

Module 2:

How Do We Use Water?

Early Learning
Water Education
Program



Module overview

Learning Elements	Group Discussion	Activity
1. Water in our world: Where do we find water in nature?	How much of the Earth is covered in water?	How do animals and birds use water? Matching/ pairing activity
	What types of water can we find? What do humans, animals and birds use water for?	Personal experiences with, in and around water
2. How do we use water at home and in our environment?	Discuss all the different ways water is used around the learning environment and at home, for health, hygiene and recreation.	What we use water for- describing actions through use of prompt cards
		Water use through mime- reiterating learning through actions
		'Water Discovery Walk'- reiterating learning through observations
3. How do we use water at work?	How is water used in different places of work such as in manufacturing (factories) or agriculture (farming)?	Old MacDonald had a farm...but it didn't rain! Seed planting experiment
	What impacts does drought or water restrictions have?	What goes into a bottle of water? Introduction to resource use

Note: All URL's and links used throughout the Module are accurate and current at the time of publication.

Alignment with Early Years Learning Framework

Outcome 2: Children are connected with and contribute to their world.

- Children become socially responsible and show respect for the environment.

Outcome 3: Children have a strong sense of well-being.

- Children take increasing responsibility for their own health and physical wellbeing.

Outcome 4: Children are confident and involved learners.

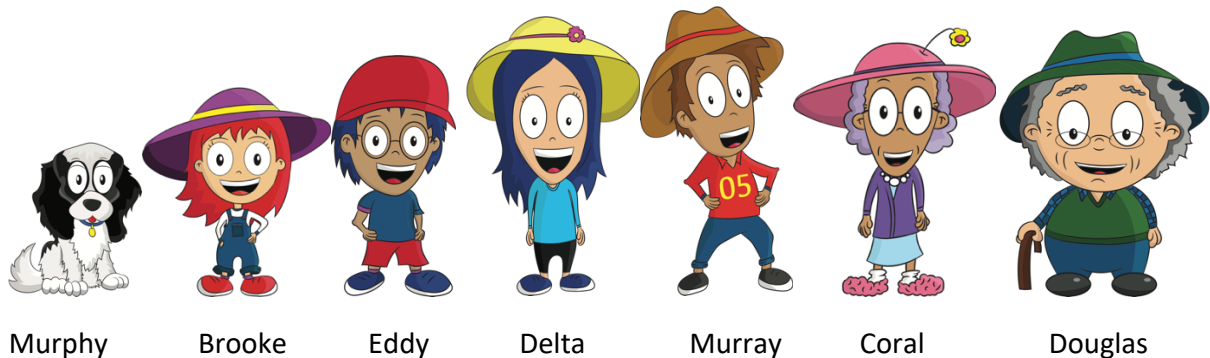
- Children develop a range of skills and processes such as problem solving, inquiry, experimentation, hypothesising, researching and investigating.
- Children transfer and adapt what they have learned from one context to another.

Outcome 5: Children are effective communicators.

- Children interact verbally and non-verbally with others for a range of purposes.
- Children express ideas and make meaning using a range of media.

Telling the Story

Meet the Wade family, they will help us tell the story of water.



Key Terms

Term	Definition
Ground water	Groundwater is the water present beneath Earth's surface in soil pore spaces and in the fractures of rock formations.
Surface water	Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks.
Dehydration	Excessive loss of fluid from the body.
Manufacturing	The making of articles or goods on a large scale, using machinery. Can also be called industrial production.
Agriculture	The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals (livestock) to provide food, wool, and other products.
Consumption	The action of using up a resource.
Megalitre	A unit of volume equivalent to one million litres.
Drought	A prolonged period of abnormally low rainfall, leading to a shortage of water.

Background information

Water is vital for life. Without it, humans, animals and plants cannot physically survive. Water is also necessary for a host of other reasons including industrial manufacture, agriculture (food production) and recreation. While over 70% of the earth's surface is covered by water, nearly all of this (97%) is saltwater. Ice makes up a further 2%, which leaves only 1% of all the water on the planet suitable for human needs.

