



Year 8: Weather and Climate

| Vocabulary list | |
|------------------------|--|
| Weather | The day to day changes in the atmosphere. |
| Climate | The pattern of weather, usually based over 30 years. |
| Precipitation | Any water falling from the sky, e.g. rain or snow. |
| Temperature | How hot or cold something is. |
| Humidity | How much water vapour is in the air. |
| Atmosphere | The blanket of gas around the Earth. |
| Troposphere | The lowest region of the atmosphere. |
| Thermal | A rising column of warm air. |
| Convection | Heat Transfer through the air or water |
| Evaporation | The way liquid turns into a gas by heat |
| Condensation | The way gas turns into liquid by cooling |
| Water vapour | What water turns into when evaporated |
| Front | Boundary separating two air masses |
| Relief | How the land height changes |
| Air pressure | The amount of air pushing down on the land |
| Equator | 0 degrees latitude, where the sun is directly overhead |
| Solar energy | The power from the sun |
| Latitude | The way the earth is measured horizontally |
| Earth's tilt | The angle at which the earth sits in orbit |
| Prevailing wind | The direction the wind blows from the most often |
| Altitude | The height of the land |

Why is the equator hot?

The diagram shows two points, 'a' and 'b', on Earth's surface. At point 'a', which is at a higher latitude, the sun's rays are spread over a large area, and they have to travel through a longer distance of the atmosphere. At point 'b', which is at the equator, the sun's rays are concentrated on a small area, and they travel through a shorter distance of the atmosphere. This means more solar energy is absorbed at the equator, making it hotter.

- The Sun's rays are more focused on the equator so are hotter
- The Sun's rays have to travel further through the atmosphere near the poles, so more energy is absorbed by the air making it cooler.

Types of rainfall

Convictional rain

Sun heats the land and the air above | Warm air rises, cools and condenses, forming clouds | Rain can then occur

Relief rain

Warm, moist air is forced to rise over high areas | Air cools and condenses, forming clouds | It rains | Rain shadow | Air descends, warms and becomes drier

Frontal rain

Condensation forms clouds | Front | Warm air forced to rise over cold air | It rains heavily along the front

Air pressure

Cyclone

Low pressure (converging air)

Clouds form
Weather is unsettled

Anticyclone

High pressure (diverging air)

Clear skies
Settled weather
Warm in Summer
Cold in Winter

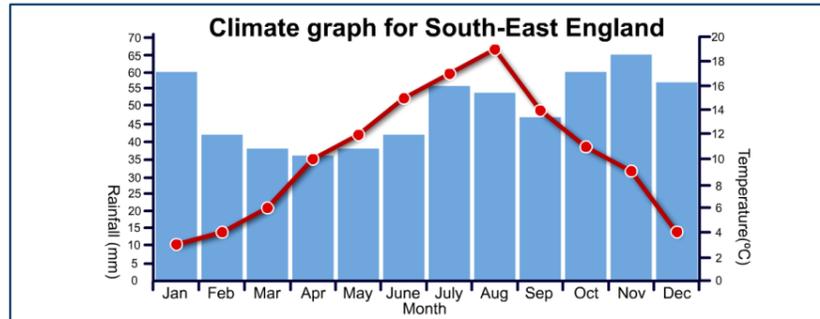
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| Type of Weather | Unit of measurement | Measurement instrument | Effects on people |
|-----------------|--------------------------------|------------------------|--|
| Precipitation | Millimetres (mm) | Rain Gauge | Flooding, Drought |
| Temperature | Degrees Celsius | Thermometer | Heat Stroke, Hypothermia |
| Humidity | Percentage (%) | Hygrometer | Sweaty, hot, overheated |
| Air Pressure | Millibars (mb) | Barometer | High = Calm Low = Stormy |
| Wind Speed | Knots (or kph), Beaufort scale | Anemometer | Hurricanes can destroy houses |
| Wind Direction | Compass Points (N, E, S, W) | Weather Vane | North wind = cold South wind = warm |
| Cloud Cover | Oktas | Okta Reader/naked eye | Overcast skies, sun exposure |



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Climate graphs



A climate graph shows the monthly average rainfall and temperature figures for a **certain location**. You **must** include a title that states the location.

| Factor affecting climate | How it works |
|---|---|
| Latitude | <ul style="list-style-type: none"> How far a place is from the equator See 'Why is the equator hot?' |
| Earth's tilt | <ul style="list-style-type: none"> The tilt gives the UK seasons When the northern hemisphere is tilted towards the Sun it is summer When the northern hemisphere is tilted away from the Sun it is winter |
| Distance from coast | <ul style="list-style-type: none"> The sea is cooler than land in summer so cools it The sea is warmer than land in winter so warms it |
| Prevailing wind direction | <ul style="list-style-type: none"> The direction that the wind blows most often In the UK it is from the south west This brings water vapour from the Atlantic Ocean and rain |
| Ocean currents | <ul style="list-style-type: none"> The North Atlantic Drift brings warm water to the west coast of the UK by warming the wind |
| Altitude | <ul style="list-style-type: none"> Height above sea level The higher a place is, the cooler it is |

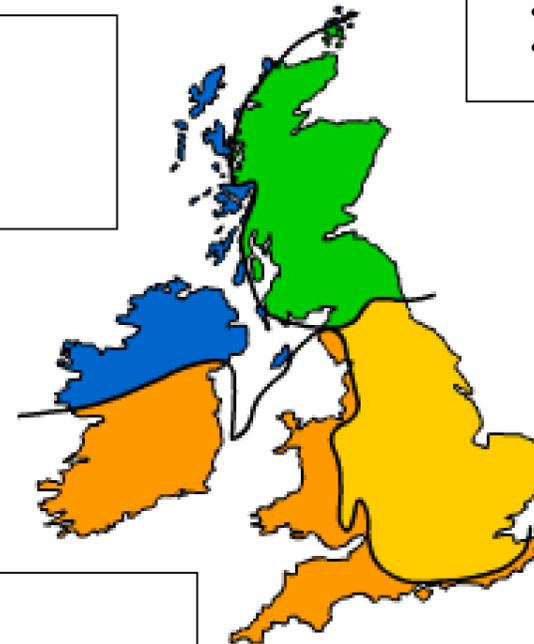


North west

- Cool summers
- Mild winters
- Heavy rain all year

North east

- Cool summers
- Cold winters with snow
- Some rain all year



North west

- Warm summers
- Mild winters
- Rain all year

South east

- Warm and sunny summers
- Cold winters
- Some rain all year