



Geography/Design Technology

What is the Pupil Pipeline?

WaterAid provides safe water, sanitation and hygiene education to some of the world's poorest people. In the next year millions of people will experience the transformative effect of having clean, safe water and sanitation for the very first time.

It costs just £2 for one meter of pipeline needed to transport clean, safe water across the developing world. The Pupil Pipeline challenge is a fun and educational challenge for schools to help raise these vital funds for WaterAid.

Pupils need to pass one or more buckets, bottles, jars, cups or even wellies filled with water along the line without dripping a drop. Or can they design their own water carrying device or pipe.

These teaching materials add context to the Pupil Pipeline to ensure that pupils have a broad understanding of the importance of water and a foundation from which to begin exploring wider global issues associated with water.

Rainwater harvesting lesson plan

This set of activities is intended to be carried out across several lessons and at a pace suited to your class. The activities introduce the difficulties of going to school in an environment where there is no safe water available nearby, and simple solutions such as collecting rainwater. The children will then have the opportunity to make their own mini water butts in which they can collect water to supply a school garden or water vegetables, and use for the Pupil Pipeline activity. They can also be used as part of your school's eco club activities.

Key words

- Rainwater harvester
- Water butt

Aims

- To explore the journey water takes before it reaches our taps.
- To reflect on the fact that some people do not have access to safe water and the impact this has on their lives.
- To make mini water butts and decide where to place them in order to collect as much water as possible.
- To use the rainwater to grow vegetables to sell or eat.

Resources and materials

- Rainwater harvesting diagram
- Welcome to Simango Basic School
- Simango school slideshow
- Finiritra's story
- Make a mini water butt instructions
- Clean plastic 4 or 6 pint milk bottles
- Scissors
- Cable ties or twine
- Craft materials

Curriculum links

KS2 Geography

Human and physical geography: Describe and understand key aspects of human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.

Design Technology:

Design: Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups; generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Make: Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately; select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to

their functional properties and aesthetic qualities.

Evaluate: Investigate and analyse a range of existing products; evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Technical knowledge: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Starter

- Give pupils the **Water treatment process** sheet and ask them to work in pairs to place the steps into the correct order. They should then share their answers with another pair and the correct order should be revealed. (6,5,7,2,3,1,4).
- **Optional:** Using their answers, they should work in small groups to show the water treatment process as an annotated diagram on large sheets of paper.

Activities

Geography - Rainwater harvesting

- Ask the pupils where they would get water from if they didn't have taps in their homes and a water company to get water to them?
- Put pupils to get into pairs, and give each pair a copy of the **Unlabelled rainwater harvester diagram**. They should spend five minutes deciding what they think the picture is showing, how it works and what it might be called.
- Ask the pupils to feed back what they thought the diagrams showed. Display the diagram on the board and explain that it is a rainwater harvester. It collects rainwater on the corrugated roof, which then flows down to the gutter, down the pipe and in to the jar. Ask the pupils what they think of this idea. Have they seen anything similar where they live? What might they use rainwater for? Would they drink it? Why? Why not?

- Explain that in some parts of the world, people have to collect their water from rivers, lakes or streams as they do not have any other water available to them. Ask the pupils what the problem might be with water from rivers or lakes. Read out the **Welcome to Simango Basic School** case study to show what life is like without taps for children in Zambia. While you are reading the story, display the **Simango School slideshow**.
- Tell the pupils that the charity WaterAid works to provide safe water for some of the world's poorest people. Explain that different methods are used to bring safe water near to people's homes so that they no longer have to walk long distances and become ill from drinking unsafe water. One of the ways they help get water to people is by using rainwater harvesting, like in the diagram.
- Display the diagram again on the board to remind pupils what it looks like.
- Explain that this just one of many simple way of getting water to people easily. Once people have access to water their lives change for ever.
- Explain that in this country, we collect rainwater in our gardens or in school using a water butt. Tell the children that they will be making mini water butts to collect rain water.
- Ask the pupils to work in pairs to read the **story of Finaritra** and look at the images. They should discuss how life has changed for Finaritra and his classmates now that they have clean water and can grow their own vegetables. Ask them to share these changes with the rest of the class.

Design Technology - make a mini water butt

- Pupils can either make their water butts individually or in pairs. Give out the materials and go through the instructions with the whole class. Display the instructions on the board while they are making their mini water butts.
- Once they have made their water butts, they should spend some time decorating them.
- Discuss with the class where they think the best place will be to put their water butts to ensure that they collect lots of rain. If possible take a walk outside to talk about suitable positions for them. Once this has been decided, ensure that the lids are firmly on the water butts and that the pupils attach them to the chosen spots tightly. Explain to the pupils that once the water butts fill up, they should place a watering can under them and take the lids off to fill the watering can with the water that has been collected.
- The water collected in the mini water butts can be used for the Pupil Pipeline challenge. If your school has a vegetable patch or garden, why not use it as a focal point to transport water back to, in order to water the plants?
- **Optional:** If your school has a vegetable patch, or garden, you could extend this activity to grow vegetables with the water collected in the water butts.

Plenary

- Ask the pupils to reflect on how simple solutions such as a rainwater harvester can create big changes like those they found out about in Madagascar. They should create posters about their Pupil Pipeline event using the information they have gathered about the difference water makes to children's lives in Madagascar and the difference water will make to the children they read about at Simango Basic School.
- Display the posters to publicise your Pupil Pipeline events.

Extension activities

- If your school have chosen to grow vegetables, why not use them to make simple sweet treats such as courgette loaf, carrot cake or beetroot brownies.
- Hold a fruit and vegetable, or bake sale alongside your Pupil Pipeline challenge to help give donations a boost.

