



Foods of the Month
Fun, Experiential Activities

Eggs

Grades K-2



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Bouncing Eggs

Materials:

- 1 raw egg
- 1 hard-cooked egg
- vinegar
- 2 plastic jars with tight lids

Instructions:

1. Place the raw and hard-cooked eggs in separate jars and label the jars “raw egg” or “hard-cooked egg”. Pour enough vinegar into the jars to completely cover the eggs. Put the lids on the jar and seal them tightly. Check the eggs every once in a while to see what is happening.
2. After 36 to 48 hours, remove the eggs from the vinegar and rinse them carefully with cold water. Because the eggshells are made of calcium, the acidic vinegar has dissolved the calcium leaving a thin membrane to hold in the yolk and white. Hold the raw egg up to a light and you will still see the yolk. Try holding the hard-cooked egg up to a light. Can you see anything?
3. Try bouncing the eggs starting by dropping them a few inches and working up higher, but not too high.

**By the way, just as the vinegar dissolves the calcium on the egg shells in a short period of time, bacteria dissolves the calcium on your teeth and makes cavities. That’s why it’s important to brush!

Source: <http://www.iowaegg.org/eggeducation.asp>

Egg Bubbles

This fun science experiment for kids focuses on some of the interesting characteristics of eggs. Prove the existence of a small air pocket inside an egg as well as thousands of small holes in the shell called pores, while learning what air does as it is heated.

What you'll need:

- A clear glass or jar
- Hot water (adult supervision is a good idea when using hot water)
- An egg
- A magnifying glass

Instructions:

1. Place the egg carefully into the glass or jar.
2. Carefully pour hot water into the glass or jar until it is nearly full.
3. Leave the glass or jar on a table or flat surface and watch the egg closely for a few minutes (the glass may become hot so be careful).
4. Use your magnifying glass to closely examine what is happening.

What's happening?

After surrounding the egg with hot water you will notice tiny bubbles forming on the egg shell which eventually bubble their way to the surface. An egg contains a small air pocket at its larger end between the shell and egg white. When the air trapped inside this small pocket begins to heat up it expands and tries to find a way out of the shell, but how does it escape?

They're too small to see under normal conditions but with the help of a magnifying glass you can see that egg shells contain thousands of small holes called pores (human skin has pores too). The pores allow air to pass through the shell, making it look like the egg is breathing as the air expands and is forced through the shell.

Source: <http://www.sciencekids.co.nz/experiments/eggbubbles.html>

How to tell if your eggs have expired (or are about to)!

Eggs are often good to eat long after the expiration date on the packaging. If you are worried about whether they are good or not, test how fresh they are using the method below.

Fill a bowl (or larger glass as shown below) with cold water and place the eggs in the bowl. If they sink to the bottom and lay flat on their sides, they are very fresh (like the egg in the glass on the right below). If they are a few weeks old but still good to eat, they will stand on one end at the bottom of the bowl. If they float to the surface, they are no longer fresh enough to eat (like the egg in the glass on the left below).

The reason this testing method works is because the eggshells are porous, which means they allow some air to get through. Fresh eggs have less air in them, so they sink to the bottom. But older eggs have had more time for the air to penetrate the shells, so they are more buoyant and thus will float.



**Got a bunch of eggs that are going to go bad before you can use them? Hard-boil them and throw them in a jar with a beet brine to make tangy, delicious, and beautifully purple pickled eggs.

Source: <http://food-hacks.wonderhowto.com/how-to/tell-if-your-expired-eggs-are-still-good-eat-0154309/>



The Araucana Chicken is also called the "Easter Egg Chicken" because it lays natural blue, green, pink, and brown eggs.

factfeed
Now you know!

Raw or Boiled Egg?

Surprise your friends and family with an easy science experiment that answers an otherwise tricky question. Two eggs look and feel the same but there is a big difference, one is raw and the other hard boiled, find out which is which with this fun experiment!

What you'll need:

Two eggs, one hard boiled and one raw. Make sure the hard-boiled egg has been in the fridge long enough to be the same temperature as the raw egg.

Instructions:

1. Spin the eggs and watch what happens, one egg should spin while the other wobbles.
2. You can also lightly touch each of the eggs while they are spinning, one should stop quickly while the other keeps moving after you have touched it.

What's happening?

The raw egg's center of gravity changes as the white and yolk move around inside the shell, causing the wobbling motion. Even after you touch the shell it continues moving. This is because of inertia, the same type of force you feel when you change direction or stop suddenly in a car, your body wants to move one way while the car wants to do something different. Inertia causes the raw egg to spin even after you have stopped it, this contrasts with the solid white and yolk of the hard-boiled egg, it responds much quicker if you touch it.

