

THE FUNNY FUNNEL

Concepts Illustrated:

- (1) The Bernoulli Effect

Time Requirements: 10 minutes

Grade Level of Audience: This qualitative demonstration is best suited for students in grades 5-12.

I. Materials and Equipment Utilized

1. A piece of 8½ inch by 11 inch paper (or use an actual funnel)
2. Masking tape
3. Scissors
4. Table tennis ball



II. Description of Set-up and/or Construction of Apparatus

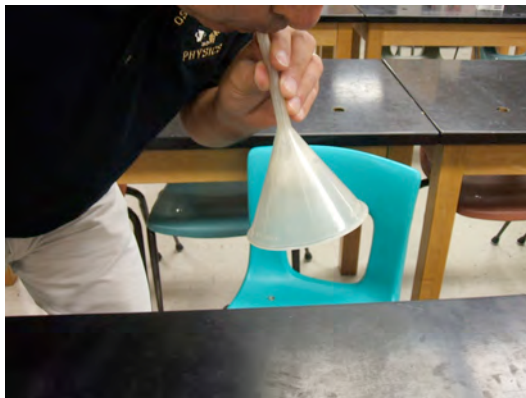
1. Roll the 8½ inch by 11 inch piece of paper into a cone.
2. Tape the cone together using the masking tape.
The small end of the cone must be large enough to blow through. If it is not large enough, use the scissors to cut off a small portion of the bottom of the cone. Ideally, the opening will be about as wide as a quarter.
3. With the cone vertically oriented, place a table tennis ball inside of the cone.

III. Details of Student Implementation

1. Have students blow vertically upward through the cone in an attempt to push the table tennis ball out of the cone.



2. Now try having students blow vertically downward. In this case, they have to support the ball with their hand until they begin blowing.



3. The general idea being demonstrated is that the faster air moves across a surface, the lower the pressure exerted by the air. The moving column of air represents a column of lower pressure relative to the static air mass surrounding the moving air. In this case the moving air will be between the ball and the cone and below the ball, while the static air mass will be above

the ball. As a result, when the air is blown upward through the cone, student (and adults) are surprised to find they cannot get the ball out of the funnel.

4. There are no safety or clean up issues with this interactive demonstration.