



Unit plan

Context

This unit for KS2 (age 7-11) pupils examines something that is essential to all life anywhere in the world - water. In particular clean, drinkable water.

It asks pupils to consider where their water comes from and what life would be like if it were not so readily available. It examines the importance of the water we use being clean and the consequences if that water is not clean. Pupils investigate simple ways of making dirty water clean and improving sanitation.

As a very visible output of the work pupils could mount an exhibition of the work they have done in their classroom and maybe contribute to an assembly to raise awareness in their school of the topic they have been studying.

Structure

The unit is divided into three pairs of lessons as shown below. The first lesson in each pair can be used in isolation, each pair can be taught, or the unit can be taught as a sequence of six lessons. Each lesson is designed to fit into normal science curriculum time but there are opportunities for further work making the material well suited to off timetable activities such as STEM clubs and collapsed curriculum days.

1: It's a lot to carry

Camping expedition

This lesson explores what life is like without running water in the context of a camping trip.

How much water?

Looking at how much water pupils use in a day and what happens if there is not enough clean water available.

2: Using water

Cleaning water

Looking at the problems and consequences of unclean water and how the water might be made safe.

Pumped up!

Pupils consider different ways of pumping water.

3: Top toilets!

Toilet solutions

In this lesson pupils consider how sanitary toilet facilities can help prevent disease.

Water action

Bringing everything together and preparing presentations about sanitation and water conservation.

Lessons

Each pair of lessons includes a variety of activities from whole class discussions to individual work - both practical and theoretical. The tables that follow give an overview of the various tasks. Each pair of lessons also includes a suggestion for a homework and an out-of-school learning activity.

1: It's a lot to carry

Lesson	Activities	Time / mins	Group size	Format
Camping expedition This lesson explores what life is like without running water in the context of a camping trip.	Camping expedition	20	Individual, pairs and whole group	Brainstorming
	How much water could you carry?	20	Small groups	Discussion following simple investigation
	Water walk	5	Whole class	Discussion following video clip
Homework / out-of-school activity	How much water?	20	Individual	Individual
How much water? Looking at how much water pupils use in a day and what happens if there is not enough clean water available.	Introduction	5	Pairs	Brainstorming
	How much water do you use?	10	Individual	Data entry
	Water choices	30	Small groups	Card sort and discussion
Homework / out-of-school activity	How much can I save?	20	Individual	Data collection

2: Using water

Lesson	Activities	Time / mins	Group size	Format
Cleaning water Looking at the problems and consequences of unclean water and how the water might be made safe.	Introduction	5	Whole class	Discussion
	Clean the water	30	Pairs/groups of 3	Investigation
	Is filtered water safe to drink?	10	Pairs	Discussion
Homework / out-of-school activity	Poster	20	Individual	Individual research
Pumped up! The pupils consider different ways of pumping water to where people need it.	Introduction	10	Pairs/whole class	Discussion
	Chingondole Primary School story	20	Pairs/whole class	Discussion
	Making a simple pump	15	Pairs	Practical activity
Homework / out-of-school activity	Water-borne diseases	20	Individual	Individual research

3: Top toilets!

Lesson	Activities	Time / mins	Group size	Format
Toilet solutions In this lesson pupils consider the importance of having sanitary toilet facilities as a means of preventing disease.	Introduction	5	Small groups	Brainstorm
	Better sanitation to reduce disease	10	Whole class	Video followed by discussion
	Now wash you hands	10	Whole class	Game followed by discussion
	Solving the problem	20	Pairs/ whole class	Discussion, planning and design
Water action Bringing everything together and preparing presentations about sanitation and water conservation.	Reducing the use of water - individual actions	10	Individual	Brainstorm
	Reducing the use of water - group actions	20	Small groups	Discussion
	Reducing the use of water - class actions	15	Whole class	Action planning
Homework / out-of-school activity	Information campaign	20	Individual	Undefined creative task.

Key vocabulary

Bacteria, consumption, filter, flow, latrine, pump, sanitation, solar power, sustainability, consumption, volume, water, toilet, germs, disease, health.

National Curriculum links

The links to the English National Curriculum that follow are typical of the content that pupils could cover as they work through this project. Details of specific coverage will depend on individual classes and teachers.

