



## TEACHER'S NOTES

### Geography – Water (based on QCA Unit 11)

#### Learning Intentions

In this unit, pupils will learn about water supply around the world and the importance of clean water. They will investigate how clean water is supplied and consider who owns and manages water. Pupils will discover the contrast in water use at home with use in developing countries.

Pupils will be expected to:

- identify how people affect the environment and recognise ways people try to manage it for the better;
- begin to realise the importance of location in understanding water distribution;
- recognise how the presence or absence of water can change the character of places.

#### Resources for further work

Atlas, local maps, reference books, a copy of *Thread of the Nile* or a similar resource pack, a plastic bottle, sand, gravel, cotton wool, paper towel, beaker and dirty water, information on charities such as Wateraid.

#### Glossary / Vocabulary

<b>aqueduct</b>	A structure for carrying water across land.
<b>climate zone</b>	An area of the world characterised by its weather patterns.
<b>cholera</b>	An infection of the bowels which causes diarrhoea, vomiting and possibly death.
<b>drought</b>	An extended time when there is little or no rain.
<b>dysentery</b>	An infection of the bowels which causes excessive diarrhoea and possibly death.
<b>irrigation</b>	Bringing water to fields so that crops will grow.
<b>microscopic</b>	Things that can only be seen under a microscope.
<b>raw sewage</b>	Untreated waste water.
<b>scarce</b>	Not easy to get hold of or find.
<b>typhoid</b>	A disease causing fever, red spots on the body, severe pain in the bowels and possibly death.



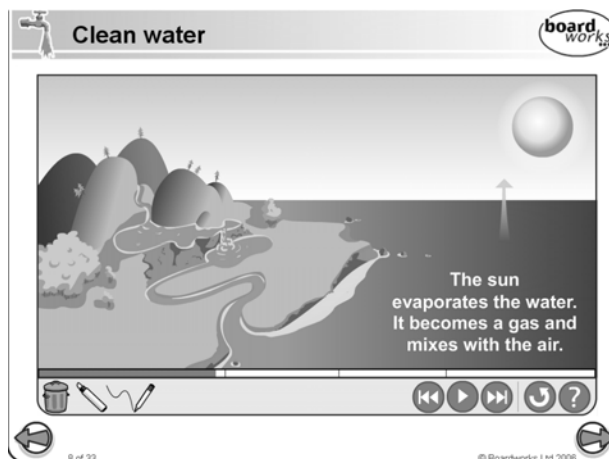
## Lesson notes (section 1–6)

### 1. Finding water

#### Learning Objectives

Pupils will learn:

- to obtain information from maps and an atlas;
  - about world weather patterns;
  - about physical and human features.
- Pupils can use the map provided or use a local map to identify different sources of water.
  - Complete the climate zones activity. If necessary, explain the term climate zone. Ask pupils to identify which climate zone the UK is in, and where they think the main desert regions are located. Atlases can be used to help here.
  - Following on from the climate zones activity, ask pupils to look again at the world map which now has five cities marked on it. Ask pupils what order the cities should go in according to rainfall levels, with one being the city with the highest levels of rainfall and five the lowest. The correct order is: 1) Brasilia 2) London 3) Barcelona 4) Reykjavik 5) Cairo. It is important that pupils recognise that Cairo is in the arid zone, and that all the major desert regions are in the arid zone.
  - Show pupils the pie chart animation which explains how little of the Earth's water humans can use. Ensure pupils understand the concept that although it may seem as though there is plenty of water on Earth, we can only use a very small percentage of it. Follow this up by showing pupils how the water cycle works and explaining that our water is continually recycled via this process.



