

# WEATHER GLOSSARY

COMPILED BY PAULA OWENS

Paula, with the help of the Met Office website, offers the meanings of words and phrases (some of which appear in this issue) to help you and your pupils to talk about the weather.

Use the glossary to create 'word' and 'description' cards and give them to pupils to create games and become familiar with the correct terminology to use in weather lessons (download the Word version). Challenge your pupils to discover other weather phenomena, for example, 'Where in the world do ice pancakes form?' and 'What kind of winds would we find in mountain ranges?', or to research what different acronyms mean (e.g. ENSO, ITCZ). As a homework task, pupils could compile a list of local words or phrases (see Gaelic words) that their family use to describe particular weather phenomena.

**Aerosols:** Tiny particles that remain floating around in the air.

**Air temperature:** A measure of how hot or cold the air is.

**Altitude:** Height as measured above sea level. Altitude affects the weather, because temperatures decrease with height as the air is less dense and does not hold heat as easily.

**Anemometer:** A device used to measure wind speed.

**Anticyclone:** A large-scale high-pressure system (or 'High') where the atmospheric pressure at the surface of the planet is greater than its surrounding environment. Anticyclones are associated with calm weather. High-pressure systems rotate clockwise in the northern Hemisphere and anti-clockwise in the southern Hemisphere.

**Atmosphere:** The mixture of gases that surround Earth and which have remained relatively stable for the last 200 million years. The atmosphere is divided into five layers (troposphere, stratosphere, mesosphere, thermosphere and exosphere) with most of the weather and clouds found in the troposphere, the lowest layer.

**Atmospheric gases:** The gases that make up Earth's atmosphere. The main ones are Nitrogen (78%) and Oxygen (21%). The remaining 1% is made up of 0.9% Argon and 0.04% Carbon dioxide, plus trace amounts of Neon, Helium, Methane, Krypton, Hydrogen and water vapour.

**Atmospheric pressure:** A measure of the 'weight' of air pressing down on Earth's surface. Where air is rising we see lower pressure at Earth's surface and where it is sinking we see higher pressure.

**Barometer:** A device used to measure atmospheric pressure, which also indicates other changes in the weather.

**Beaufort Scale:** A measure to classify the strength and intensity of the wind. Download the history and full description of the Beaufort Scale at: [www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/b/7/fact\\_sheet\\_no.\\_6.pdf](http://www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/b/7/fact_sheet_no._6.pdf)

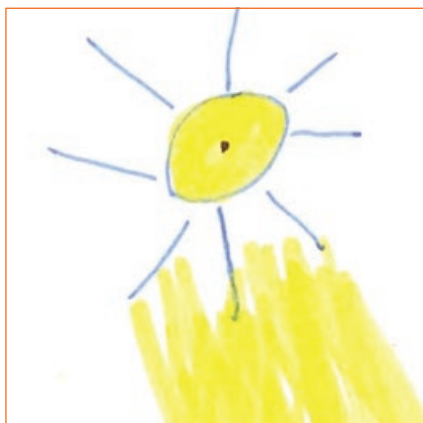
**Biome:** A community of living things in a large ecological area that share similar characteristics and climatic influences (e.g. a desert).

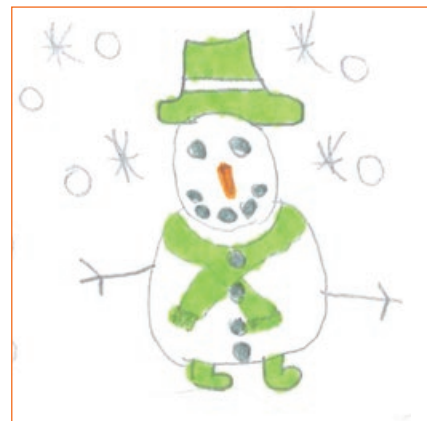
**Biosphere:** The part of Earth made up of living organisms (animals and plants), whether in the atmosphere, the ocean or on land

**Black ice:** A thin coating of ice that forms when supercooled drizzle or rain hits a cold surface or when non-supercooled liquid comes into contact with a surface that is well below 0°C. When black ice forms on roads or paths the colour of the surface beneath it is visible.

**Blizzard:** Occurs when moderate or heavy snow is falling, there are wind speeds of 48kph (30mph) or more and visibility is 200m or less.

**Climate:** The long-term weather patterns of a region or different regions. Climate is measured in terms of average seasonal precipitation (rain or snow fall), maximum and minimum temperatures, hours of sunshine, levels of humidity and the frequency of extreme weather events over a given period (the World Meteorological Organisation standard is a 30-year average).





