



Curiosity Guide #410

Matter

Accompanies Curious Crew, Season 4, Episode 10 (#410)

Slow-Mo Ball

Investigation #5

Description

This crazy ball needs a little get-up-and-go!

Materials

Fillable plastic sphere that opens in halves, purchased from a craft store

Large, metal ball bearing

Honey

Small ramp made from a board and stack of books

Procedure

- 1) Open the plastic sphere.
- 2) Place the ball bearing inside one half of the sphere.
- 3) Pour liquid honey over the ball bearing. Fill about one-half the container with the honey.
- 4) Seal the sphere.
- 5) Place the sphere on top of the ramp and let the sphere go.
- 6) What do you notice?
- 7) What do you think would happen if you substituted different liquids other than honey?

My Results

Explanation

The plastic sphere and metal ball bearing are both solids, while the honey is a liquid. You might think that the sphere should just roll down the hill because of its shape; however, the honey slows the sphere down. Honey is a very thick liquid, which causes it to flow more slowly. Thick liquids are said to have high viscosity or internal friction. As the sphere begins to roll, the honey is left on the uphill side of the sphere. This extra mass changes the center of gravity, and the sphere stops rolling. As the honey slowly flows downward, the sphere begins to move again, but shifts the honey to the uphill side of the sphere. The sphere hesitates each time the honey is on the uphill side, until the honey can flow down once again. Different liquids have different levels of viscosity.

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