

Key Words

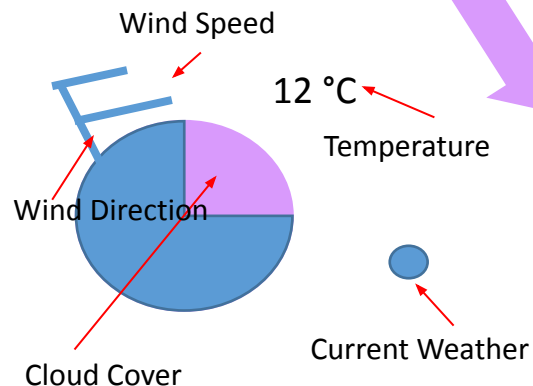
- **1 Weather** – The conditions of the Earth on a daily basis (e.g. is it raining? Snowing? Sunny? Hot?).
- **2 Climate** – State of the atmosphere over long periods of time (e.g. The North Pole has a cold, dry climate but the UK has a mild, wet climate).
- **3 Meteorology** – The study of the atmosphere/weather.
- **4 Temperature** – How hot or cold an area is.
- **5 Precipitation** – Any form of water e.g. Rain, sleet, snow, hail.
- **6 Clouds** – Millions of water and ice particles that are floating in the sky.
- **7 Air pressure** – The pressure that the air puts on the Earth's Surface
- **8 Wind** – Movement of air from high to low pressure.
- **9 Condensation** – Water vapour (gas) turns to liquid (rain).
- **10 Evaporation** – Water (liquid) turns to water vapour (gas) when the water is heated.
- **11 Air mass** – A large area of warm or cold air.
- **12 Front** – Boundary between a cold and warm air mass.
 - Warm Front – Area of warm air.
 - Cold Front – Area of cold air.
 - Occluded Front – Cold front catches up with a warm front which lifts the warm air above the Earth's surface.
- **13 Anticyclone** – High pressure system which forms stable conditions. The air is sinking, which forms warm and dry weather. Winds blow clockwise. Associated with frost and fog, thunder and cumulonimbus clouds.
- **14 Depression** – Low pressure system which forms unstable conditions. The air is rising, which forms wet, cloudy weather. Winds blow anticlockwise. Associated with dew on grass, stratocumulus clouds and light winds.
- **15 Isobars** – lines on a weather map that show the air pressure in an area.
- **16 Altitude** – Measure of the land's height above sea level. Every 100 m increase in height = - 1°C in temperature.

What is Weather and Climate



How to Measure Weather

- **17 Temperature** is measured by minimum/maximum thermometers. It is measured in degrees centigrade (°C).
- **18 Stevenson Screens** shade thermometers and filter the air through it, to measure the temperature in the shade.
- **19 Air Pressure** is measured by a barometer. It is measured in millibars.
- **20 Sunshine** is measured by Campbell Stokes Sunshine Recorder which was designed in 1879. A glass sphere concentrates the sun's rays onto a card. As the sun travels hourly, the sun's rays mark lines across the card.
- **21 Wind Speed and Direction** are measured by anemometers. The faster the wind is, the faster the cups on the anemometer spin. This is measured in knots. Wind roses record the wind direction.
- **22 Rainfall** is measured by a rain gauge which is a cup that is sunk into the ground. This is measured in millimetres.



These record weather data:

- Bouys
- Satellite
- Ground Stations
- Rigs
- Ships
- AMDAR

28 Conducting a Weather Enquiry

- 1) Prepare the investigation (e.g. pick a question).
- 2) Collect the data
- 3) Present your findings (e.g. graphs).
- 4) Analyse your results.
- 5) Write a conclusion.
- 6) Evaluate your work.

23 Rain Formation

- Air contains water vapour (warm air can hold more water vapour than cold air).
- Warm air rises -> warm air expands and cools -> As air cools, it can hold less water vapour -> When the temperature cools to dew point, condensation happens -> Water vapour condensates from a gas to a liquid -> the liquid forms a cloud -> droplets are held in the sky by warm rising air -> droplets join together and get bigger -> droplets are too heavy -> droplets fall to the ground as rain.

Types of Rain

24 Relief Rainfall – Mountains force air to rise, so air cools and condenses, which forms rain. On the other side of the mountain, the air sinks, so it can hold more water vapour.

25 Convective Rainfall – Ground is heated by the sun which causes moisture to evaporate and rise. Air rises fast which forms cumulonimbus clouds. Rising warm air push the water droplets high up. Sometimes the water droplets freeze and form hail. The large water droplets fall, causing heavy rain. Sometimes there is lightning.

26 Frontal Rainfall – A warm air mass meets a cold air mass. The warm air mass is less dense than the cold air mass, so it rises above the cold air mass. This forms a front. The warm, less dense air cools and condenses, which forms rain.

27 Elements of a Depression = Warm Front, Cold Front and Occluded Front.

29 UK Climate = Hot dry summers and cold wet winters.

30 Climate Zones

- Earth separated into climate zones.
- Tropical zones are hot as the sun is at a higher angle.
- High altitude places are usually cold climate zones.