

Egg in a Bottle

Summary

In this activity, we will be exploring physics with the help of a simple egg. You can think of physics as the scientific study of things in motion all around us happening every day. The forces that cause this movement can be easy to spot (like kicking a ball) and others can be trickier to identify. Can you figure out why the egg moves without touching it?

Materials

- Hardboiled egg (peeled)
 - Balloon filled with water is an alternative.
- Glass container
 - Have an opening that is just wide enough to hold the egg, so it doesn't fall.
- Hot water
 - We recommend using gloves or an oven mitt to protect you from any spills.

Steps to Follow *(All activities must be done with adult supervision)*

1. Review your states of matter. Can you name, describe how they are different, and give an example of each?
 - a. All the forms of matter we interact with and that take up space in the world around us are made of tiny particles called atoms.
2. Take the hot water and carefully pour some of it into your glass container, just enough to cover the bottom.
 - a. Observe your container, what is currently inside of it?
 - i. If you said water (liquid) and air (gas) you are correct. It's important to remember that matter takes up space and has mass to it.
3. Place the hard-boiled egg into the opening of the glass container and wait.
 - a. What do you think will happen to the egg?
 - b. Why do you think we used warm water?
 - c. Define a force?
4. What caused the egg to move into the container?
 - a. It is all the air around us (high pressure) that is pushing the egg as it tries to get into the container that is now filled with less air (low pressure).
 - b. The heat energy from the water warmed up the air and caused it to expand and fill the space. As the air cools it begins to condense and take up less space.
 - c. Forces are what put objects in motion. Imagine kicking a ball, pulling a chair, or feeling the push or air as it moves past you.

Ohio Academic Standards: 2.PS.1, 3.PS.1, 3.PS.2, 3.PS.3, 5.PS.1, 6.PS.1

Next Generation Science Standards (NGSS): 2-PS1-1, 5-PS1-1