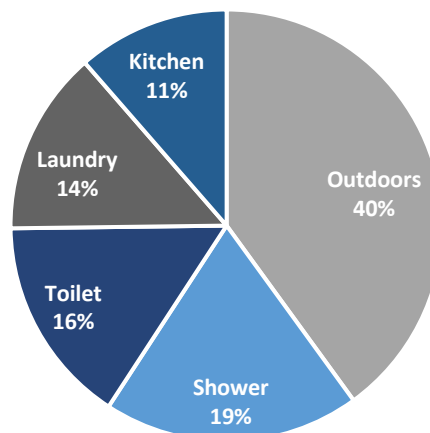
In Australia, water is collected from two main sources, groundwater and surface water. *Ground water* is rain that has drained underground and collected in impermeable layers. *Surface water* is rain that has drained into rivers or creeks, or has been collected in dams or water tanks. Before water can be used for drinking or washing, it must be cleaned at a water treatment plant. It is then pumped to a dam or reservoir for storage.

Water is essential for the human body to function correctly. Water makes up approximately 60% of our body weight and humans cannot survive for more than a few days without it. The body uses water in all its cells, organs and tissues to help regulate temperature and maintain other bodily functions. The body loses water through breathing, sweating and digestion and it is essential that humans rehydrate by drinking fluids and eating foods that contain water, such as fruit and vegetables.

Water use in the home

However, humans do not just need water for drinking. Water is also used for many activities in and around the home such as for bathing, washing, cleaning, cooking and gardening as depicted in the pie chart below. The average Australian consumes 100,000 litres of freshwater per year, that's around 270 litres per day.

Average daily water usage (%)



Source: www.yourhome.gov.au/water

The table below shows how much water is used, on average, in general household activities:

Activity	Water used
Toilet flush (single flush cistern)	11 litres a flush
Bath	110 litres
Shower (10 minutes)	100 litres
Dishwasher load	12 litres a load
Washing machine load (front loader)	65 litres a load
Washing machine load (top loader)	110 litres a load
Brushing teeth with tap running	4 litres a minute
Garden sprinkler per hour	999 litres per hr
Car Washing with hose	180 litres a wash
Car Washing with bucket	99 litres a wash

Industrial water use

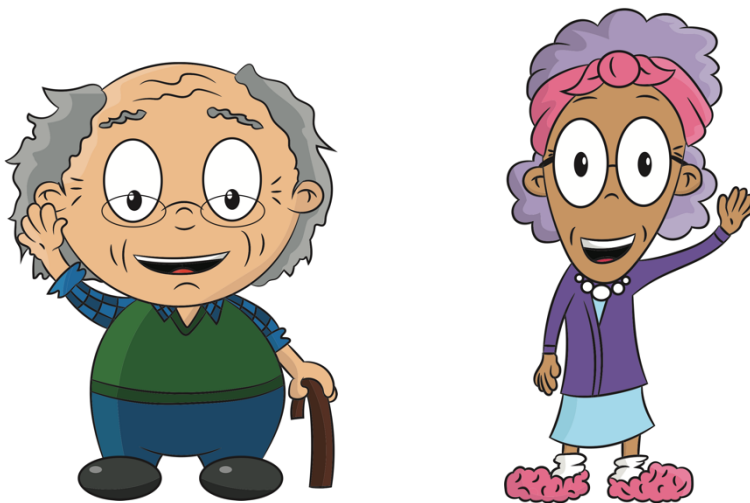
Industrial water consumption places strain on the world's limited water supply. In fact, the agricultural and industrial sectors account for approximately 90% of direct water withdrawals. Water is used in industry and manufacturing for such purposes as fabricating, processing, washing, diluting, cooling or transporting a product.

