

# Where Does the Rain Go?

## Focus

Groundwater is a source of naturally stored water that we have relied on in Australia for watering stock and irrigating crops without much knowledge of how much is stored or how it is replenished. For students to gain a concept of what groundwater is this activity offers a way to model infiltration.

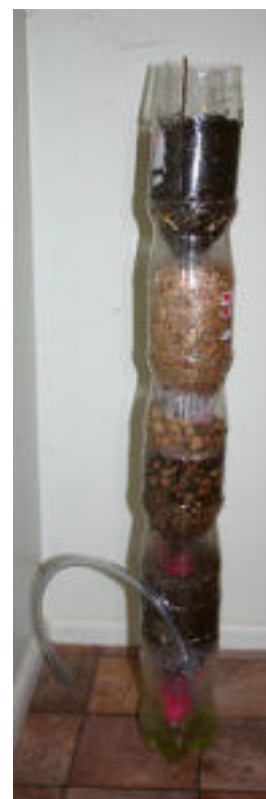
## a) What is groundwater?

### Materials

- Use a water bottle decorated as a rain cloud to aid conceptual thinking
- Soil column as constructed Activity 9

### Procedure

- On a sunny day take class outside. Use rain bottle to rain onto a clear patch ground.
- Discuss where the rain has gone.
- Discuss evaporation (being mindful of the misconception that rain disappears).
- Q Has all the rain evaporated? How do they know?
- Q Could the rain go somewhere else?
- Raise the questions about windmills.
- Q Who knows what they do? (Elicit the response that windmills pump water from underground to the surface.)
- Q Has anyone seen water coming from a windmill pump? What colour is it?
- Q Where does the underground water come from originally?
- Introduce the 'soil column' as described above (and pictured right).
- Discuss the cross section of soil. Note the spaces between sand and gravel pieces.
- Discuss the bottle at the base. This could be seen as a crack in the rocks or large gap.
- Add water from 'rain cloud' bottle. Discuss rain falling on the column.
- Q What happens to the rain as it hits the soil? (Turns muddy.)
- Q Is all the water evaporating or is some sinking into the soil.
- Q What name can you give to the water found in the bottom bottle? (Discuss the name 'groundwater'.)
- Identify that groundwater is the water from the windmill pumps. Electrically operated pumps can also be used to access ground water and these are called bores.
- Research and identify bores and wind mills. Research and identify if and how many bores your local council uses.



### Resources

- Fact sheet – Groundwater as a water source p.10

### Definition

**Groundwater** - 'All water that occurs beneath the land surface is referred to as groundwater, ie water held within a saturated zone, rock-medium, fractures or other cavities within the ground.' <http://www.groundwater.com.au/glossary/content.asp>

## b) Filtering dirty water

### Focus

Alternative use of this soil column model as a 'filter' allows students to see how the natural cleaning process of ground infiltration can be employed as a technique in water treatment for drinking water.

### Materials

- Soil column (filter)
- Milk bottle
- Extra soil
- Water

### Procedure

- The column could be modified by changing the top layer to crushed coal.
  - Place some soil into milk bottle and fill with water and shake to make dirty water. Add the muddy water from the milk bottle to the column gently.
  - Observe the water as it travels down the column. Discuss what is happening.
- Q How long does it take? Ask the class to measure and record the time taken at each stage.
- Q What colour is the water in the bottom bottle? Why do you think that is?
- Q Is it safe to drink at this point? Why or why not?

### Resources

- Australian Drinking Water Guidelines – A Consumer's Guide (Refer to Appendix 6 for web address and download)

