Lesson Plan – Chemical Reactions

We need to collect data to measure how effective our lesson is. Here is one way:

1. Distribute the ***Knowledge Test*** to all participants and emphasize to please not guess at the answers. Emphasize it's OK to mark "I Don't Know" since we are all here to learn more about this topic
2. Gather the completed tests and mark them all with a "1" to indicate they are the first set of tests
3. Go over the ***Fun Facts*** (see page 2) prior to the video. Mention these ***Fun Facts*** will also be in the video
4. Play the video and pause on the ***Fun Facts*** if you want to (repetition is the key to learning!)
5. Distribute the ***Knowledge Test*** and mark them all with a "2" to indicate they are the second set of tests

Guide to doing the experiment:

1. Measure out ½ cup warm water
2. Slowly mix 1 tablespoon of baker's yeast into the warm water until you have a thick, smooth solution
3. Measure out 1 cup of 3% Hydrogen Peroxide
4. Pour the Hydrogen Peroxide into the tall "Reaction" Glass Container
5. Add you choice of food coloring to the hydrogen peroxide (at least 10 drops)
6. Add 1 tablespoon of dish soap to the hydrogen peroxide and mix all ingredients
7. Place the "Reaction" Glass Container on a catch-tray so the overflow does not make a big mess
8. QUICKLY pour the baker's yeast solution into the "Reaction" Glass Container and enjoy the reaction!

   NOTE: Repeat the same steps, but use ½ cup of 12% Hydrogen Peroxide and the reaction will be thicker and more like real toothpaste

Supplies/Tools Needed:

- Measuring Cup
- Measuring Spoons
- Tall "Reaction" Glass Container
- Small mixing cup
- Mixing spoon
- Containment Tray

Materials Needed:

- Food Coloring
- Hydrogen Peroxide (3%: Grocery Market or Pharmacy) (12%: Online, Beauty Salon /Supply store)
- Baker's yeast
- Warm water

Fun Facts about Chemical Reactions

- A chemical reaction is when one or more chemicals are changed into a new chemical(s)
- Increasing temperature usually speeds up a chemical reaction
- Some chemical reactions get hot, others get cold
- Some chemical reactions are fast, others are slow
- Many chemical reactions happen inside your body

Knowledge Test: Chemical Reactions

1. A chemical reaction is when one or more chemicals are changed into a new chemical(s).
   a. True
   b. False
   c. I don't know

2. All chemical reactions are fast.
   a. True
   b. False
   c. I don't know

3. All chemical reactions generate heat.
   a. True
   b. False
   c. I don't know

4. Temperature does not affect chemical reactions.
   a. True
   b. False
   c. I don't know

5. Chemical reactions only occur in laboratories.
   a. True
   b. False
   c. I don't know

Answer Key: 1A, 2B, 3B, 4B, 5B