

Cub Scout waterwise badge

Complete **any six** of the following waterwise activities. You can do them as a pack, small group or by yourself.

1. Discovery

Conduct simple experiments to show your understanding of two of the following:

- ◆ Capillary action
- ◆ Surface tension
- ◆ The density of salt water
- ◆ How oil floats on water
- ◆ How a submarine works or similar

Activities

Runaway pepper – shows surface tension

Watch as the pepper races across the surface of the water trying to outrun the soap chasing it.

What you need

- ◆ *A bowl*
- ◆ *Ground pepper*
- ◆ *Dishwashing liquid*
- ◆ *Water*

What to do

1. Fill the bowl with water.
2. Toss some ground pepper across the water's surface.
3. Add a drop or two of dishwashing liquid and watch what happens!

Why does the pepper race away from the soap?

This happens because the dishwashing liquid breaks the water's surface tension, allowing the water to pull the pepper away from the soap. Amazing isn't it?

Climbing water – shows capillary action

Watch the water 'climb' upwards despite the pull of gravity.

What you need

- ◆ Water
- ◆ Clear glass or cup
- ◆ Stirring spoon
- ◆ Knife
- ◆ Measuring cup
- ◆ Blue or red food colouring
- ◆ 3 white carnations or another white flower



What to do

1. Measure $\frac{1}{2}$ cup of water and pour into the clear glass.
2. Add several drops of food colouring to the water and stir with the spoon until it has dissolved.
3. Cut the ends of the carnation or other flower at 45 degree angles. Be careful not to crush the ends.
4. Place the flowers stem first into the container with coloured water.
5. Put your experiment somewhere where you can leave it safely to view over several days.

Capillary action is how flowers and plants move water from the ground beneath them, up through their stems and into their petals and leaves.

*** Referenced from Water – learn it. live it*

Oil and water do not mix – shows how oil floats on water

Some things just don't get along well with each other. Try this experiment to see whether oil and water can become friends.

What you need

- ◆ *125ml of cooking oil*
- ◆ *Blue food colouring*
- ◆ *Small objects of various materials and sizes*
- ◆ *Clear container or drinking glass*
- ◆ *125ml of water*

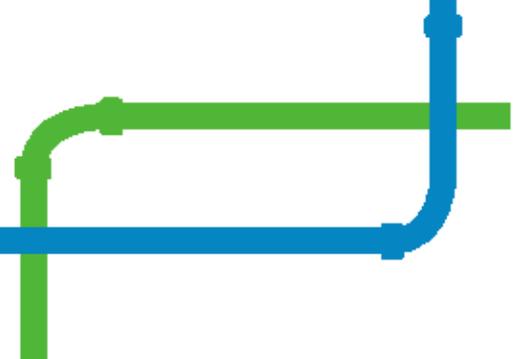
What to do

1. Add the water and food colouring to the clear container or drinking glass.
2. Gently add the cooking oil to the container or drinking glass.
3. Add the small objects, one at a time to the container and observe what happens.

Where do the objects end up compared to the water and oil? What do you think is happening here?

Even when you mix oil and water together they still separate. The oil always floats to the top because it is less dense than water. Oil and water don't mix because water molecules are more attracted to each other than to oil molecules.

Oil and water will never become friends!



2. Conservation

Find your water meter and investigate how much water your family uses in a week.

- ◆ Discuss with your family how you could reduce this amount.
- ◆ Design and make a fridge magnet to display a water saving message to your family

Activities

Reading the meter is something that is usually done by someone from your local water retailer, but you can do it too. Understanding how to read your water meter can help you to know how much water you're using and whether you need to be more efficient.

1. Find an adult who can help you find the water meter at your house. Usually the water meter will be near the front of your property. It comes up out of the ground and looks like a bulky metal pipe with a tap and counter attached. This meter is used to measure the amount of water that your property uses. If you live in an apartment, your meter may be in a special cupboard in a shared area of your block.
 2. When you've found the meter, look for the numbers displayed on it. Ask someone in your household to turn on a tap while you're watching the numbers. What happens?
 3. Read the numbers from left to right – this is your meter reading. The black figures measure kilolitres, while the remaining figures show part of a kilolitre. Write down the full number displayed on your meter.
 4. Return to your water meter at the same time the next day and work out how much the numbers have changed.
- ◆ South East Water has a great video to show you how to '[How to read my water meter](#)'
 - ◆ Think about how you use most of your water (15-20 buckets per person) each day.

*** Referenced from Water – learn it. live it*

4. Health

Water is vital to our health.

