WIND CAN DO WORK

IDEAS FOR SUPPLIES

large foam cup • extra-wide straw • narrow straw • masking tape • 4-blade windmill template • 2 straight pins • string or thread • paper clips • binder clip • fan • hole punch • marker

Use your engineering skills to design a windmill, then test how powerful the wind can be.

1 Turn the cup upside down. Cut the wide straw to 3 inches in length. Use a ruler to measure the length.

2 Tape the straw horizontally on the top of the cup so there is an equal amount of straw on both sides.

3 Use the windmill blade templates to make your windmill blades. You can find the templates at **nomadpress.net/templates**.

4 Measure a half inch from the end of the narrow straw and make a mark.

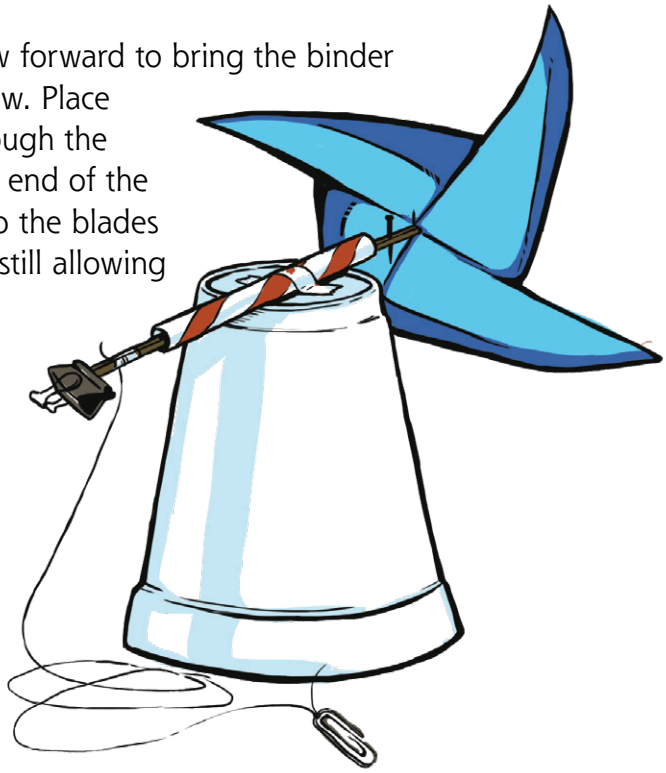
5 Insert a pin through the narrow straw at this mark. This is the front of the straw.

6 Slide the narrow straw through the windmill blades until the back of the blades rest against the pin. Gently slide each blade over the end of the straw. Secure the blades to the straw using tape.

7 Insert the narrow straw into the wider straw on the cup. Tape the string to the end of the small straw. Tie the other end of the string to a paper clip. Make sure you have 12 inches of string from the straw to the top of the paper clip.

8 On the very end of the narrow straw, near where the string is attached, fasten a binder clip in place for balance and to keep the string winding around the straw.

9 Slide the narrow straw forward to bring the binder clip next to the wider straw. Place a second straight pin through the narrow straw at the other end of the wider straw. This will keep the blades away from the cup while still allowing them to move and spin.



10 Place your windmill in front of the fan. How does it work? Is there anything you can do to improve the design? Record your observations in your science journal.

TRY THIS: If you had to redesign your blades, what would you do differently? Why? Redesign your blades. What shapes work best? What else can you use to attach the parts to each other? Test your new designs. Note your observations and compare the designs in your science journal.

ACTIVITY