

**Drinking polluted water is very dangerous. Centuries ago no one checked whether water was safe to drink.**

Anglian Water carries out more than 300,000 tests each year to check that your water is safe to drink. The standard of our water is also monitored by the Drinking Water Inspectorate.

### **Dirty water and disease**

In the Victorian era, thousands of people died from a disease called **cholera** which had got into the drinking water because it was contaminated with **sewage**.

### **Death at the water pump**

It wasn't until the year 1854 that a link was made between disease and dirty water. A doctor called John Snow had been studying the spread of cholera in the city of London. His investigations led him to a single well near the River Thames. Because the well was shallow, sewage had seeped into it from the pits nearby.

According to history, Snow removed the handle of one of the well's water pumps. People had to fetch their water from a different source which was not contaminated. This helped stop the spread of cholera.

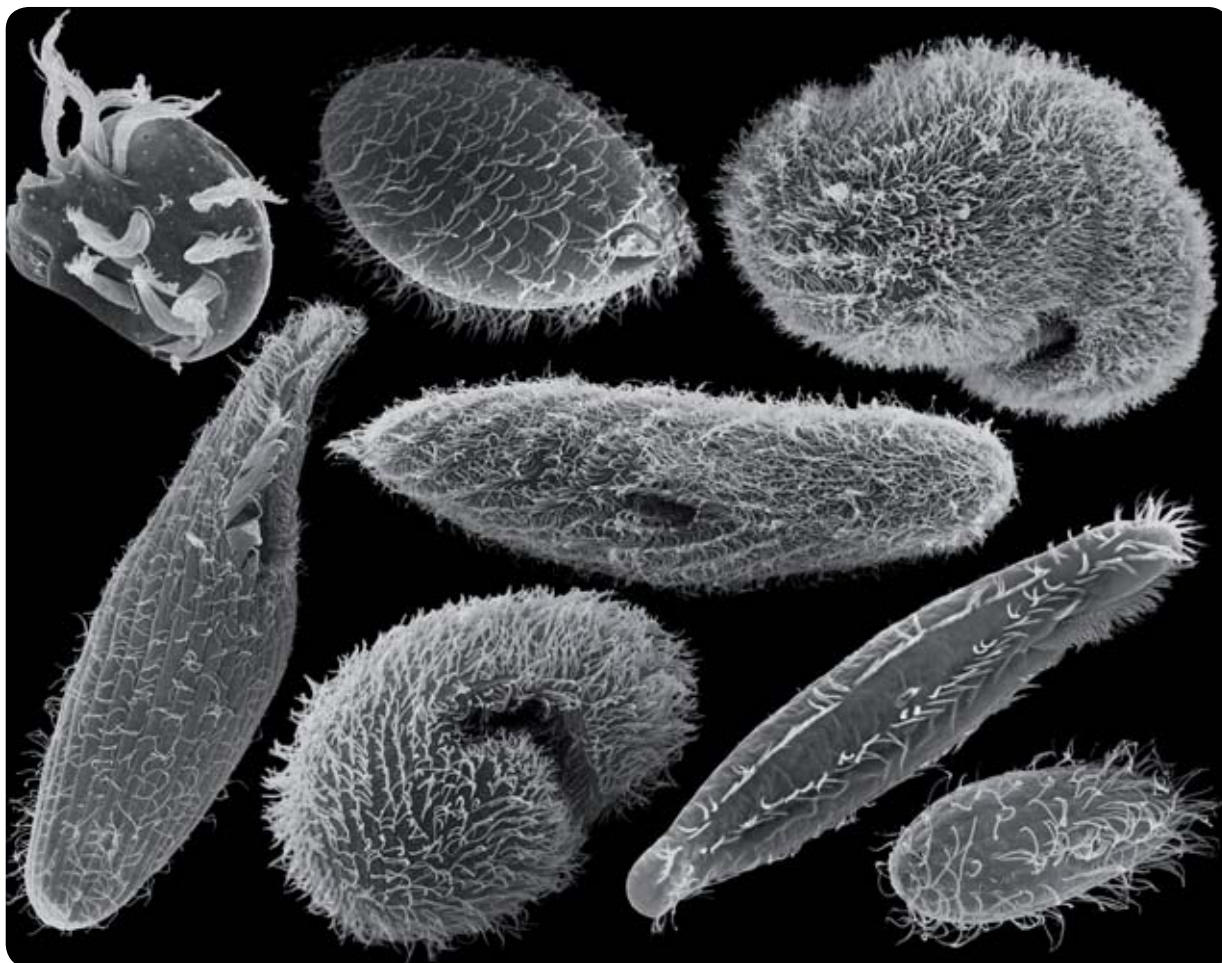



 Dr John Snow, 1854



## **Tiny creatures, big problem!**

Many water-borne diseases are caused by tiny living creatures, called micro-organisms. They are so small that you need a microscope to see them, but many are deadly.



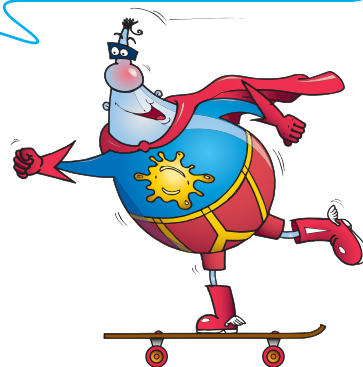
 Micro-organisms viewed under a powerful electron microscope

## **Inspection time**

All the water companies in England and Wales must, by law, supply water which is safe to drink and use. The government's Drinking Water Inspectorate (DWI) checks the water from all water companies and monitors all of the procedures and processes.



Have you ever filled a glass of water from your tap and noticed that it appeared cloudy? Look closely (use a magnifying glass if you have one) and you will notice tiny bubbles of harmless air which get trapped in the water as it travels to your house in pipes.