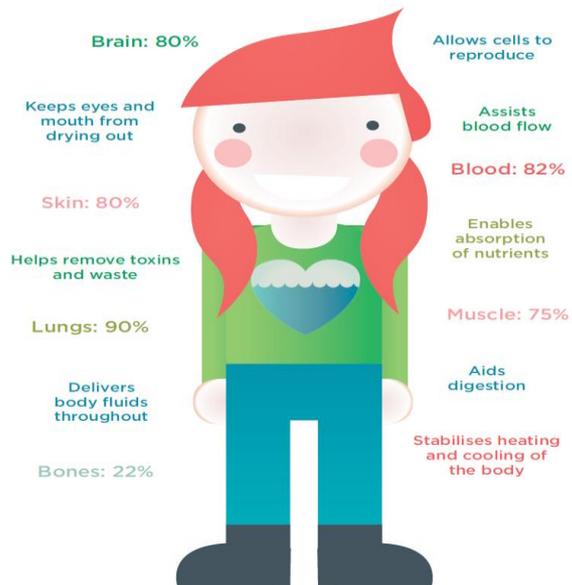
- Find out what happens to our bodies if we don't have enough water or if our water is not clean. Tell your Six or Pack what you have learned.

Activities

- Watch the YouTube video '[Why is Water Important for Health](#)'
- Using the table below, write down the number of drinks you have had today in each of the columns.

A quick sip at the bubblers	A long slurp at the bubblers	Half of my drink bottle	All of my drink bottle	I've been drinking water ALL DAY!

- Have you had more or less than you thought?
- Do you think this is enough water to keep you hydrated?



*** Referenced from Water – learn it. live it*

5. Water and the natural environment

Choose a way to show that you understand the water cycle and the three forms water can take:

- ◆ Solid
- ◆ Liquid
- ◆ Gas

Activity: Water cycle in a bowl

Materials

- ◆ A large, clear bowl
- ◆ A marker
- ◆ A clear cup
- ◆ Plastic wrap
- ◆ Tape or a large elastic band
- ◆ Two small stones or beads
- ◆ Water
- ◆ Food dye (optional)



Instructions

1. Place a few cups of water into the bowl so that the water level is about 2cm high.
2. Place the empty cup in the middle of the bowl with some stones to weigh it down.
3. Put glad wrap over the top of the bowl and make sure it is well sealed by taping it around the edge or putting an elastic band over the wrap.
4. Place a small stone in the middle of the glad wrap, over the cup.
5. Put the bowl in a sunny position where it won't get bumped.
6. Mark the water level on the outside of the bowl.

7. After an hour mark the water level on the side of the bowl and investigate what the bowl looks like e.g. 'it's foggy' 'is there is water on the plastic wrap' etc.
8. Once the water level in the bowl has gone down significantly (about a week), remove the glad wrap and have a look at the cup. What can you see? There is water in the cup. How did it get there? Where did it come from?

Explanation

This bowl has recreated the water cycle. The warmth from the sun caused the water in the large bowl to evaporate, turn from a liquid into a gas. The water vapour that touched the plastic wrap and edges of the bowl cooled down enough to condense. As the water droplets joined together, they ran along the plastic wrap and dripped down into the cup.

*** Referenced from Water – learn it. live it*



6. Community

Perform a community service such as:

- ◆ Helping to re-establish a wetland (contact the [Edithvale-Seafood Wetlands](#))
- ◆ Plant low water-use scrubs or similar
- ◆ Contact an environmental group to see what you can do to help your community

Event you might like to get involved in:

In the South East Water region there are lots of environmental community groups that need your help. Unfortunately many organisations must have people who are 18 or older so you will need to do volunteering with a parent or guardian.

- ◆ [Clean Up Australia Day](#)
- ◆ [Cool Australia's Enviroweek](#)
- ◆ [Conservation Volunteers](#)
- ◆ [Greening Australia](#)
- ◆ [Schools Clean Up Day](#)
- ◆ [Youth Clean Up Day](#) – this activity is great for cubs and scouts

Community groups in the South East region

- ◆ [Dolphin Research Institute](#)
- ◆ [Estuary Watch](#)
- ◆ [Friends of the Royal Botanic Gardens Melbourne](#)
- ◆ [Friends of the Royal Botanic Gardens Cranbourne](#)

7. Global community

1.1 billion people in the world do not have access to clean water.

