BPA Science Lab

How to Build a Turbine

Learning objective: for students to learn about turbines, what they are and how they accomplish work by generating energy. To learn to analyze a problem, and develop and test a solution.

Supplies you will need

- ★ Large paper cup
- ★ Unsharpened pencil
- ★ 4 large index cards
- ★ Masking tape
- ★ Washers in assorted sizes
- ★ String

Instructions

1. Students form teams and select team name.
2. Distribute materials to each team.
3. Discuss what a turbine is: a large, bladed "windmill" that turns with the force of wind or water, and can do work—grinding grain, pumping water, or generating energy.
4. Challenge the teams to construct their own turbines out of the materials at hand.
5. When they have a test version ready, they can bring it up for a wind test. Blast it with the hair dryer and count how many turns it makes in 30 seconds. Or, see if it can turn with enough force to lift a small weight. Tie a washer with a string on to the pencil to see if their turbine can lift it.
6. Track results with a chart on the chalkboard.
7. After testing, send them back to improve their design.
8. When there are about 10 minutes left, select a few that are working well to demonstrate to the class and report on their findings.

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