Experiment #5

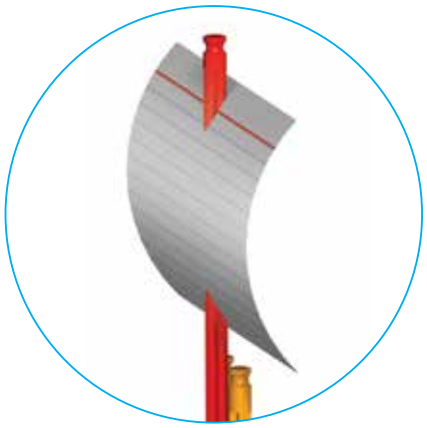
79320

Racing with the Wind

Objectives: Identify ways to increase the kinetic energy of a wind-powered vehicle. Create and interpret appropriate data displays.

Materials You Will Need:

- built **WIND RACER** model
- file cards (3x4, 4x6, 5x8)
- hole punch for preparing the file cards
- fan
- measuring tape
- graph paper
- stop watch



PROCESS:

1. Build the **WIND RACER** model by following the step-by-step building instructions, and attach a file card to the finished model. Use a hole punch to make a hole at the top and bottom of the card.

2. Set up the Wind Racer in front of a box fan and observe it being pushed by a current of air from the fan.

3. What is the energy source? Where is the potential and kinetic energy in the vehicle and how is that energy transferred?

4. Increasing the Kinetic Energy of the Wind Powered Racer

   a. Do you think increasing the size of the sail (file card) on the Wind Racer model will increase or decrease the kinetic energy of the racer? Let's conduct a test to find out.

   b. Changing the size of the card each time, measure the distance travelled when the wind racer is placed in front of the fan. Record your results in the table below.

Increasing the Kinetic Energy of the Wind Powered Racer

Size of Card	Distance Traveled
3x4	
4x6	
6x8	

5. Use the data you collected to construct a graph.

6. Describe the results of your investigation.

7. What other changes can you suggest that might increase the kinetic energy of your wind-powered racer? Design a way to test your predictions.