



Credit: TopFoto

Windmill winch

This activity harnesses the energy in wind to power a simple winch that can raise lightweight objects. It demonstrates directly that wind is a source of energy (as a consequence of the Sun's heating of the atmosphere) and that it can usefully be tapped to provide power for our daily use.

You will need

- Some squares of paper
- Tape
- Unused pencil
- 2 bobbins
- Paperclip
- String
- Blu-tack
- A copy of the windmill winch template

Steps

- 1** Make a set of four windmill sails using the squares template, folding and gluing A to B on each square as shown on the template.
- 2** Attach the sails to a bobbin, then fix the bobbin to one end of a pencil.
- 3** Glue one end of a piece of string to the side of the pencil. Fit a paperclip bent into the shape of a hook to the other end of the piece of string.

4

Push the pencil into the second bobbin and use it to hold the windmill up horizontally, pointing it into the wind (or blowing on it) so that it rotates. This will cause the string to wind around the pencil as the windmill turns.

5

Try raising a variety of small objects using the winch. Experiment with objects of different weights and attempt to find the limit of what can be raised using this apparatus.

Analysis/ discussion

Why does the windmill turn when the wind blows on it?

How is the energy in the wind able to raise objects?

Could the windmill be used to power other types of device apart from the winch?

Windmill winch template

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