WaterAid

THE PUPIL PIPELINE

Pipeline challenge!

Introduction

Less than 1% of the water on Earth can be used by humans for drinking, washing or cooking. With a growing population there is increasing pressure on this strained resource, so it is vital that we use water efficiently. Water companies have the hard job of ensuring that they transport water to us efficiently through pipes. This is important as leaks are both costly and wasteful.

The pipeline challenge aims to prove just how difficult efficient transportation of water through pipes can be.

What you will need:

- 3 – 4 lengths of guttering/pipe per team (teams of roughly 4 – 6 pupils)
- Joining materials, e.g. cloth, plasticine (or a form of modeling clay), sellotape, masking tape, parcel tape, string, etc.
- Measuring jug or other pouring device
- Bucket
- Water (perhaps collect some rainwater)

How to Play:

1. Split the students into small groups of 4 - 6
2. Give each group 3 or 4 lengths of guttering or pipe and an equal amount of the different joining materials per group
3. Working together, their challenge is to use the materials available to attempt to make water tight joins between the sections of pipe or guttering to reduce water wastage.
4. They might choose to use only one of the joining materials, a combination of those available or all of them on each joint.
5. Ask each small group to feedback to the rest of the group which materials they used to make their pipeline watertight and why.
6. Each group's pipeline should then be tested to see how water efficient it is.
7. Pour 2 litres of water down the pipeline into the bucket at the other end. Do this on a surface on which any water leaks or spillages are visible on the ground for the groups to see where their structures have leaked.
8. Ask each group to reflect on how water tight their pipeline is and how they might be able to improve its design.
9. If time allows, give the groups the opportunity to redesign their pipelines using different combinations of joining materials and repeat the above process.

Extra challenges!

- Set out a path of obstacles that the groups have to plan their pipeline round. These could represent obstacles that pipelines face in reality, for example, buildings, foundations, hard ground, protected land etc. This route could include corners, angles and height changes. You could ask them to think about what force they could rely on to move the water from the start of their pipeline to the finish if they did not have access to a pump to move the water.

- The activity can also be altered to make it a team building activity. Make the groups bigger (6 – 8 pupils in each). Ask the pupils

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to organise themselves into pairs within their groups. One of each of the pairs will be blindfolded and verbally guided by their partner. They are not allowed to physically assist their blindfolded partner but can shout instructions along with the 'guides' in the group to help the blindfolded pupils create their pipeline and make it water tight.

You can then ask them to remove their blindfolds before their pipelines are tested.

Pupil Pipeline fundraising activity

The activity can be extended to forming a human 'pipeline' as part of WaterAid's Pupil Pipeline fundraising activity.

The Pupil Pipeline is a challenge that brings the global water crisis to life. Millions of children in Ethiopia have no access to clean, safe water - children like those at the Rah ZeSilas school, who used to share one tap between 2,500 pupils.

Taking on the Pupil Pipeline challenge is easy:

- Ask your pupils to bring in £2 or a donation of their choice. £2 is the cost of one metre of pipeline needed to transport clean, safe water to children across the developing world.
- Gather your pupils together and direct them to form a long line. Where will they go? Through the playground? Over the climbing frame? Across the playing field or around town? How long will your Pupil Pipeline be?
- Start your Pupil Pipeline challenge! Your pupils need to pass one or more buckets, bottles, jars, cups or even wellies filled with water along the line without dripping a drop. How quickly can your pupils pass it along? They can then use it for a project of your choice – for example watering the plants in your school garden. Good luck!