

INSTRUCTIONAL GUIDE

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- Instructional guide

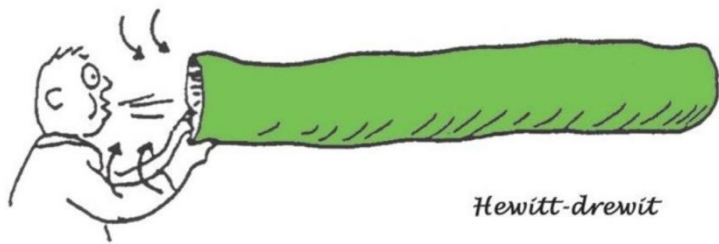


Introduction

The Bernoulli Bag is an eight-foot-long, ten-inch-wide plastic bag that is inflated by blowing air into it. After unrolling the bag, tie off one end. Begin by having a student try to blow up the bag in the normal way through a small opening. Crunching down the open end to make a small opening and placing the mouth against the bag, see how many breaths of air it takes to inflate the tube. This should require many breaths to partially fill the bag. Now, fully open the end of the bag and with your mouth several inches from the opening give one long blow into the bag. This should result in nearly filling the bag. Most of the air that enters the bag comes from the surrounding air that mixes with the air from your mouth.

Theory:

The movement of air results from a difference in air pressure. A law of physics known as the Bernoulli principle explains that pressure within a fast-moving volume of air decreases with the speed of the air. This principle is used to explain many phenomena in nature such as how musical instruments produce sound and how baseball pitchers are able to throw a curve ball. The Bernoulli Bag works on this principle when a fast-moving stream of air is blown into one end of the tube. When blowing into the tube, air from the surrounding room rushes into the fast-moving low-pressure stream increasing the volume of air entering the tube. As a result, one strong blow into the bag picks up enough surrounding air to fill the bag.



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