Working scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

Properties and changes of materials

Pupils should be taught to:

- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating



Lesson 1: Camping expedition

Learning objectives

- Identify ways of getting water other than from the tap.
- Be aware of the problems associated with collecting water using different methods.
- Understand the pressures caused, particularly for women and girls, by having to walk long distances to collect water for their families.
- Understand how people in water-scarce countries use technologies to collect and store water.

Tell pupils that they are going to find out about the technologies used to collect and store water in different situations around the world.

Lesson sequence

Camping expedition

20 mins

Show the slide *The middle of nowhere* in the presentation *It's a lot to carry* and introduce the pupils to the idea that they are on a camping expedition with their family. They are five hours walk from the nearest village. Emphasise that they will have carried everything in their ruck sacs, including the tent, a couple of changes of clothes, food and cooking equipment and other kit needed for the camp. Their parents chose to camp in that location because it was flat and dry away from marshy areas. The ground would drain quickly if it rains. There is a river 1 km away.

Individually, and then in pairs, they need to consider the questions:

- What would you need water for when you go camping for the week?
- How could you use this water?

This 'snowball technique' is designed to get as many ideas from the class as quickly as possible in a short time. They should do it as individuals. Emphasise that they should put ideas for each question on Post-it notes but only write one idea on each Post-it. Encourage them to think of as many ideas as possible. When they have written down their ideas they should put their Post-it notes onto the sheet for each question at the front of the room. Remove repeated ideas so that each sheet reflects all the different ideas.

Debrief by highlighting the different ideas for uses that will probably include: drinking, washing, cooking, washing clothes etc. If they have not included some you could ask what it would be like if they did not wash for a week, or if they did not have clean clothes each day. This may also help you to emphasise that these maybe choices that people with very little water may make which may lead to other problems e.g. hygiene).

Ways of getting water pupils think of may include: carrying it with them, collecting from the river, collecting from the marshy area, collecting rain water, digging a hole to find water. At this stage, just value these ideas do not comment or reject any.

Water! Water!

Show the slide *River water* and ask the pupils in pairs to discuss the following question:

- What would be the problems with your water? Could you use it for each of the activities you listed earlier?

Give the pupils a few minutes and then ask them to share their ideas with another pair, and then, as a four, discuss the following question:

- How could you solve the problems you have identified?

Give them five minutes to discuss the question before asking different groups to give their ideas. Highlight the problems that may include: it may not be clean, it may not be safe to drink, they may not be able to collect much, they may not be able to carry much, it may be dangerous etc. You may wish to clarify ideas before moving onto possible solutions. These may include filtering the water, using several different methods, making several visits per day to collect, do it as a family etc. Tell the pupils that they will be looking in more detail at these ideas later.

How much water could you carry?

20 mins

Ask the pupils if they chose to get water by collecting and carrying it from the river how much water do they think their family would be able to fetch in one trip? Show them prepared buckets, water bottles etc. with labels on indicating how many litres each container can hold when full. Or, get them to guess the amount bigger containers hold having shown them a one litre water bottle.

They can then test their ideas by seeing how much water they can carry across the playground. Provide them with buckets and measuring jugs.

Show the slide *On tap?* of women carrying water and introduce the ideas that billions of people across the world do not have access to running water in their homes. Women and young girls can spend up to five hours per day collecting and carrying water for their families.

Show them the video at bit.ly/splishsplashflush from 8.32 - 10.34 which illustrate how girls around the world have to spend time collecting water every day.

However, people can be ingenious in the ways in which they collect and store water for their families as some of the images show. Ask the pupils to discuss in pairs the following questions:

- If they had to spend five hours every day carrying and collecting water what things would they not be able to do?

Water walk

5 mins

Show the Water Walk video clip at bit.ly/Toeb2u Ask the pupils to discuss the following questions:

- How would it change your life to have to walk this distance every day for water?
- What problems do people whose water supply is so erratic and far away that the pupils did not think of at their campsite simulation?

Ask different pairs for their ideas and summarise the ideas of the class.

The ideas may include not being able to play, go to school, it may not be safe, it would be really hard carrying the water in the heat for long distances, and it may cause problems with their backs and joints.