The garment and textile industry is one of the most water-intensive industries in the world. Creating a single pair of jeans requires close to 7600 litres of water. The beverage industry that produces juices, soft drinks and beer is also water intensive. Water is not only required in the liquid themselves but also in the additives that are included in the drink such as barley, sugar, coffee, fruit etc. It takes between 680 and 1241 litres of water to produce a 2-litre bottle of soft drink, 140 litres of water to produce the ingredients to make a single cup of coffee, and between 3 and 7 litres of water to make just one litre of bottled water.

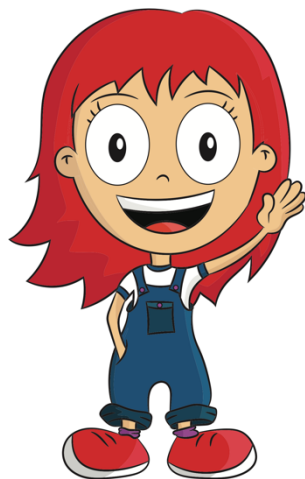
According to the Australian Bureau of Statistics (ABS) in 2018/19, 8 million megalitres of water was used in agricultural production in Australia. 70% of water used on farms was applied to pastures and crops. Periods of drought can deplete water stores for animals and other farm uses. Dry seasonal conditions across much of Australia have driven up feed and water prices, due to high demand and limited availability.

Support materials, links and additional resources

- Video: Bathurst Regional Council – [Module 2 The Wade Family - How Do We Use Water](#)
- Website: Bathurst Regional Council: [Catchments and water supply](#)
- Video: YouTube [Weather on the Go - Floods and Droughts](#)
- Website: ABC Behind the News – [Drought Kids](#)
- Website: [Sydney Water resources](#) for students and teachers
- Book – [The Adventures of a Plastic Bottle](#)



Learning Element 1: Water in our world: Where do we find water in nature?



I swim in the ocean, paddle in the creek, fish in the river, go boating on the dam, walk to the waterfall and splash in the puddles

Where else do we find water? Let's learn more!

Group discussion:

How much of the Earth is covered in water? What types of water can we find? What do humans, animals and birds use water for?

Resources for learning:

- o *Support Resource: World Map with Oceans*

Note: Educators may wish to use a world globe or large poster world map

- Using the **Support Resource: World Map with Oceans, or a globe**, ask children to think about all the different bodies of water that can be found on Earth and see if they can name them e.g. ocean, stream, creek, river, dam, waterfall, puddle etc.
- Explain to the children that all these different bodies have different characteristics. Some of the bodies of water are salty, while others are fresh; some are deep while others are shallow; some are there all the time e.g. an ocean, while others may change (or disappear altogether) depending on the season and the weather e.g. a creek or a dam.
- Have a **look at a globe**. How much of the surface of the globe is covered in water? Explain to the children that most of the water shown on the globe is the oceans. Have a look at a larger scale map. Can children pick out other water bodies e.g. dams/ reservoirs, rivers or streams? Explain to the children that eventually, all the water from the creeks, rivers and streams will flow into the ocean either through surface or groundwater flow.
- Explain that as well as humans, birds and animals also need and use water. Ask the children to think of the ways different animals and birds may use different bodies of water.

Activity:

How do animals and birds use water?

Resources for learning:

- *Activity Sheet: Water in the Environment Matching Cards (print double sided, laminate and cut out the animal and environment water use matching cards provided, making sure to cut them into their puzzle match shapes)*
- *Support Resource: World Map with Oceans*

Note: You may wish to source additional pictures or photos for this activity

- Discuss why some animals can survive in one environment and not another. Name some animals or birds that can live in saltwater environments and some that live in freshwater environments. Using the **Support Resource: World Map with Oceans, or a globe**, show children where the Arctic and Antarctic is located. Ask them to think about what water looks like in very cold places such as these (e.g. icebergs, snow etc.) See if they can name any animals or birds that live in these kinds of environments.
- Using the **Activity Sheet: Water in the Environment Matching Cards**, ask the children to match the animal or bird with its correct environment or water use.

