

The water cycle

OBJECTIVES

To foster an awareness of where water is found on the planet and that the amount remains constant.

To introduce the water cycle process.

TEACHING ACTIVITIES

To share the information describing the water cycle through a group reading exercise. To discuss the text in a whole class situation. Children to answer questions and complete the water cycle diagram from Activity Sheet 1.

PRACTICAL ACTIVITIES

An experiment to demonstrate the water cycle process and reinforce the scientific concepts of evaporation, water vapour and condensation:

You will need: a clear plastic bowl, some cling film, an elastic band large enough to go round the bowl, a small weight.

Put some water in a bowl to the depth of about 2cm. Stretch a sheet of cling film over the container, secure with an elastic band and place the weight in the centre of the plastic cover so that it dips slightly in the middle.

Place the container over a radiator or in a window facing the sun.

Over a period of time water will evaporate and condense back to water on the cling film.

An experiment to demonstrate how water evaporates:

You will need: a saucer, a jug of water, a glass bowl and a small glass.

Pour equal amounts of water into the saucer and small glass.

Cover the glass with the bowl. Leave both the saucer and covered glass in a warm place.

After 48 hours, measure the amount of water in the saucer and compare it with that in the covered bowl. The water in the saucer will be reduced but the water level in the glass will not fall as the water vapour cannot escape.

An experiment to demonstrate condensation:

You will need: crushed ice, a clear glass, a card big enough to fit over the glass.

Place the crushed ice into a dry glass. Cover the glass with the card. As the ice cools the glass and air around it, tiny drops of water will appear on the side of the glass. This is because cold air cannot hold much water vapour, so some of the vapour changes into drops of water.

SUGGESTIONS FOR EXTENSION

Introduce to children: that water is made up of two different elements, oxygen and hydrogen; that water is found as a solid, liquid and gas; that heating or cooling water changes the way water atoms behave; that unlike other substances, water expands when it is cooled.

KEY VOCABULARY

Evaporation, condense, condensation, water vapour, water cycle.

ASSESSMENT CRITERIA

Do the children understand how the water cycle process works?

Do the children understand the key vocabulary: evaporation, condensation, water vapour?

The water cycle

75% of the Earth's surface is covered in water!



If you were in space looking back at earth you would see that it looks very blue.

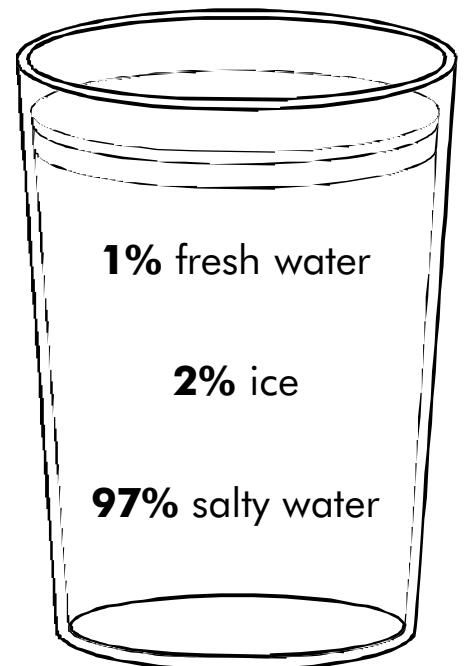
This is because almost 75% of the earth's surface is covered

by water. Water is found on the surface of the planet, in the seas, oceans, lakes and rivers as well as underground.

Water is also found at the North and South Poles where it is frozen in ice sheets and glaciers.

Most of the water on our planet is not available to drink. Imagine this glass contains all the water in the world.

You might be surprised by what you see. 97% is salty water in the seas and oceans, 2% is ice at the North and South Poles, only 1% is fresh water available for drinking.



