Lesson Plan

Discover Our Water

Grade: 7 & 8

Making tap water safe

Students will be able to:

- learn about the possible impurities in raw water and the consequences they can have
- understand the intervention applied by water suppliers to make water safe to drink

Lesson Details:

1. What is the definition of drinking water?

"... water intended for primary human consumption, either directly as supplied from the tap, or indirectly, in beverages or foods prepared with water. It should contain no harmful concentrations of chemicals or pathogenic microorganisms, and ideally it should be aesthetically pleasing in regard to appearance, taste and odour. " (*Australian Drinking Water Guidelines*, **National Health & Medical Research Council, 2003)**

Safe tap water doesn't happen by chance; treatment and monitoring ensures tap water is safe to drink.

Ask your students to research countries where a natural disaster has occurred and water is contaminated. What is the impact on public health?

Curriculum Links

Grade 7

Science

- ACSIS130
- ACSHE121
- ACSSU222

Georgraphy

- ACHGK037
- ACHGK039

English

- ACELY1722
- ACELY1723

Grade 8

Science

- ACSHE136

Geography

- ACHGK051

2. What is in the water?

On a hot day, there is nothing more tempting than jumping into a river for a quick dip to cool down, or maybe while bushwalking, bending down by the trickling stream to quench your thirst. We don't usually think too hard about what might be in the water.

Let's take a look at what you might find in the water by types of impurities:

- **Microbial**: Bacteria (legionella), viruses (hepatitis), protozoa (Giardia), blue-green algae
- **Physical**: colour, taste and odour, appearance
- **Chemical**: naturally occurring (manganese, nitrate), agricultural (atrazine), plumbing (lead, copper), industrial (polyaromatic, hydrocarbons, mercury)

Some impurities are not bad for our health (minerals such as calcium and magnesium) and impurities that affect odour, taste and appearance are not necessarily hazardous to human health and should not be used as a guide to water's safety.

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Lesson Details continued:

3. Disease and contaminants.

In Australia, our access to safe tap water within our homes is taken for granted. Yet around the world hundreds of thousands of people die each year from waterborne and sanitation related diseases. The really tragic statistic is that the majority of these deaths occur to children under the age of five. Have your students research and respond to the following quesitons:

1. In which countries do communities have no access to clean or treated water or adequate sanitation?
2. Name the two broad categories of disease causing contaminants.
3. Identify substances that can pollute drinking water sources.
4. How many towns in Tasmania are on a permanent boil water alert?
5. How do suppliers of tap water ensure your water is safe to drink? Identify some of the interventions.

4. We take treated water for granted.

We are so used to receiving safe drinking water, we tend to forget about the carefully managed treatment systems that are in place. These systems ensure the water is protected from contamination and made safe to consume from the point of collection to when it reaches your home. Tap water is screened, sediments removed, filtered and disinfected.

Can you smell chlorine in your water? That's not a bad thing - chlorine is used to disinfect water and kill bacteria.

Contamination of our water with microorganisms can result in illness causing gastrointestinal upset, diarrheoa or even death. Water treatment is essential for protecting public health.

Lesson Reflection:

1. How clean is your tap water - compare it to a sample taken from a local creek or river.
2. What are the potential contaminants of water?
3. What impact is contaminated water having around the world?
4. What are the steps of the water treatment process?

Did you know?

In Tasmania, TasWater carries out thousands of water quality tests per annum. We make sure your water is safe to drink.

More Information

Contact our Education Officers who can visit your classroom and share some engaging water activities with your students. Alternatively visit our website, complete an online request form and our Education Officers will contact you.

Email: education@taswater.com.au

Website: www.taswater.com.au

Additional Activities

Students can learn how to separate solutions through participating in our flocculation and filtration activity. Keen observation skills are required as students assume the role of scientist, test the pH of water, add some coagulant and watch the silt and suspended particles separate from the water. This is followed by building a water filter - contact your local Educaton Officer.