Turbines & power generation

Create a turbine

Overview

Duration - 1 hour, or as long as you like

This activity is a fun way to demonstrate how the power of water and gravity has the strength to turn the turbine to generate clean, renewable energy. Learn how to capture, store and reuse water using your turbine and a bucket.

Materials

Two paper plates

Four small recyclable plastic cups

One bamboo skewer

Wide sticky tape

Marker pen

Bucket, or any vessel to capture water (ice-cream container, clear plastic box, recycled large plastic containers)

Method

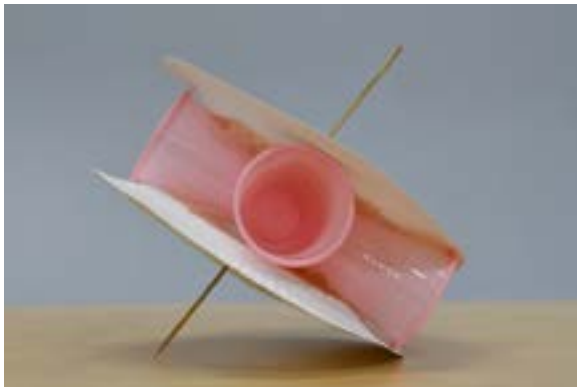
1. Using the marker pen, make a dot in the centre of the bottom side of each paper plate

2. Take the bamboo skewer and line up the dots and pierce the skewer right through the middle of both plates. Withdraw the skewer, leaving two holes in the middle of the plates

3. Flip the plates over with the bottom-side facing up. Arrange four sticky tape loops on the flat part of the paper plates filling the area. Take care not to cover the pre-made holes

4. Take one of the plates and strategically lay four small plastic cups down, on the sticky tape bed. Position the bottom of the cups pointing to the centre hole.

5. Take your skewer and feed it through the pre-made centre hole of the other paper plate



6. Lineup the holes of the two plates using your skewer and gently place the top plate into position, sticky tape side to the cups.

7. Hold your turbine by the ends of the skewer horizontally under the flow of running water (tap) and watch it turn. Alternatively, you can use a bucket instead - see next step

8. Place a bucket, under the flow of the water, to capture and store the water used. Use two buckets - one to pour and one to capture. Work with a friend and pour your stored water over the turbine to repeat the above

Hint

See if you can regulate the speed that your turbine turns by regulating the flow of water.

What happens to the hydro-powered mechanical energy on the Scheme?

Snowy Hydro uses the power of water to generate clean, renewable energy. The generator in the turbine converts the mechanical energy into electricity.

Kinetic energy is the energy possessed by an object due to its motion.

Potential energy is the energy which is stored or conserved by an object due to its relative position. The most common form of potential energy is gravitational.

Mechanical energy is the sum of an object's potential energy and its kinetic energy.

You have just reused stored water, simulating the reservoirs in the Snowy Scheme. You have turned potential energy (stored water) into kinetic energy (flow of water) and in turn, to mechanical energy (turbine turning).

Write or draw how your turbine performed.