


panda

Princeton & NYU Discoveries in Action

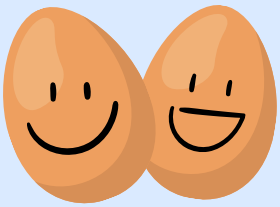
Do science from home: Osmosis Experiment!

Begin doing science by introducing our new concept

We can do science and learn about a new concept by conducting experiment! Eggs contain something called a membrane underneath their shell. This membrane is a thin clear wall that prevents the egg from drying out while still allowing a chick to take in oxygen from the air. On top of the membrane is the shell! Egg shells are made up of a molecule called calcium carbonate. Because vinegar is acetic, when we submerge an egg in it, a chemical reaction dissolves these calcium carbonate molecules. However, the vinegar doesn't dissolve the membrane so in two days you get a naked egg with no shell! Eggs are made up pf 90% water. The water surrounding the eggs is 100% water (makes sense, right?). Because there is a lower percentage of water inside the egg than outside the egg, when we submerge our naked egg in water, the water travels into the egg through a process called **osmosis. Osmosis** pulls the water through the membrane of the egg until the concentration of water is equal on the inside and outside.

Equipment:

- Two raw eggs
- Vinegar
- Jar
- Water



Methods:

1. Fill the jar with vinegar enough to submerge one of the eggs. Keep the other one in the fridge for comparison at the end.

2. Wait 2 days! (You can check to see what's happening as it processes)
After one day you will be able to see white foam in the jar. This is the egg shell dissolving.

3. Step 3: rinse the egg off and you will be able to see the yoke inside. Be careful, the membrane is very fragile.

4. Put your naked egg in a glass of water and wait 2 hours.

Results & Discussion

An important part of doing science is discussing why we think things happen

- What did you observe?
- What happened to the size of the egg?
- Did the shell dissolve completely, or did you see it floating in the vinegar?
- Could you see the yolk through the shell?
- Why do you think that this happened?