

Saving Water with Super Splash Heroes

LEARNING OBEJCTIVE

- ★ Pupils gain an understanding of how much water that they use at home and school, and how much water is wasted.
- ★ Pupils understand the principals of saving water and how they can make simple changes to their water using habits.

SUCCESS CRITERIA

- ★ Pupils can explain in discussion how much water is used in litres and the action that can be taken to reduce our water use.

TEACHERS NOTES

This resource pack is based around the idea that water is a precious resource which needs to be conserved. It mainly looks at domestic water use but also considers how much water is used in schools. Activities described are intended to be used as a learning activity to introduce water saving before and after Northumbrian Water visit your school with the Super Splash Heroes but the resources can also be used as a stand alone activity.

Preparatory activities include:

- ★ Making props to show how much water the pupils use at home or at school.
- ★ Showing what 1 litre, 10 litres etc look like to help the children understand how much water we use each day.

Both of the above activities are designed to help your pupils visualise what a litre of water looks like (and also multiples of a litre, like a plastic milk container) so this is a good topic to do when working on Capacity and Volume in maths.

'Follow-up' described in the notes that follow, build on this work with opportunities to create graphs and other charts along with accurate scientific recording.



Activity 1 - Saving Water

CATEGORISE USES OF WATER INTO WATER SAVING AND WATER WASTING ACTIVITIES

Using the graphs and images in Resource Sheet 1, compare average rainfall in the North East of England with how much rainfall Essex and Suffolk receive. Explain that even in this country, we sometimes run short of water so we have to try not to waste it. The North East of England gets a lot of rain, but parts of South East England have to be very careful.

You can also compare how much it rains and how much we use with figures for rainfall and water use in other countries for example, Mozambique 5 litres, UK 150 litres and USA 600 litres.

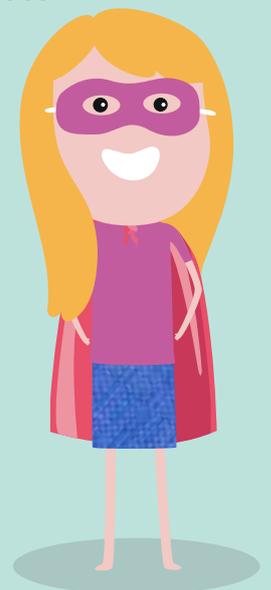
Each person uses on average 150 litres of water per person per day (pp/pd) in the UK but people may use less than 10 litres pp/pd in developing countries. Use 1 litre bottles of water and measuring jugs to show what 5 litres of water looks like.

To help younger children understand this they could colour in the number of bottles that represent how much water we use using resource sheet 5.

Discuss with children that water shortages occur in the UK and not just in developing countries. Refer to England's 2012 water shortage, which led to a hosepipe ban in some areas.

More information about the 2010 water shortage risk in England can be found at:

- ★ www.bbc.co.uk/news/ *reference
- ★ [www.bbc.co.uk/news/magazine - 17600062](http://www.bbc.co.uk/news/magazine-17600062)
- ★ www.bbc.co.uk/news/10399666
- ★ [www.bbc.co.uk/news/science - environment - 18353963](http://www.bbc.co.uk/news/science-environment-18353963)



Activity 2 - Saving Water

CATEGORISE USES OF WATER INTO WATER SAVING AND WATER WASTING ACTIVITIES

Display the pictures on Resource Sheet 2 and explain what they represent.

- ★ A full bath, which uses around 80 litres*
- ★ A water butt, which collects rainwater from the roof, so that it can be used in the garden
- ★ A dripping tap
- ★ Using a watering can rather than a hosepipe to water the garden
- ★ Using a bucket and sponge, rather than a hosepipe to wash the car
- ★ Showering, which uses less than half the amount of water a bath does
- ★ Leaving the tap running whilst brushing teeth
- ★ Washing dishes by hand

It would be possible to extend this by using the images for a card sort. Cut out the images on Resource Sheet 1 and arrange them into three groups: Good Things, Bad Things, Things That Could Be Better.

