

Clouds

What are clouds?

Clouds are made of drops of water or ice crystals that form around tiny particles in the atmosphere.

How do clouds form?

For a cloud to form, moist air must cool down so that the water vapour starts to turn from gas to liquid – a process called condensation. One way to cool air is to force it to rise. As it goes up, the air expands. This is because atmospheric pressure decreases the higher you go, so the air can take up more room. As the air expands, it cools and clouds can start to form.

Cloud names and classifications

Clouds are continually changing and appear in an infinite variety of forms. We define three levels of cloud – low, medium and high – according to the part of the atmosphere in which they are usually found.

JET STREAMS

Narrow bands of high wind (up to 275 mph)



Airliner cruising altitude

IT'S A FACT!

Contrails, vapour and dust trails left by aircraft, can sometimes help form cirrus clouds.

'DEATH ZONE'

Above this line, air contains insufficient oxygen to support human life.

-  Highest flying birds (Ruppell's Vulture and the Bar-headed Goose)
- 9000m
- MOUNT EVEREST 8848 m
- K2 8611 m

7500m

Cirrus

Short, detached, hair-like clouds found at high altitudes. These delicate clouds are wispy with a silky sheen and can indicate a change in the weather.

IT'S A FACT!

Cloud droplets are so small – a diameter of about a hundredth of a millimetre – that each cubic metre of air will contain **100 million droplets**.

Cirrocumulus

Made up of lots of small white clouds – called cloudlets – grouped together at high levels. Composed almost entirely from ice crystals, the little cloudlets are regularly spaced, often arranged as ripples in the sky.

HIGH LEVEL CLOUDS

6000 m

- KILIMANJARO 5893 m

Cirrostratus

4500 m

Nimbostratus

Dark grey or bluish grey featureless layers of clouds, thick enough to block out the sun. These mid-level clouds are associated with continuous heavy rain or snow and cover most of the sky.

Altostratus

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50% of the mass of the atmosphere is below 5,500 m.

MEDIUM LEVEL CLOUDS

3000 m

What can force air to rise up?

Stratocumulus

1.

When air hits a mountain, it has to rise up to get over it.



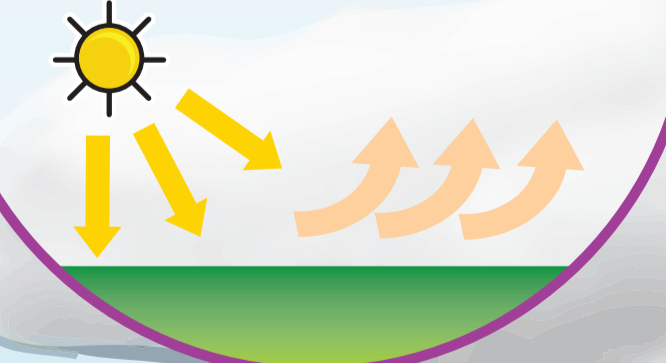
2.

When two large masses of air meet, the colder one pushes under the warmer one, making the warm air rise.



3.

When sunlight warms the ground's surface, the air just above the surface also warms and can start to rise.



Cumulonimbus

Commonly known as a thundercloud, the base of a cumulonimbus is often flat and very dark, and may only be a couple of hundred metres above the Earth's surface. However, the top of the cloud can extend high into the sky, forming towers or the classic 'anvil' shape. Cumulonimbus clouds are often associated with extreme weather such as hail storms, lightning and tornados.

LOW LEVEL CLOUDS

1500 m Cumulus

Stratus

World's tallest building – Burj Khalifa – 828 m

Clock Tower of the Palace of Westminster – 96 m