

Cloud in a Jar

Life exists on Earth partly due to our atmosphere. Our atmosphere is made of up of water vapour and different gases. The atmosphere protects us from harmful radiation that comes from the sun, is important for the long-term affect of the climate, and is responsible for much of the Earth's weather. It is the air that living things breathe to live.

What you will need:

- A glass jar with a lid
- Boiling water
- Ice cubes
- Hair spray



Procedure:

- Fill your glass jar about one third of the way with boiling water. Give the jar a swirl to warm up the sides.
- Turn your metal lid upside down and place ice cubes on the top. Leave these here for about 30 seconds. Remove the lid.
- Spray some hairspray into the jar and quickly put the lid with the ice cubes back onto the top of the jar.
- Observe what happens.
- When there is a lot of condensation formed you can remove the lid and allow the cloud to escape.

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How does it work?

The hot water produces water vapour (at home you will see steam or water vapour rising off a cup of tea or coffee or when you boil water in a saucepan on the stove). In this experiment, the water vapour rises to the top of the jar where it comes into contact with the cold lid (thank you ice cubes).

When water vapour cools down, it condenses (it wants to change from a gas/vapour into a liquid). For a cloud to form the water vapour needs to condense onto something. In nature, water vapour may condense onto dust particles in the air, pollen from plants, air pollution, volcanic ash, and even bacteria. By spraying hairspray into the jar, we have given the water vapour tiny particles to condense onto. This enables us to see the cloud form in our jar.

Other ideas:

- **Find out what other gases make up our atmosphere**
- **Research the Water Cycle**
- **Look into finding out more about the 'States of Matter' - liquids, solids and gases**