

Elements of weather and climate

- a) **Temperature** is how hot or cold the atmosphere is, how many degrees **Celsius (centigrade)** it is above or below freezing (0°C). Temperature is a very important factor in determining the weather, because it influences or controls other elements of the weather, such as precipitation, humidity, clouds and atmospheric pressure.
- b) **Humidity** is the amount of water vapour in the atmosphere.
- c) **Precipitation** is the term given to moisture that falls from the air to the ground. Precipitation includes snow, hail, sleet, drizzle, fog, mist and rain.
- d) **Atmospheric pressure (or air pressure)** is the weight of air resting on the earth's surface. Pressure is shown on a weather map, often called a **synoptic map**, with lines called **isobars**.
- e) **Wind** is the movement of air masses from high pressure areas (highs) to low pressure areas (lows).

Measuring the weather

Weather stations are places where a variety of instruments are used to record regular data on the weather. The most important instruments used in a weather station are shown below.

- **Hygrometers** are special thermometers that measure **humidity** by calculating the amount of water vapour in the air.
- **Rain gauges** are containers that collect and measure rainfall or any other form of **precipitation**. Levels of rainfall are measured in millimetres (mm). Key-words: **rain**, storm, heavy rain, drizzle (=light rain), **snow**, sleet, hail.
- **Barometers** are used to measure **atmospheric pressure**. They may be either mercury or aneroid (vacuum) barometers. Often they are attached to a pen that charts movements in pressure on a piece of paper. The resulting chart is called a **barograph**. **State of sky**: Key-words: sunny, sunshine, cloudy, **overcast**, **clear sky**.
- **Maximum and minimum thermometers** measure the highest and lowest **temperature** in degrees celsius. From the lowest temperatures to the highest temperatures, you can use these adjectives: **freezing** (below 0°C)<**cold**<**cool**<**temperate**=mild<**warm**<**hot**.
- **Wind vanes** (as seen on the top of church spires) are used to show the direction of the **wind**. **Anemometers** are used to record the wind speed in km/h. An anemometer catches the wind in cups and calculates the wind speed based on how fast it rotates. From the gentle winds to the strongest winds you can distinguish: **calm**<**breeze** (=gentle wind)<**moderate wind**<**strong wind**<**gale**.

Measuring the weather	Definition	Instruments	Measure unit	Key - words	Picture
Precipitation					
Temperature					
Atmospheric pressure					
Wind					
Humidity					

Convertidor de grados Celsius a Fahrenheit:

http://www.edheads.org/activities/weather/temp_conv.htm

Vocabulary about the weather:

<http://www.edheads.org/activities/weather/glossary.htm>

Pequeñas animaciones en inglés de los tres tipos de lluvias:

<http://www.bbc.co.uk/schools/gcsebitesize/geography/weather/elementsofweatherrev6.shtml>

Paquete de actividades Jclíc sobre el tiempo atmosférico:

http://clic.xtec.net/db/act_es.jsp?id=1075

forecast:

<http://news.bbc.co.uk/cbbcnews/hi/weather/default.stm>

interactive weather:

<http://www.scholastic.com/kids/weather/>

dos divertidos juegos Report the Weather and Predict the Weather con audio en inglés:

<http://www.edheads.org/activities/weather/>

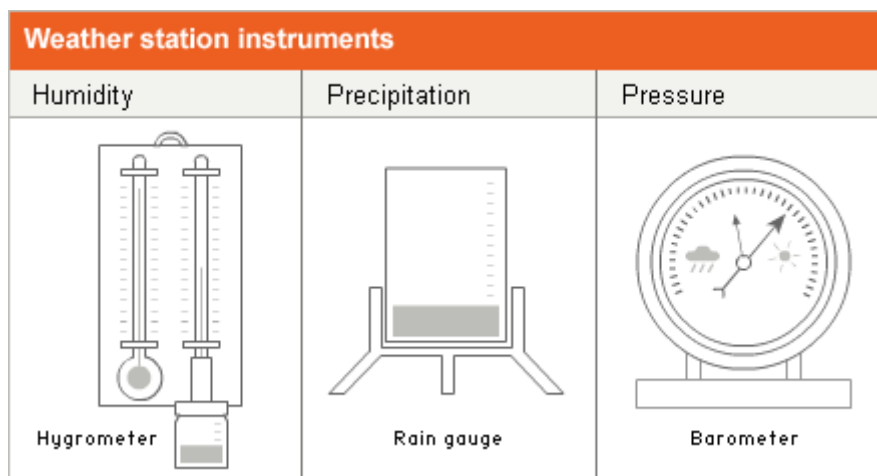
Do you know the difference between **weather** and **climate**?

