

Evaporation Experiments

Experiment With Covered and Uncovered Jars

Fill two identical jars with water. Leaving one of the jars uncovered, cover the other one with an improvised aluminum foil lid. Make the lid as secure as possible. Then, take the jars outside and place them both in an equally sunny spot. Draw a picture of the jars, noting the current water levels. Return to the experiment every day for the next week to observe and draw the current state of the water jars. You will observe that the water in the uncovered jar “disappears” more every day, while the water in the covered jar evaporates at a much slower rate because the evaporation process gets blocked by the aluminum foil.

Experiment With Sun and Shade

After filling up two identical bowls with water, take them outside and locate a spot where direct sunlight and shadow stand side by side. Place one water bowl in the direct sunlight, and the other beside it in the shade. Observe both bowls and use pencil and paper to illustrate current water levels in each bowl. Return to the experiment every hour for the rest of the day, continuing to make observations and illustrations of the water levels. You will see that the water in the bowl placed in direct sunlight evaporates much more quickly than the shaded water due to the higher levels of heat, which increase molecular activity in the water, thus expediting evaporation.

Think about how clothes dry on the washing line and how puddles disappear. What is happening?

Condensation Experiments.

After evaporation we have condensation. When the water vapor reaches the sky it cools to form clouds.

Fill a cup approximately two-thirds full of hot water. Take another cup, flip it upside down, and place it on top of the cup with hot water. Then place an ice cube on top of the upside down cup. Condensation will begin to form at the top of the upside down cup, just like a cloud.



Experiments

1. Take a deep breath.
2. Get real close to the mirror or window with your mouth.
3. Open your mouth and exhale your hot breath onto the mirror or window.

What has happened to the mirror or window? It has steamed up or you could call it condensation.

Why do things steam up? If you breathe out on a mirror or window, it will steam up. Your breath contains water although you can't see it.

The water is a type of gas, called a vapour, which is mixed with the air.

When the water vapour from your breath hits the cold mirror or window some of it turns into a liquid.

Thousands of tiny droplets of water form on the mirror or window, and this is called condensation or steam.

You may have seen steam or condensation in the kitchen, the bathroom or in a car on a cold day.

You can see this steam or condensation in mid-air when you watch a kettle or a pan of water boil or when you exhale outside on a very cold winters day.

Hot water vapours are given off by the water. The vapour cools when it meets cooler air and then turns into tiny (dew) drops, which forms the steam or condensation.

To sum up why things steam up?

If you breathe on a mirror, the mirror steams up. Your breath contains water – though you cannot see it. The water is a type of gas called a vapour, mixed with the air. When the water vapour from your breath hits the cold mirror, some of it turns into a liquid. Thousands of tiny droplets of water form on the mirror, and this is called condensation.

You may have seen condensation in the kitchen, the bathroom or in a car.

Kitchen - steam escapes from a boiled kettle, a hot oven door being opened and lids when lifted off a hot pot of cooking food.

Bathroom - steam is formed when the hot water is being used for taking a shower or a hot bath.

Car - steam is formed inside a car on a cold day because it is warmer inside the car

Evaporation and Condensation

Tea Kettle Experiment

Place a piece of cardboard inside a freezer for several hours. On a hotplate, heat water in a kettle until it turns to steam. Explain that steam is water vapor, or water that is evaporating. Take the cold piece of cardboard and hold it above the kettle. Explain that when the water vapor hits the cold cardboard, it will condense and turn back into water droplets. When a large enough amount of water has condensed, it will begin to fall in drops. This is called precipitation, which can take the form of rain, snow or hail.