

THE PAPER AIRFOIL

Concepts Illustrated:

- (1) The Bernoulli Effect
- (1) Bernoulli Lift

Time Requirements: 10 minutes

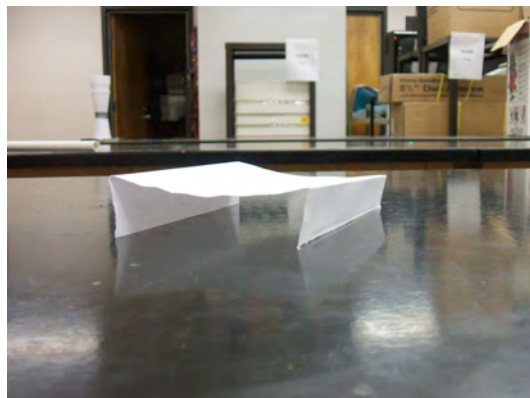
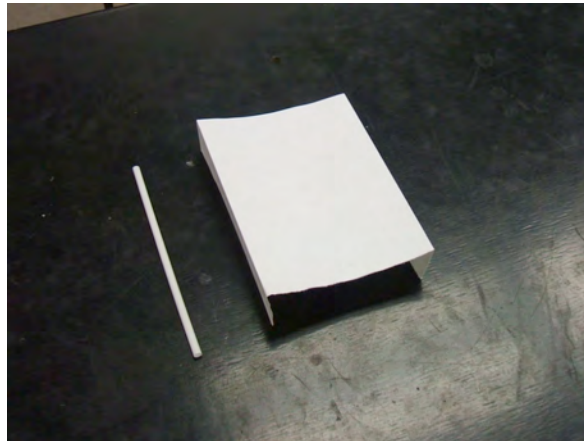
Grade Level of Audience: This qualitative demonstration is suitable for students at all age levels.

I. Materials and Equipment Utilized

- 1. 5 inch by 8 inch piece of paper
- 2. Straw.

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

- 1. Create a fold about 3/4 inch in from the ends of the short sides of piece of paper, such that, the piece of paper can sit up like a miniature table. The straw will be used to direct a column of air underneath the miniature table



III. Details of Student Implementation

1. Have students blow through the inside of the “paper table” and observe how the paper behaves.



2. 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 underneath the horizontal surface of the paper and in between the vertical surfaces of the paper. As a result, this lowers the air pressure on the inside of the structure. With the higher pressure outside and the lower pressure inside, the paper structure tends to cave in on itself.
3. There are no safety or clean up issues with this interactive demonstration.