



WEEK OF MARCH 7

Chemistry

OBJECTIVE: Unlike the experiment a couple of weeks ago, this week's experiment can be done on one day. It is sometimes called *THE ELEPHANT TOOTHPASTE EXPERIMENT*. It can get a little messy, so don't do it in your white-carpeted living room. 😁

This experiment will demonstrate the dramatic change that can occur to a substance when another, specific substance is introduced. Hopefully, a parallel will be drawn to the transformative power of God's presence working in our lives.

HYPOTHESIS: Given the right, specific agent for change, both substances and people can experience a reaction leading to transformation.

MATERIALS NEEDED:

- PACKET OF ACTIVE YEAST** (*included with these instructions*)
- EMPTY 20 OZ. CLEAR PLASTIC BOTTLE**
- 3% HYDROGEN PEROXIDE SOLUTION** (*available at many stores*)
- LIQUID DISHWASHING DETERGENT** (*such as DAWN*)
- WARM WATER**
- FOOD COLORING** (*optional, but it looks nice*)
- YOUR LIFE LAB JOURNAL**

DIRECTIONS:

1. Pour 1/2 cup hydrogen peroxide solution, 1/4 cup dishwashing soap and a few drops of food color into the bottle. Gently swish the bottle around to mix the ingredients. Set the bottle in the sink or in a basin where you won't mind getting wet foam everywhere.
2. In a separate container, mix a packet of active yeast with a little warm water. Give the yeast about 5 minutes to activate before proceeding to the next step.
3. When you are ready to create the reaction, pour the yeast mixture into the bottle. The reaction occurs immediately upon the addition of the yeast.
4. Record your findings in your *LIFE LAB JOURNAL*.

REFLECTION: *Use the following questions to talk about with others and/or record your thoughts in your LIFE LAB JOURNAL.*

1. Feel free to share details of other experiments you have done that have similar outcomes.
2. The key agent of change in this experiment was the yeast. Think to your own life and times you experienced a reaction, *good or bad*. Most likely there was an agent that had been introduced that produced the reaction. Describe some of those reactions and what caused them.
3. God's Spirit acts as an agent of change in our lives. Our reactions from God's Spirit always work for our good and wellbeing. Think about your own life and the times God's Spirit created a reaction in you.
4. This was a kid-friendly version of this experiment, using only 3% solution of hydrogen peroxide. In the classic *ELEPHANT TOOTHPASTE EXPERIMENT*, a 30% solution is used. Check out this more dramatic YOUTUBE version of this same experiment.

<https://youtu.be/p1eG2y2mn54>



In the same way, God's work on and in our lives can sometimes be dramatic and other times can be more subtle. Think of examples of both in your life. Consider the times God's transformative power is less visible to others, unlike this experiment, but more known by you in a personal way.

5. Sometimes God's work in our lives happens in surprising ways. We're not always in control like we were in this experiment. That said, there are also times we can intentionally invite God's work in and on our lives. There may be certain settings, places, situations that can work as a catalyst for opening up ourselves to God's reactive work. What are some of those settings, places or situations for you?
6. 2 Corinthians 5:17: "*So if anyone is in Christ, there is a new creation; everything old has passed away; see, everything has become new.*" How might you invite and be intentionally open to God's good work in transforming you into a new creation?

How about a pared down version of this experiment that you can drink?



Mix acidic lemon juice with some basic baking soda and watch the chemical reaction, which produces carbonation. Now add a little sugar (or a lot!) and you can drink the chemical reaction!