**Climate change:** A large-scale, long-term, shift in the global mean and variable climate for an extended period of decades or more.

**Cloud:** These form when tiny drops of water or ice crystals settle on particles (aerosols) in the atmosphere. The droplets are so small (have a diameter of one-hundredth of a millimetre) that each cubic metre of cloud will contain 100 million droplets. There are many different types of cloud (including cumulonimbus, cirrus and altocumulus) and even a Cloud Appreciation Society. View the cloud-spotting guide at: [www.metoffice.gov.uk/learning/clouds/cloud-spotting-guide](http://www.metoffice.gov.uk/learning/clouds/cloud-spotting-guide) or download the cloud fact file at: [www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/library/factsheets/fact\\_sheet\\_no.\\_1\\_clouds.compressed.pdf](http://www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/library/factsheets/fact_sheet_no._1_clouds.compressed.pdf)

**Carbon dioxide (CO<sub>2</sub>):** This naturally-occurring gas found in Earth's atmosphere is also a by-product of human activity (such as burning fossil fuels). CO<sub>2</sub> is the principal anthropogenic (caused by humans) greenhouse gas.

**Condensation:** When water vapour comes into contact with a surface that is at or below the dew-point, it turns back into liquid (also known as dew).

**Cumulonimbus:** A heavy, dense cloud that can grow very tall – often with an anvil-shaped plume – and is associated with rain, thunder and lightning. It is the only cloud type to produce hail.

**Cyclone:** A large-scale air mass that rotates inwards around a strong centre of low atmospheric pressure.

**Desert:** Any area, cold or hot, that receives less than 250mm of rainfall a year.

**Dew point:** The temperature at which the air, when cooled, will become saturated.

**Drizzle:** Rain that is smaller than 0.5mm in diameter, usually falling at rates of 2mm per day or less.

**El Niño:** A large-scale weather phenomenon associated with unusually warm water. El Niño events occasionally form across much of the tropical eastern and central Pacific Ocean every few years as part of a naturally occurring cycle. Both El Niño and La Niña events are accompanied by major changes in the winds and pressure patterns across the tropical Pacific.

**Enhanced global warming:** Occurs when the greenhouse gases released into the atmosphere from human activity trap more heat, causing global temperatures to rise, which results in rapid climate change.

**Equatorial climate:** Describes a region that experiences hot average yearly temperatures and high monthly precipitation.

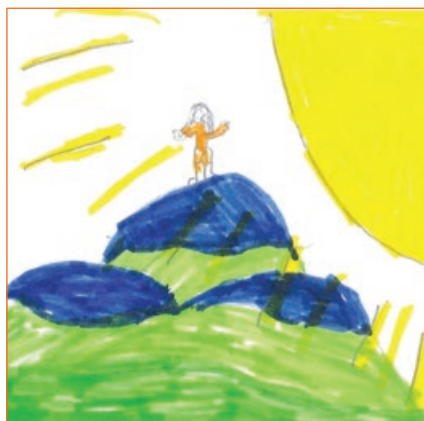
**Extreme weather events:** Weather that is unusual, unpredictable, unexpected, unseasonal or severe compared with what has occurred in the past or is found in historical records.

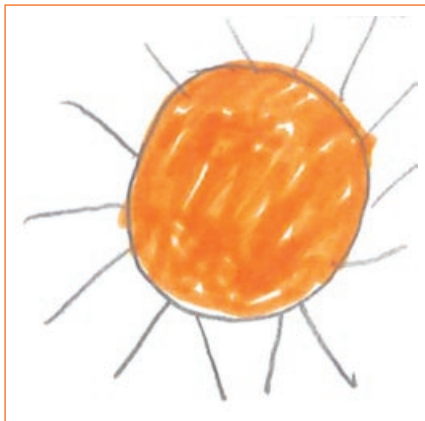
**Flash flood:** These occur when rain falls and/or snow melts so fast that the underlying ground becomes saturated and the water cannot drain away fast enough.

**Flood:** A huge amount of water, submerging a usually dry area.

**Fog:** Caused by tiny water droplets suspended in the air. Fog is basically a cloud at ground level that reduces visibility to less than 1000m.

**Freezing rain:** When rain droplets fall through air with a temperature below 0°C and then freeze (form ice) on impact with the ground.





