Name_____Date _____

Water Rockets

STEM Sims

Lesson 3: How Does Air and Wind Affect Rocket Flight?

In science, there are often ideal situations and practical situations. Water rockets operate quite differently when there is air and wind than if no air or wind were present. No need to hold your breath, there will be plenty of air and wind for your study.

Doing the Science

1. Start the Water Rockets Simulation by clicking on the "Sim" tab.
2. Make the following selections:
   Angle: 30° Fluid Volume: 200 mL
   Pumps: 4 Fluid Type: Methanol
   Air: Off Wind: Off
3. Click on the Launch button.
4. Record the flight distance in meters in Table 1.
5. Click on the RESET button.
6. Repeat steps 2-5 with all of the options described in column 1 of Table 1. To change the direction of the wind, click the orange arrow in the top right hand corner of the screen.

Table 1.

Air and Wind	Distance (m)
Air: Off Wind: Off	
Air: On Wind: Off	
Air: On Wind: On -10 km/hr	
Air: On Wind: On 10 km/hr	

Do You Understand?

1. What combination of air and wind produced the greatest distance?

2. Predict the distance traveled by the rocket at wind speeds of −20 km/hr and +20 km/hr.

   At −20 km/hr = _____ m At +20 km/hr = _____ m