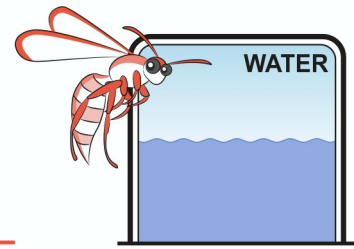


## Water For Humans - Teacher Background



Water moves through the bodies of plants, animals and other living things. It brings in nutrients, moves them around the organisms and removes waste products. Water is essential to life on Earth. Western Australian households use over 44% of their water on their gardens. During a recent council audit I found that water wise people only use 120L per day. When I realised that 22% of household use was for showers it was time to introduce a water wise showerhead and a timer. It was also time to start collecting rainwater for the living things (plant and animal) in my garden. The average Western Australian uses 17 times more water than the average west coast Scot whilst their rainfall for groundwater replenishment is about one hundred times less than in Scotland. Whereas the Scot can depend on rain for the garden the Aussie cannot. Honestly it has nothing to do with personal cleanliness habits! We are now tapping into deep groundwater reservoirs that have taken tens of thousands of years to accrue and have been forced to start desalination of sea and salt lake waters in an attempt to feed our need for more fresh water.

You may wish to pre-empt the quiz by a demonstration of what happens to a living thing, a carrot, if it loses water.

### Materials required

- 2 fresh carrots
- 2 beakers of fresh water
- About 1 tablespoonful of salt

The day before the quiz, immerse each carrot in a beaker of water. To one beaker also add salt and stir to help dissolve the salt. Leave overnight. The following day you will find the carrot in fresh water is crisp and will break with a crack. The carrot in salty water will be quite plastic however.

Salt water has pulled fresh water from the carrot causing its cells to deflate and no longer provide support for the carrot. If you suspect someone is dehydrated, a rough test is to press firmly into a fleshy part. The pressed area will remain depressed.

The following quiz will help students understand how much water we need and how much we use. Information was gained from <http://www.mayoclinic.com/health/water/NU00283>

Ask students to silently circle what they think the correct answer might be on their sheet. Then either give the correct answers (below) or ask them to use the website above.

Since some students find it difficult to envisage volumes of water, it may be worthwhile to collect up some 1 and 2 litre empty bottles to use for demonstration.

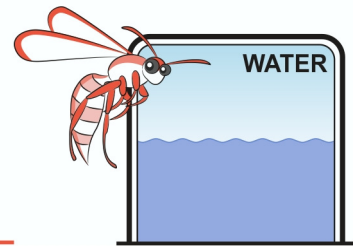
### Water and my body

What percentage of the human body is water?

- 20%
- 40%
- 60%
- 80%

Water is used in every system of the body. Water brings in nourishment and flushes out toxins. Water helps you balance (ear), clears dust from your throat and about 83% of blood is water

## Water For Humans - Teacher Background



How much water should you drink every day?

- a) About 0.5 litres
- b) About 1.5 litres
- c) About 2.0 litres
- d) About 3.5 litres

An adult male needs about 3 litres and an adult female about 2.2 litres. The amount needed varies with climate and exercise.

If you don't drink water you will suffer from:

- a) Dehydration
- b) Diarrhoea
- c) Dysentery
- d) Distemper

If you suffer from diarrhoea, dysentery or fever you need to drink water to replace fluid loss. (Dogs suffer from distemper)

If you enjoy a short period of intense exercise, how much water should you drink to replace water loss from sweating?

- a) 1 cup
- b) 2 cups
- c) 3 cups
- d) 4 cups

Water should be sipped and not gulped. Gulping can lead to vomiting and further water loss for a dehydrated person

If you have enjoyed sport and are feeling thirsty, what is best to drink to replace lost sweat?

- a) Water
- b) Milk
- c) Sports drink
- d) Cordial

Sports drinks contain salt to replace salt lost as sweat

How much of our body's water needs come from eating food?

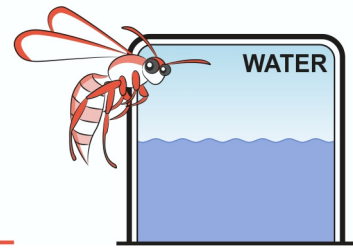
- a) None
- b) 20%
- c) 40%
- d) 60%

A lettuce is almost all water. A tomato or watermelon is almost 90% water. (Some people think that lettuces are soporific – make you sleepy)

How many calories can you gain from 1 glass of water?

- a) 100
- b) 75
- c) 50
- d) None

## Water For Humans - Teacher Background



### Water and my home

On average how much household water is used in the garden?

- a) 14%
- b) 44%
- c) 64%
- d) 84%

We are being encouraged to recycle and reuse grey water in our gardens and to install rainwater tanks

How much water is used in the house for showering?

- a) 88%
- b) 55%
- c) 44%
- d) 22%

A timer will limit shower use to 5 minutes. A “water wise” showerhead will also restrict flow.

How long should you plan to spend getting clean in a “water wise” shower?

- a) 4 minutes
- b) 10 minutes
- c) 14 minutes
- d) 20 minutes

A conventional shower uses 12 litres per minute whilst a “water wise” shower uses 9 litres per minute.

How much water will be lost if you let the tap run while cleaning your teeth?

- a) 3 litres per minute
- b) 6 litres per minute
- c) 9 litres per minute
- d) 12 litres per minute

If you set a tap to drip and collect the water in a measuring cylinder or jug, you can estimate this in school.

How much water does the average washing machine use for each full load

- a) 90 litres
- b) 100 litres
- c) 110 litres
- d) 120 litres

What else do we use water for in the home? [Cooking, cleaning, swimming, aquarium frog pond etc.](#)