

Chapter 3: Newton's First Law of Motion—Inertia**Inertia****6****Going Nuts****Purpose**

To explore the concept of inertia

Required Equipment/Supplies

8-, 10-, and 12-inch wooden embroidery hoops
 narrow-mouth bottle
 12 1/4-inch nuts
 12 3/8-inch nuts

Discussion

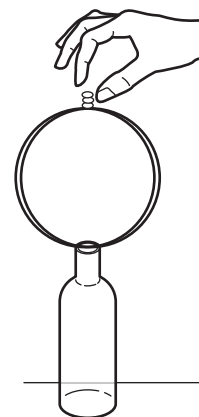
Have you ever seen magicians on TV whip a tablecloth out from underneath an entire place setting? Can that really be done, or is there some trick to it?

Procedure

The game is simple. Carefully balance an embroidery hoop vertically on the mouth of a narrow-mouth bottle. Stack the nuts on the top of the hoop. The idea is to get as many nuts as possible into the bottle by touching the hoop with only one hand.

Analysis

1. Describe the winner's technique.



2. Explain why the winner's technique was successful.

Going Further

Try again, this time using different sizes of hoops, nuts, and bottles.

Analysis

1. Is it easier for the nuts to land in the bottle with
 - a. larger or smaller hoops? _____
 - b. larger or smaller nuts? _____
 - c. bottles with larger or smaller mouths? _____
2. Formulate a conclusion as to what combination of hoop size, nut size, and bottle-mouth size is easiest to land nuts in the bottle.
