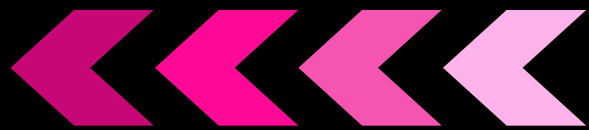




COFFEE TABLE EXPERIMENTS



**ELEPHANT
TOOTHPASTE**

**COFFEE TABLE
SCIENCE**

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Delaware

Coffee Table Experiments Presents

ELEPHANT TOOTHPASTE

MATERIALS NEEDED:

1. Empty plastic bottle (16–20 oz works well)
2. ½ cup (120 mL) 6% hydrogen peroxide (3% *pharmacy-grade works too—just smaller foam*)
3. 1 tablespoon dry yeast
4. 3 tablespoons warm water
5. 1–2 tablespoons dish soap
6. Food coloring (optional)
7. Funnel
8. Small cup
9. Measuring spoons/cups
10. Safety goggles
11. Gloves (recommended)
12. Tray or bin (for easy cleanup)

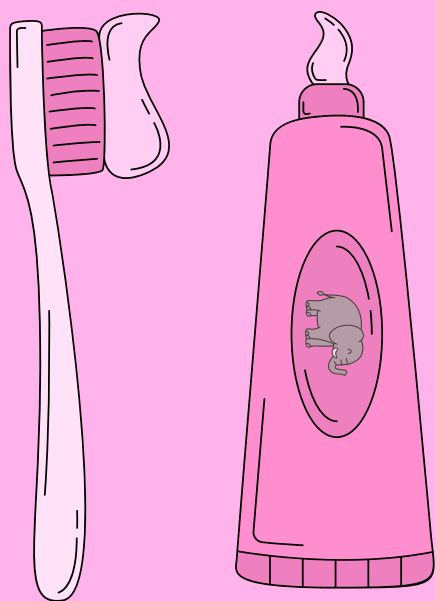
OBJECTIVE:

To observe an exothermic chemical reaction that rapidly produces oxygen gas, demonstrating catalysis and exothermic reactions.

BACKGROUND:

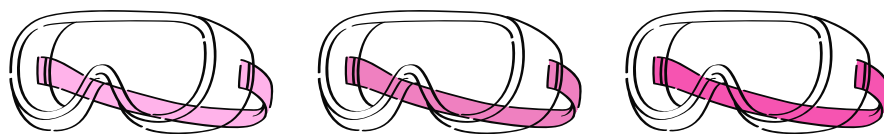
Hydrogen peroxide naturally breaks down into water and oxygen—but very slowly. In this experiment, yeast acts as a catalyst, speeding up the reaction. Dish soap traps the oxygen gas, creating foam that looks like giant toothpaste for an elephant!

The reaction also releases heat, making it exothermic.



SAFETY NOTES

- **Adult supervision required**
- Wear goggles at all times
- Do not touch foam until reaction finishes (it may be warm)
- Do not ingest any materials
- Perform over a tray or sink



PROCEDURE

1. Place the **bottle** on a tray or in a bin.
2. Using the **funnel**, pour $\frac{1}{2}$ cup of **hydrogen peroxide** into the bottle.
3. Add **1–2 tablespoons** of **dish soap** into the bottle.
4. *Optional: Add a few drops of **food coloring**.*
5. In a **separate cup**, mix:
 - **1 tablespoon yeast**
 - **3 tablespoons warm water**
6. **Stir** gently for **~30 seconds**.
7. **Pour** the **yeast mixture** into the **bottle**.
8. Step back and observe!

OBSERVATIONS



○ ○ ○ TO MAKE:

FOAM
PRODUCTION



TEMPERATURE
CHANGE



SPEED OF
REACTION



VOLUME
OF FOAM



RECORD YOUR OBSERVATIONS IN YOUR RESEARCH NOTEBOOK!



WHAT'S HAPPENING?

The yeast contains an enzyme called catalase, which breaks **hydrogen peroxide** into:

Water + Oxygen Gas

THE FOAM

The **oxygen** gets trapped in the soap bubbles, forming a **foam**.



THE HEAT

Because **energy** is released, the bottle feels warm – this is an **exothermic reaction**.

WHAT'S AN ENZYME

An enzyme is a protein that speeds up important jobs, such as chemical reactions or breaking down food to release energy.

WHAT'S AN EXOTHERMIC REACTION

An exothermic reaction is when a chemical reaction releases energy in the form of heat (*example*: a campfire). This is the opposite of an endothermic reaction, which is when energy in the surroundings is absorbed in the form of heat (*example*: melting ice cube).

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Send us an email with a picture of your elephant toothpaste & let us know what you thought of this experiment!

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