

Water Wheel Investigation

Learn how energy can be harnessed by the flow of water over your own water wheel

12+

Craft & Design
Technology



An engaging STEM activity to introduce hydropower as a form of **renewable energy** and to introduce the concept of **forces and energy transfer**.

Watermills have been used through history and the kinetic energy of the water has been harnessed and/or transferred to grind corn, supply drinking water to villages, irrigate crops and power textile mills.

Modern hydropower uses falling water often retained by a dam to generate electricity.

As an extension you could attempt to harness the energy from your wheel attaching a string and a small weight to the shaft to see how much weight the mechanism can lift.

Equipment for 1 water wheel

2x sturdy paper plates
Ruler and pencil
Plastic tub
Length of dowel longer than the width of the tub
Scissors
Sticky tape
Recycled plastic cups, pots or paper cups
Permanent marker
Stapler
Jug or watering can
Water

To Make the Water Wheel

1. Measure and mark the centre of the two paper plates.
2. Perforate the plates with a pencil at the marks.
3. Push the dowel through the two plates.
4. Staple a minimum of three cups snugly between the two plates.
5. The cups should be evenly spaced and all facing the same direction.
6. Mark one of the cups prominently with a permanent marker.
7. Balance the wheel width-ways across the tub.

Investigation

Steadily pour the water from a jug into the top cup of the water wheel and watch it begin to rotate as the water flows. Count how many rotations the wheel makes using 1 litre of water. Use the marked cup to keep track of rotations. Experiment by changing the height and speed of the flow of water. What difference does a faster flow make?



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