

Water, water everywhere...

Activities for children aged 7–11 years

WWT has a well-established and well-loved education programme that we run across the UK at our ten wetland sites. We've designed these short activities based on one of our school activities. We've made it to connect you and your family to the natural world and help you to work with your children to feel great about nature and understand some of the things that WWT love and care about.

Why wetlands?

WWT works across the UK to save, conserve and build wetlands for wildlife and people. Wetlands are one of the most important habitats on earth – storing huge amounts of CO₂, providing a natural way of stopping flooding and serving as a home for huge numbers of different creatures.

This activity will help you and your children to discover the amazing way that water is constantly transported around the planet and how wetlands can help to clean water and reduce flooding.

These activities link to the National Curricula for science and geography in England, Northern Ireland, Scotland and Wales.

Stuff you need:

- **Water cycle visual (last page of this document)**
- **Ruler**
- **Chalk**
- **Ice**
- **Watering can (or other container)**
- **A glass**
- **A second glass or the bottom half of a clear plastic bottle**

Note: Where you see a **Q** this indicates a question to ask your child

Indoor activities

(60 minutes broken down into manageable chunks)

Section 1: What do we use water for?

(5 minutes)

Q Can you think of anything that humans and other animals can't live without?

- Your child might come up with air, oxygen, food etc. If they haven't come up with water, tell them that all animals need water to survive. Without water there would be no life on earth.

Q How many different uses of water can you think of?

- It might help if you prompt them to think of the different uses of water...

...in the **kitchen**.

...in the **bathroom**.

...in the **garden**.

- Get them to list as many as they can and add any others that you can think of.

These might include:

Uses of water in the kitchen	Uses of water in the bathroom	Uses of water in the garden
<ul style="list-style-type: none">- Washing up- Dishwasher- Washing machine- Cooking- Drinking- Cleaning	<ul style="list-style-type: none">- Having a bath- Having a shower- Washing hands / face- Brushing teeth- Flushing the toilet	<ul style="list-style-type: none">- Watering plants- Having fun (e.g. water fights, paddling pool etc)- Putting water out for wildlife

Q Where do you think all of this water comes from?

The water that comes out of our taps is taken from one of the following places:

- A reservoir (a man-made lake specially built to collect water)
- A river
- Beneath the ground (this is called groundwater)

It is cleaned at a water treatment works before it is transported to our homes and schools through pipes beneath the ground.

- After we have used it, it goes down our toilets, sinks and drains and is transported to a sewage treatment works where it is cleaned before being put back into a river or the sea.

Section 2: Changes of state

(2 x 10 minutes)

Preparation stage

For these activities, you will need to carry out some preparation and then come back to the activities a few hours later. You could complete the saving water section (see below) between times.

Pour some water into a glass or the bottom half of a clear plastic bottle cut in half.

- Mark the level of the water on the outside.
- Leave in a window or other warm place.

Activity stage: Melting

- Take an ice cube or piece of ice from around the edge of your freezer. Place it in a glass.

Q What do you think will happen to the ice? Why?

- Watch the ice beginning to melt and explain that it is changing from ice (solid) into water (liquid). This is called melting.

Key word: **MELTING**

When a material changes from a solid to a liquid.

Q Can you think of any other examples of melting?

- Examples might include chocolate, an ice cream or ice lolly.

Activity stage: Evaporation

- Look at the glass of water you left in the window.

Q Has the level gone down? Why?

- Explain that as water heats up, it changes from a liquid to a gas. This is called evaporation. Some of the water (liquid) has changed into water vapour (gas) and gone into the air.

Key word: **EVAPORATION**

When a material changes from a liquid into a gas.

Activity stage: Condensation

- Fill a glass with water from a cold tap. Add some ice.
- Leave it for a couple of minutes.
- Feel the sides. After a while, you should be able to feel (and often see) a thin layer of water on the outside.
- Explain that this is condensation. Some of the water vapour from the air in the room has touched the side of the glass, cooled down and changed from water vapour (gas) into water (liquid).
- Explain that the same thing happens in your bathroom when you have a hot bath or shower. Some of the water vapour turns back into water on cold surfaces such as windows and mirrors.

Key word: **CONDENSATION**

When a material changes from a gas into a liquid.

Section 3: The water cycle

(15 minutes)

- Explain that through the processes you have just investigated, water is constantly moving round the earth in what is called the water cycle.
- Look at the water cycle visual (last page of this document).

Get your child to label the diagram as follows:

Step 1: Evaporation

- Look at the sun shining on the sea.

Q What happens to water when it heats up?

It might be useful to get them to think about what happened to the water you left in the window.

- Explain that, just like the water you left in the window, it evaporates.
- Get your child to draw an arrow from the **ocean** to the **first cloud** and label it 'evaporation'. 



Step 2: Condensation

- Explain that some of this water vapour forms into clouds and some of these clouds move inland and when they reach hills or mountains they rise further into the sky. The higher you go into the sky, the colder it gets (if you've ever climbed a hill or mountain you will have noticed how it gets colder the further up you get).
- Get your child to draw an arrow from the **first cloud** to the **second**.

Q What do you think happens when the water vapour cools down?

- Explain that just like the water on the outside of the glass, the water vapour condenses and becomes liquid water again.
- Get your child to write the word 'condensation' just above the **second cloud**. 



Step 3: Precipitation

Q What do you think will happen to this water once it's turned back into a liquid?

- When the water vapour turns into water it falls out of the clouds as rain, snow, sleet or hail. We call this precipitation.

