



The Water Cycle! Year 4 Science at Home

You can help! The water cycle happens all around you every day — in rain, puddles, morning dew, clouds and even your kettle! You don't need any equipment to explore this together.

Why are we learning this? Water is life — especially up here

Water is precious in remote northern Australia. The dramatic difference between the wet season (over 1,500 mm of rain) and the dry season (almost none) is driven by the water cycle. Evaporation draws water from the land and sea into the atmosphere. Condensation builds the massive storm clouds of the build-up season. Precipitation releases the monsoon rains that fill rivers, waterholes and tanks. First Nations peoples have always known when rain was coming — reading cloud patterns, wind changes and animal behaviour. Understanding the water cycle connects your child's science to the Country and seasons you already know.

My child will learn to:

✓ Name water cycle parts

Name and explain the key stages of the water cycle: evaporation, condensation and precipitation.

✓ Describe water movement

Describe how water moves between the sky, land and ocean, and explain that the sun's heat drives this movement.

✓ Know water sources

Identify where drinking water comes from — rain, rivers, groundwater, dams and water tanks.

✓ Connect to weather

Explain how the water cycle creates local weather patterns, including our dramatic wet and dry seasons.

Big ideas to know:

Evaporation and condensation

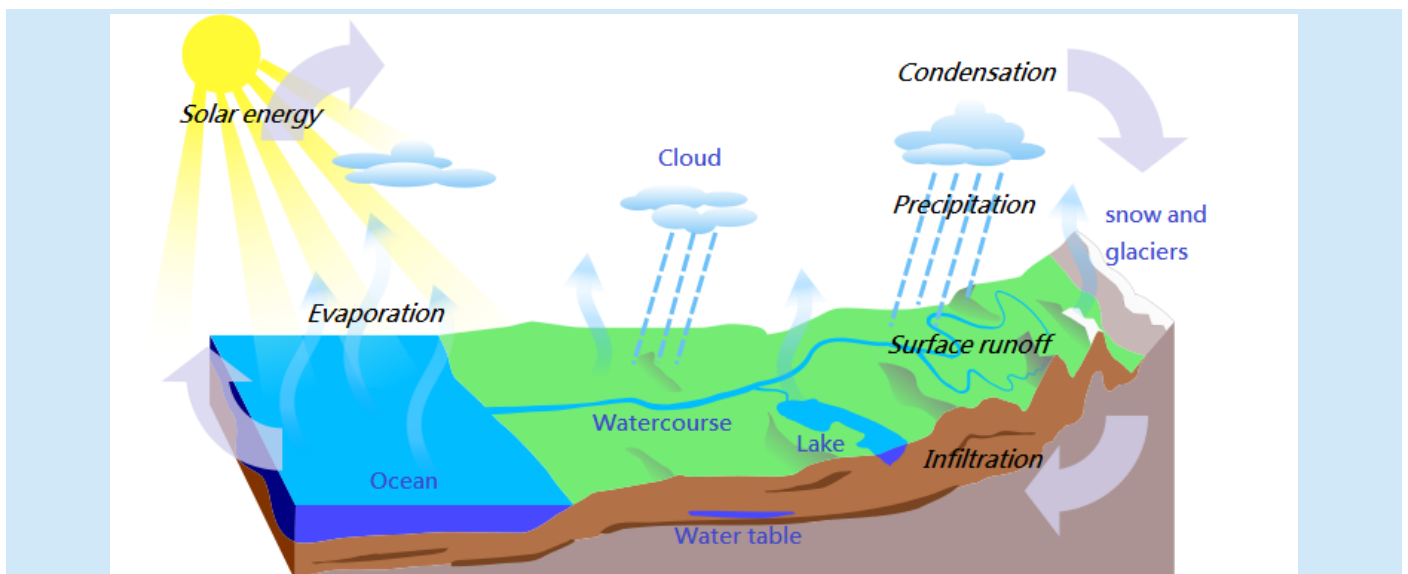
The sun's heat causes water from the ocean, rivers and land to evaporate — turn into invisible water vapour (gas) that rises into the atmosphere. As this gas rises and cools, it condenses back into tiny liquid water droplets, forming clouds. This is why clouds form! When you breathe on a cold window and see fog appear, you are watching condensation happen in your own home.

