

Funny Funnel

Concepts Illustrated:

The Bernoulli Effect

Time Requirements: 10 minutes

Grade Level of Audience:

This qualitative demonstration is best suited for students ages 5-12.



I. Materials and Equipment

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

1. Use a funnel - or - roll the 8½ inch by 11 inch paper into a cone, then 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.)
2. With the funnel (or cone) vertically oriented, place a table tennis ball inside of the funnel.
3. Blow vertically upward through the funnel in an attempt to push the table tennis ball out.
4. Now try blowing vertically downward. In this case you have to support the ball with your hand until you begin blowing.

III. Details of Student Implementation

1. 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 funnel 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 funnel, students (and adults) are surprised to find they cannot get the ball out of the funnel.
2. There are no safety or clean up issues with this interactive demonstration.