The water cycle

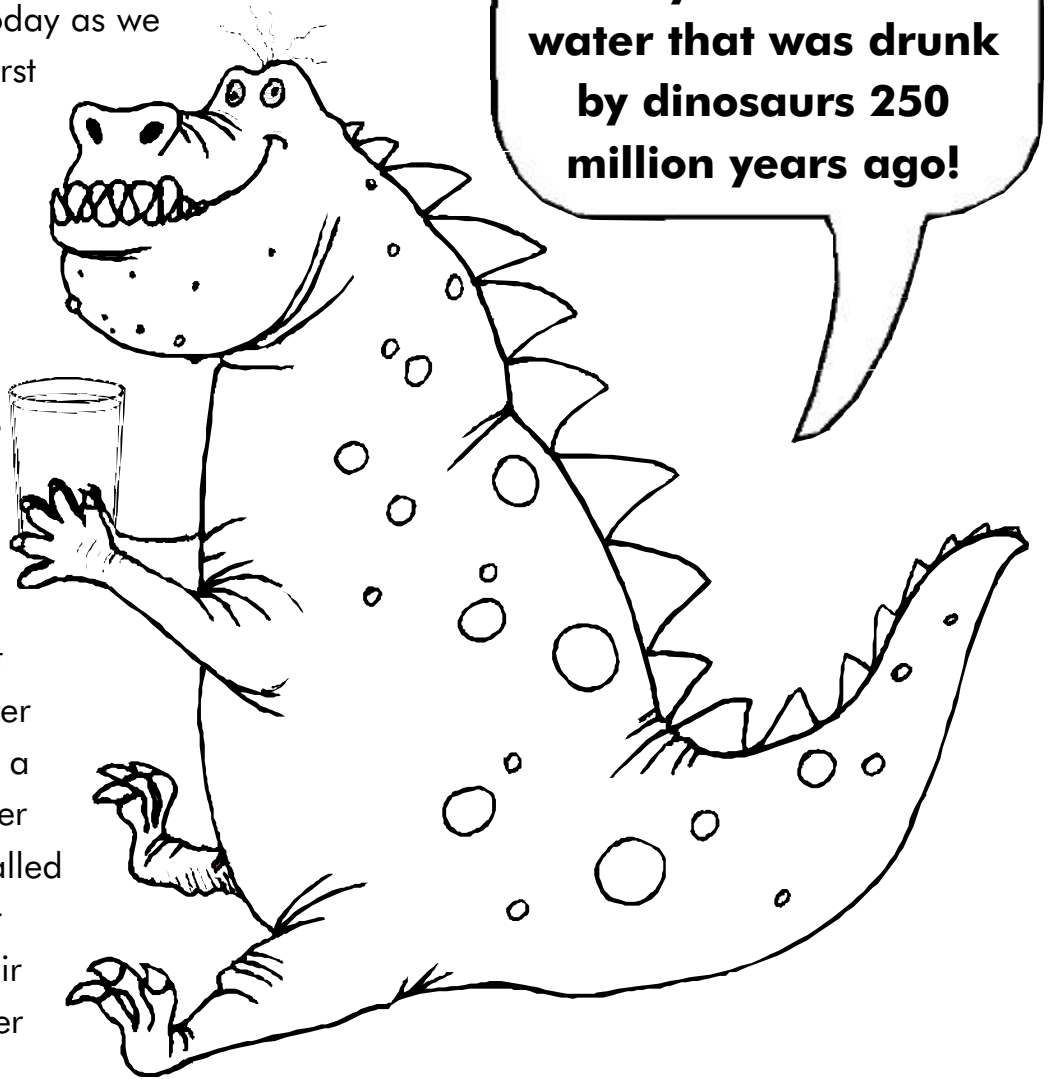
We have the same amount of water available on the planet today as we did when the earth was first formed. No new water is ever made. In fact, the water we use today is the same water that was drunk by the dinosaurs 250 million years ago. So why don't we run out?

You may think that when a puddle dries up the water disappears. But this is not so. The sun heats the water which then changes from a liquid to a gas called water vapour. This process is called evaporation. As the water vapour rises into cooler air it turns back into tiny water droplets which become

clouds and rain or, if it is cold enough, snow or hail. This is called condensation.

When it rains, water finds its way into the streams and rivers. Some of this water will be taken out of the river to be cleaned for human use. The rest flows into lakes or on to the sea. Water in the rivers, oceans and seas evaporates, rises into the air to form clouds which eventually fall back again as rain or snow. Plants also suck up water from the ground and release it back into the air through their leaves.

The movement of water from land and sea to air and back again is called the water cycle.



The water cycle

Answer the following questions in sentences:

1 How do you know that the earth is covered by water?

2 Where on the planet do you find water?

3 How much of the earth's surface is covered by water?

4 How much water is available for human use?

5 What happens to puddles when the sun comes out after rain?

6 Why do drops of water appear on plants on cold mornings even when it has not been raining?

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7 Why does water sometimes fall as snow?

8 How do you know there is water vapour in your breath?

9 Where could you see condensation in your home? Make a list.

10 Explain how the water cycle works

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Cut out these boxes and stick them onto the water cycle diagram in the correct order:

