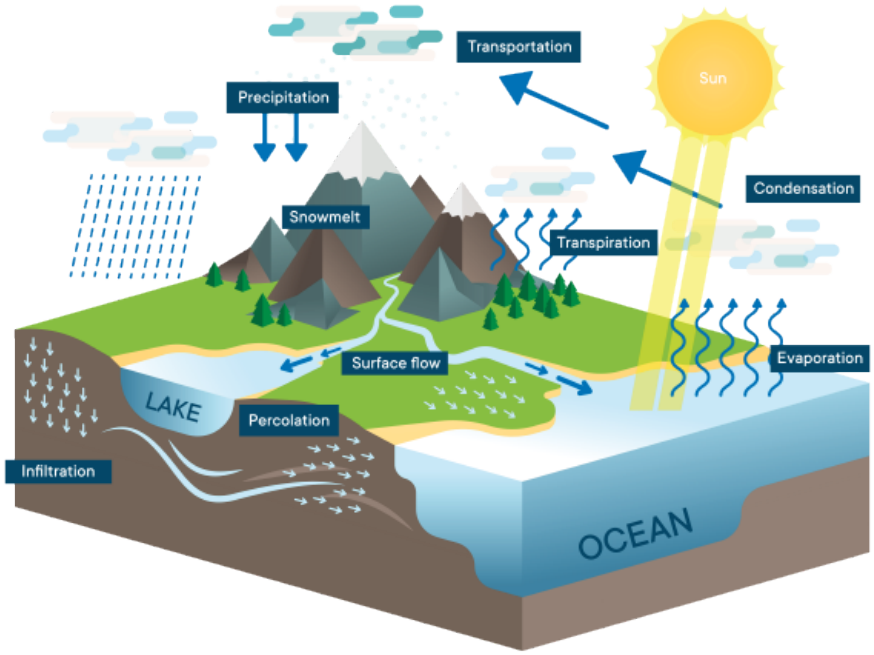
Water Cycle

Introduction

The Water Cycle

The water cycle is a way of showing how water moves around the planet. Water is continually transferring between the atmosphere and the earth's surface, moving around the globe all the time. This is important to understand, not just for our water needs but also because it means that pollutants can easily be carried large distances within the water cycle.

The cycle begins with the sea. The surface layers of the ocean are heated by the sun, turning it into vapour (tiny droplets of water). This vapour rises and cools into clouds. The clouds are then moved by the wind. As the droplets within the clouds collect and get bigger they become too heavy to stay suspended and begin to fall as rain. The water that falls to the earth eventually flows through rivers, over the land surface or through ground water back into the sea and so the cycle begins again.



Key terms

Evaporation - heating liquid water so that it becomes vapour.

Transpiration - water vapour given off by plants.

Condensation - the water vapour cools and becomes liquid again.

Transportation - winds move water around the atmosphere in the form of clouds.

Precipitation - water falling back to earth in many forms e.g. rain, snow, sleet, hail.

Infiltration - water trickles down through the earth's surface and travels by percolation through the rock.

Surface flow - liquid water running across the surface of the land into rivers and sea.

Interesting facts!

- 70% of the earth is covered in water. 97% of all water is in oceans.
- Of the 3% that is fresh water, 2% is inaccessible in ice caps and glaciers, leaving only 1% to travel around the water cycle and for our daily use.
- The same water that existed on earth billions of years ago still exists today. Water that comes from your tap could contain the same molecules that dinosaurs drank.

Further research keywords

Hydrological cycle, aquifer, deposition, (relief, frontal and convectional rainfall), river discharge, runoff, hydrograph, meteorology, dew point, rain shadow, sea surface temperature.

45 - 60 mins

Water Wheel

Equipment required

- Print out of R_WC_ 1 preferably on card, or can be stuck onto a paper plate
- Scissors
- Split pins
- Glue

