Resource type: Activity

Year level: F - 10

Curriculum links: Click here

Water sharing game

A visual demonstration of water use along the River Murray. This activity highlights the importance of being mindful of water use and demonstrates issues with low flows.

Time needed for this activity:

20 minutes (longer if repeated more than once or extended with additional discussion material and ideas on page 2).

Materials/equipment needed:

- Enough large plastic cups for the number of printed cards/water users in the activity (19 if you use the provided water use printables)
- Jug of water (2L should be enough)
- Blue food colouring (optional, to make water easy to see)
- Printed cards showing water use (19 printables provided but you can add more which are relevant to your area):
  - 1 x dam
  - 1 x river mouth
  - A number of farm users (relevant to the area - livestock, fruit growing etc)
  - A number of environmental users (relevant to the area - trees, animals, fish etc)
  - A number of community users (relevant to the area - town living, rural living, town gardens, ovals, schools, city/country etc)
  - First Nations' culture
  - Any other examples of water use that are relevant to the area.
- Print images onto cards for students to hold or wear (for example, attach string to hang around neck).

LANDSCAPE SOUTH AUSTRALIA MURRAYLANDS AND RIVERLAND

Introduction:

All water users along the river, including the environment, need water. The challenge is to share water fairly between all of these water users.

To protect the health of the river, it is important to balance the needs of water users along the river all the way to the ocean (river mouth). Providing access to all users is important to manage the health of natural ecosystems, sustain food production and provide water to communities.

Activity:

Step 1

Set the context for the students:

We are all water users. We all need access to water for showers, watering gardens, drinking etc.

Along the length of the river, there are many other water users such as animals, natural environments, farmers, fruit growers and communities. Everyone and everything that needs water to live is a water user.

Today, you will represent water users all along the River Murray.

Discuss with the students some of the water uses (home, farm, community, environment). Ask which water use or water user they think is more important!?

It's now going to be up to you to share the water from the river and use that water wisely to be able to send some of it downstream.

Remember water cannot flow back upstream, once it's moved downstream that's it. ALL the water users need some water to survive.

Step 2

Select students to be the water users (as many as you have printed water user cards for). Give each student a water use card to wear/hold.

Ask the students to line up out the front of the class or group. The "dam" card must be at the start of the line and the "river mouth" card must be at the end of the line. All the water users in between need to line up - making sure they are not next to someone with the same water use type.

Provide each student with an empty cup. The water users are now ready to 'share' the water.

Step 3

Fill the jug with water and add blue colouring.

This jug of water represents all of the water that flows into the river from tributaries in the catchment. This is all the water we have access to as water users along the river.

Use the jug to fill the "dam's" water cup. You can fill the cup to the top OR you can fill it to 2/3 or 3/4 as most of our dams are rarely at full capacity.

It is now up to you all, as water users along the river to share this water. "am" you are the first the share water to the next in line. You MUST share some of your water downstream but you should keep an amount of water for yourself, however much water you think you need to survive.

Students then pour water from cup to cup, ensuring that each consumer has a little water left in their cup as they go. Let them pour and see how they go, see if they reach the river mouth.

Step 4

Once complete - discuss what happened. Did every water user get some water?

Did they manage to share enough water downstream to make it all the way to the river mouth?

Discuss if they think this was a fair way to distribute the water, or what other ways it could be done.

What would happen if one of the water users was greedy? Do you think there needs to be rules in place for water users?

Once they have discussed and have the hang of it, try these permutations:

- Try it again and see if they are able to share all the way to the river mouth
- Set a time limit for each consumer to hold the water (eg. 5 seconds)
- If a consumer doesn't have any water left, they are then out of the game and have to sit down
- Have the students consider that farms might need up to 3 times more water than other consumers to survive. How might this affect the sharing?

Research or discuss what might happen under different weather or climatic conditions? Who might need more or less water?

Extension and discussion ideas

Water from the River Murray

For most people in South Australia, at least some of the water they use comes from the River Murray.

Show a map of the Murray-Darling Basin and have students pick out some of the places or locations they know:
mdba.gov.au/importance-murray-darling-basin/where-basin

The Murray-Darling Basin is Australia's largest catchment. A system of pumping stations, filtration plants and pipelines carry water to communities that need it.

Definition: a catchment is an area of land where any rainfall is collected and will run to the lowest point, usually a river or a lake. In the Murray–Darling Basin, the water drains into the Murray and Darling rivers, and then into the Southern Ocean near Goolwa.

For more information about the Murray-Darling Basin catchment:
mdba.gov.au/water-management/catchments

In some cases, water from the River is pumped to towns hundreds of kilometres away to ensure they have a reliable water supply.

