

# Land, water and bees – don't take us for granted: I need a drink

## Technician notes

### The issue

Contaminated water can cause serious health problems for people who come into contact with it or drink it. It can carry parasites and potentially fatal diseases. In many parts of the world, water for cooking and washing has to be collected from dirty rivers or wells by women or children.

In this simple investigation students use a range of filters and open-weave materials to filter a sample of discoloured water.

### Investigation: filtering a water sample

#### Planning

Before the lesson you will need to prepare about 300 mL discoloured water for each student or group. This includes oven-drying the matter to be added to the water (sand, compost, stones and so on) at 160°C for 4 hours.

#### Safety

**Teacher:** Carry out a risk assessment with the students. Ask what hazards they can predict and how to control them.

Remind students that they should never eat or drink in the lab, so should not drink the water.

**Students:** Wash hands before and after the practical investigation.

#### Equipment

- sample of discoloured water (*about 300 mL per student/group*)
- filter types × 5 (**from the kit:** different grades of paper; **also** different types of cloth) (*one of each type per student/group*)
- 250 mL beakers × 5 (*per student/group*)
- funnel and stand (*per student/group*)
- elastic bands



## Preparation

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Prepare the discoloured water by oven-drying sand, compost, stones and so on at 160°C for 4 hours. Put some tap water into a large beaker and add pieces of plant material, such as hedge clippings or small leaves and sticks, and some of the stones or gravel. Refer to CLEAPSS or SSERC guidelines for plants to avoid. Add a few pinches of the earth or sand and some compost for colour. It is an advantage if the water has some colour, because this should be reduced as finer filters are used.

You have been provided with three grades of filter paper in The Crunch kit: fast, medium and slow. Students should also be given some pieces of different types of cloth cut to size, one with an open weave, such as muslin or old tights, and one with a tight weave. Note which cloth and which grade of filter paper is being used with each group so that the experiment can be repeated if necessary.

## Method

See the student activity sheet for a description.