Water quality

1. Water quality
Imagine having to wait 20 minutes to boil and then cool water every time you wanted a drink. In some parts of the world people have to do this to remove harmful bacteria from the water.
In contrast, we can simply turn on the tap to enjoy pure, clean water. Have you ever wondered how such a safe and reliable supply of water is maintained? The quality of your water supply is carefully managed from reservoir catchment areas to your home.

2. Not a bad drop
Melbourne’s water supply system is one of the best in the world! This is primarily because the majority of our water comes from protected catchment reservoirs, with restricted public access, where there is no farming or forestry allowed. This means that no human contamination is possible and the water supply is clean and secure. The remaining catchments that aren’t protected go through full filtration treatment and disinfection to meet health guidelines.

3. A long time between drinks
To further safeguard water quality, and public health, water is stored for long periods in the major reservoirs. Melbourne’s 10 major reservoirs hold up to 1,810,500 million litres of water. The largest reservoir, the Thomson, holds up to 1,068,000 million litres of water. It can hold 60% of Melbourne’s total supply of drinking water. On average the water is stored for up to five years, allowing sediments that have washed in from the forests to settle – a natural purification process.

4. Keeping our water supply clean
To ensure good water quality, all major parts of the water supply system are cleaned and tested regularly. The water supply is also monitored on its journey from the protected catchments to your home.
5. Chemicals in the water supply

To ensure that we have clean, safe drinking water, chemicals are added to our supply based on world health guidelines. These include:

**Fluoride** (Sodium silicofluoride) – this chemical raises the level of natural fluoride in the water and helps to prevent tooth decay in children.

**Lime/Soda Ash** – these chemicals help to restore the pH levels (whether the solution is basic or acidic) of water to neutral after fluoride has been added. They are also added to the water to prevent corrosion and reduce the formation of scale (a crust that forms on pipes and other objects).

**Chlorine** – this chemical is used widely throughout the world to disinfect water (including your local swimming pool) and remove the risk of diseases, such as gastroenteritis (a stomach bug).

6. Five reasons to turn on the tap instead of turning to bottled water

- Melbourne’s drinking water is amongst the best in the world and cheap in comparison to bottled water.
- Fluoride provided through tap water helps reduce tooth decay.
- The environmental cost associated with packaging and distributing bottled water.
- More than 65% of used drink bottles end up in landfill.
- Water bottle use in Australia accounts for more than 60,000 tonnes of greenhouse gas emissions each year.

**Did you know?** It only costs approximately one cent to fill a bucket of water from your tap, but if you filled it with bottled water, it would cost around forty dollars!

7. Activity time

Ever wondered why water looks dirty in a stream or river but it’s clean when you turn on the tap? Here is an experiment to demonstrate how catchment areas affect the colour of the water supply.

You will need:
- water
- soil
- a jar

What to do:
- mix water and soil.
- allow to stand for several hours.

Observe and record:
- what happens to the soil
- what happens to the colour of the water. Why?

Conclusion:
- Compare this experiment to the method used to clean the water supply in our reservoirs.
- Where else could this process be used in water treatment (think about dirty water leaving your home)?

Want to know more?

More information about water and the urban water cycle can be found at southeastwater.com.au