Ghost Egg!

Applying Chemical Reactions and Fluorescence to make Ghostly Decorations

Ever wonder why so many Halloween decorations glow under a black light? Learn that and more in this activity where we make ghost eggs!

**Chemical Reactions** are when two substances react and change each other. This change happens on a molecular level, so it can be really hard to see. But they sometimes leave clues that a reaction happened. When a chemical reaction happens, there may be a change of color, smell, shape or type of matter, and it may even produce heat or light!

**Materials**
- 2 Eggs
- 1 cup Vinegar
- 1 cup Tonic Water (with quinine)
- Cups or jars to soak the eggs
- Black Light

**Directions**
1. Find a cup or jar large enough to hold 2-3 eggs.
2. Place eggs in the cup.
3. Fill the cup with 1 cup of vinegar and 1 cup of tonic water. What do you see happen?
4. Let eggs sit in solution for 2-3 days or until shell disappears.
5. Once shell has dissolved, remove eggs from solution and look at them under a black light. What observations do you notice?

**What’s the Science?** Did you see signs of a chemical reaction? Once dropped in the vinegar, bubbles should appear on the eggs! We created a chemical reaction! The vinegar dissolves the egg shell and creates these three products:

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\begin{align*}
\text{Ca}^2+ & \quad \text{H}_2\text{O} & \quad \text{CO}_2 \\
\text{Calcium ion} & \quad \text{Water} & \quad \text{Carbon Dioxide}
\end{align*}
\]

Which one of these would be the gas? The carbon dioxide! Carbon Dioxide is also the gas we breathe out when we exhale. The bubbles let us know a chemical reaction is occurring! But be careful! Without a shell, the egg is left with only a delicate membrane to hold it together.

**What’s the Science? Part 2!**

Why do the eggs glow under a black light? It’s fluorescence!

Take a look at the vinegar and the tonic water under a black light. The tonic water should glow! Tonic water contains a harmless chemical called quinine that is fluorescent. Without the shell protecting the egg, the tonic water and quinine are free to flow into the egg. When shined with a black light, the quinine now in the egg will make it glow.

Think you can find any more signs of fluorescence? Grab a black light and see what fluorescent items you can find around your home!

Did you make a ghost egg? Have you found any other material that is fluorescent? Share your discoveries on social media with: 

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