

# Elephants Toothpaste

## Summary

In this activity we will be causing chemical reaction using yeast and hydrogen peroxide. Chemical reactions involve chemical changes to reactants which results in a product that is different from what you started with. It cannot be undone to get the reactants back to their original state.

## Materials

- Glasses or sunglasses (*eye protection*)
- Clean 16 – 20 oz. soda/water bottle
- 1 Tablespoon dry yeast
- 1 Sugar cube
  - *Or you can use 1 teaspoon*
- 3 tablespoons warm water
  - *Not too hot, just warm*
- ½ cup of 3% hydrogen peroxide
- Funnel (*you can make your own with paper and tape*)
- 1 Tablespoon liquid dish soap
- Tray/cookie sheet (*for spills and easy clean up*)
- 1 cup, can be a reusable cup
- Food coloring (*10 drops of any color is optional*)

## Steps to Follow (*All activities must be done with adult supervision*)

1. Using your funnel, pour in 1 tablespoon dry yeast, 3 tablespoons warm water, and 1 sugar cube into the bottle.  
*Wait 15 minutes before going on to the next step. This will allow the yeast activate. It will bubble and rise during that time.*
2. Add 1 tablespoon of dish soap and food coloring (optional) to the bottle. Give the bottle a slight swirl to mix contents.  
*Put the bottle on a tray/cookie sheet to catch any spill or messes.*
3. Using the funnel, pour the hydrogen peroxide into the bottle. (*make sure you have on your eye protection*)  
*Please note that depending on the yeast and the strength of hydrogen peroxide, the reaction may go faster or slower than shown in the video.*
4. *This is a good time to make a hypothesis about what you think is going to happen. Can you observe anything happening in the bottle? Can you hear it?*
  - i. The chemical reaction between yeast and hydrogen peroxide produces oxygen and water. The bubbles that you see are made from the oxygen being released.*
  - ii. Due to this chemical reaction, the reactants (yeast, sugar, hydrogen peroxide) cannot go back to their original state.*

## **Ohio Learning Standards**

C.IM.1

## **Next Generation Science Standards (NGSS)**

5-PS1-4, MS-PS1-2