- ◆ List six countries where there is not enough clean water
- ◆ List the names of two groups working to help these countries
- ◆ Find out if there is anything your family or your Pack can do to help

Where you can find out more information

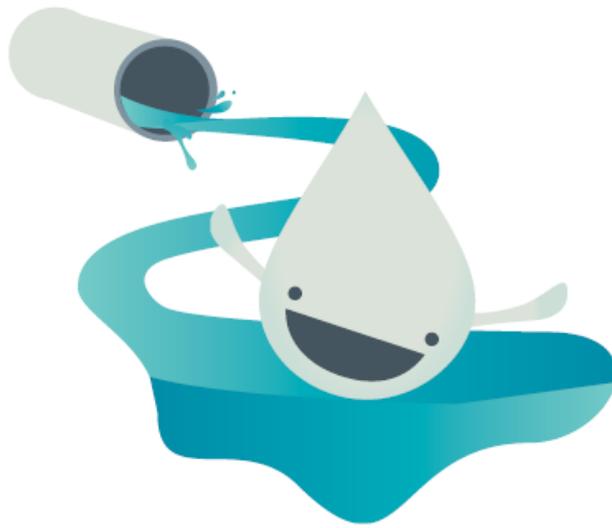
- ◆ [WaterAid](#)
- ◆ [The Water Project](#)
- ◆ [World Vision Australia](#)



8. Games

With your Pack participate in a quiz or a wide game with a water them

- ◆ Play the South East Water [Natural Water Cycle game](#) with your Pack.
- ◆ Play the South East Water [Melbourne Water Cycle game](#) with your Pack.
- ◆ Play the South East Water [Water Sources game](#) with your Pack.



Visit the South East Water Education website for more information
www.educationsoutheastwater.com.au

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Frankston Vic 3199

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Phone: 9552 3931

9. Expedition

With your family or your Pack visit a dam or water catchment area.

- ◆ Find out what area it supplies with water and any other interesting facts you can.
- ◆ Tell your Six or Pack what you have learnt.
- ◆ Take some photos to help you explain.

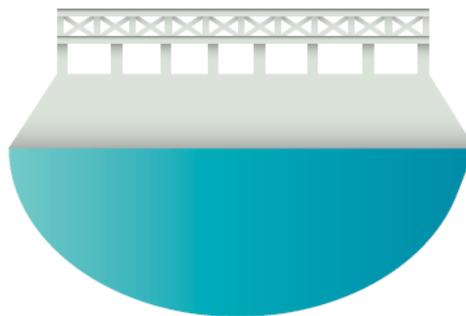
What is a dam?

- ◆ People often think a dam is simply a large man-made body of water. However, dam actually refers to the large barrier that impounds water or underground streams and retains the water for storage and future distribution.
- ◆ Dams are used as a part of the structure of a reservoir.
- ◆ In Australia dam can also refer to man-made water storages on farmland. Although smaller than reservoirs used to store water for communal distribution, farm dams still require careful planning and construction.

Did you know?

- ◆ Most of Melbourne's drinking water comes from protected catchments – forested areas to the north and east of the city that stretch along the Great Divide to the Thomson Reservoir in the east.
- ◆ Many of the catchments are located in national parks and state forests where public access is limited. The land was set aside for water collecting more than 100 years ago and have remained largely undisturbed.
- ◆ Visit [Melbourne Water website](#) to view the water storage levels in the dams
- ◆ The earliest known reservoir is the Jawa Dam in Jordan, which dates all the way back to 3000 BC.

*** Referenced from Water – learn it. live it*



10. Home environment

At home or at your scout hall help to build a frog friendly garden, plant some native shrubs or ground covers or similar. If you do this activity bring a note from a parent.

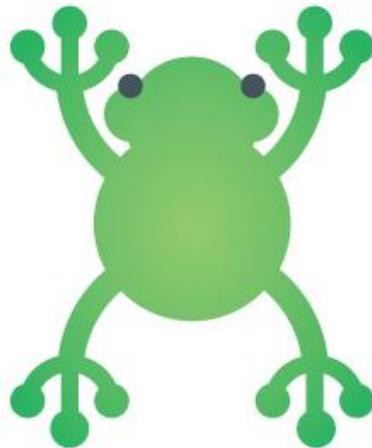
How to create a frog habitat

Take action in your own backyard, school or community by creating a frog friendly habitat.

- ◆ Download [Melbourne Water's Frog Friendly Habitat Guide](#)

Did you know?

- ◆ Melbourne Water has a Frog Census App so you can submit frog call recordings all year round.
- ◆ Waterwatch engages with the community to protect our environment. Contact Waterwatch@melbournewater.com.au or call Melbourne Water on 131 722.



References

Thank you to Water – learn it. live it resource for the use of the images and several activities.