POWER SYSTEMS ENGINEERING

POWER SYSTEMS ACTIVITY

Wind Power – Build a mini turbine

Materials

- small DC toy motor
- 2 pieces of thin electrical wire with alligator clips, each about 50 cm long
- rubber bands
- ruler
- 4 paperclips
- scissors
- cylindrical-shaped cork, at least 2 cm in diameter or styrofoam ball
- masking tape/ sticky tape
- 4 pieces of cardboard, each 3 x 5 cm

To share with the class

- small electric fans or hair dryers
- A DC voltmeter

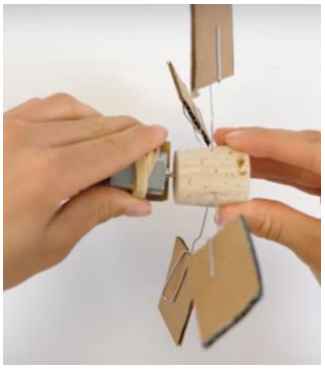
Instructions

Original source link: TeachEngineering

Create a working wind turbines and using a DC voltmeter measure the power output.

To create the turbine you will need 4 paper clips, cardboard and a cork or Styrofoam ball.

1. Cut the paper into 4 equal size rectangles approximately 3cm x 5 cm.
2. Straighten out one end of the paper clips and use tape to fasten the pieces of cardboard to the paperclips.
3. Stick the paperclip blades into the cork or Styrofoam ball equal distance from each other so they make four fan blades.
4. Turn the turbine blades so they are approximately at a 45 degree angle to the cork.
5. Using a rubber band attach the motor to the end of a ruler with the motor shaft at the end.
6. Push the cork into the motor shaft, making sure it is in the center.



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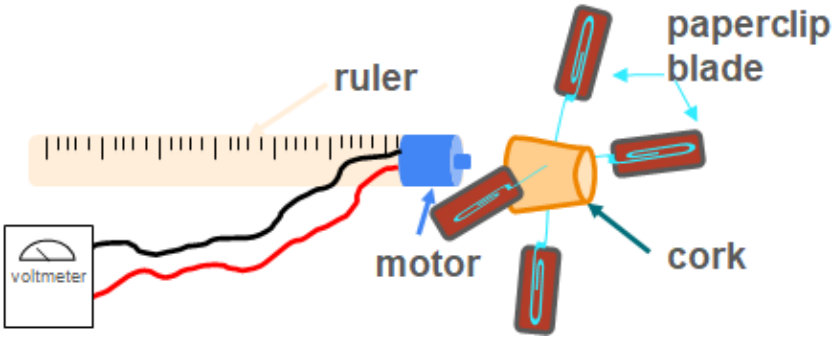

3. Bring the turbine to the table set up with the DC voltmeter and hairdryer.
4. Connect the alligator clips from the voltmeter to the turbine motor.
5. Using the hairdryer blow air over the turbine and watch the voltmeter to see how much power the turbine is generating!
6. Adjust the distance of the wind source and record the change in voltage produced.

Distance	Voltage

7. Adjust the angle of the blades and repeat the distances recorded. Did the angle make a difference?

Distance	Voltage

Activity extension:
Another activity in the same vein is creating a water wheel connected to the motor and recording how much power is generated from a running water source/ school tap.