Younger and less able children may find this difficult, but mixed ability groups should be able to attempt it. The discussion arising from this will allow you to assess understanding.

Further information to show children how much water is used in various activities in daily life and at home can be found on Northumbrian Water's website and the websites of Waterwise, Energy Saving and WaterAid.

Web links:

www.nwl.co.uk/savewater
www.waterwise.org.uk
www.wateraid.org/uk
www.energysavingtrust.co.uk



Activity 3 - Water Saving

BRUSHING TEETH EXPERIMENT

Carry out an experiment to see how much water is used when a child brushes their teeth.

This should help the pupils think about how much water they use. Due to hygiene and time (and mess!) considerations, it may not be possible for a whole class to do this. However, the whole class could be involved in designing the experiment. Further information is shown in Resource Sheet 3.

If you want to inject an element of competition and challenge, then the group coming up with, and drawing the best design, could be most involved in the practical work. The 'best' being chosen by the children in a vote - for example by each child putting a 'sticky' on the design they think would work best.

The easiest way is for children to use their own toothbrush, and brush their teeth over a bucket, which also collects water from the running tap. The water in the bucket needs to be measured in litres. How to get the water from the bucket into measuring containers could be part of the experiment design; it is probably best to use a disposable container to measure all that spit-in, toothpasty water - something like a milk carton, perhaps - so that you don't have to sterilize anything afterwards.

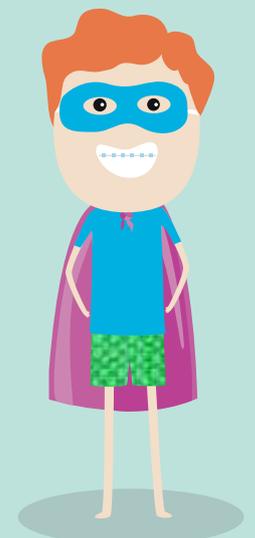
Children write up the experiment in standard form:

What we used
What we did
What we found out

Alternatively, these three could be drawn in storyboard/cartoon fashion:

What we used	
What we did	
What we found out	

Conduct this experiment twice. On the first attempt, leave the tap ON whilst brushing, the second time, turn the tap OFF. This will demonstrate how much water is wasted and how much we could save by turning running taps off. Encourage pupils to think about other ways they/their family could save water.



Activity 4 - Water Saving

WATER USE SURVEY

Ask the pupils to complete a survey of their water use at school.

The focus here is on school rather than home since some parents may object to a survey that records how many times a week people wash, for example, but this can be overcome by asking the pupils to complete the survey in picture form. Care should also be taken when asking children how they use water at home, since this could result in them drawing pictures of themselves on the toilet, in the bath or shower. To prevent this, ask the pupils to draw pictures of the appliances that are used in the home (and other items) that use or need water, such as a washing machine, a kettle, the hosepipe in the garden, etc.

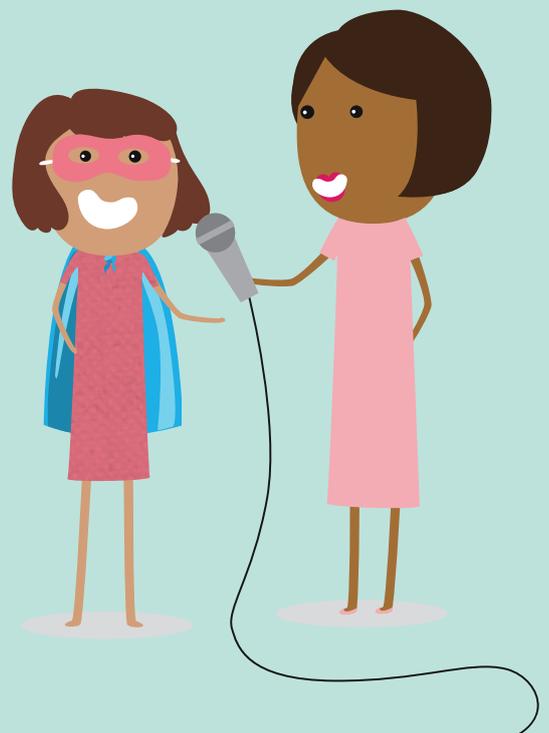
To make children aware of water's importance, discuss the impact of having no water – what wouldn't they be able to do?

