



The Water Cycle

Water has three states of matter, namely solid, liquid and gas. In the solid state, water becomes ice while in gaseous state, water becomes water vapour.

Think:

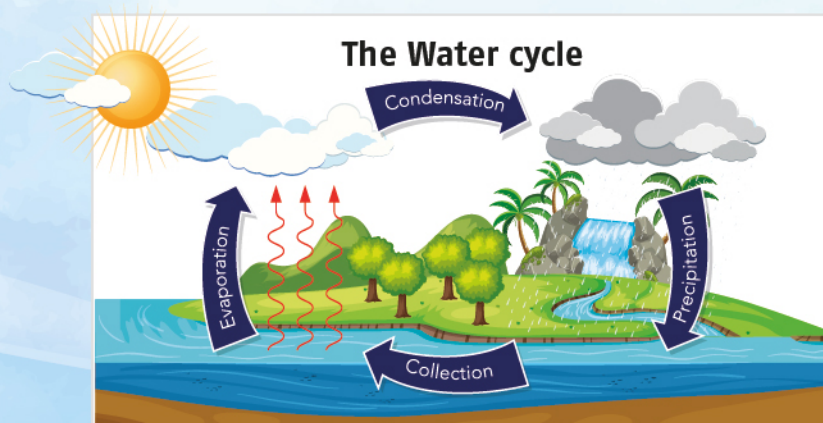
Is water and the water cycle important to us?

The water cycle is a natural cycle where we can see how water changes from one state to another.

Firstly, we have water bodies like rivers, sea, lakes where water is collected. The top layer of water will evaporate to form water vapour, which will then rise into the sky.

As water vapour rises higher in the atmosphere, the temperature gets cooler which causes water vapour to condense into tiny water droplets. These tiny water droplets gather together to form clouds.

As more and more water droplets combine, they get heavier, causing them to fall back onto the ground as precipitation. In different countries, the precipitation comes in different forms, such as rain, snow or even hail. The water will then once again be collected in water bodies, and the cycle continues.



The water cycle is very important as it determines how water reaches living organisms. The cycle also helps to move different components like nutrients in and out of ecosystems.

Think:

Does the water cycle happen in places with frozen lakes?



Complete your Young Scientist badge here!



Time to re-create the water cycle at home!

Materials needed:

- 1 x see-through cup
- 1 x empty plastic bottle
- Ice cubes
- Food colouring
- Water
- Permanent marker



STEP 01

Remove any labels on the bottle.



STEP 02

Decorate the bottle with rain drops and clouds.



STEP 03

Add water until the bottle is 1/3 full.



STEP 04

Add one drop of food colouring, screw the cap tight and mix well.



STEP 05

Invert the bottle of water and place it in the cup.



STEP 06

Place ice cubes on top of the inverted bottle and place the entire set up near your window.



STEP 07

Observe what happens after an hour.

PS: The mini water cycle might be completed even before an hour, so check your bottle every now and then before the one-hour mark!

Think:

Can you figure out what is happening in the bottle?



You might see a bit of fog (or even a cloud) at the top of the inverted bottle. This is due to condensation of water vapour in the bottle to form tiny water droplets at the top. This happens at the top of the bottle due to the cooler temperature created by the ice cubes.

At the bottom, you will see water droplets rolling back down into the pool of coloured water as they are too heavy. This represents precipitation. As for evaporation of water into water vapour, we cannot see it happening unless we have SUPER VISION!

Do the experiment again, but this time think about the following:

- What will happen if you do not add the ice cube?
- Do you need to put the set up under the sun?
Remember to only change 1 item at a time!