

Name:

Date:

Class:

# Pinwheel Worksheet

## Step 1. Find the Wind Direction

To determine the current wind direction, lick your finger and hold it up in the air. Feel which way the wind is blowing on your finger (you should feel a coolness to the finger that has been licked if the wind is blowing directly into your finger).



## Step 2. Determining How Your Pinwheel Works Best

Hold your pinwheel into the wind (as determined in Step 1). Next, turn your pinwheel to a 90-degree angle from the wind. How fast does it spin? Fill your answer in the chart below.

Next, hold the pinwheel in a 180-degree angle (or opposite direction from the 90-degree angle) from the wind. How fast does it spin? Fill your answer in the chart below.

Now go find a very high point. On top of a nearby hill (if available) or a playground structure. (*Note: remember to use caution when climbing playground equipment while holding onto your pinwheels!*) How fast does the pinwheel spin when up high?

How You're Holding Your Pinwheel	How Fast It Spins (Fill in <u>Fast</u> , <u>Slow</u> or <u>No Spin</u> )
0° Into the wind	
90° Against the wind	
180° Against the wind	
At a very high point	

At which angle did the pinwheel spin the fastest? \_\_\_\_\_

At which angle would a wind turbine work the best? \_\_\_\_\_

Name:

Date:

Class:

**Step 3. Iterate on the design**

Now that you know the basic design of a pinwheel, you will work with a partner to come up with a better design that allows the pinwheel to spin faster.

**3a.** In the space below, sketch at least 2 different designs you think will make the pinwheel spin faster:

**3b.** What changes did you make to your design? Did they make your pinwheel spin faster?

- 
- 
- 
- 
-

Name:

Date:

Class:

#### Step 4. Document the Experiment

Engineers record their designs and procedure so that it can be duplicated! Please write down each step in simple and complete sentences. Be sure to include everything you need to redo this experiment and everything you did to create your prototypes.