This would also make them aware of how lucky they are.

A survey at school could be done by dividing the class into groups and setting various tasks.

Some groups could interview specific staff members, including the caretaker, head teacher, cook, a child or the school eco council, whilst other children could create a display, drawing round each other, cutting out the shape and painting it to look like each of the people interviewed.

The interviewers could, with teacher's help, generate some questions about water use. When they return with lists of the ways in which each person uses water, these could be written on pieces of paper (e.g. light blue, in the form of a drop) for display alongside the paintings of each person. To take this one stage further, the size of the drop could roughly indicate the amount of water used by each area of water use.



Activity 5 - Water Saving

WATER USE AT HOME

Initiate a discussion based on the previous activities about how much water is used at home for various activities:

- ★ Taking a shower
- ★ Taking a bath
- ★ Flushing the toilet
- ★ Washing hands
- ★ Brushing teeth
- ★ Watering the garden
- ★ Washing clothes in a machine
- ★ Washing dishes in a machine

The children could then do a card sort to show what uses the least to the most – templates are given on Resource Sheet 4. Once the children have arranged the cards in what they think is the right order, give out the second set, which the children can match to the activities. Ideally, have a very large container, like a plastic barrel, or the water tray, to show some of these volumes.

Find the answers to be given afterwards on the next page!

DISCUSSION

Compare 'showering' with 'bathing', bathing uses almost THREE times more water. If pupils had a shower every day instead of a bath, how much would they save in a week? A month? A year? Could also ask children how many times you would need to brush your teeth to use the same amount of water as a shower, or how many times more water a washing machine uses compared to a dishwasher?

Instead of numbers, the litres could be displayed in shapes - perhaps for more advanced classes. A plenary discussion will reinforce these.

Graph the results in some way. Pictorially, based on litre bottles is best for younger children; the pictures on resource sheet 1 can be used for a display.

Alternatively, more able children could put these results into Excel (or other spreadsheet application) like this: and then choosing Insert > Chart (if using Excel) The large range from 1 to 80 might make it difficult to show these numbers on the same scale, but cm square paper, cut out, could make a wall display.



Activity 5 - Answers sheet

THESE ANSWERS CAN BE GIVEN AFTER THE ACTIVITY HAS BEEN DONE

They are:

- ★ 1000 litres - Watering the garden for 1 hour • using a sprinkler
- ★ Around 80 litres - Taking a bath
- ★ 50 litres - Washing machine per wash
- ★ 32 litres - Short electric shower based on a 4 minute shower - using a water efficient showerhead
- ★ Around 13 litres - Old toilet per flush
- ★ 12 litres - Washing hands tap on
- ★ 10 litres - Modern dishwasher
- ★ 10 litres - Waiting for a tap to run cold water a day
- ★ 6 litres - Washing hands in basin with plug
- ★ 6 litres - Brushing teeth with tap on per minute
- ★ Around 4 litres - Modern toilet per flush



Activity 6 - Water Saving

SAVE WATER CAMPAIGN

Groups can carry out a saving water campaign, targeted either at water use in and around the home or at school. There are many ways of doing this.

Children could work on saving:

- ★ 12 litres per day - Washing hands in basin with plug
- ★ 12 litres - Brushing teeth with tap off
- ★ Around 5 litres - By spending 1 minute less in the shower

You might like to have different groups working on each of these, or all groups doing the same. All groups will be required to find out the relevant information, however, which could come from books, websites such as Northumbrian Water, Waterwise and Wateraid or just from what the children have learned by doing this topic, depending on the ability level of your class.

Children could also pretend there is a water shortage and have to inform the community.

What could the public do to minimise the impact?

How could they save water each day? Perhaps, as a team, they could plan a television news bulletin.

What would the newsreader say?

What would the public be advised to do/not to do?

