

Can an Egg Go Into a Bottle?
Discrepant Event Activity
Teacher Resource

Grade Level **K-12**

Objectives

1. The student will investigate how molecules can form a vacuum.
2. The student will employ simple equipment and tools to gather data.
3. The student will demonstrate the use of 21st century technology with a document camera.

National Standards

NS.K-4.1 ; NS.5-8.1 ; NS.9-12.1	Science as Inquiry
NS.K-4.2 ; NS.5-8.2 ; NS.9-12.2	Physical Science
NS.K-4.5 ; NS.5-8.5 ; NS.9-12.5	Science & Technology
NT.K-12.1	Basic Operations and Concepts
NT.K-12.3	Technology Productivity Tools
NT.K-12.6	Technology Problem-Solving & Decision-Making Tools

Teacher Background Information

The egg in the bottle demonstration is an activity for teachers to introduce the concept of force and vacuums. Once the burning matches are dropped in the bottle, they will heat the molecules of air in the bottle therefore causing the molecules to move farther away from each other. Some of the heated molecules will escape through the mouth of the glass bottle. *That is why the egg will wiggle a bit.* As the flames go out the molecules will slow down and cool causing a partial vacuum. The molecules on the outside of the bottle want to move inside the bottle that the force pushes the egg into the bottle.

Before each demonstration, have students state a hypothesis.

MATERIALS

Document Camera	Glass Bottle
Personal Computer	Hard-Boiled Egg
Interactive White Board/Projector	Wood Matches

PROCEDURE

1. Light 6 matches and drop them into the bottom of the glass bottle.
2. Immediately place the hard-boiled egg on the opening of the bottle.
3. Have the students observe and make predictions what is happening.

To make the egg slide in easily, grease the mouth of the bottle with vegetable oil.

QUESTIONS

1. What is causing the egg to go inside the bottle?
2. How can you get the egg out of the bottle without breaking it?
3. What is a partial vacuum?

EXTENSION

- Use water balloons instead of an egg.
- Have students try to get the egg out of the bottle.

Blow air into the bottle opening and the egg will pop out.