Discuss the amount of water left in the cups at the end of the activity and ask students if they think this water we have is enough?

Discuss how much water each of the water users currently use. Do they need all that water? Could different users change the way they use water to make more available for other users?

What/who might be missing out on the water they need?

Discuss how many different uses there are and how they are important for all living things. How can we share water so there is enough for people and the environment to thrive. How do you think decision makers do it?

Learn more about water management in the Murraylands and Riverland region:
landscape.sa.gov.au/mr/water

Image: Murray Darling Basin Association

Download this poster which illustrates the water delivery assets of the River Murray system, operated by the MDBA to share the water resources of the southern Murray–Darling Basin. mdba.gov.au/sites/default/files/pubs/River-Murray-System-poster.pdf

Learn more about the Murray-Darling Basin and water sharing: mdba.gov.au/importance-murray-darling-basin

Image: Michael Bell MDBA

Water for First Nations:

There are more than 40 First Nations (Aboriginal Nations) in the Murray-Darling Basin with over 65,000 years of continuous culture and history.

First Nations people have strong cultural and spiritual connections to water and it is critical to maintaining many culturally significant sites, species and practices.

First Nations play a crucial role in the planning and management of the Murray-Darling Basin to ensure that water continues to support their culture and communities.

For more information about the Aboriginal Partnerships Project in the Murraylands and Riverland: landscape.sa.gov.au/mr/projects/all-projects-map/aboriginal-partnerships

For more information about water for First Nations throughout the Murray-Darling Basin: mdba.gov.au/about-basin/water-for-first-nations-people

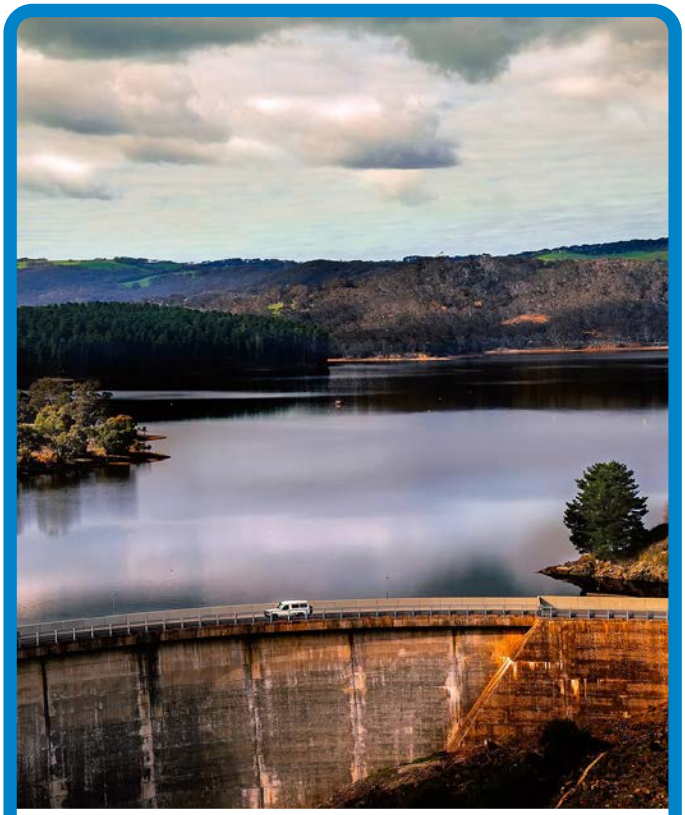
Caring for River Country education resource (Yr10): mdba.gov.au/education/resources/caring-for-river-country

Water for the Environment

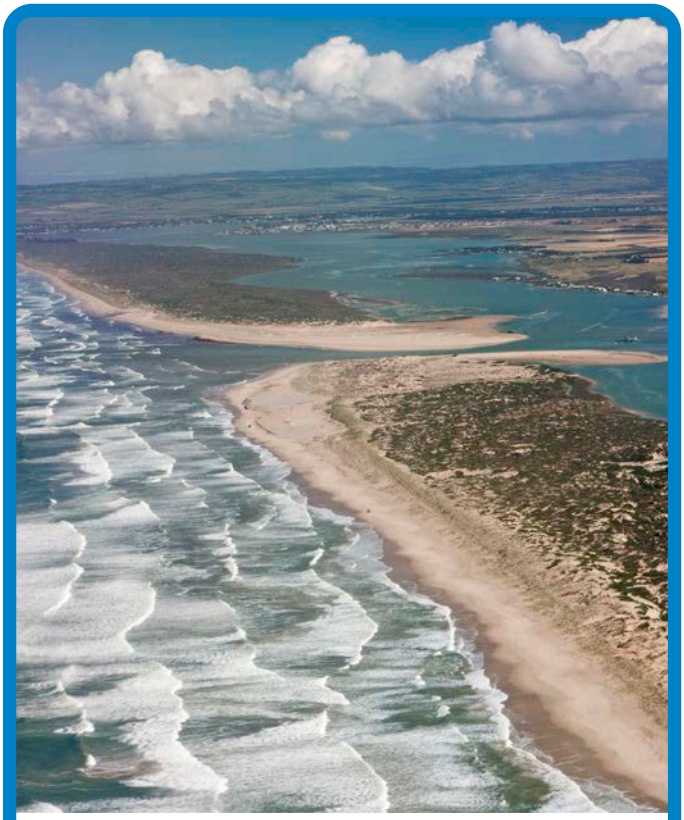
Our rivers have changed. As agriculture, industries and communities have grown over time, water use has increased dramatically.