## Activity 4

# Making water safe to drink



**You can use simple equipment to investigate how clean different samples of water are.**

### Learning objective:

To investigate the quality of water from different sources.

### What to do

Collect four different water samples from the natural environment and place them in the clearly labelled bottles. You could use water from your tap, a pond, a puddle, rainwater, the sea or a stream. Your quality control sample should be tap water.

### Safety warning

Collect your water samples with the help of an adult. Dirty water can be very dangerous! Don't forget to wash your hands afterwards!

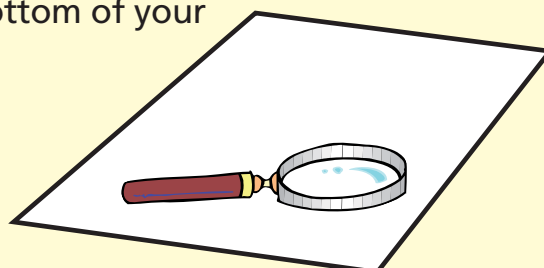
### You will need:

- Four bottles with screw tops
- Sticky paper
- Cotton wool
- Four clear beakers/plastic cups
- A magnifying glass
- Four small dishes
- A pen and paper

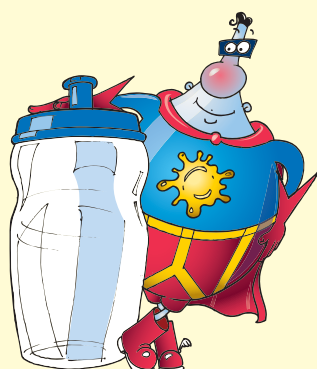
### Observations

Use the chart provided on the other side of this sheet to record your observations and results.

- 1 Make notes on the appearance of each sample.
- 2 Put the samples in order of how clear they are (clarity) – clearest to dirtiest.
- 3 Carefully smell each sample of water. You need to think carefully about what could be in the water and decide how to find out what this could be.
- 4 Devise a test to find out if there is anything **dissolved** or suspended in the water. You could use heat to evaporate the liquid, filter using cotton wool or simply use gravity to help any dirt sink to the bottom of your samples.



Water Sample	Sample 1	Sample 2	Sample 3	Sample 4
Where did you collect your water from?				
Appearance				
Clarity of the water				
Smell				
Filter method				
Notes				



Leave your tap water in the fridge for half an hour and it will be cool and crystal-clear too!