Differentiation

All pupils will:

- complete a list of the uses of water

Most pupils will also:

- understand the difficulties in collecting water
- suggest how these difficulties might be overcome

A few pupils will make more progress and:

- begin to be able to understand the issues experienced in developing countries and offer possible solutions

Resources

Worksheets

- Dear diary
- How much water?

Presentation

- It's a lot to carry

Equipment

- Post-it notes
- Flip-chart or poster paper
- Buckets and other containers from small fizzy drinks bottles upwards.
- Measuring jugs

Useful websites

bit.ly/40-shocking-facts-about-water

Website which has some shocking and interesting facts about water that can be used throughout this unit.

bit.ly/splishsplashflush

Video for activity above.

bit.ly/Toeb2u

Video of girl collecting water.

practicalaction.org/video-solar-power-kenya

Video highlighting the benefits solar powered water pump can bring to a village.

Homework suggestions

Hand out the *Dear diary* sheet. Ask the pupils to write a diary for their week camping in the hills. Tell them to use the headings/ questions to focus their writing but encourage them to be creative and add extra information if they want. Alternatively, ask the pupils to write a

story about a day in the life of a girl their age who spends five hours a day collecting and carrying water. Ask selected pupils to read their stories to the class.

If you are going on to do the 'How much Water' lesson hand out the worksheet *How much water*, and ask pupils to complete before the next lesson.

Suggestions for out-of-school activity

Ask the pupils to design a piece of equipment for collecting and storing rain water that can be used by people on expedition in the hills. It should be lightweight and portable. They should explain with diagrams how their design works. They should also make and test a prototype of their design. Finally they should write instructions on how to use their product.

Lesson 2: How much water?

Learning objectives

- Calculate how much water people use each day.
- Prioritise water use to keep the total under 20 litres per day.
- Identify ways in which they could reduce water use.
- Understand how people in water-scarce countries use technology to store water.

NOTE

About a week before delivering this lesson give the pupils the *How much water* worksheet and tell them to fill it in with their family one day over the weekend. Tell them that they will be collecting important data for their water project. Go through the sheet to make sure they all understand why they need to record how many people in the family to work out an average.

Lesson sequence

Introduction

5 mins

Show the slide *Water use?* in the presentation *How much water?* and ask the pupils to discuss the following questions in pairs.

- What do you use water for at home?
- How does it differ from the way you would use it if you were camping in the hills?

Ask different groups for their ideas. These may include that they may use a bottle for washing instead of shower, a bucket for washing clothes instead of a washing machine, and a cup instead of running the tap when cleaning their teeth.

Show the next slide, *UK average figures*, to get a national perspective. How close were pupils to the average figures?

How much water do you use in a day?

10 mins

Have a quick discussion around the results of the pupils' homework looking at their data from the *How much water* worksheet. Who used the most water per person on average? The least? How could any differences be explained?

Water! Water!

Make a chart so that each pupil can record their totals.

Introduce the idea that, on average, people in Europe use at over 10 times more water per day than people in developing countries. Ask them to think back to how much water they were able to carry in the previous lesson. Introduce the idea that if people have to collect water from a distance this will be the amount they have to survive on every day. A typical figure for some developing countries will be about 20 litres per day.

Water choices

30 mins

Ask pupils to think what it would be like if they only had 20 litres of water per day. Introduce them to the Diamond 9 activity with the slide *Diamond 9* and hand out the *Diamond 9* materials.

Explain that the highest priority card goes at the top followed by the next highest priorities down to the lowest priority at the bottom. Show them how to arrange the cards in the Diamond 9 arrangement. In their group they should then arrange the cards. It is very important that they discuss, agree the priorities as a group and can give reasons for their choices.

Ask them in their groups to discuss which activities are essential and why? Ask different groups to present their choices, giving reasons why they arranged the cards in that way. Ask them if they would have sufficient water to do all the essential things.

Ask them how they could reduce the amount of water they use with each activity. Could they reuse some water for different activities?

The pupils should divide their 9 cards into activities which require clean water (e.g. cooking, drinking) and those where it is less important (e.g. watering the garden).

Ask groups for their ideas. Emphasise that these are the hard choices that people have to make every day across the world!

