

Weather for Kids



where we hope you learn about the fascinating weather that affects us day to day.
This is a great learning resource for parents and teachers.

CLOUDS

What Makes Clouds?



Clouds are made by a system of *evaporation* and *condensation*.

In the air there is a certain amount of water *vapour*, which you cannot see. When water in a kettle boils it begins to *evaporate*, which means the turns into steam and is absorbed into the air.

If you hold a cold plate above the steam as it is coming out of the kettle, steam *condenses* and turns back into water.

This process of *evaporation* and *condensation* is behind the story of how clouds are made.

Our atmosphere, the air which we breathe, is warmest when it is closest to earth. The higher you go, the colder the atmosphere becomes.

As the water vapour in the warmer air close to the earth rises, it meets colder air. The vapour now condenses and turns into tiny drops of water or ice.

These drops do not fall back down because the constant push upwards of warmer currents keeps them up.

These warmer currents of air pushing up from the earth explains why some birds can float in the sky without beating their wings. You also have watched a glider sailing through the sky without an engine, supported on the currents of air coming from below.

The small drops of water and ice join together to form clouds.

The clouds look white because of the sunlight from above reflecting from them. If the cloud is very thick and heavy, the sunlight is scattered from above and the clouds look grey or black.



Types of Cloud

Clouds are divided into three or four main types (scientists do not always agree).

Cirrus, the highest of the cloud family

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Stratus, the lowest of the cloud family

Nimbus are clouds that bring us rain and snow. The word *nimbus* is added to the other cloud types. Nimbus, which simply means rain-bearing, is added to the other cloud names. When we see a cumulonimbus cloud, for example, we know there will be a thunderstorm or heavy rain.

Meteorologists (scientists who study the weather) divide these into several more cloud formations, such as cirrocumulus (a mixture of cirrus and cumulus) or altocumulus (high cumulus) or stratocumulus (a mixture of stratus and cumulus).

For now, we shall just try to learn how to identify the main types.



Cirrus Clouds



Cirrus clouds form the highest cloud layer.

They are made of particles of frozen vapour (little drops of ice).

They are thin, wispy clouds and are sometimes known as 'mares tails'.

If the ends of the cirrus clouds are bent backwards, as in the picture, this is a sign that the wind is about to change to that direction.



Cumulus Clouds

Cumulus are the clouds that we see in fairy-tales. They are white, puffy clouds, like cottonwool.

Cumulus clouds mean either good weather or showery weather, such as we often have in April.



This photograph shows a good weather cumulus cloud. The sky is blue and the clouds do not threaten rain.



In the photograph above, however, the cumulus clouds have become thicker and are rising like huge puffs of smoke from the cloud base. You should be ready to shelter from a heavy shower!

Stratus Clouds



Stratus clouds are much closer to the ground than cirrus or cumulus.

Stratus clouds are dark grey or black and

They mean rain!

Stratus often form around the tops of hills.

The atmosphere under a sheet of stratus clouds is often very clear and distant objects such as hills 10 miles away or ships out at sea look much closer.



Nimbus Clouds



Nimbus is definitely a rain or snow cloud.

A cumulonimbus cloud is a mixture of cumulus clouds and nimbus clouds. It is a sign that a thunderstorm is approaching.



Clouds on other planets

On the planet Earth our clouds are made of water and frozen water.

Mercury has almost no atmosphere and therefore no clouds.

We cannot see the surface of the planet Venus. It is covered with clouds of carbon dioxide (the gas you breathe out).

The atmosphere on Mars is too thin to form clouds.

Jupiter, Saturn, Uranus and Neptune have clouds of hydrogen, helium and frozen ammonia.

The planet Pluto is probably made of frozen nitrogen. It is too far away for scientists to know if there are also frozen clouds.



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