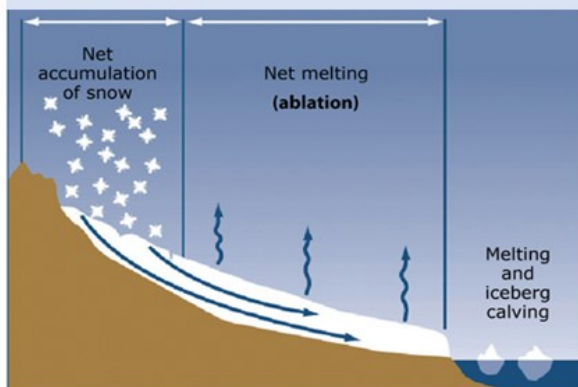
Ice Sheet - A large, expansive body of ice, 1-2 miles thick which covers a land surface, covering continental areas.

Glacier - A frozen land-based river like feature, flowing from the upland areas down towards the low-lying coastal areas.

Accumulation - the build up of snow in layers which is compressed into ice.

Ablation - the melting or breaking up of the ice.

Mass Balance



Mass balance is the difference between accumulation and ablation. If there is more accumulation than ablation the glacier advances. If there is more ablation than accumulation the glacier retreats.

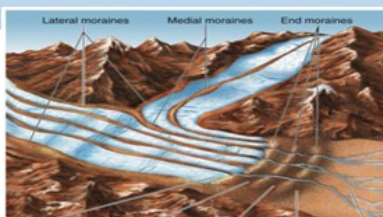


Glacial Landforms

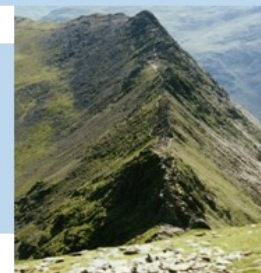


A **corrie** is an armchair-shaped hollow found on the side of a mountain. This is where a glacier forms. Plucking and abrasion deepen the corrie into a deep hollow with a higher rock lip at the front. When the glacier melts this lip traps the water and creates a lake called a **tarn**.

An **arête** is a knife-edge ridge. It is formed when two neighbouring corries run back to back. A **pyramidal peak** is formed where three or more corries and arêtes meet.



Moraines are accumulations of dirt and rocks that have fallen onto the glacier surface or have been pushed along by the glacier as it moves.

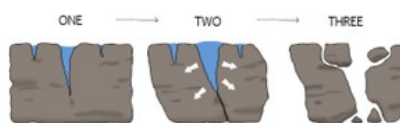
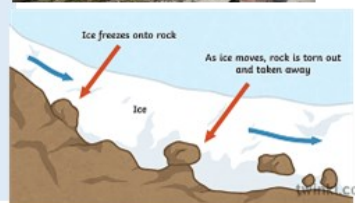


Glacial Erosion

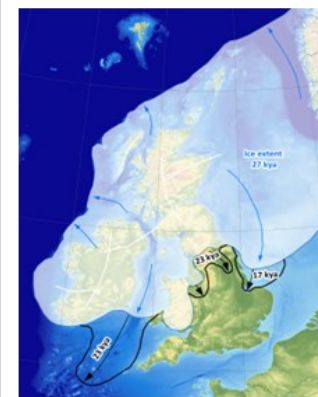
Abrasion - When the ice wears away the bedrock using the rock and pebbles being carried in the base of the glacier.

Plucking - When the base of glaciers freezes onto bedrock and pulls up large pieces of bedrock as it flows over the land surface.

Freeze-thaw weathering - The action of water flowing into cracks, freezing as ice and widening the cracks so much that rock breaks apart.



10, 000 years ago the UK was covered in Ice. This means a lot of our landscape has been shaped by glaciers. We can see corries, arêtes, tarns and moraines in the UK today despite there not being any glaciers now.



How is Climate change affecting glaciers around the world?



Global warming is resulting in glaciers melting all over the world. This is resulting in water shortages for those people who rely on melt water and is creating sea level rise.

Benefits of glaciated areas



Tourist Attractions - People visit these places to enjoy the beautiful landscape created by glaciation. This environment is popular with tourists because it provides opportunities for walking, cycling, sailing and kayaking.

Agriculture - Fertile soils of lowland areas provide good opportunities for arable and livestock farming. This also creates jobs and provides a boost for the economy. When glaciers melt in summer their meltwater flows into rivers and onto floodplains.



Hydro-electric Power - energy that uses the power of water to generate electricity. Glacial areas are perfect because

- Steep sided mountains
- Reliable meltwater in the spring and summer.

Drawbacks of living in glaciated areas

Flooding - When glaciers melt rapidly or a glacial lake floods it releases a huge volume of water. This can flood the valley below destroying homes, business and killing people.



Avalanches are masses of ice moving or falling downhill. They can destroy habitats, homes and kill people.

Lake District Case Study



15 million tourists visit the lake district every year.

People visit to walk, climb, swim and cycle in the glaciated landscape. This brings in money to the local economy however it results in congestion, littering and footpath erosion.

Tasks...

1. What was the extent of the ice in the UK during the last Ice Age?
2. Describe and explain the formation of a glacier.
3. What is mass balance?
4. How does a glacier erode the landscape?
5. Explain the formation of a corrie, arête and pyramidal peak.
6. Why is the soil fertile in glacial environments?
7. Explain how climate change is affecting glaciers and ice sheets around the world.
8. Why is it important as a geographer to understand glaciation?

Do you research..... Choose a named glacier and research what is happening to it, how it is changing and the impacts this is having on the surrounding area and people

Prepare for your extended write

Question: 'Evaluate the benefits and drawbacks of living in a glacial environment.'

1. BUG the question by boxing the command word and underlining the content you need to write about.
2. List the key vocabulary you will use.
3. Create a plan of what you would write in each paragraph.
4. Practice writing your answer from memory.

Homework Activity...

Write a newspaper article discussing the evidence of glaciers in the Lake District. Use google maps to help find more evidence.