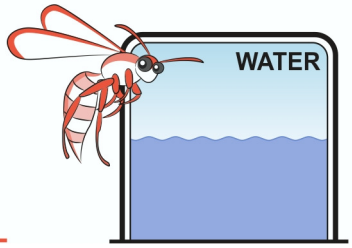
Clouds – Teacher Demonstration



Clouds are water vapour in the atmosphere. For clouds to form there must be three factors:

1. **Water vapour**
2. **Dust or salt** to provide an active surface for water vapour to condense into a liquid
3. **A chill or decrease in pressure**. The chill and decrease in pressure can be the result of air rising to go over mountains or a weather front.

Materials needed

- A two litre clear plastic cool drink bottle with lid
- A little methylated spirits or ethanol
- Hot water
- A match

Method

1. Swirl a little methylated spirits or any other alcohol round the inside of the bottle and empty out.
2. Pour about a glass of hot water into the bottle and screw the lid on.
3. Give it a good shake.
4. Squeeze and release the bottle. Nothing will happen.
5. Unscrew the lid, light the match, blow it out and drop the smoking match into the bottle.
6. Rapidly screw the lid tightly onto the bottle and squeeze. Nothing will happen but when you release the pressure a cloud will condense and appear.
7. If you squeeze again the cloud will disappear.

Explanation

The release of pressure will lower the heat (kinetic energy) of the molecules. Water vapour will become liquid water drops.
Smoke from the burnt match will provide active surfaces for water to condense on. Water vapour will condense into a cloud.

I had to practise this several times at home before demonstrating this in the classroom.