

Resource type: Activity

Year level: F - 10

Curriculum links: [Click here](#)

All the water in the world

Demonstrate how much fresh water is available on Earth for human use using a simple visual representation.

Time needed for this activity:

15 minutes (longer if extended with additional discussion material and ideas on page two).

Materials/equipment needed:

- clear 1 litre jug
- small measuring jug or syringe
- blue food colouring (optional - to make water easier to see)
- two small clear cups.

Activity:

Start with the jug filled with 1 litre of water. Let the students know that this represents **all** the water that is found on Earth. Ask students where this water might be found (eg. oceans, lakes, rivers, icecaps, snow, underground, etc).

Measure 30 ml of water from the jug and pour it into the first cup. This represents the volume of fresh water on Earth. The remaining water in the jug represents the world's salt water (seas and oceans). Set the jug aside as we now focus on just the fresh water.

Take 10 ml of water from the first cup and pour it into the second cup. The water in the second cup represents the volume of fresh water available to humans and other living things. The 20 ml of water left in cup 1 is frozen in icecaps or too far underground to access.

Discuss whether students think the water in the second cup is enough water for all humans and living things to survive?

Discuss how humans use water (at home, in industries like farming) and who/what else needs water to survive.



Extension and discussion ideas

Where does water come from?

Water on Earth cycles from the oceans evaporating into the atmosphere and forming clouds. Water returns to the Earth's surface as rain, travelling through wetlands, rivers, lakes and underground before returning to the ocean. This process is known as the hydrologic cycle or water cycle.

Watch this video from NASA about water on Earth: [youtube.com/watch?v=oaDkph9yQB8](https://www.youtube.com/watch?v=oaDkph9yQB8)

Download some great additional resources about the water cycle and water as a resource: mdba.gov.au/education/lesson-packages

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 that carry water to communities that need water.

A catchment is defined as an area of land where rainfall is collected in one central point - usually a lake or river. In our case, it's the River Murray and its tributaries. In the Murray-Darling Basin, water drains into the Murray and Darling rivers, and then into the Southern Ocean near Goolwa.

For more information about the Murray-Darling Basin catchments: 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 cup at the end of the activity and ask students if they think this tiny amount of fresh water is enough?

Discuss how little available water there is and this is why water is such a precious resource to all humans, animals and living things.



Image: pixabay.com



Image: Murray Darling Basin Association



Image: pixabay.com

Discuss how water is or should be shared.

Discuss ways of reducing water usage and waste around the home and school. What can we all do to reduce water use?

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

Download this poster which illustrates the water delivery assets of the River Murray system and how water is shared. 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

Access to fresh water

Discuss the fact that in many countries people do not have access to pipelines that pump the water straight to their towns and homes as we do here in South Australia. They have to collect it from rivers, lakes, wells or communal pumps.

This can involve walking long distances to collect water that is not always safe for drinking.

For more information about the basic human right to water:

unwater.org/water-facts/human-rights/

Water as a resource education resources (Yr7):

mdba.gov.au/education/lesson-packages#water

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



Image: pexels.com



	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)

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.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:

Information for extension and discussion ideas was sourced from:

landscape.sa.gov.au/mr

murrayriver.com.au/

mdba.gov.au/

abc.net.au/science/articles/2005/02/17/2244842.htm

Contact:

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landscape.sa.gov.au/mr/education

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