Some parts of the river are no longer getting the water flows or the flooding or drying they need.

Water for the environment aims to restore river health by delivering planned flows to where nature needs it. This water would have run naturally in the environment before development. To learn more: environment.nsw.gov.au/topics/water/water-for-the-environment/about-water-for-the-environment/what-is-it



Dam



River mouth

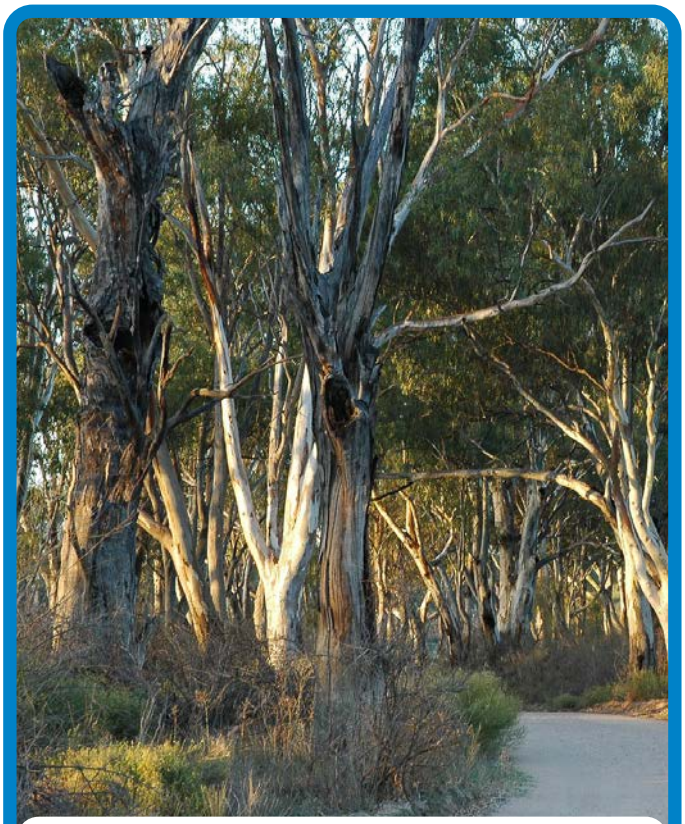
Livestock producer

Grape grower

Almond grower

Citrus grower

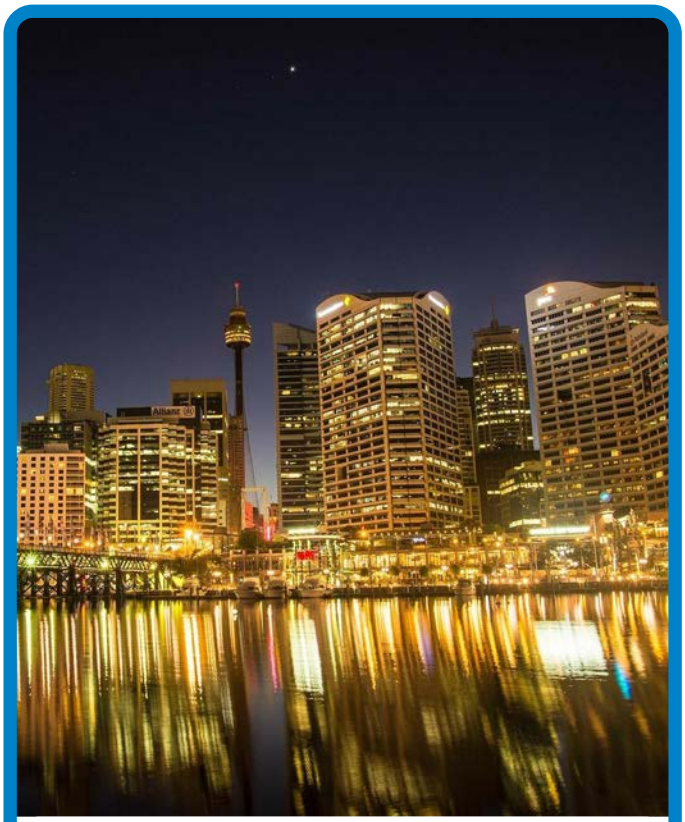
Fruit/veg grower



Trees

Fish

School



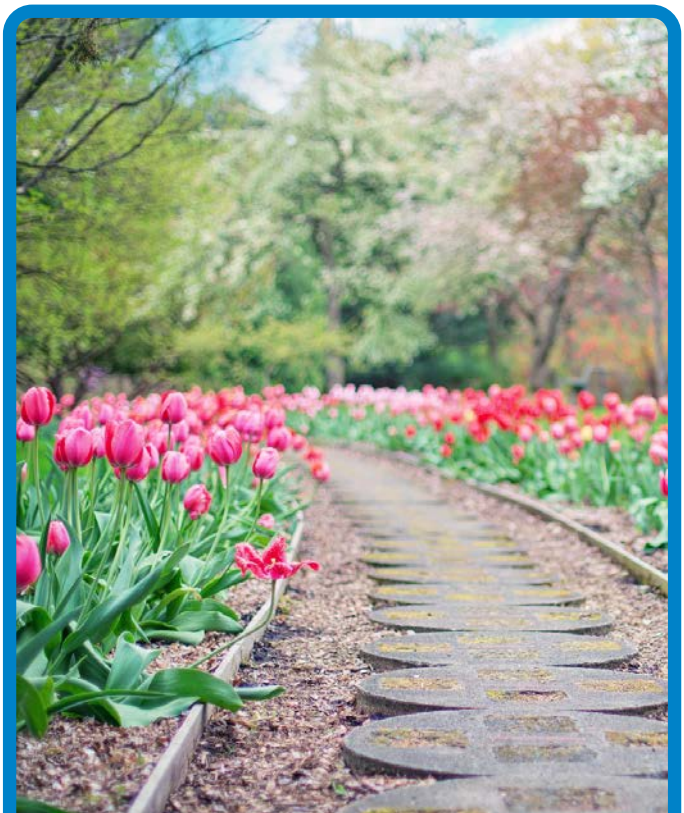
Town/city living

Rural living

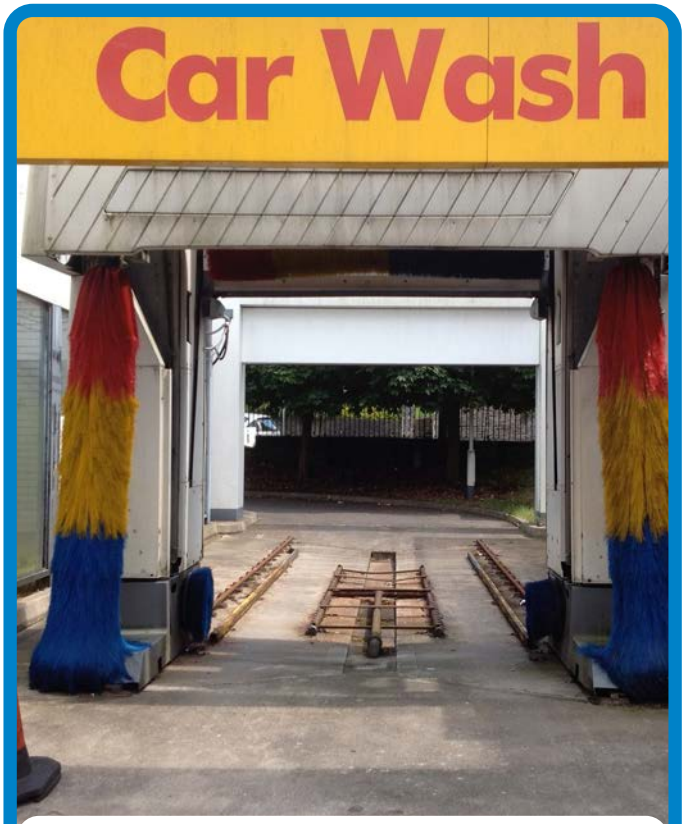
Animals

Wetlands

Sporting venue



Town garden



Local business

Farmer

First Nations

Curriculum links

	Year	Content description
Science	F	Living things have basic needs, including food and water (ACSSU002)
	Year 1	Living things live in different places where their needs are met (ACSSU211)
	Year 2	Earth's resources are used in a variety of ways (ACSSU032)
	Year 4	Living things depend on each other and the environment to survive (ACSSU073) Earth's surface changes over time as a result of natural processes and human activity (ACSSU075)
	Year 7	Some of Earth's resources are renewable, including water that cycles through the environment, but others are non-renewable (ACSSU116)
HASS F-7	F	Draw simple conclusions based on discussions, observations and information displayed in pictures and texts and on maps (ACHASSI008)
	Year 1	Interpret data and information displayed in pictures and texts and on maps (ACHASSI024) Draw simple conclusions based on discussions, observations and information displayed in pictures and texts and on maps (ACHASSI025)
	Year 2	Interpret data and information displayed in pictures and texts and on maps (ACHASSI040 Draw simple conclusions based on discussions, observations and information displayed in pictures and texts and on maps (ACHASSI041)
	Year 4	The use and management of natural resources and waste, and the different views on how to do this sustainably (ACHASSK090) The custodial responsibility Aboriginal and Torres Strait Islander Peoples have for Country/Place, and how this influences views about sustainability (ACHASSK089)
