Bernoulli's Principle

You may work with a team during this activity.

1. You and your team require two ring stands with rings, a dowel, two pieces of string or thread, each approximately 20 cm in length, two ping pong balls, and tape.

2. Write the equation for Bernoulli's Principle:

3. Tie a loop in one end of each piece of string and slide the loops onto the dowel, so that the ping pong balls are a few centimeters apart.

4. Tape the other ends, one each, to the ping pong balls.

5. Place the ends of the dowels on the ring stands so that the ping pong balls are hanging vertically between the ring stands. Be sure that the ping pong balls are at the same vertical distance above the table surface.

6. Describe what you think will happen if you blow air between and at eye level with the ping pong balls and explain your reasoning.

7. Now try it. Describe what happened.

8. Did the ping pong balls behave as you expected? Why or why not?

9. Assume that P_1 is the air pressure and v_1 is the air velocity on the ping pong balls in still air, and that P_2 is the air pressure and v_2 is the air velocity on the ping pong balls while you or one of your team members was blowing on them. Using these assumptions, explain the behavior of the ping pong balls and how Bernoulli's Principle applies.