This is a good experiment to test a friend or someone in your family with, see if they can figure out how to tell the difference between the eggs (without smashing them of course) before showing them your nifty trick.

Source: <http://www.sciencekids.co.nz/experiments/eggboiledraw.html>



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Fresh Beans

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BUMBLE BEANS



Materials

Each student will need:

- 3 or 4 soybeans
- 11" clear balloon (found in party stores)

DIRECTIONS

What happens when you put soybeans inside an inflated balloon?

Place soybeans in the balloon. Inflate the balloon $\frac{2}{3}$ full and knot it. Hold the balloon by the knot and twirl it to get the beans moving inside the balloon.

Ask students what they observe. What do they see, hear and feel? What creates the noises they hear?

What's Going On?

Many forces act on the beans as they move inside the balloon.

Frictional forces slow the movement of the beans. The force of gravity slows them on their ascent to the top of the

balloon, and speeds them on their descent to the bottom of the balloon.

Centripetal force is supplied by the surface of the balloon pushing the beans toward the center and it keeps the beans moving in a circular motion around the inside of the balloon.

The buzzing noise is produced as the beans roll along the inside surface of the balloon, causing the balloon to vibrate. The beans' speed determines the pitch. As the beans move faster, they vibrate more quickly, which our ears distinguish as a rise in pitch.

The clicking noises are the beans running in to each other.

Further Exploration

Have students rub their balloons against their pants leg or hair for 20 seconds. As the beans settle in their balloon, what do they observe? Do the beans come close together or push apart?

Rubbing the balloon generates static electricity. As positive and negative charges build up on the beans, similarly charged beans repel each other and oppositely charged beans attract.

Grow a Bean

Materials:

- Empty clear glass pickle jar or similar
- Several sheets of paper towels
- Green bean seed

Instructions:

1. Roll the paper towels into a tube that you can insert into the jar
2. Wedge a bean seed between the paper and the side of the jar
3. Add about an inch of water to the bottom of the jar

What Happens?

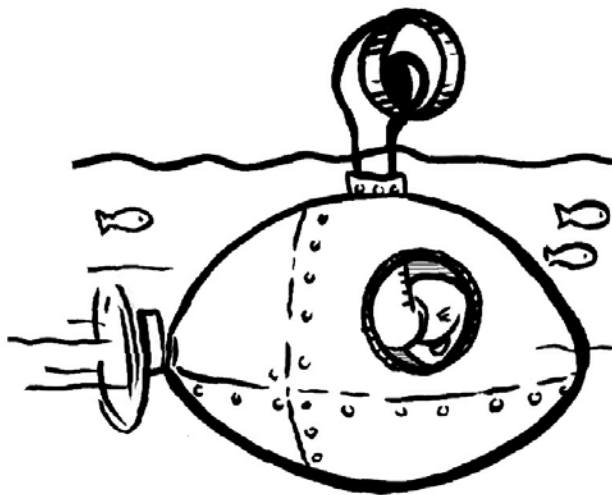
The water will travel up the paper and the bean will begin to germinate. Keep the water level topped off, and the children can watch as the bean produces a whole root system. (Place near a window if possible.)

Ultimately, they can then pot this bean into a plastic pot of potting soil, take it home, and later plant it out in their own garden with a bamboo cane or other pole for support – eventually, they will be able to eat their own beans at the end of the experiment!



Source: <http://hubpages.com/education/Fun-Classroom-Activities-to-Interest-Children-in-Plants>

SUBMABEANS



Materials

(for one student or group)

- Clear drinking glass
- Soda water/sparkling water/carbonated water (please do not bring sugar-sweetened soda!)
- Several soybeans

DIRECTIONS

Do soybeans float?

Directions:

1. Fill a glass half-full with soda.
2. Drop a few soybeans into the glass, one at a time. Observe them for a few minutes. What happens?

Observation:

When the soybeans are first dropped in the soda they sink, until bubbles attach to the beans and make them more buoyant (able to float). Buoyancy is the lifting force that causes objects to float in both air and water.

Carbon dioxide gas is dissolved in the soda. This gives the soda its fizz. The carbon dioxide bubbles that stick to the beans act like tiny balloons, lifting the beans to the surface. Once there, the bubbles expand and eventually pop, releasing carbon dioxide into the air. If enough bubbles pop, the beans sink then start all over again.

Extensions:

There are many variables you can try. Compare soybeans that have been soaked overnight; rice; raisins; corn kernels and other objects.

What results do you get when you use other liquids?

How might you explain your observations?