	Year 5	Work in groups to generate responses to issues and challenges (ACHASSI102) The influence of people, including Aboriginal and Torres Strait Islander Peoples, on the environmental characteristics of Australian places (ACHASSK112)
	Year 6	Develop appropriate questions to guide an inquiry about people, events, developments, places, systems and challenges (ACHASSI122) Work in groups to generate responses to issues and challenges (ACHASSI130)
	Year 7	Reflect on learning to propose personal and/or collective action in response to an issue or challenge, taking into account different perspectives, and describe the expected effects (ACHASSI162 Classification of environmental resources and the forms that water takes as a resource (ACHASSK182) The way that flows of water connect places as they move through the environment and the way these affect places (ACHASSK183 The quantity and variability of Australia's water resources compared with other continents (ACHASSK184) The nature of water scarcity and ways of overcoming it, including studies drawn from Australia and West Asia and/or North Africa (ACHASSK185) Economic, cultural, spiritual and aesthetic value of water for people, including Aboriginal and Torres Strait Islander Peoples and peoples of the Asia region (ACHASSK186) Factors that influence the decisions people make about where to live and their perceptions of the liveability of places (ACHASSK188)
GEOGRAPHY	Year 7	Classification of environmental resources and the forms that water takes as a resource (ACHGK037) The way that flows of water connects places as it moves through the environment and the way this affects places (ACHGK038) The quantity and variability of Australia's water resources compared with other continents (ACHGK039) The nature of water scarcity and ways of overcoming it, including studies drawn from Australia and West Asia and/or North Africa (ACHGK040) Economic, cultural, spiritual and aesthetic value of water for people, including Aboriginal and Torres Strait Islander Peoples and peoples of the Asia region (ACHGK041) Factors that influence the decisions people make about where to live and their perceptions of the liveability of places (ACHGK043)