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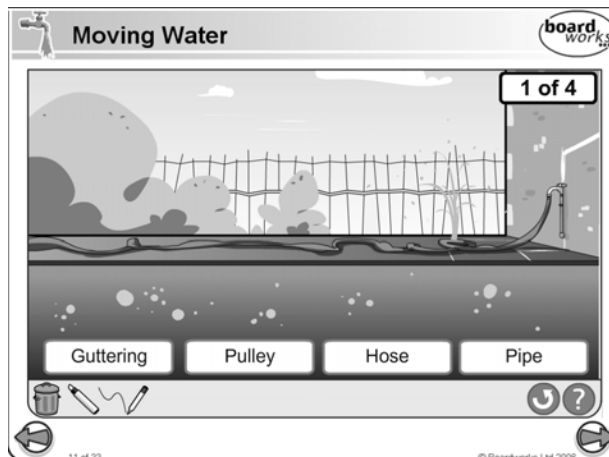


## 2. Moving water

### Learning Objectives

Pupils will learn:

- to make maps and plans;
  - to use secondary sources;
  - to investigate water supply at local and world scales.
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- Ask pupils to investigate into irrigation. Use *Thread of the Nile* or a similar resource pack.
  - If possible, take the class around the school to look for the different ways in which water is moved around e.g. taps, pipes, gutters, and investigate where water enters and leaves the school. If possible, show pupils a stopcock and explain how it works.
  - Ask pupils to draw a map of the school and highlight how water is transported.
  - Complete the activity where pupils have to find the best method of transporting water from one side of the playground to another. Encourage pupils to come to the conclusion that piping is the best method of water transportation as it is more effective in preventing contamination and wastage via spills and leaks.



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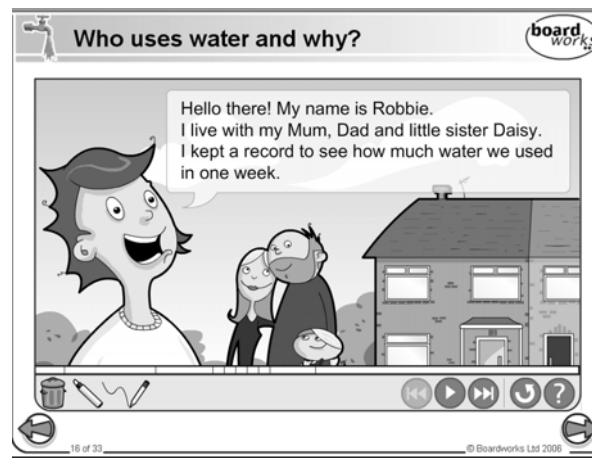


## 3. Who uses water and why?

### Learning Objectives

Pupils will learn:

- how water is used in the world;
  - to investigate similarities and differences;
  - about land use patterns;
  - to use ICT to record data.
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- Ask pupils to think of all different ways we use water. Complete the drag and drop activity where water-related activities are collected under industry heading. Encourage pupils to come to the conclusion that water is an important resource used in large amounts every day in a number of industries. Explain that water is used in virtually all industries; the ones used in this activity are just a few examples. You may like to inform pupils of a few facts; such as it takes 148,000 litres of water to make one car, 250 litres to make a pint of beer and 50 cups of water to produce one teaspoon of sugar.
  - Ask pupils to keep a water diary at home for one week. Pupils should try to record every time water gets used in the home and in the garden. This information can be put onto a class spreadsheet to see how water use varies from home to home. Show the animation where Robbie keeps a water diary and shows various ways in which we can save water around the home.
  - Ask pupils why they think we should be careful with water. Ask if there are any ways that they or their families try to save water.



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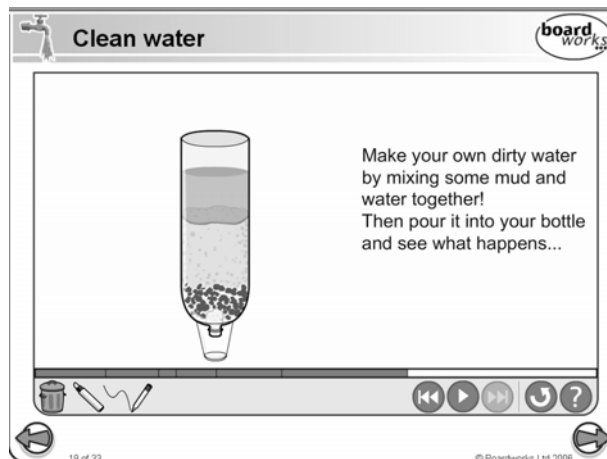