Activity:

Personal experiences with water

Resources for learning:

- *A4 paper, coloured pencils and pens*
- Ask the children to share their memories of an experience with different bodies of water e.g. a trip to the beach, playing in the pool, going on a boat trip, visiting a waterfall etc. What was the water like in those places? Ask the children to **draw a picture** of this experience.



Learning Element 2: How do we use water at home and in our learning environment?



Hi kids!

I'm busy watering the garden, Grandpa is washing up, Delta is washing clothes, Brooke is drinking a glass of water, Dad is cooking pasta, and Eddy is watering a pot plant.

Let's learn about all the different ways we use water!

Group discussion:

Discuss all the different ways water is used around your learning environment and at home, for health, hygiene and pleasure.

Resources for learning:

- *Video: Module 2 The Wade Family – How Do We Use Water?*
- Explain that water is essential for humans and that we need to drink water to stay healthy and to keep our bodies functioning well. Remind the children about the importance of bringing a water bottle to their learning environment every day and to make sure they have regular drinks and keep their water bottle topped up.
- Talk about the use of water for hygiene and staying clean and healthy. Ask the children to talk about washing their hands and when they do it e.g. before they eat, after playing outside, after going to the toilet, etc. Discuss with the children about the importance of washing their hands thoroughly and of practicing good hygiene.
- Apart from drinking and keeping clean, ask the children what other uses there are for water at home, for example, cooking, playing, gardening.
- Ask the children to think about all the different ways water is used in and around your learning environment. How is some of the water use different at home to how the water is used at your learning environment?
- **Watch Video: Module 2 The Wade Family - How Do We Use Water?**

Activity: What we use water for

Resources for learning:

- *Activity Sheet: Water Use Flash Cards (print and laminate the Water Use Flash Cards)*
- *Activity Sheet: Water Use At Home*
- *Activity Sheet: Wade Family Indoors*
- *Activity Sheet: Wade Family Outdoors*
- *Video: Module 2 The Wade Family – How Do We Use Water?*
- *Coloured pencils*
- Print and laminate the **Activity Sheet: Water Use Flash Cards**. Hold each card up and ask the children to describe how the water is being used in each picture.
- Discuss which of these activities requires a lot of water and which require less water. For example, having a shower uses more water compared to wiping a table which uses less water
- Ask the children to list all the ways they use water in one day, from when they get up to when they go to bed
- Using the **Activity Sheet: Water Use At Home**, discuss the various ways water is used in the drawing, and ask the children to colour in the sheet
- Show the children the **Activity Sheet – Wade Family Indoors** and the **Activity Sheet: Wade Family Outdoors**, ask the children to identify all the ways the Wade family use water
- **Watch Video: Module 2 The Wade Family - How Do We Use Water?**

Activity: Water use through mime

- Taking it in turns, ask the children to mime various uses for water at home. The remainder of the group try to guess what is being mimed.



Activity: ‘Water Discovery Walk’

Resources for learning:

- *Activity Sheet: Water Discovery Walk*
- Using the **Activity Sheet: Water Discovery Walk**, take the children on a ‘Water Discovery Walk’ around the learning environment (and outside) to discover the different ways water is being used and for what purposes – complete the Water Discovery Walk worksheets as you go. During this exercise, the children can practice counting, i.e. counting the number of toilets and the number of taps in the learning environment. They can also identify the various different uses for water in all areas of the learning environment e.g. For cooking, cleaning, washing up, gardening etc.
- Back in the room, use tally marks to show how many toilets and how many taps were in the learning environment. Discuss all the other uses for water in the learning environment, and which activities use more water than others.

Extension activity

As a take-home activity, ask the parents/ caregivers to repeat the ‘Water Discovery Walk’ around their home and garden. This will allow children to identify the different ways water is being used in the home compared with water use in the learning environment. Again, children should be encouraged to practice counting during this exercise i.e. counting the number of toilets and the number of taps at home. They can also identify the various different uses for water in all areas of the home e.g. For cooking, cleaning, washing up, gardening etc.

