

Resource type: Activity

Year level: F-7

Curriculum links: [Click here](#)

Embodied water

The game that gets you thinking about the amount of water that goes into producing our food.

Time needed for this activity:

15-20 minutes

Materials/equipment needed:

- food image cards (printables on following pages. print and cut to single cards). You will need one set of cards for each group of students. Groups of 4 work well, but can be groups of anywhere from 2-6.

Activity:

Start by explaining to the students that we live in the driest state on the driest continent on Earth. It is therefore very important that we are careful about how much water we use.

Embodied water is the amount of water which goes into making or producing something. Using the background information provided on page 2, introduce the concept of embodied water to your students.

Get each group of students to put their food image cards in order from the food they think has the **least** embodied water content to the food with the **most**.

Once each group has their cards lined up in order, discuss the correct order (answers on page 2) and why some foods have a high embodied water while others are low.

Ask students if they had thought about embodied water before and if this now makes them think about making changes to what they eat?

Discuss ideas around changing what we eat in an effort to assist in saving water.

*** Alternative way to play - print one set of 12 cards and explain the concept of embodied water to the class. Give 12 volunteers a card each and have them line up in front of the class in the order they think. Get suggestions from the other students as to whether they think the order is correct. Discuss outcomes as per above.*



Embodied water background info

Each year, the average Australian uses about 120,000 litres of water for things like showering, washing, cooking and drinking.

But that's just the start - we use much more than that indirectly, through the food we eat. That's because huge amounts of water go into growing food.

Producing a kilogram of beef doesn't just require water to process and package the meat, it also requires water for the cow to drink as it grows, and, even more importantly, water to grow the grass, grain and the pellets the cow eats.

This water is known as embodied water. Embodied water isn't just for food, just about everything we purchase uses water in its production.

So how much water is used to produce common foods that we eat?



Answers/correct order of food image cards:

1 serve of lettuce (1 cup) = 11 litres

1 tomato (120g) = 29 litres

1 slice of white bread = 40 litres

1 serve of broccoli (77g) = 41 litres

1 serve of white rice (280g) = 95 litres

1 serve of milk (240 ml) = 183 litres

1 serve of cheese (28g) = 212 litres

1 serve of tofu (1/2 cup) = 229 litres

1 egg (60g) = 237 litres

1 serve of yoghurt (1 cup) = 332 litres

1 serve of chicken (230g) = 1250 litres

1 serve of steak (230g) = 4663 litres

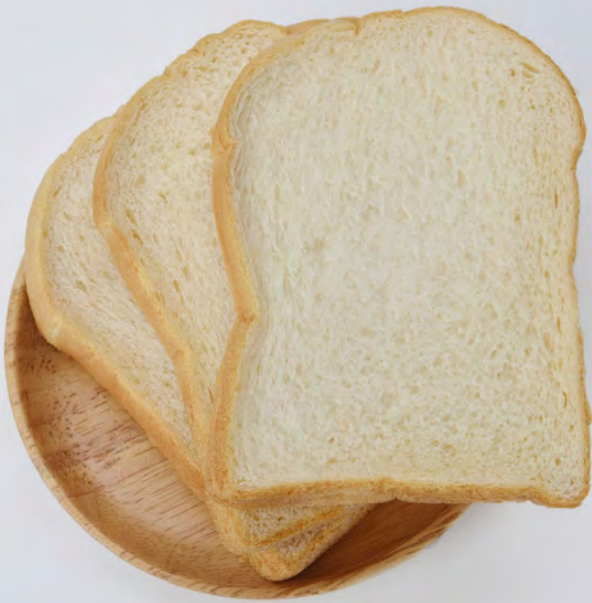
Look at the pattern in the answers: vegetables and grains require very little water, whereas animal products require a lot more. Reducing beef and dairy consumption will save thousands, if not hundreds of thousands of litres of water every year.

Note that embodied water figures vary from source to source and there is no standard way of measuring or calculating it. It will also depend on where the item is produced, how much it rains, etc. Some figures just include irrigation water, whereas others also include rainfall. This activity is designed to get students thinking about how much water is used to produce food.

References:

Information for this activity was taken and adapted from Environment Victoria embodied water game, embodied water fact sheet: environmentvictoria.org.au/

Images used in this resource from pixabay.com



1 slice of white bread



1 serve of broccoli
(77g)



1 serve of chicken
(230g)



1 egg
(60g)



1 serve of lettuce
(1 cup)



1 serve of white rice
(280g)



1 serve of beef
(230g)



1 serve of tofu
(1/2 cup)



This activity along with associated discussion and information about embodied water could assist in the introduction and delivery of content in the following learning areas of the Australian Curriculum:

	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 7	Some of Earth's resources are renewable, including water that cycles through the environment, but others are non-renewable (ACSSU116)
HASS F-7	Year 4	The use and management of natural resources and waste, and the different views on how to do this sustainably (ACHASSK090)
	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	Classification of environmental resources and the forms that water takes as a resource (ACHASSK182) 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 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)

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.

Contact:

The Education Program is supported by the Murraylands and Riverland Landscape Board through funding from the landscape levies.

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