**Frost:** Occurs when cool air causes water vapour in the air to condense and form droplets on surfaces with a temperature below 0°C. When the moisture freezes into ice crystals, this is known as the 'frost point'.

**Global warming:** While this is a natural process that makes Earth just the right temperature for life (as we know it) to exist, enhanced global warming is the acceleration of this process due to human activity.

**Greenhouse effect:** Most infra-red radiation given off by Earth escapes out into space, which has a cooling effect on the planet. However, some heat is trapped by gases in Earth's atmosphere, resulting in a warming effect across the globe.

**Greenhouse gases:** Gases (e.g. CO<sub>2</sub>, methane, nitrous oxide) in the atmosphere that absorb the thermal infra-red radiation emitted by Earth's surface, the troposphere and clouds.

**Gulf stream:** A warm current that originates in the Gulf of Mexico and (together with the North Atlantic Drift) crosses the Atlantic Ocean. It transports heat from low to high latitudes and keeps northwest European winter temperatures higher than they would otherwise be.



**Hail:** A form of precipitation falling as round or irregularly-shaped pieces of ice (known as hailstones) that start as small ice particles or frozen raindrops. These particles get caught inside Cumulonimbus clouds, circulate and grow bigger until the cloud can no longer support their weight, so they fall to Earth.

**Heatwave:** An extended period of very hot weather relative to the expected conditions of the area at that time of year.

**Humidity:** The amount of water vapour in the air.

**Hurricane:** Tropical storms over the Atlantic and northeast Pacific become known as hurricanes when winds reach 119kph (74mph).

**Jet stream:** These ribbons of very strong winds, found 9-16km above Earth's surface, can reach speeds of 322kph (200mph) and move weather systems around the globe.

**La Niña:** This large-scale weather phenomenon is characterised by colder than usual surface ocean temperatures circulating in the tropical East Pacific.

**Lightning:** A giant spark of electrical energy within or between clouds or between a cloud and the ground.



**Met Mark:** An award from the Royal Meteorological Society and Met Office to recognise excellence in weather teaching.

**Microclimate:** The distinctive climate of a small urban or rural area, such as a garden, park or valley.

**Mist:** A suspension of water droplets in the air resulting in a visibility greater than 1000m.

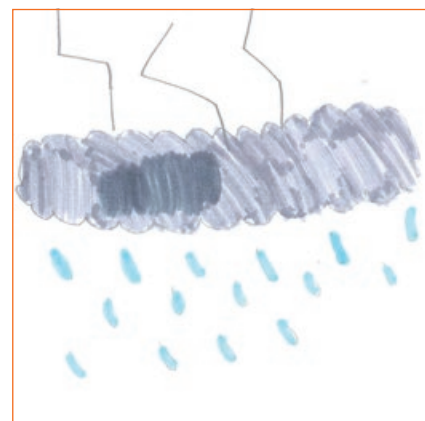
**Monsoon:** A seasonal change from dry to wet associated with the onset of heavy rains, usually in South East Asia.

**Northern lights:** Light displays (also known as Aurora Borealis) produced by the collision of charged solar particles (emitted from the Sun) as they interact with Earth's magnetic field in the North Polar region.

**Okta grid:** A grid that is used to estimate cloud cover.

**Precipitation:** Any form of water (liquid or solid) falling from the sky. This includes rain, sleet, snow, hail, drizzle and freezing rain.

**Rain:** A form of precipitation that occurs when the water in the air condenses. Warm air can hold more water than cool air, so when warmer air is cooled the moisture condenses to liquid and it rains.





**Rainbow:** An arc-shaped band of coloured light caused by the refraction, reflection and dispersion of sunlight in water droplets.

**Sleet:** Raindrops that have frozen before they hit the ground (or us!) Usually occurs with freezing rain.

**Snow:** A solid precipitation of tiny ice crystals at temperatures well below 0°C, but as larger snowflakes at temperatures near 0°C.

**Snowflake:** Occur when tiny droplets of super-cooled water freeze in the sky to create an ice crystal. When the air temperature is near 0°C these ice crystals clump together to form snowflakes. Snowflakes (see [www.metoffice.gov.uk/learning/snow/snowflake](http://www.metoffice.gov.uk/learning/snow/snowflake)) have six sides or points because of the way they grow: as they float around in the air, the ice crystals join together in the most efficient way: as hexagonal structures.

**Storm:** A violent disturbance of the atmosphere with strong winds (typically 88–119kph or 55–72mph), thunder and rain.