They should now produce a poster to show how they would be able to carry out all the water use activities with only 20 litres of water. This could be completed as a homework activity if time is running out.

Differentiation

All pupils will:

- complete the table of personal water usage
- complete the Diamond 9 activity

Most pupils will also:

- be able to explain the priorities for water usage

A few pupils will make more progress and:

- develop an action plan for reducing water usage and be able to calculate the total saving

Resources

Worksheets

- How much water? (Given out in previous lesson)
- Water choices
- Diamond 9
- Saving water

Presentation

- How much water?

Equipment

- Poster paper and pens
- Materials for the Diamond 9 activity - if time is available the sheet can be cut up in advance and individual sets of cards produced. If less time is available hand out the worksheet and a pair of scissors so that each group can cut out their own.

Homework suggestions

Hand out the *How much water?* worksheet. This homework activity asks the pupils to take what they have learned about the uses of water and how to economise and put it to the test on themselves at home. There is a table for them to complete to help them. The pupils' results can be compared in the next lesson if time is available.

Suggestions for out-of-school activity

Ask the pupils how they could you become more economical in their use of water at home? For example, could water used in some activities be reused or recycled?

Pupils could also:

- research how water is collected in developing countries and then set up their own project for collecting, for example rainwater. How long did it take to collect enough water to be useful? What would they use this water for?
- look back at some of the technologies used by families in the developing world to give them some ideas. Can they design systems for their own house that would help their family to become more economical in water use? These could include reusing, recycling and collecting rainwater.
- draw plans for their design ideas explaining how their systems would work.
- design systems for a family in a developing country that does not have water coming in pipes to their home so has to collect water from a river and collect rainwater.



Lesson 1: Cleaning water

Learning objectives

- Understand that more than a billion people across the world do not have access to a clean water.
- Investigating ways to clean water using simple local materials
- Understand how bacteria in water can be killed so that water can be made safe to drink.

Lesson sequence

Introduction

5 mins

Show the slide *One in six people* in the presentation *Cleaning water* and ask pupils to suggest what the 'one in six' statistic refers to. After they have made some suggestions point out that one in six people in the world do not have access to clean water. Show the next slide *The hidden danger* and remind pupils that water they collected from rivers is that it might not be safe to drink.

SAFETY NOTE

In the following activities pupils will develop procedures to clean water. Stress that they should **not** test this water by tasting it.

Cleaning water

30 mins

There are three options for carrying out the following activity depending upon the time you have available. All pupils could do Option 1 or some groups could do Options 2 or 3 (which may be less demanding) instead.

Option 1

This option is the most open-ended and the pupils plan and carry out a scientific investigation to compare the filtering qualities of the four different materials. They should plan and carry out a fair test style investigation, analyse and interpret their results, draw conclusions and write a report or present their investigation.

You would get them started by introducing them to the equipment including the cut-off inverted plastic bottle. We would suggest that you keep the bottle cap attached and make a 3 – 5mm hole in the centre of the top.

Also show the pupils the materials that they will be comparing, including stones, gravel, coarse sand and fine sand collected from the river. Give each group a bottle of river water that includes small pieces of wood, leaves, gravel sand and silt. Introduce the idea that the pupils will plan an investigation to compare the water filtering and cleaning capability of the different materials. Remind them to make it a fair test. They will be asked to write a report of their investigation.

Option 2

30 mins

In this option the pupils carry out a more prescriptive experiment.

Give each group four cut-off inverted plastic bottles in stands. They should put stones in one bottle, gravel in another, coarse sand in a third and fine sand in the fourth to a depth of 2 centimetres. Next they should put a 250 ml beaker under each bottle.

They should shake the bottle of water and pour 100ml of the water into another beaker. They should pour the 100ml of water into the top of the bottle containing stones and time how long it takes for the water to pass through the stone into the beaker below.

They should observe the filtrate in the beaker and what was filtered out as the water passed through the stones. They should repeat the above for each of the materials in the plastic bottle.



Option 3

30 mins

The pupils would set up the experiment as above, but this time they would take the filtrate from the stone and pour it through the gravel, collect it, then pour it through the coarse sand, collect it again and then finally pour it through the fine sand.

