



Save The Water

Subject: Science and Maths Context: Water conservation, efficiency.	Year Group: Year 6	Date:
Knowledge, Skills and Understanding: Simple investigations are created using a range of scientific equipment to draw conclusions, along with the mathematical investigations and understanding gravity using measurement and properties of shapes. The concept of efficiency is demonstrated using concrete materials.		
Learning Objectives (Choose from): • 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 a 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. • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • Understanding and being able to describe and demonstrate efficiency.		
Lesson Overview: This activity investigates water conservation, water is poured down the gutters and collected to see how much is lost. Activity: • Set the wall up with all of the gutters, record the position and angles of the gutters. • Fill one container with 1 litre of water, and pour it down the gutters and switch, explore the behaviour of the water as it travels, collect the water at the bottom with the second container, observe and record the amount collected, measure and record what percentage of water is lost. • Explore how the position of the gutters and switch affects the water loss (improves efficiency), splashing and leaking by rearranging the gutters, recording their position and repeating the experiment three times. • Design a way to repeat the experiment as a fair test. • Record the first result while members of the team observe where water is lost and how they can improve the system.	Resources: • Moti-Lab reservoir • Moti-Lab board • Moti-Lab gutters • Moti-Lab switch • 2 x 1 litre measuring containers • 1m ruler • whiteboard pen Key Vocabulary: splash, leak, conservation, waste, efficiency, percentage, fair test	





- Make changes to improve the system each time the experiment is performed and record the improvements 3 times.
- Work out how much more / less water there was each time - can this be expressed in ml, decimals, percentages etc.
- Plot a graph of results.
- Repeat the test until you have 98% Plus efficiency.

Conclusion / Plenary:

- Shallow gutter positions slow down the water.
- Water is lost due to splashing and leakage.
- The switch produces a lot of leakage.
- Lining the gutters up reduces leakage.

Cross Curricular Links (Choose from):

Maths

Fractions (including decimals and percentages)

- Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.

Measurement

- Convert between different units of metric measure (litre and millilitre).
- Estimate volume and capacity [using water].

Properties of shapes

- Draw given angles, and measure them in degrees (°).

English

- Describe observations using full sentences, in speech and in writing.

Complementary Activities

- Carry out a water usage survey at school and at home.
- Investigate ways to save water in the home or at school, toilet systems, water pipe bans, showers vs baths.
- Design a poster about water conservation.
- Explore other ideas of efficiency, e.g. cars miles per gallon and what makes them efficient.

Useful Links

- <https://www.bbc.com/bitesize/clips/z8qtfq8> - The water cycle
- <https://wateruseitwisely.com/kids/> - Using water wisely
- <https://www.youtube.com/watch?v=UuHPtgX71L0> - Save the water Moti-Lab
- <http://everylastdrop.co.uk/> - Water saving in the house, animation
- <https://www.youtube.com/watch?v=rI0YiZjTqpw> - Water saving, animation

Challenge Questions (Choose from):

How far does the water travel?
What force is making the water travel downwards?

Can you record the volume and percentage lost?

If you rearrange the gutters will less water be lost? does the angle of the gutters matter? how does this affect water being lost?

Can you plot your results?

Can you think of other ways to stop the water leaking/splashing?

How can you make sure the experiment is a fair test?

Design the best system to lose the least amount of water, how can you test this?

Why do you think is it important to save water?





- <https://wateruseitwisely.com/kids/> - Water saving website

