

Experiment on renewable energies: Hydropower (information for the teacher)

1 Experiment: Building a waterwheel

1.1 Description of the experiment

In this experiment, the students build a small waterwheel out of plastic cups and become familiar with kinetic energy. Flowing water has the power to make waterwheels and water mills start rotating and generate energy.

1.2 Observation

The waterwheel is held under flowing water and the wheel rotates. The stronger the stream of water, the faster the wheel rotates. Weights attached to the waterwheel can be pulled upward by the hydropower.

1.3 Explanation

The waterwheel rotates under flowing water because the water transfers some of its kinetic energy to the wheel. A hydroelectric plant can in turn convert this energy to electrical energy, or electricity.

1.4 Teaching methods

- On the topic of types of renewable energy, the students should build a waterwheel.
- Materials: 2 plastic cups, 3 bottle corks (predrill lengthwise in advance), a skewer (ideally made of metal), a spool of thread, a piece of paper, a plastic bucket (two holes; the holes for the handle may be suitable; otherwise predrill), weights (for example, an eraser).
- Duration: Approximately 15 minutes.
- Note: A garden hose or shower head is best for driving the waterwheel. There must be enough room to be able to place the bucket under the water stream.
- Safety information: Be careful when handling the skewer!