When the pupils have carried out their investigation or experiment as them what they think the filtered water could be used for and why. Ask them if it would be safe to drink and why.

Use the slide *A home-made filter* to support pupils if appropriate.

Who needs water filters?

Hand out the worksheet *Cleaning water*. Ask pupils why people may need water filters. They make come up with the idea that in developing countries people in remote area often do not have access to clean water through a tap. Show the slide *LifeStraw* to show how a good filter can make even water that looks very dirty safer to drink.

Is filtered water safe to drink?

10 mins

Ask them to discuss, in pairs, how they could kill the bacteria or remove the bacteria from the water so that it would be safe to drink. Their answers will depend on their background and experience. They could say boil, use sterilising tablets, special filters etc.

Differentiation

All pupils will:

- understand that not all water everywhere is clean

Most pupils will also:

- be able to complete an investigation into cleaning water

A few pupils will make more progress and:

- understand how water that is not clean can be unsafe and carry disease
- make suggestions about making this water safe

Resources

Worksheets

- Cleaning water

Presentation

- Cleaning water

Equipment

- Plastic bottles with bottom cut off and hole in top.
- 5 x 250ml beakers
- Bottles of river water (these can be made up using tap water, small twigs, leaf matter, gravel, sand and silt).
- Small stones
- Gravel
- Course sand
- Fine sand

Homework suggestions

The pupils could research and produce a poster, either for

- people in a slum in Kenya showing them how to make their water safe to drink, or
- children in UK showing how the water is treated to it clean and safe when it flows out of the taps at home.

They should make the link to the investigation/experiment they carried out.

Suggestions for out-of-school activity

The pupils should apply what they have learnt from carrying out their experiment/ investigation using the local materials to clean the water. They should design a water filter that uses some or all of the materials. The water filter should be able to filter 20 litres of water.

They should draw and label their design; describe how their filter works and give reasons for why they designed it the way they did.

Lesson 2: Pumped up

Learning objectives

- Understand the problems that over a billion people across the world face as a result of not having access to safe water.
- Appreciate the impact that having access to safe water can have for a primary school community.
- Understand how a water pump works to provide the safe water to a community using sustainable energy.

Lesson sequence

Introduction

10 mins

If your pupils have carried out the first pair of lessons in this unit ask them to consider the consequences of having water 'on tap' at their campsite meaning they would not have to carry it. Ask them to make a list of how things would have been different. They should share their list with another pair and compile a group list. Ask different groups for items from their list and record them on the board.

If your pupil did not carry out the first pair of lessons in the unit tell them you are going to be looking at problems cause by people around the world not having clean water

The Chingondole Primary School Story

20 mins

Introduce the pupils to the Chingondole Primary School using the presentation *Chingondole School*. Hand out the *Chingondole School Story cards*.

The pupils should read the captions on the cards and list the problems faced by the community *before* the pump was installed based on the benefits brought to the community *after* the installation of the pump. Debrief by asking different groups to give their answers and emphasise the key before and after differences.

Hand out the worksheet *Pumped up!* Ask the pupils to look at the diagram of the solar-powered water pump and, in groups, to discuss and try and explain how they think it works. Ask different groups to present their explanations.

Making a pump

15 mins

Watch the video at [youtube.com/watch?v=BJ7FCj945oc](https://www.youtube.com/watch?v=BJ7FCj945oc) . Hand out equipment so pupils can make their own pump.

Differentiation

All pupils will:

- recognise that not all schools have access to running, clean water

Most pupils will also:

- appreciate the problems associated with no clean water and sanitation at school

A few pupils will make more progress and:

- appreciate the benefits of clean water at the school
- explain how solar power works

Resources

Presentation

- Chingondole School

Worksheets

- Water can kill
- Pumped up!
- Chingondole Primary School
- Solar water pump

Equipment

- Straws
- Satay sticks
- Scissors (also useful for cutting up the Chingondole school cards)
- Electrical tape
- Beakers of water

Useful websites

practicalaction.org/improved-sanitation-and-water-access-for-morrumballa-communities

This page provides background information about the supply of water to Chingondole Primary School.

