

Science Experiments 2

1. Sink or Float

Will an egg sink or float in normal water? What effect will salt have?

You will need

salt
tablespoon
2 clear glasses
warm water
2 raw eggs



Instructions

Place the two glasses of warm water on a table. Add about 10 heaped tablespoons of salt to one of the glasses and stir until the salt is dissolved in the water.

Place an egg in each glass and observe what happens. The egg in the normal water will sink to the bottom while the egg in the salt water will float to the top.

Expand on the experiment by mixing the two types of water. Remove the eggs from the glasses. Empty about half of the salt water. Then pour the plain water into the salt water cup up to the amount the glass had before. Place the egg in the cup. The egg will float in the middle of the cup.

Make the egg rise to the top again by removing the water. With the egg still in the glass, begin slowly removing the water a spoonful at a time. The egg will rise higher and higher as each spoonful is removed.

Explanation

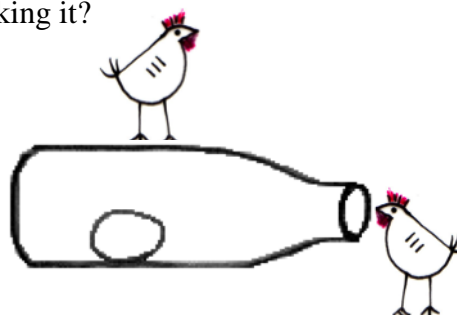
The egg in salt water floats to the top while the egg in normal water sinks to the bottom. The egg floats in salt water because of density. Salt water is denser than the egg thereby causing the egg to rise to the top. The egg is denser than normal water, though, which is why it sinks to the bottom when in the cup of normal water.

2. Egg in a Squeeze

Can you get an egg through the neck of a bottle without breaking it?

You will need

small glass bottle
matches
paper
peeled hard-boiled egg



Instructions

Scrunch up the paper and push it into the neck of the bottle.

Turn the bottle upside down and ask an adult to light the paper.

Stand the paper upright as the paper burns.

Quickly place the peeled, hard-boiled egg into the neck of the bottle, with the pointy end down, and watch what happens.

Explanation

The burning paper heats the air inside the bottle, which expands and some escapes past the egg.

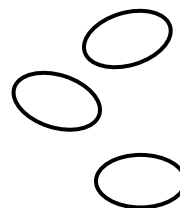
When the paper stops burning the air remaining inside the bottle cools, lowering the air pressure inside the bottle. The higher air pressure outside the bottle, forces the egg through the neck and into the bottle.

3. Bouncing Eggs

Can you make an egg bounce?

You will need

2 fresh eggs
2 glasses
water
white vinegar
glass bowl



Instructions

Put an egg in a glass of water. Put the other egg in a different glass filled with vinegar. After three hours see if you can notice a difference between the eggs. The egg in the water should look the same while the egg in the vinegar will have changed. Touch the egg in the vinegar to see how it feels. The shell will feel soft like a water-filled balloon. Leave both eggs in their glasses for seven days. After that time, take the egg out of the vinegar. Check to make sure the shell has completely dissolved. The egg should feel leathery. Wash the egg with water. Let the egg dry completely for a day or two. When the egg is dry see how high you can bounce it before it breaks.

Explanation

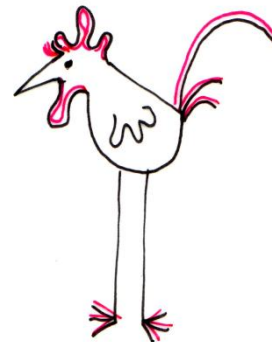
When the eggshell comes in contact with the vinegar, a chemical reaction takes place. The vinegar (an acid) reacts with the calcium carbonate of the shell, making it soften and, over time, disappear. This process is called decalcification. The egg in water does not change.

4. Weight Lifting

Predict how many books eggs will support before they break.

You will need

3 eggs
newspaper
a stack of books
knife
paper towel



Instructions

Lay several sheets of newspaper flat on a tabletop. Position two of the eggs in the middle of the newspaper so that they are a few centimetres apart. Now lay one of the books on top of the eggs. Continue placing books on top of the eggs until the eggs crack. Record the number of books supported. Now gently crack the remaining egg with the knife so that the egg is in two nearly-equal parts. Clean the yolk out of the shell halves. Spread clean newspaper on the tabletop. Sit the egg halves upright in the middle of the newspaper a few centimetres apart. Now lay a book on top of the eggs. Keep placing books on top of the eggs until the shells crack. Was there a difference in the number of eggs supported? Were you surprised by the strength of the eggshells?

Explanation

The curved shape of eggshells distributes the weight of the book over the entire egg so it is able to support more weight than a single point could.

