What is the water cycle?

KS2 KS3 Ages 7-14 ⏰ 3 min read

Here's a strange fact: there's the same amount of water on Earth today as there was when the dinosaurs were alive. Water doesn't disappear — it just keeps moving around in an endless loop. That loop is the **water cycle**, and it's one of the most important processes on the planet.

Step one: evaporation

When the sun heats a lake, river, or ocean, water molecules near the surface gain enough energy to escape into the air as water vapour — an invisible gas. This is **evaporation**. The sea is the biggest contributor (about 86% of all evaporation comes from oceans), but puddles, rivers, and even plants releasing moisture all add to it.

Step two: condensation and clouds

As water vapour rises into the atmosphere, it cools down. Cool air can't hold as much water vapour as warm air, so the vapour condenses — clumps together around tiny particles of dust or salt — forming microscopic water droplets. Billions of these droplets together make a **cloud**. When the droplets grow large enough and heavy enough, they fall back down as rain, snow, sleet, or hail.

It's exactly like what happens to a cold can of lemonade on a warm day. Water vapour in the surrounding air hits the cold surface, cools down, and condenses into droplets on the outside of the can. The atmosphere does the same thing, just on a slightly larger scale.

Step three: collection and return

When rain falls, some of it flows across the surface as **runoff** — into streams, rivers, and eventually back to the sea. Some soaks into the ground and becomes **groundwater**, which slowly filters through rock until it emerges in springs or is drawn up by plant roots. Some lands as snow on mountains or the poles, locking water away as ice for thousands of years.

Plants are part of it too

Plants play a bigger role in the water cycle than most people realise. They absorb water through their roots and release it through tiny pores in their leaves as vapour — a process called **transpiration**. The Amazon rainforest produces so much of its own rainfall through transpiration that cutting it down actually reduces the amount of rain that falls there. Forests create their own weather.

The same water, forever

The water molecule in your cup has probably cycled through the ocean, the atmosphere, a glacier, a river, a cloud, and countless living bodies — including, quite possibly, a few dinosaurs — before ending up in your kitchen tap. Nothing is wasted. It's one of nature's most elegant recycling systems.

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