

# IMPACTS AND POLLUTION

## Activity IP06

### Theme

Demonstration (D) and Class activity (CA). The students consider water as a vital natural resource and explore how we use water and investigate methods of water purification.

### Objectives

Thinking about clean water as a valuable commodity, getting a sense of the amount of water we use and what it takes to provide this resource.

### Curricular Strands

SESE, Science and Geography–Environmental awareness and care

SESE, Science–Materials, mixing and other changes

### Skills

Questioning, observing, predicting, investigating, estimating and analysing

### Time

20 minutes introduction; 30 minute investigation

### Links to Green Schools

How water is used in school, ways to save water

# Cool clear water

## INVESTIGATING WAYS OF PURIFYING WATER

### WHAT YOU NEED

- Water cycle diagram (see below)
- 3 funnels
- Seven 1-litre plastic bottles
- Soil or silt
- Coffee filter paper
- Gravel
- Old nylon tights or an old popsock
- 0.75-litre plastic bottles

### WHAT YOU DO

- 1 Put the word 'water' on the board and surround it with a circle. Ask the students to call out what they think of when they hear the word 'water'. What are some of the things we use water for?

- 2 Hand out the attached diagram to each student and go through the cycle with the class.
- 3 Each student in the class could keep a water diary for a day, recording every time they turn on a tap, flush a toilet and wash a dish (or turn on the dishwasher). They could examine whether less water could be used for the same activities.
- 4 Before our water reaches our taps it is filtered and treated with chemicals to remove harmful bacteria.



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- 5 The students are going to investigate water filters. Different things can be used as filters. In this experiment a coffee filter, nylon tights and some gravel will be used and the results will be compared.
- 6 Divide the class into three groups and give each group one of the filters to test.
- 7 Cut the top off three 1-litre plastic bottles. Sit a funnel in each bottle (the top of the bottle could be used as the funnel). Place one of the filters into each of the three funnels.
- 8 Place the paper filter in the first funnel. In the second funnel, place the tights (or popsock). Old tights could be cut about 15cm from the bottom and secured over the funnel with an elastic band. Place the gravel in the third funnel, using a few larger stones at the bottom to keep the gravel in.
- 9 Prepare water to filter by mixing in a small amount of soil or silt into a larger container of water. Pour a little into each of the three remaining plastic bottles. Give one bottle to each group, keeping the fourth for comparative purposes.
- 10 Get each group to pour their sample into their filter and time how long it takes for water to pass through.
- 11 Compare the water collected in the plastic bottles underneath the filters with the sample of unfiltered water.

### Questions

- 1 Which filter produced the cleanest water?
- 2 Which filter was quickest in filtering the water?
- 3 Would these filters remove miniscule bacteria from the water?

### Go further

- 1 Students could repeat the experiment using water samples from a nearby lake or river.

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