Back at the learning environment, have a discussion about the different uses for water at home and the different uses for water in the learning environment.



Learning Element 3:

How do we use water at work?

When I was a young boy, we lived on a farm. I remember what the farm looked like when we had lots of rain and when it was dry and we had no rain.

Let's learn about the importance of water and how it is used in different places of work.



Group discussion:

How is water used in different places of work, such as in manufacturing (factories) or agriculture (farming)? What impacts do drought and water restrictions have on water?

- Introduce the idea of a work-place as somewhere that people go to do their jobs. Discuss some different types of jobs and get the children to think about the associated work-places e.g. fireman works in a fire station, teacher works in a school, farmer works on a farm.
- Discuss the types of jobs and workplaces of their parents or grandparents. Think of the different ways that water is used in different type of workplaces?
- Explain that water is used in all places of work and is often an essential part of the process. For example, in agriculture (farming), water is essential for helping crops to grow. In factories and industries, water is essential in processing and manufacturing (making) products.
- Introduce the word drought to the children and explain what it means. Ask the children if they feel that Bathurst is in a period of drought or of good rain. Why do they feel that?



Activity: Old MacDonald had a farm....but it didn't rain!

Resources for learning:

- *Support Resource – Dry Environment (farm in drought)*
- *Support Resource – Wet Environment (green pastures and waterways)*
- *Small pots or containers (2x per child), name labels, kitchen towel, cotton wool, cress seeds, spray water bottle*

Note: Photos of farms in periods of drought and in periods of rain can be sourced from the internet or contributions from children

- Ask the children to think of a farmer. What job does a farmer do? Ask the children to think of all the ways that water would be used on the farm. Do they think that farms would use a lot of water or not very much water? Why do they think that?
- What would happen to the crops and animals on the farm if it stopped raining? Show students **Support Resource: Dry Environment and Support Resource: Wet Environment**, and other **photos of farms** during periods of good rain and in periods of drought. Ask the children to describe what they see in the photos. What are the colours like in the landscape in the two photos? What do the crops or livestock look like in each of the photos? In what ways are the photos different?
- To demonstrate the impact of drought on crops, get the children to grow some 'crops' of their own:
 - Each child should be given two small pots (e.g. yoghurt pots, small plastic cups, or similar) with their names on.
 - Wet some kitchen roll or cotton wool and place it in the pot, leaving a 3cm gap at the top.
 - Sprinkle cress seeds into the wet cotton wool and press down gently.
 - Place in a warm light place (e.g. windowsill). The first pot will represent a farm during a period of good rain- this pot will get rain (a light spray of water) each day. The second pot will represent a farm in a period of drought and will not receive any rain (do not water this pot).
- Get the children to check their 'crops' every few days- discuss what is happening. After 7-10 days look at the crops (cress pots) that have had lots of rain (have been watered), and the crops that have had no rain (not been watered). What are the differences? Reiterate that plants need rain to grow and share the photos of the farm in a drought again to show the same issue on a much bigger scale.

Activity: What goes into a bottle of water?

Resources for learning:

- *Support Resource: Plastic Bottle Impact*
- *Book – [The Adventures of a Plastic Bottle](#) (optional purchase item)*
- Explain that water is used in manufacturing and industry to make the things we need and use every day e.g. clothes, furniture, cars, toys etc.
- Ask the children to go and collect their water bottles. Why do we bring water bottles to the Centre every day? When do we drink water? Why is it important to drink lots of water? What happens to the water bottles when they go home (i.e. they get washed and refilled for the next day).
- Show children the **Support Resource: Plastic Bottle Impact** image of how much water and other resources are used in making a plastic bottle.
- Alternatively, read the **book – The Adventures of a Plastic Bottle**
- Introduce the word 'reusable' as something that can be used again and again. Ask the children to think about why reusing something is a good thing rather than throwing it away.