[youtube.com/watch?v=BJ7FCj945oc](https://www.youtube.com/watch?v=BJ7FCj945oc)

The source of the video clip showing pupils how to make a model pump.

Homework suggestions

The pupils research water borne diseases and complete the table on the homework sheet *Water can kill*. If there is likely to be a problem for pupils finding the information at home they could produce a health promotion poster to inform a family in a slum in Nairobi, Kenya about these diseases.

Suggestions for out-of-school activity

Introduce the pupils to the playground pump in In South Africa, where energy produced by a playground roundabout is used to pump water. Watch the YouTube video bit.ly/water-playpump . As the roundabout spins it transfers energy to an up and down movement, this pumps water from underground to a tank above the pump. Explain that it takes a lot of energy to lift water. If the children turn the roundabout 16 times per minute, the play-pump lifts 1,400 litres of water per hour from 40 metres underground. The playground pump costs £500, and that advertising around the storage tank covers the costs of upkeep.

The pupils could research and develop designs that use renewable sources of energy, playground or gym machines that could be used for water pumps in small communities. They could draw their designs, describe how they work and how they could provide safe water to communities.



Lesson 1: Toilet solutions

Learning objectives

- Understand the problems caused by having limited access to modern toilets.
- Review a selection of toilet solutions for these problems.
- Understand that toilets can not only solve sanitation solutions but also provide manure and energy.

Lesson sequence

Introduction

5 mins

Ask the pupils to discuss in pairs how they might have solved the problem of going to the toilet at their hillside camp site. Why did they choose that method? They could come up with ideas such as digging a hole, going behind rocks etc. Then ask them to discuss in groups of four what problems this could cause if they were there for any length of time how they could prevent those problems. Ask groups for their ideas.

Better sanitation to reduce disease

10 mins

Watch the first part of bit.ly/splishsplashflush up to the point where the children are about to play a game. Instead of watching, they can play the game, called *Why wash your hands?* themselves. This is best played outside in the playground (you can watch this part of the video if you want to see how it works).

Sort the pupils into groups of about 10 with a ball for each group. Without the other pupils knowing one pupil from each group must cover their hands with coloured chalk dust (use coloured chalk rather than white - it is easier to see). The pupils then play a game of catch passing the ball around the group for about five minutes. Then ask them to examine the ball and their hands and they will see chalk dust on them. Ask the pupils to think about what this means if the chalk represents disease-causing bacteria of the type that can come from a lack of sanitary toilets.

Tell them that half the world's population does not have access to sanitary toilets. Around the world lack of sanitation is a major problem and causes a large number of deaths. 2.6 billion, that 1 in every 30 people in the world do not have a toilet of any kind. Diarrhoea kills 2,000 children every day, more than malaria, measles and AIDS combined. Other facts can be found at bit.ly/40-shocking-facts-about-water . For example, in Zimbabwe only 1 in 3 people have access to a toilet at all and a recent outbreak of cholera (caused by dirty water) claimed 5,000 lives. Before the next activity watch the video clip of Ant and Dec in the slums of Kenya found at practicalaction.org/video-toilets-kenya-ant-and-dec .

Solving the problem

20 mins

There are two approaches to running this activity depending on how much time you have. Option 2 is explained in the out-of-school activity section at the end of this lesson.

Option 1

Sort the pupils into groups of three or four and ask the pupils to imagine they are the committee representing a community in which shares communal pit latrines. These latrines are little more than holes in the ground framed by planks of wood. As many as 200 people could be using one of these latrines. Some members of the community go to the toilet behind hedges or in plastic bags. These are known as 'flying toilets' because people throw them into the bushes. Children as a result are suffering from multiple illnesses.

They have been given financial aid to help them solve these problems. They have been given a number of possible types of toilet that maybe suitable. As a committee they will have to choose the most suitable solution for their problem.

They should first create their criteria for choosing the most suitable toilets for their community. Hand out the worksheet *Toilet solutions* to help record their criteria. They then use the criteria when they look at the three possible latrines – Bio-latrines, Ventilated improved latrines (VIP), and SULUV twin-pit latrines. Hand out the worksheet *Top toilets*. Further information about these toilets is available at <http://practicalaction.org/simple-ideas-toilets> .

