

Activity

Wind power challenge

from small acorns, great oaks grow



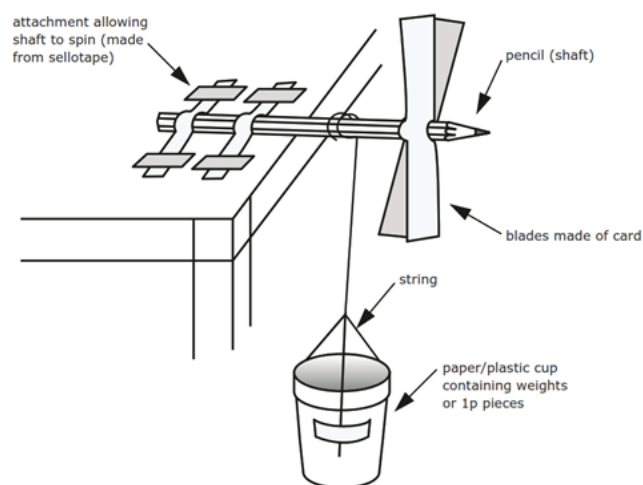
Equipment list:

- ▶ Scrap card
- ▶ Sticky tape
- ▶ Pencils
- ▶ Scissors
- ▶ String
- ▶ Paper or plastic cup
- ▶ Weights (or coins)
- ▶ 1 hairdryer or small fan

Set the challenge

Ask students to design a simple wind turbine capable of lifting a cup off the floor up to bench height. The winning team will be the one producing a machine that lifts the most weight.

Possible design



taking action on #EarthDay 22 April

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Discuss the variables involved in making design decisions

- ▶ Shape of the blades
- ▶ Size of blades
- ▶ Thickness of blades
- ▶ Number of blades
- ▶ How the shaft is attached to the desk

Discuss how the design could be made as sustainable as possible eg:

- ▶ Reusing scrap material rather than new
- ▶ Reducing waste to a minimum (card, sellotape, string)
- ▶ Do they need to use a hairdryer?

Ask the students to think about how they want to make it a 'fair' test. This could include:

- ▶ Limiting the amount of materials (card, sellotape, string) that can be used for each group
- ▶ Ensuring all the hairdryers are of the same power rating
- ▶ Ensuring the hairdryer is a fixed distance away from the blades
- ▶ Allowing or not allowing students to touch the machine when it is operating

Discuss the design process

Students should be encouraged to research, design, build, test, evaluate then redesign. Divide the class into groups of about 4 and give them a time limit to complete the challenge, 30 minutes should be sufficient. When time is up ask each group to demonstrate their machine in turn and briefly describe the process they went through in reaching the final design.

The winning team is the one that manages to lift the most weight in the cup.

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