Weather is the day to day condition of the atmosphere. This includes temperature, rainfall and wind.

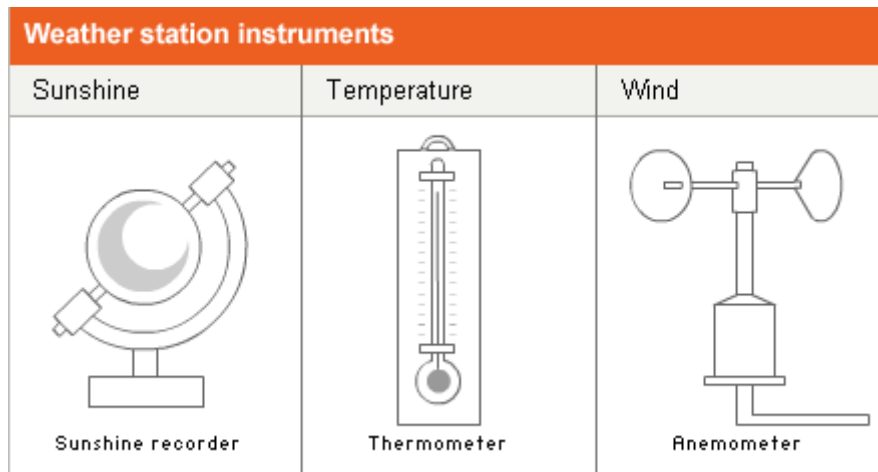
Climate is the average weather conditions of a place, usually measured over one year. This includes temperature and rainfall.

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- **Rain gauges** are containers that collect and measure rainfall or any other form of [precipitation](#). Levels of rainfall are measured in millimetres (mm).
- **Barometers** are used to measure [atmospheric pressure](#). They may be either mercury or aneroid (vacuum) barometers. Often they are attached to a pen that charts movements in pressure on a piece of paper. The resulting chart is called a **barograph**.



- **Sunshine recorders** are used to measure sunshine. The sun's rays are focused through a magnifying glass onto a chart. The chart has been treated so it won't catch fire, but will leave a burn mark to show for how many hours the sun shone.
- **Maximum and minimum thermometers** measure the highest and lowest temperature in degrees celsius.
- **Wind vanes** (as seen on the top of church spires) are used to show the direction of the wind. **Anemometers** are used to record the wind speed in km/h. An anemometer catches the wind in cups and calculates the wind speed based on how fast it rotates.

Experimenta con los instrumentos meteorológicos:

http://teacher.scholastic.com/activities/wwatch/gather_data/

Quiz about measuring the weather:

<http://www.bbc.co.uk/apps/ift/schools/gcsebitesize/geography/quizengine?quiz=mappingmeasuringtest&templateStyle=geography>

Hot potatoes de Pablo:

<http://www.ieslosremedios.org/~pablo/webpablo/web1eso/3atmosphere/Hotpotatoes/EmparejarAparatosMeteorologicos.htm>

<http://www.ieslosremedios.org/~pablo/webpablo/web1eso/3atmosphere/Hotpotatoes/EmparejarAparatosMeteorologicos.htm>

<http://www.ieslosremedios.org/~pablo/webpablo/web1eso/3atmosphere/Hotpotatoes/OrdenarTemperaturas.htm>

<http://www.ieslosremedios.org/~pablo/webpablo/web1eso/3atmosphere/Hotpotatoes/EmparejarEstadoCielo.htm>

<http://www.ieslosremedios.org/~pablo/webpablo/web1eso/3atmosphere/Hotpotatoes/QuizWeatherForecast.htm>

