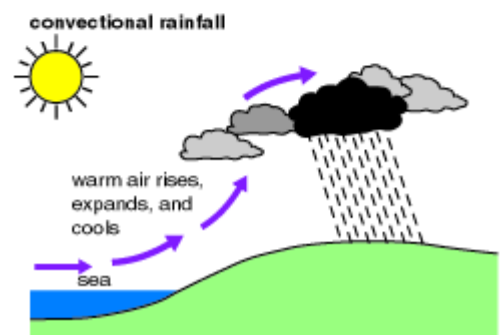
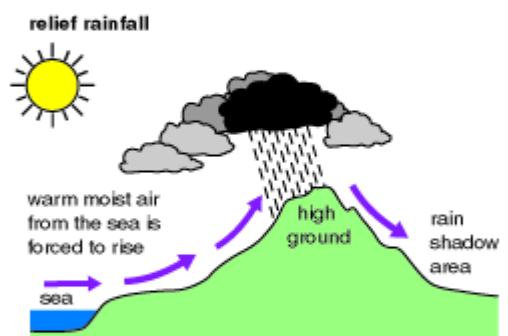
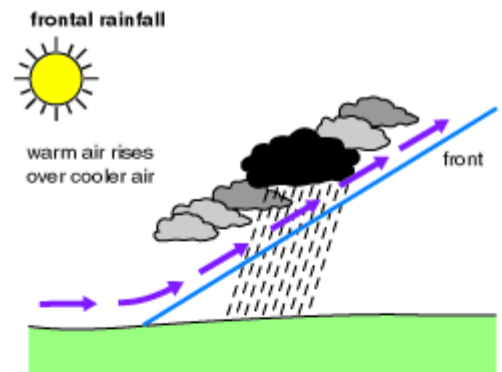


Year 8 Knowledge Organiser: Our Changing Climate

Weather	The day to day conditions of the atmosphere. Example: wind, rain, snow etc.
Climate	The changes of the atmospheric conditions on a long term scale. They are the average conditions over a number of years. Example: you go Spain in summer because you expect it to be hot.
Precipitation	Any moisture that falls to earth. Example: rain, snow, sleet, hail etc.
Meteorology	The scientific study of weather.
Anticyclone	A weather system that consists of high pressure which circulates slowly in a clockwise (northern hemisphere) or anticlockwise (southern hemisphere) direction. They are associated with calm, fine weather.
Depressions	These have 3 elements: a warm front; a warm sector and a cold front. A depression forms as a result of the warm air mixing and rising above surrounding cold air. This often leads to unsettled weather.

Measuring the weather	
Temperature	Maximum/minimum thermometer, measured in °C.
Sunshine	Campbell Stokes Sunshine Recorder, measured in hours.
Air pressure	Barometer, measured in millibars.
Wind speed	Anemometer, measured in knots.
Wind direction	Wind vane or wind sock, measured using compass directions.
Rainfall	Rain gauge, measured in mm.

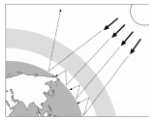


Current Weather	Sky Coverage	Symbols on a weather chart.
• Intermittent Rain	○ No Clouds	
•• Continuous Rain	○ Less than one-tenth or one tenth	
★★ Continuous Snow	○ ◐ Two-tenths or three-tenths	
” Continuous Drizzle	○ ◑ Four-tenths	
≡ Fog	○ ◒ Five-tenths	
⚡ Thunderstorm	○ ◓ Six-tenths	
⚡ Thunderstorm with Intermittent Rain	○ ◔ Seven-tenths or eight-tenths	
	○ ◕ Nine-tenths or overcast with openings	
	● Completely overcast	
	⊗ Sky obscured	

Climate change is causing the earth's temperature to rise.

The **greenhouse effect** is a natural function, but is affected by human activity.

1. The atmosphere allows heat from the sun to heat the earth



2. The earth gives off heat

3. The heat is trapped by greenhouse gases e.g. methane, CO₂ and nitrous oxide

Natural causes	Human causes
• Orbital changes—the Milankovitch cycles bring the earth closer or further from the sun.	• Burning fossil fuels e.g. gas, coal and oil which release carbon dioxide into the atmosphere
• Volcanic activity—during a volcanic eruption CO₂ is released into the atmosphere. It can also block the sun causing cooling.	• Deforestation—trees absorb carbon dioxide during photosynthesis, if they are cut down it releases CO₂ into the atmosphere
	• Dumping waste in landfill—when waste decomposes it produces methane
	• Agriculture—releases nitrogen oxide into the atmosphere

Evidence to show climate change

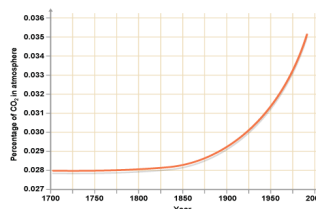
1. **Ice cores**—the snow traps air. The gas in the air reveal what the temperature was like
2. **Rising sea levels**—between 1901 and 2010 the sea rose by 0.19m
3. **Tree rings** - the wider the ring, the warmer and more rain there was that year



Impacts of climate change

Global positive impacts	Global negative impacts
• Energy consumption may decrease (because less need for heating) • Longer growing seasons for farming (agriculture) • Frozen regions such as Canada may be able to grow crops	• Sea level rise will affect 80 million people • Tropical storms will increase in strength • Diseases such as malaria increase, another 280 million people may be affected • Species in affected areas (e.g. Arctic) may become extinct

UK Positive impacts	UK negative impacts
• Crops such as oranges, grapes and peaches can be grown in the UK • Winter heating costs will be reduced • Accidents on roads in winter will be less likely	• Sea levels rise flooding low areas e.g. east England • Scottish ski resorts may have to close due to lack of snow • Drought and flooding becomes more likely as extreme weather increases • Water supplies under pressure as there is more need for water in hotter summers



The temperatures globally have begun to increase.

Always use data when you have a graph.

Climate change management

Mitigation is reducing or preventing the effects of something from happening. These strategies are:

- Alternative energy - solar, wind, tidal power reduces the use of fossil fuels, so less CO₂ is produced
- Carbon capture—storing waste gases deep underground
- Planting trees—encouraging **afforestation** reduces CO₂ levels in the atmosphere during photosynthesis
- International agreements - countries sign treaties e.g. the Kyoto Protocol in 2005 to reduce carbon emissions.

Adaptation strategies respond to the effects after they have happened

- Agriculture (farming) must adapt as some crops can't grow in water temperatures. But other crops can be grown e.g. oranges and grapes
- Water supply - water can be transported
- Reducing risk from sea level rise—using sea defences