Precipitation and runoff

When water droplets in clouds join together and get heavy enough, they fall back to Earth as precipitation — rain, hail or snow. In the north, almost all precipitation is rain. Water on land flows downhill into rivers, waterholes and the sea (surface runoff), or soaks into the ground (groundwater). The water cycle is powered by the sun's energy and pulled back to Earth by gravity.

The cycle never stops

The water cycle is continuous — there is no real start or end. The same water molecules have been cycling through the Earth system for billions of years. The water in your cup today has been part of ancient oceans, rivers and clouds! In the Top End, this cycle drives the dramatic contrast between the wet and dry seasons — one of the most extreme seasonal water cycles in Australia.





The Water Cycle! Year 4 Science at Home

Water cycle processes — what happens at each stage

Process	What happens	Example to spot at home
 Evaporation	Sun's heat turns liquid water into water vapour (gas) that rises into the sky.	Puddles disappearing on a hot day. Wet clothes drying on the line.
 Condensation	Water vapour cools and turns back into tiny liquid droplets, forming clouds.	Fog on a cool morning. Drops of water on a cold glass or can of drink.
 Precipitation	Water in clouds falls back to Earth as rain, hail or (rarely here) snow.	Wet season rain on the roof. Dew on the grass in the early morning.
 Surface runoff	Water flows downhill into rivers, waterholes, dams and eventually the sea.	Water rushing down a creek after rain. Puddles running off the road.
 Transpiration	Plants absorb groundwater and release water vapour through their leaves.	A whole forest releasing vapour into the air — adding to the clouds above!

Think Like a Scientist — Zip-Lock Water Cycle

Make a water cycle in a bag! Put a small amount of water in a zip-lock bag, seal it, and tape it to a sunny window. Check every few hours. What do you see forming inside the bag?

Ask: "What is the water doing? Can you see drops forming on the bag? Where do you think they will go?" You will see evaporation, condensation and precipitation — a whole water cycle in one bag!

You will need: (Materials)

- Zip-lock bag (any size)
- Water (a few tablespoons)
- Sticky tape
- A sunny window
- Paper and pencil to record observations

Steps for the zip-lock water cycle:

1. Put 2-3 tablespoons of water in a zip-lock bag
2. Seal the bag tightly — make sure no air leaks out
3. Tape the bag to a sunny window at eye level
4. Check every 1-2 hours — what is happening inside?
5. After a full day: find evaporation, condensation and precipitation in the bag!

Questions to ask your child

1. Where does rain come from? Can you explain all the steps?
2. Why do puddles disappear on a sunny day?
3. What do you think clouds are made of?
4. Where does the water in our tap or tank come from?
5. What would happen to the water cycle if there was no sun?
6. Can you spot any part of the water cycle happening right now outside?
7. Why is the wet season so wet and the dry so dry up here?

The zip-lock bag water cycle is one of the best home science demonstrations ever. It shows all three key stages (evaporation, condensation, precipitation) in one simple activity. Leave it up for a few days and it keeps cycling — as long as there is sunlight!

Key words to know:

Water cycle	The continuous movement of water through the environment — sky, land, ocean and back again
Evaporation	Liquid water turns into water vapour (gas) when heated by the sun
Condensation	Water vapour cools and turns back into liquid water droplets — forming clouds or dew
Precipitation	Water falling from clouds as rain, hail or snow
Surface runoff	Water flowing over land into rivers, lakes and the ocean after rain
Transpiration	Plants releasing water vapour through their leaves into the air
Groundwater	Water stored underground — an important source of drinking water in remote communities

Key words to look up

Water cycle · Evaporation · Condensation · Precipitation · Surface runoff · Transpiration · Groundwater

What school will check

By the end of Year 4, your child needs to identify and describe key water cycle processes and explain how water moves through the sky, land and ocean powered by the sun's energy.

Try it at home!

After rain, find a puddle and watch it over a few hours. Where does it go? Mark the edge with chalk and measure how fast it shrinks. On a hot day vs a cooler day — is there a difference? You are measuring evaporation rate — real science!

