

# Years 1 to 4 Science

## Water use activity

### Australian Curriculum link: Sustainability cross-curriculum priority

In this indoor or outdoor activity, students (working in small groups or as a class) listen to a story about how two people use water every day. They add water to two jugs (one for each character) which correspond to an amount read in the story. It is a great way to show how much water is used for everyday activities and for students to reflect on their own water use at home and at school. This activity was adapted from an activity developed by Barwon Water in Victoria.

## Equipment

### For the class

- world globe (inflatable ball)
- one bucket
- one cup
- one bottle top
- two one litre jugs
- one two-litre jug
- two sets of measuring cups and spoons (for whole class activity). Note that the sets contain four cups or four spoons each.
- four sets of measuring cups and spoons (for small group activity)
- whiteboard marker or label making machine
- labels, printed and laminated of the activities (listed below)
- A copy of *A day in the life of Brooke and Briny* (Resource 1)

## Preparation

Label the corresponding cup or spoon (by writing in marker pen, labelling with a label maker or printing a picture) with the approximate amounts below:

- Brush teeth tap off 0.25 L (1/2 tsp)
- Bottled water 1.5 L (1 tsp)
- Fill up drink bottle 1.5 L (1 tsp)
- Toilet half flush 3 L (1/2 tbs)
- Wash hands 5 L (1 tbs)
- Wash face 5 L (1 tbs)
- Brush teeth tap on 5 L (1 tbs)
- Wash dishes by hand 5 L (1 tbs)
- Toilet full flush 10 L (1/4 cup)
- Dishwasher 40 L (1/2 cup)
- Water efficient showerhead 4 min shower 40 L (1/2 cup)
- Standard showerhead 2 min shower 40 L (1/2 cup)
- Bath 150 L (3/4 cup)
- Standard showerhead 15 min shower 300 L (1 cup)

If you run this activity frequently, the labels could be graphically designed and printed in hard plastic so they are durable.





Label one of the one litre jugs with 'Brooke' and one with 'Briny'. Half fill the bucket with water. Set cups and spoons out in front of the jugs and the bucket in the middle. Students form a circle around the buckets and jugs. If this activity is done with students in small groups, one (or two) groups could be Brooke and one (or two) groups could be Briny. They will need a set of equipment that reflects the type of water use for their character.

## Activity steps

1. Ask students to catch the world globe ball and observe where their right thumb lands. Ask them to tell the class whether it lands on sea or land. Pass or throw the globe around to each member of the class. Record how many thumbs touch water and how many thumbs touch land.
2. Discuss the idea that water is an essential part of our bodies and our lives. We cannot survive without it. More than three quarters of the earth is water. More than 97% is salty. Of the 3% of fresh water that exists, most is frozen solid as icebergs and glaciers, leaving less than 1% for drinking.
3. Show students the bucket and ask them to imagine all the water in the bucket is the oceans and seas. The glass holds equivalent water to the polar icecaps and glaciers. The bottle cap represents the underground water storage. A tiny drop of water is what is in lakes and rivers.

Optional: Another (more accurate) version of this activity uses a 2L jug and the various cups and spoons. Fill the 2L jug. This represents all the water in the world.

Remove:

- 7  $\frac{3}{4}$  cups + 3 tbs represents salt water in the ocean
- 1 tbs + 3 tsp represents the volume of ice
- 3 tsp represents the volume of freshwater available for drinking

'How much water do you use every day doing all the little things you do? Let's have a look.'

4. Read [Whizzy's Incredible Journey pick-a-path book 'Family journey'](#). Ask students to name some things they do to save water.
5. Explain: 'We will now compare the water usage of two people – Brooke and Briny. They're both in primary school. So we don't waste water, we are going to shrink their usage and use the cups and spoons provided. As I read the story, I will ask students to come up to add the amount of water that corresponds to the amount in the story.'

While it is not to scale, the spoons and cups represent small and large quantities of water. So, imagine that the largest quantity, the cup, is 300L (a bath full) and imagine that the smallest quantity, a quarter teaspoon, is the amount of water it takes to rinse your toothbrush. The cups and spoons in between are things like using the dishwasher, washing your hands and flushing the toilet. We can't bring all of that water into the classroom, so we have to use our imagination. At the end, we'll see who uses the most water. You can also think about how you use water at home and at school. Let's start the day and see how much water is typically used'.

Read 'A day in the life of Brooke and Briny' (Resource 1).

6. Ask a representative from each group to come out the front and show everyone how much water their character used. Compare the usage of Brooke and Briny.
7. Ask students the following questions:
  - What were some of the things that Briny did to use all that water?
  - What did Brooke do?

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- Will you make different choices at home and at school now that you've seen how much water it uses?
  - How are the characters' actions saving and wasting energy? (Gas to heat the water, electricity to treat the wastewater)
  - What else do we use water for?

washing machine

watering plants or the garden

swimming pool

washing the car

cooking

cleaning

irrigating food crops

industry and factories

What kind of impacts can these uses have on our waterways?

- Pretty much every product we have has used water in its production – food, clothes and even the kitchen sink!

How does this also use energy? (hot water, pumping water, sewage treatment)

## Resource 1 A day in the life of Brooke and Briny

Brooke and Briny wake up in the morning and need to go to the toilet.

Brooke uses the half flush which uses 3L.

Briny uses the full flush which uses 10L.

Both girls wash their hands using 5L each.

Brooke brushes her teeth and turns the tap off while she's brushing. This uses 250ml (0.25L) of water.

Briny leaves the tap running while she brushes, using 5L. Briny also washes her face, using 5L and hands, using 5L.

Brooke's mum has recently exchanged their old showerhead for a new water-efficient showerhead. Brooke has a 4 minute shower which uses 40L of water. She catches the excess water in a bucket (her family uses this to water the garden).

At school, it's a warm day and Briny buys two bottles of water from the school canteen. This adds up to 1.5L. She leaves the bottles, along with her lunch wrapper, in the playground when she's finished and it all blows away in the wind. The rubbish is washed into the drain which flows into the river and eventually out to sea, polluting the environment. It also takes a lot of energy and water to produce even one bottle of water.

Brooke brings a drink bottle to school and drinks the same amount but saves money and the environment by filling her bottle up with tap water, using 1.5L.

Both girls use the toilet at lunchtime and both use the half flush, which uses 3L.

Both girls wash their hands using 5L each.

After school, Brooke has swimming lessons and rinses off with a 2 minute shower. The swimming pool change rooms don't have water efficient showerheads so she uses 40L.

Briny has athletics and has a 15 minute shower when she gets home. Briny's showerhead is also a standard (not water-efficient) so she uses 300L.

After they've eaten their evening meal, Briny stacks the dishwasher and, even though it has only six or seven dishes, she turns it on – using 40L of water.

Brooke helps out with the dishes by hand and only uses 5L in the sink.

Before bed, Briny has a hot bath to relax, using 150L of water.

Both girls use the toilet and both use the half flush, which uses 3L.

Both girls wash their hands using 5L each.

Brooke brushes her teeth and turns the tap off while she's brushing. This uses 250ml (0.25L) of water.

Briny leaves the tap running while she brushes, using 5L.

Some people are fantastic water savers and some are great water wasters. Which are you?