

Glowing Eggs

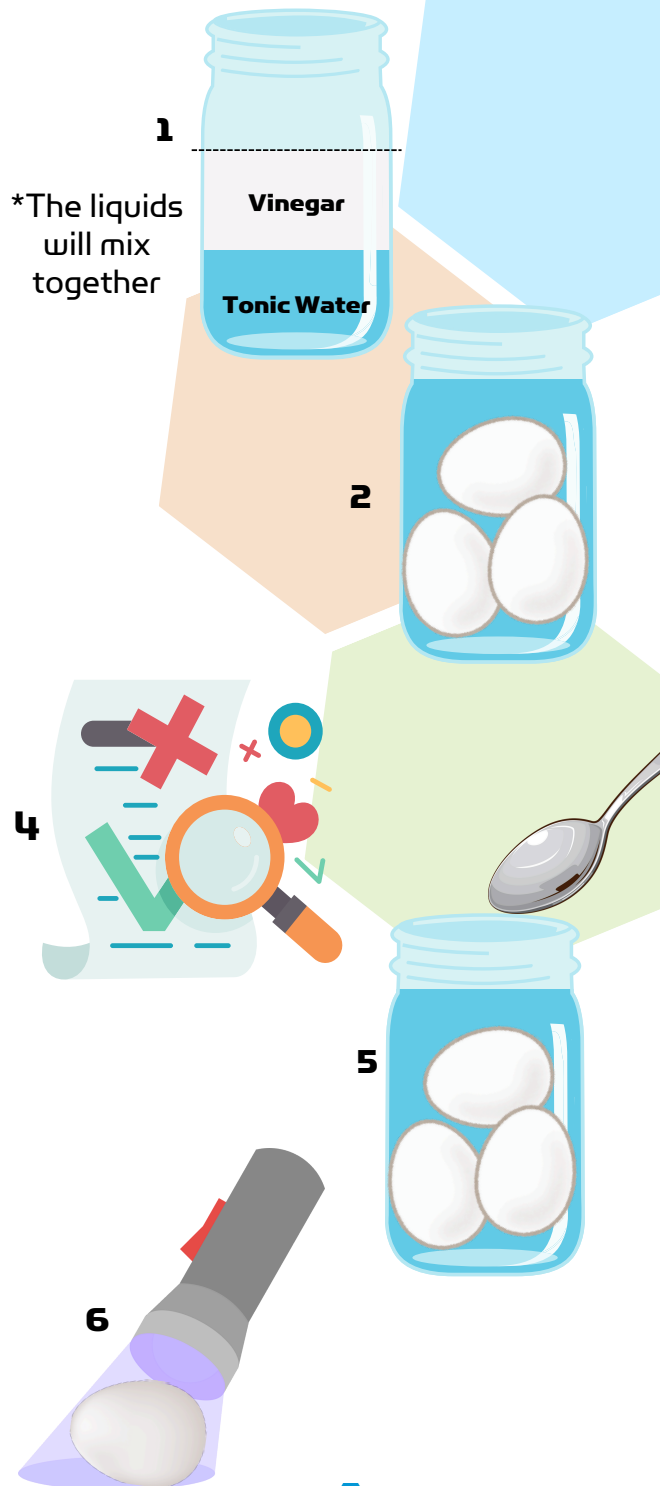
Fluorescence is a special glow that happens when one thing takes in a type of energy, like light, and then releases its own light energy. Explore more in this radiant activity!

Materials:

- Whole Uncooked Eggs
- A Jar or Container
- A Black Light/UV Light
- Vinegar
- Tonic Water
- Writing Tool
- Paper
- Permanent Marker (optional)

Procedure:

1. Fill the jar about $\frac{3}{8}$ of the way with tonic water. Then add another $\frac{3}{8}$ of the jar with vinegar. The jar should be $\frac{3}{4}$ of the way full.
2. Add whole uncooked eggs to the jar. *Depending on the size of your jar or container, you can do as many as will fit, but they need to be fully submerged under the water.*
3. Set the jar in a place where it will not be disturbed but can be observed for a few days.
4. Over the next few days, make observations about what is happening in the jar. Write these observations down.
5. After 2 - 3 days, carefully remove the eggs from the jar. They will be soft and have no shell, but able to be handled.
6. Turn on the black light/UV light and shine the light on the eggs. What happens? Now shine the light on the jar the eggs were in.



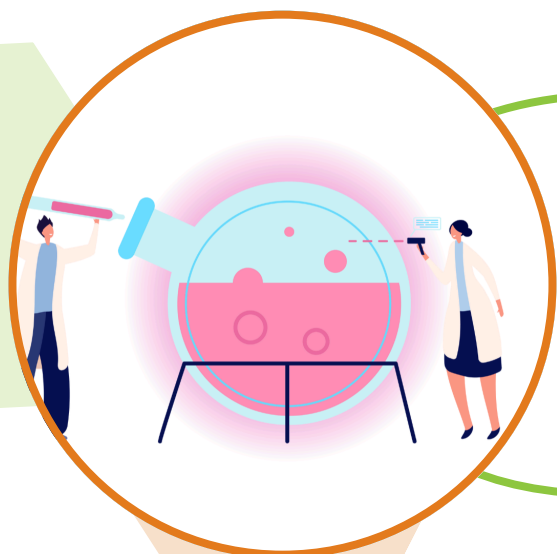
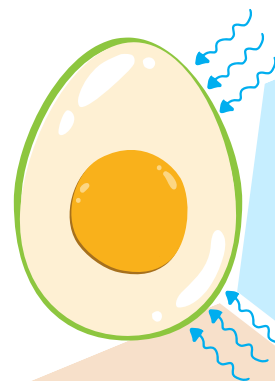
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WHAT'S HAPPENING?

You may have noticed while observing the jar over the last couple of days, that the egg had some bubbles on its shell. Eggshells are made almost completely from calcium carbonate while the membrane just inside the shell is made of proteins.

The calcium carbonate eggshells were dissolved by the acetic acid in vinegar. However, the protein **membrane** inside the shell was not dissolved by the acetic acid. While the eggshell slowly dissolved, the membrane kept the egg together and allowed the **tonic water** to pass through to the egg.

Tonic water includes a compound called quinine. When quinine is put under a black light/UV light, it fluoresces, or glows. The quinine in the egg from the tonic water allows it to glow too!



DID YOU KNOW?

Many different scientists study fluorescence including **biologists**, **chemists**, **physicists**, and more. If you liked this activity, maybe one of these is for you!