

Weather and Climate

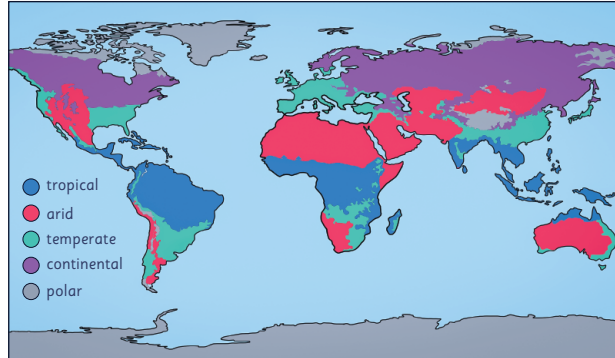
Year 4

Knowledge Organiser

Climate zones

These are some of the **main climate zones**:

- **tropical climate zone** – hot and wet all year
- **arid (desert) climate zone** – low rainfall and generally high temperatures
- **temperate climate zone** – generally warm summers and cool winters with moderate rainfall
- **continental climate zone** – generally cool summers and very cold winters
- **polar climate zone** – very cold temperatures all year

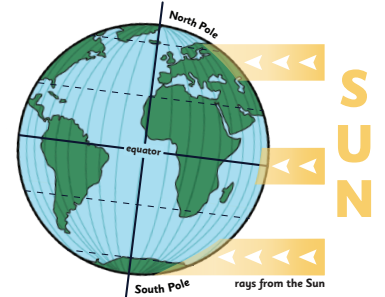


The UK has a temperate climate.

Why are there different climate zones?

The Earth is round and **tilted at an angle**, so the Sun's rays **don't fall evenly on the land and oceans**. Places on the equator are the **hottest places** on Earth. They are the **closest to the Sun** and get the most **direct sunshine**.

The Sun shines less directly on the **North and South Poles** because they are **further from the Sun**, so they are the **coldest places** on Earth.



What is the difference between weather and climate?

The climate is the **usual weather over a long period**.

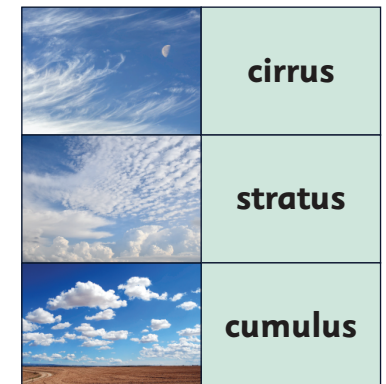
The weather is the **daily changes in the conditions outside**. The weather includes the **temperature, how strong the wind is, and whether it's raining, sunny, snowing, or foggy**. The weather **can change significantly**, often **different in different seasons and places worldwide**.

There are **different climates** in large areas of the world. These areas are called **climate zones**. Where a place is on the planet will affect its weather and climate.

Types of clouds

Observing the **shape and height of a cloud** can also provide information to meteorologists. Different kinds of clouds have **special names and occur only at certain heights**.

- **Cirrus clouds** are white, feathery, and the highest in the sky.
- **Stratus clouds** are like big grey blankets of clouds and are lower in the sky.
- **Cumulus clouds** are puffy and are the lowest in the sky.



Weather instrument placement



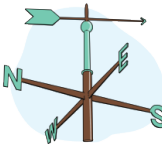
- Rain gauges should be placed in the open and not covered by a roof or branches
- Rain gauges should be placed in a cylinder or on a stake to stop them from falling over.



- Thermometers should be placed in a sheltered spot that is not in direct sunlight but not too shady
- Thermometers should be raised above the ground
- Thermometers should be placed in a secure place so that they do not get damaged
- Thermometers should be placed at the right height so you can read them.
- Thermometers should be placed in a natural area, like grass, rather than on concrete.

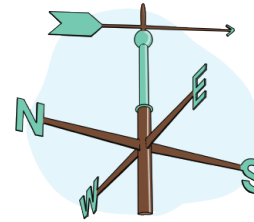


- Anemometers should be placed in an open area outside.
- Anemometers should be placed away from obstacles like trees or buildings that might block the wind.
- Anemometers should be placed securely so the anemometer does not move.

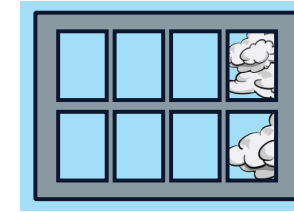


- Weathervanes should be placed away from trees, buildings, or anything that might block the wind.
- Weathervanes should be secured on a pole or a stand so that they can move freely.

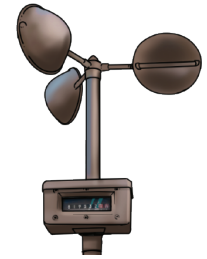
Measuring the weather



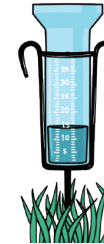
A **weathervane** measures **wind direction**.



An **okta card** measures **cloud cover**.



An **anemometer** measures **how fast the wind is blowing**.



A **rain gauge** measures **precipitation**.



A **thermometer** measures **temperature**.

How can we present our precipitation data?

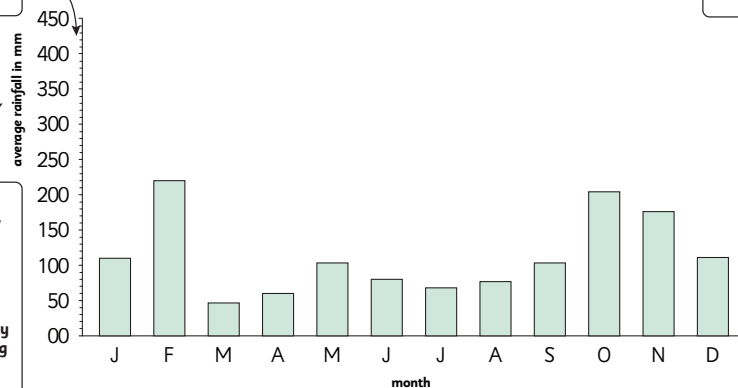
The numbers tell us how many mm of rain fell each month.

A bar chart to show the rainfall in 2022

The title tells us what information the bar graph is giving us.

This axis is labelled to show the unit of measurement (mm).

The unit of measurement may change depending on your equipment.



This axis is labelled with the months of the year.

When you analyse your findings, you:

- look carefully at all the data you have presented
- try to understand them
- identify and compare patterns and trends
- explain what you have learnt about the weather in your school grounds