To complete the activity

1. Provide learners with copies of the water cycle template sheet (R_WC_ 1).

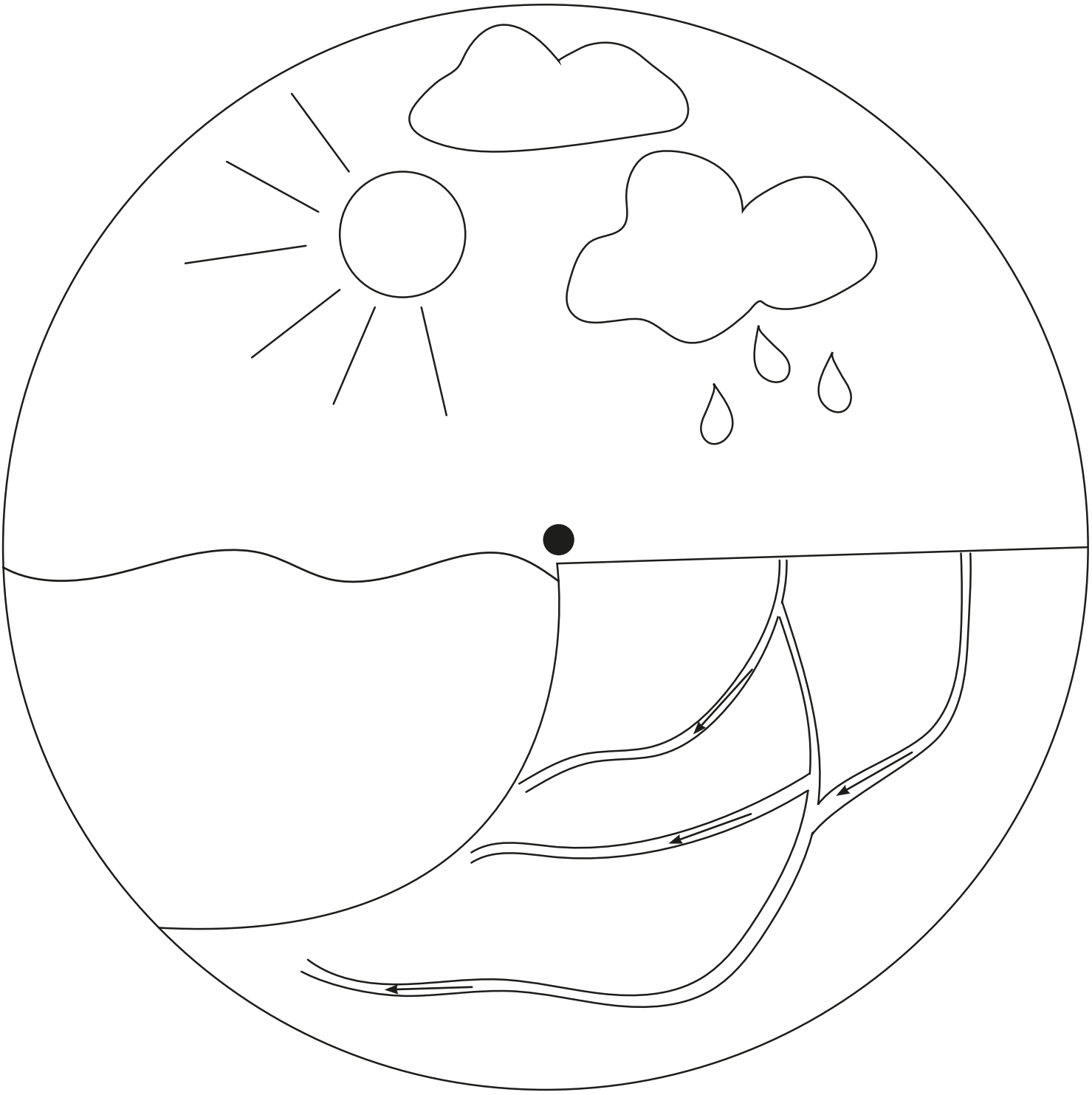
2. Ask learners to colour in and decorate the worksheet. Encourage them to add details like trees, mountains, sea life, different kinds of precipitation etc to make each one unique.

3. Then support learners to cut out the words and the water movement arm.

4. Explain to learners that they will need to align the two black central dots and put the split pin through, so that the arm can be moved around the circle in the direction of the water cycle.

5. Support learners to stick the labels onto the circle in the correct places for the water movement that it refers to. Learners can add extra information or labels to their wheel if they wish.

Water Movement



Evaporation

Precipitation

Condensation

Collection

Salty Saucers

This activity demonstrates the often invisible element of the water cycle, evaporation. Variations in where the saucers are located can be used to demonstrate the power of heat to speed up water loss. The salt and food colouring will crystallise as the water evaporates, providing a really clear demonstration.

Equipment required

- Shallow wide dishes
- Salt
- Water
- Blue food colouring

To complete the activity

1. This can be done in groups or as a whole class activity.

2. Give each group a few different bowls.

3. Ask learners to mix the water and salt together in the bowls, then add a few drops of the food colouring.

4. There's lots of different ways the learners can experiment, by adding more or less water, increasing the quantities of salt and placing the bowls in different locations, some in the sun, some in the shade, some by radiators.

5. Once each group has decided on its variations ask learners to label each bowl.

6. The learners will need to check their bowls twice a day for a few days. The results should be collected and discussed as a class. Which one evaporated faster? What was different about it?