

My Sinking, Floating, Suspending Eggs

Simple STEM Activities You Can Do at Home

Purpose:	The purpose of this activity is to observe and explain what happens to an egg when it is placed in solutions of different densities.
Standard:	<p>SKP1. Obtain, evaluate, and communicate information to describe objects in terms of the materials they are made of and their physical attributes. c. Plan and carry out an investigation to predict and observe whether objects, based on their physical attributes, will sink or float.</p> <p>S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects. a. Ask questions to describe and classify different objects according to their physical properties.</p> <p>S8P1. Obtain, evaluate, and communicate information about the structure and properties of matter. a. Develop and use a model to compare and contrast pure substances (elements and compounds) and mixtures.</p>
Materials:	Clear glass or plastic cup, egg, water, salt.
Procedures:	<ol style="list-style-type: none"> 1. Fill a glass with water. Carefully add an egg and observe. 2. Fill a glass with water. Add 4-6 tablespoons of water. Carefully add an egg and observe. 3. Fill a glass $\frac{1}{2}$ full of water and add 2-3 tablespoons of water. Carefully add an egg. 4. Carefully fill the glass the rest of the way with fresh water. Observe. 5. Explain the behavior of the egg in each of the glasses. 6. Try some other objects that seem like they have a similar density.
Science Behind It:	<p>The density of an object refers to the relative “heaviness” of the object. Objects sink when they are denser than the liquid that surrounds them. Most eggs are denser than water and so they sink when they are surrounded by it. However, an object that sinks initially can be enticed to float if the density of the fluid around it is increased sufficiently. When enough salt is added to the water, the density of the fluid increases and it becomes more dense than the egg. As a result the egg will float. If an egg is placed in a $\frac{1}{2}$ glass of dense salt water, and then fresh water is carefully poured on top of it, the egg suspends in the middle of the glass. It floats in the more dense salt water layer, but sinks to the bottom of the less dense fresh water.</p> <p>For older students, you can calculate the density of your eggs and specify density as ratio equal to the mass per unit volume of an object or substance. You can also draw fish on your eggs and discuss swim bladders and buoyancy.</p>
Questions to Ask:	<ol style="list-style-type: none"> 1. Sketch a diagram to show why the third egg is suspended. 2. Explain why most people can swim better in the ocean than a lake.