**Egg Experiment**

**Materials**

* Raw Egg
* Glass or Jar
* Vinegar

**Instructions**

1. Get one raw egg and carefully place it into a glass or jar.
2. Fill the glass with white vinegar until the egg is completely submerged (covered by the vinegar).
3. Leave the egg in the glass for 3 days. Each day check back on the egg. Record your data on your Recording Sheet. When the egg has started to become translucent, which means that light seems to pass through, you will know it is ready.
4. Remove the egg from the glass and rinse it under some tap water. While rinsing the egg, gently rub the outside of the egg. A white film will come off leaving you will a translucent egg.
5. Examine the egg. You’ll notice that it feels different. How is it different from when you put the raw egg in the container? Then, lift the egg approximately 1-2 inches in the air. What do you think will happen if you let go?
6. Let go!

Helpful Tip: Be sure to use a plate or other container…you may want to be gentle.

**Recording Sheet Experiment Start Date:**

**Scientist: Experiment End Date:**

When recording your observations, try to use your senses (but remember scientists do not usually taste or get too close while smelling their experiments)

|  |  |  |  |
| --- | --- | --- | --- |
| **Lab Data**  **Recordings** | **Date** | **Time** | **Observations** |
| **Day 1** |  |  |  |
| **Day 2** |  |  |  |
| **Day 3** |  |  |  |
| **Day 4** |  |  |  |

## The Science Behind It

When we left the egg in vinegar, the acetic acid in the **vinegar broke down the calcium carbonate shell,** producing the tiny carbon dioxide gas bubbles we saw.

Once the egg shell dissolved, the egg expanded slightly because the **membrane was semi-permeable.** That means it allows somethings to pass through it, through a process called osmosis.

Some of the water passed through the membrane into the egg and caused it to swell.

**Osmosis**, is the movement of a liquid, like water, across a membrane.  Membranes like to be balanced on both sides.  The vinegar solution was mostly water with only a little vinegar in it, while inside the membrane is protein with a little water. So, the water molecules traveled from the vinegar into the egg to try to balance the concentrations. The egg expanded!

If you add highlighter…remove the inside of a highlighter and disperse in the water.

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Some of the water with the highlighter ink passed through the membrane into the egg and caused it to swell and glow.  In the picture below, the first 3 eggs have their shell removed and the last egg is a regular raw egg.

**Osmosis**, is the movement of a liquid, like water, across a membrane.  Membranes like to be balanced on both sides.  The vinegar solution was mostly water with only a little vinegar and ink in it, while inside the membrane is protein with a little water. So the glowing water molecules traveled from the vinegar into the egg to try to balance the concentrations. The egg expanded and glowed!