	Year 10	The Aboriginal and Torres Strait Islander Peoples' approaches to custodial responsibility and environmental management in different regions of Australia (ACHGK072)

Curriculum links

This activity along with associated discussion topics and information could assist in the delivery of content in the following cross-curricular priorities:

Sustainability

OI.1 The biosphere is a dynamic system providing conditions that sustain life on Earth

OI.2 All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival

OI.3 Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems

OI.6 The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future.

OI.7 Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments

OI.9 Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments.

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2 Aboriginal and Torres Strait Islander communities maintain a special connection to and responsibility for Country/Place.

OI.3 Aboriginal and Torres Strait Islander Peoples have holistic belief systems and are spiritually and intellectually connected to the land, sea, sky and waterways.

References:

This activity was adapted from a resource created by Clair Bannerman, Murray Darling Basin Authority mdba.gov.au/education/resources/water-sharing-game

Information for extension and discussion was sourced from:

landscape.sa.gov.au/mr/water/river-murray/wetlands-and-floodplains/environmental-water

landscape.sa.gov.au/mr

murrayriver.com.au

mdba.gov.au

Contact:

The Education Program is supported by the Murraylands and Riverland Landscape Board through funding from the landscape levies.
landscape.sa.gov.au/mr/education

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The Murraylands and Riverland Landscape Board acknowledges the First Peoples of the lands and waters we live and work upon. We pay our respects to their Elders past, present and emerging and acknowledge and respect their deep spiritual and cultural connection to Country.

LANDSCAPE SOUTH AUSTRALIA MURRAYLANDS AND RIVERLAND