Ask them to discuss the designs in their group, compare them against their criteria. They should identify which criteria each design meets, and any other things do they offer that they did not anticipate, and then decide which toilet design they will recommend.

The groups prepare a presentation for their community identifying which toilet design they will recommend, how it works, and why they have chosen that toilet design. Ask two or three groups to present and display the other group presentations in the classroom. Summarise the features of the latrines and the reasons given for choices.

Differentiation

All pupils will:

- understand that not all school pupils have access to toilets as they know them

Most pupils will also:

- understand how bacteria can be transferred from one person to another
- understand that this can spread disease

A few pupils will make more progress and:

- be able to justify a choice for a toilet for a community

Resources

Worksheets

- Top toilets
- Toilet solutions

Equipment

- Poster paper and pens or computers for preparing presentations.
- Coloured chalk (blue or other dark colours) and some balls such as netballs/basketballs.

Useful websites

bit.ly/40-shocking-facts-about-water

Homework suggestions

The pupils could find out about diseases that can be spread by not washing hands after going to the toilet. They could then produce a health promotion poster to inform people about the different diseases and to encourage them to wash their hands after using the toilet.

Suggestions for out-of-school activity

This is Option 2 for the latrine design discussion.

This would be done as a role-play, with three groups preparing as the committee as in Option 1, and three groups preparing to present each of the latrine designs: how it works, how it helps to solve the community problems and any other beneficial aspects of the design.

Choose one group to present each design, with all the non-presenting groups then using the criteria produced by one of the groups to assess the different presentations. In their groups they make their choices after the three presentations. Each group should then be asked which they chose and why.

From what they have learnt about the different toilet designs ask the pupils to produce an improved design. They should draw their design and label it to show how it works, and explain why people should use it.

Lesson 2: Water action

Learning objectives

- Make individual decisions for action that they can take to become more sustainable in their water use at home.
- Make group decisions about the action the school and school community could take to be more sustainable.
- Make a class decision about what the class or school could do to help a community in a developing country have access to clean water or improved sanitation.

This lesson builds on all the tasks and the experience gained by the pupils in previous lessons, homework and project activities. It encourages the pupils to take individual action at home, recommend as groups what could be done within the school, and what as, a class or school, they could do to support development goals regarding access to clean water and sanitation in developing countries.

Lesson sequence

As an individual

10 mins

Ask pupils think about what they could do to reduce their use of water at home and become more water sustainable. They should produce an action plan to present to their family. They should make sure they consider some of the solutions and ideas they have seen in use in places like Kenya.

As a group

20mins

The pupils should discuss how they think their school could reduce its use of water and become more water sustainable. Again they should look at what they have learned from life in places like Kenya and see if any of the ideas could apply to this country. They should prepare a presentation of their ideas for the class.

Secondly, they should discuss what they think the class or school could do to help a community in Kenya have access to clean water or better toilets. They again prepare to present their ideas to the class. Tell them they have five minutes to get their message across

As a class

15 mins

The pupils should listen to the group presentations and then, in their groups, choose which ideas should be used to improve water sustainability in their school and which ideas the class or school could adopt to help other communities in Kenya. This can be done using a simple peer review sheet.

Make a master sheet of the names of the pupils in each of the groups so that the pupils just need to write down the group number on their assessment sheet.

It might be that you need to collect the assessment sheets to complete the calculations and announce the results next lesson.

The class could then vote on which ideas to support and agree what action to take. It is important that you support the implementation of these ideas. Do they have any new ideas of their own that could help people in the developing world?

Water! Water!

From all of this they should then outline a campaign to raise awareness in their school of everything they have learned and perhaps ask to present at an assembly (this could be a short drama) and/or mount a display in the school foyer.

Differentiation

All pupils will:

- complete a list of their individual views

Most pupils will also:

- engage in a discussion about sustainable water usage reduction

A few pupils will make more progress and:

- develop ways to help local and international communities to improve water usage

Resources

- Water action

Equipment

- Large sheets of paper
- Pens
- Scissors
- Glues

Suggestions for out-of-school activity

Pupils could work on a campaign to raise awareness in their school of everything they have learned and perhaps ask to present at an assembly (this could be a short drama) and/or mount a display in the school foyer.