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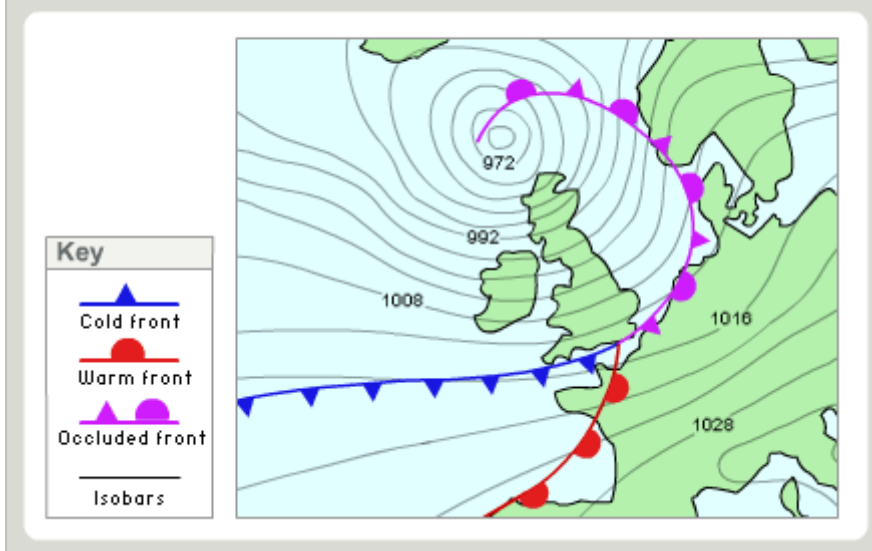
Weather is the atmospheric conditions here and now. **Climate** is an average of conditions in a particular place over time. You need to understand how weather conditions are affected by atmospheric temperature and humidity, time of day and year, local geography, and atmospheric pressure and wind.

You also need to know about cloud types, weather fronts, and global weather patterns.

1. [Weather and climate](#)
2. [Temperature, sunshine, time and geography](#)
3. [Humidity](#)
4. [Precipitation and the water cycle](#)
5. [Types of rainfall](#)
6. [Cloud types](#)
7. [Atmospheric pressure and wind](#)
8. [Fronts](#)
9. [Global weather patterns](#)

Atmospheric pressure (or air pressure) is the weight of air resting on the earth's surface. Pressure is shown on a weather map, often called a **synoptic map**, with lines called [isobars](#)

Isobars are lines on a weather map joining together places of equal [atmospheric pressure](#). On the map below the isobar marked 1004 represents an area of high pressure, while the isobar marked 976 represents an area of low pressure

Isobars show atmospheric pressure

Wind is the movement of [air masses](#) from high pressure areas (highs) to low pressure areas (lows). The effect of this movement of air is to rebalance the pressure in the atmosphere

Weather Find It! Quiz Name _____

Use the [Little Explorers](#) picture dictionary to answer the following questions.

1. This word starts with an "M." It is the word for a scientist who studies the weather. What is this word? _____
2. This word starts with an "R." It is the name of liquid water that falls from clouds. What is it called? _____
3. This word starts with an "S." It is fluffy frozen water that falls from clouds. What is it called? _____
4. This word starts with an "H." It is balls of ice that fall from clouds and hit the Earth. What is it called? _____
5. This word starts with an "H." It is a large, strong storm that has very high winds and a lot of rain. What is it called? _____
6. This word starts with a "C." It is the name of a storm in which rapidly-spinning air becomes very dangerous. What is it called? _____
7. These two words start with a "T." They are two more names for rapidly spinning air that is very dangerous. What are they? _____ and _____
8. This word starts with a "W." It is the word for air that blows around outside. What is it called? _____
9. This phrase starts with a "W." It is a device that is sent up into the air to measure information about the weather. What is it called? _____

10. This two-word phrase starts with a "W." It is a device that points the way the wind is blowing. What is it called? _____
11. This word starts with a "W." It is another device that points the way the wind is blowing. What is it called? _____
12. This phrase starts with a "D." It is a type of storm in which dirt and dust are blown across dry areas. What is it called? _____
13. This word starts with a "T." It is a type of storm that has strong winds, heavy rain, thunder, and lightning. What is it called? _____
14. This word starts with a "C." It is a visible white or gray mass that floats in the air and contains tiny water drops or ice particles. What is it called?

15. This phrase starts with an "A." It is a kind of polluted rain that damages the environment. What is it called? _____

Solutions:

1. meteorologist
2. rain
3. snow
4. hail
5. hurricane
6. cyclone
7. tornado and twister
8. wind
9. weather balloon
10. weather vane
11. windsock
12. dust storm
13. thunderstorm
14. cloud
15. acid rain