## 4. Clean water

### Learning Objectives

Pupils will learn:

- to observe and question;
  - to collect and analyse evidence;
  - to use secondary sources.
- Follow the experiment which shows how water can be filtered. If possible, allow pupils to perform the experiment shown in the animation.
  - Emphasise that in the past, people did not know about waterborne diseases or the importance of hygiene. Explain that cholera, dysentery and typhoid are all diseases of the digestive system, particularly the intestine. They can all cause diarrhoea, vomiting and a fever. People usually get dehydrated and can even go into shock. People generally died from dehydration as fluids are rapidly lost through watery diarrhoea.
  - Look again at the water cycle, but this time to see how humans intercept water at different stages to make it suitable for consumption and for returning it to rivers and seas. Look in detail at how we now clean our water to get rid of potentially harmful bacteria. If possible, arrange a visit to a sewage treatment plant.



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## 5. Who owns the water?


### Learning Objectives

Pupils will learn:

- about a land use issue;
  - about the environmental impact of a local activity.
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- Ask pupils to complete the activity about ownership, and ask them to separate various items into categories of who owns them e.g. things that belong to me, things that belong to the school, things that belong to everyone.
  - Discuss whether anyone can own water and rain. Ask pupils to think about whether the water companies should be able to charge whatever they like for treating water. Responses may include *Yes, they are spending money cleaning it so we should pay*, or *No, water cannot belong to anyone so it isn't fair to charge a lot of money for it*.
  - Explain that in many countries in the world, people cannot access water as easily as we can. Look at the photographs used in the presentation and ask pupils how they would feel if they had to carry water a long way and had to drink dirty water. If appropriate, fill a bucket with water and ask pupils to carry it to see how heavy it is. Make sure this water has already been used, or after using it ensure it is re-used for something else e.g. cleaning.
  - Remind pupils of the diseases discussed earlier, and inform them that many people still get them because of dirty water. Ask them to think again about how they would feel if they had to go a long way to collect water, knowing that the water they collect might make them ill.
  - Encourage pupils to do their own research into charities that help with water provision e.g. Wateraid and Oxfam.

**Who owns the water?**

The diseases that people died from in Victorian Britain still affect some people in some countries today. Many people suffer from diseases like cholera, dysentery and typhoid because of dirty water.



These diseases cause diarrhoea, vomiting and a fever. Water is quickly lost from the body. You can live for a month without food, but without water you will die in less than four days.

6,000 children a day die from diseases they have caught from drinking dirty water.

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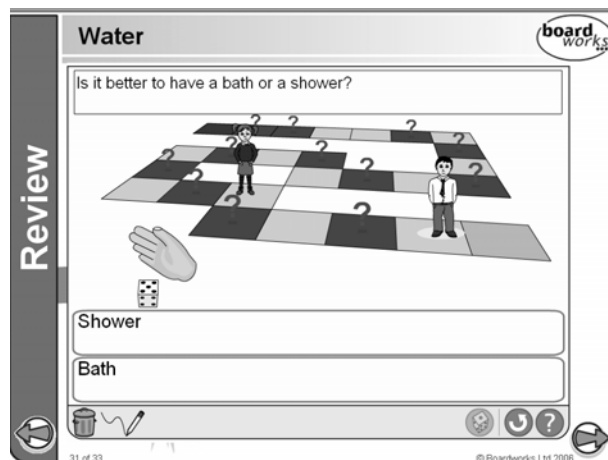


## 6. Review

- Play the water board game. Pupils will be asked questions on topics covered in this unit.

### Extension task / homework

- Pupils could produce a display about the importance of saving water, an information leaflet designed to show people how to save water or a report into how people in other countries suffer because of poor water supplies.



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