**Sunshine:** Energy from the sun (solar radiation) falling on Earth. Levels of sunshine are measured in different ways. Read about them at [www.metoffice.gov.uk/guide/weather/observations-guide/how-we-measure-sunshine](http://www.metoffice.gov.uk/guide/weather/observations-guide/how-we-measure-sunshine)

**Thermometer:** A device used to measure temperatures.

**Thunder:** A sound that occurs with lightning. A lightning strike heats the air to temperatures of up to 30,000°C almost instantly, causing the air to expand into the cooler air surrounding it. We hear the resulting shockwave as a thunderclap.

**Tornado:** A rapidly rotating column of air, formed in unsettled weather, which reaches between the base of a storm cloud and Earth's surface.

**Trade winds:** The prevailing pattern of easterly surface winds found in the tropics.

**Tropical cyclone:** A large-scale low-pressure system over tropical or sub-tropical waters, with winds at low levels, which can cause immense damage to people and property. Tropical cyclones circulate anti-clockwise in the northern hemisphere and clockwise in the southern hemisphere.

#### United Nations Framework

##### Convention on Climate Change:

In 1992, countries around the world accepted this framework for international co-operation in combatting climate change. The aim of the UNFCCC is to limit average global temperature increases (and the resulting climate

change) and cope with the impacts that were, by 1992, inevitable. There are now 197 Parties to the Convention and 192 Parties to the Kyoto Protocol. Find out more at <http://unfccc.int/2860.php>

**Water vapour:** Tiny gaseous particles of water in the air that we cannot see.

**Weather:** Daily elements of the atmosphere such as temperature, wind and rain, which can change hour by hour.

**Weather front:** The boundary between two bodies of air with different temperature and humidity, e.g. between warm moist air and cooler drier air.

#### Weather Observation Website:

An online platform for the sharing of current weather observations. WOW Schools is a project to help inspire and educate a new generation of scientists through supported use of weather recording and observation <http://wow.metoffice.gov.uk>.

**Weather report:** A snapshot of the climate at a given time and place.

**Weather vane:** A device used to measure the direction of the wind.

**Wind:** Is the movement of air caused by differences in air pressure. Air tends to move from areas of high pressure to ones of low pressure. Wind direction always describes the point on the compass scale a wind is blowing from. Winds can be gentle (breeze) or very violent (tornado) – see Beaufort Scale. Different types of wind are related to the topography (land shapes) they flow over (e.g. Anabatic), the areas they flow from (e.g. Trade Winds) or the effect they have (e.g. Föhn effect). Find out more at [www.metoffice.gov.uk/learning/wind](http://www.metoffice.gov.uk/learning/wind)

### Gaelic weather words

There may be weather words that are unique to your local area. The following Gaelic words and phrases were supplied by Anne Graham, Head teacher of Sgoil Bhaile a' Mhanaich, Isle of Benbecula, Western Isles, Scotland.

#### Bad weather words

aognaidh – bad outlook  
grod – horrible or rotten day  
gruamach – bleak, gloomy  
mosach – wretched  
sgrathail – horrible  
sgriosail – awful  
uabhasach – terrible

#### Rain

an dearrsach – soaking rain  
an t-uisge – rain  
bog fluich – very wet  
boinealaich – drops of rain  
dile uisge – heavy rain  
fluich – wet  
frasan – showers  
frasach – showery  
meall – shower  
meallach – showery

#### Snow/hail/fog

ceò – fog/mist  
ceòthach – foggy/misty  
clachan-mheallain – hailstones  
sgòthach – cloudy

#### Storm

dealanach – lightning  
tárneanaich – thunder

#### Sun

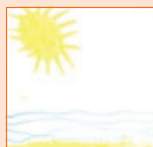
breagha – nice (day)  
grianach – sunny  
snog – nice (day)  
tioram – dry (day)

#### Temperature

blàth – warm  
fuar – cold  
reòite – freezing  
teth – hot

#### Wind

fiadhaich – rough/wild  
gaoth – wind  
garbh – windy  
gèile – gale  
stoirm – storm



### Acknowledgements

Thanks to the UK Meteorological Office for guidance; their website (see web panel) provided much of the information for the definitions. Thanks also to Margaret Mackintosh for liaising with Anne Graham on the Gaelic words, and to pupils at Marpool Primary School, Exmouth, for their lovely drawings.



#### WEB RESOURCES

Download a Word version of this glossary: [www.geography.org.uk/pg](http://www.geography.org.uk/pg)  
Met Office: [www.metoffice.gov.uk](http://www.metoffice.gov.uk)