Key word: : **PRECIPITATION**

When water falls from the sky.

- Get your child to draw an arrow from the **cloud** to the **river** and label this 'precipitation'. 



Step 4: Run off

Q What do you think happens to the water now?

- Some of this water travels into streams and rivers and makes its way back to the sea. This is called surface run off.

Key word: : **SURFACE RUN OFF**

When water flows across the ground.

- Get your child to draw an arrow following the **river** all the way back to **sea** and label it '**surface run off**'. 

The cycle

Q What do you think happens next?

- The cycle then starts all over again with water being evaporated from the ocean and so on. This is why it's called the water cycle because just like the wheels of a bike the water keeps on going round and round.

How old is water?

Q How old do you think water is?

- Water has been on earth for 4.6 billion (4,600 million) years! The dinosaurs lived between 230 and 65 million years ago, so water was around long before the dinosaurs roamed the earth.
- We don't get any new water on earth. It is the same water that has been going round and round the water cycle for 4.6 billion years. This means that the water you drink may have passed through a dinosaur! Don't worry though, every time water evaporates all the nasty stuff in it is left behind so it naturally gets cleaned. Isn't nature amazing?

Section 4: Wetlands and the water cycle

(10 minutes)

Q What happens when it rains really heavily?

- When we get really heavy rainfall we can get a flood. This is because the water travels into rivers really quickly and the rivers have more water than they can hold. This extra water spills out of the river and creates a flood.
- Wetlands can help prevent flooding because they store a lot of the extra water and release it gradually, so all of the water doesn't go into the rivers in one go.
- Look back at the water cycle visual. You will see a pond to the left-hand side of the river.
- Get your child to draw an arrow from the **pond** to the **river** and write '**wetlands release water slowly**'. 
- Wetlands are also great at cleaning water before it goes back into rivers. The plants in wetlands absorb pollution (chemicals that can damage the environment) and store it safely.
- Get your child to think about the pond on the water cycle visual.

Q What would happen to the river if the pond wasn't there?

- It would flood more often without the wetland slowing the water down and the water in the river would be dirtier (more polluted).

Q Can you think of a way the pond might be destroyed?

- It might dry up (possibly as the world heats up due to climate change).
- It might be drained by a farmer to make more space for animals or crops.
- It might be drained and houses or factories built on it.
- More than a million ponds have been lost in the UK in the last 100 years!

Q Imagine you are an otter living in the river. How would your life change if the pond was destroyed? How would this make you feel?

- WWT work to protect wetlands so that this doesn't happen. We also build new wetlands that help prevent flooding, stop pollution and create places for wetland wildlife to live. Wetlands really are amazing!

Section 5: Saving water

(10 minutes)

Look through the following information together with your child:

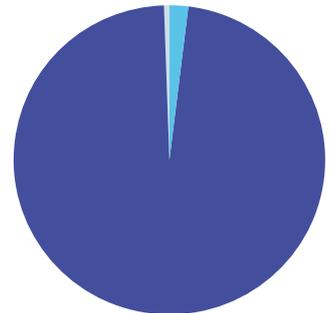
You would think we would always have enough water to use.

After all, over **70% of the earth's surface is covered in water.**

However, **97.5%** of this water is **salty seawater** and **more than 2%** is **frozen in the ice caps and glaciers** (frozen rivers of ice).

This leaves **less than 0.5%** **for us to use.**

It also takes a lot of energy to clean water before and after we use it.
This means that saving water is good for us and for the environment.



- Get your child to look back at the list of uses of water they created earlier.
- Get them to make a list of different ways of saving water. It might be helpful to think of saving water in the kitchen, bathroom and garden as before.

These might include:

Saving water in the kitchen	Saving water in the bathroom	Saving water in the garden
<ul style="list-style-type: none">- Wait until the dishwasher and washing machine are full before putting them on.- Wash fruit and veg in a bowl rather than under a running tap.- Have a jug of water in the fridge to save waiting for the tap to run cold.	<ul style="list-style-type: none">- Don't leave the tap running while brushing your teeth.- Have a short shower rather than a bath.- Install a save-a-flush device in your toilet cistern. This is a bag that takes up some of the space in the cistern so that less water is flushed away each time. Many water companies provide these free of charge. Don't fit them to dual flush toilets though (those where you can choose a long or short flush) as these are already designed to save water and may not flush very well if you install one.	<ul style="list-style-type: none">- Only water plants when they really need it.- Water plants first thing in the morning or in the evening when less of the water will evaporate.- Use a watering can rather than a hose.- Install a water butt to collect rain water from your drain pipes and use this water for your plants.- Plant drought-resistant plants.

- Discuss with your child which of these would be easiest to do as a family.
- Make a pledge sheet as a family, showing the things you will do to save water. Display it somewhere where the whole family will see it regularly.

Take it outside:

(45 minutes+)

- Find an outside area with a hard surface (e.g. tarmac or concrete).
- If it has rained recently find a puddle.
- If not create a puddle using water from a watering can or a container.
- Draw a chalk outline around your puddle.
- Every half an hour, go back to the puddle and again chalk the outline. You should see the puddle getting smaller over time.

Q Where do you think the water has gone?

- The water has evaporated and re-joined the water cycle. Eventually it may form part of a cloud, rain down, make its way into a river and flow back to the sea. Isn't nature amazing?



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Have fun and do share your work to our social media accounts – we'd absolutely love to see it!

The water cycle

