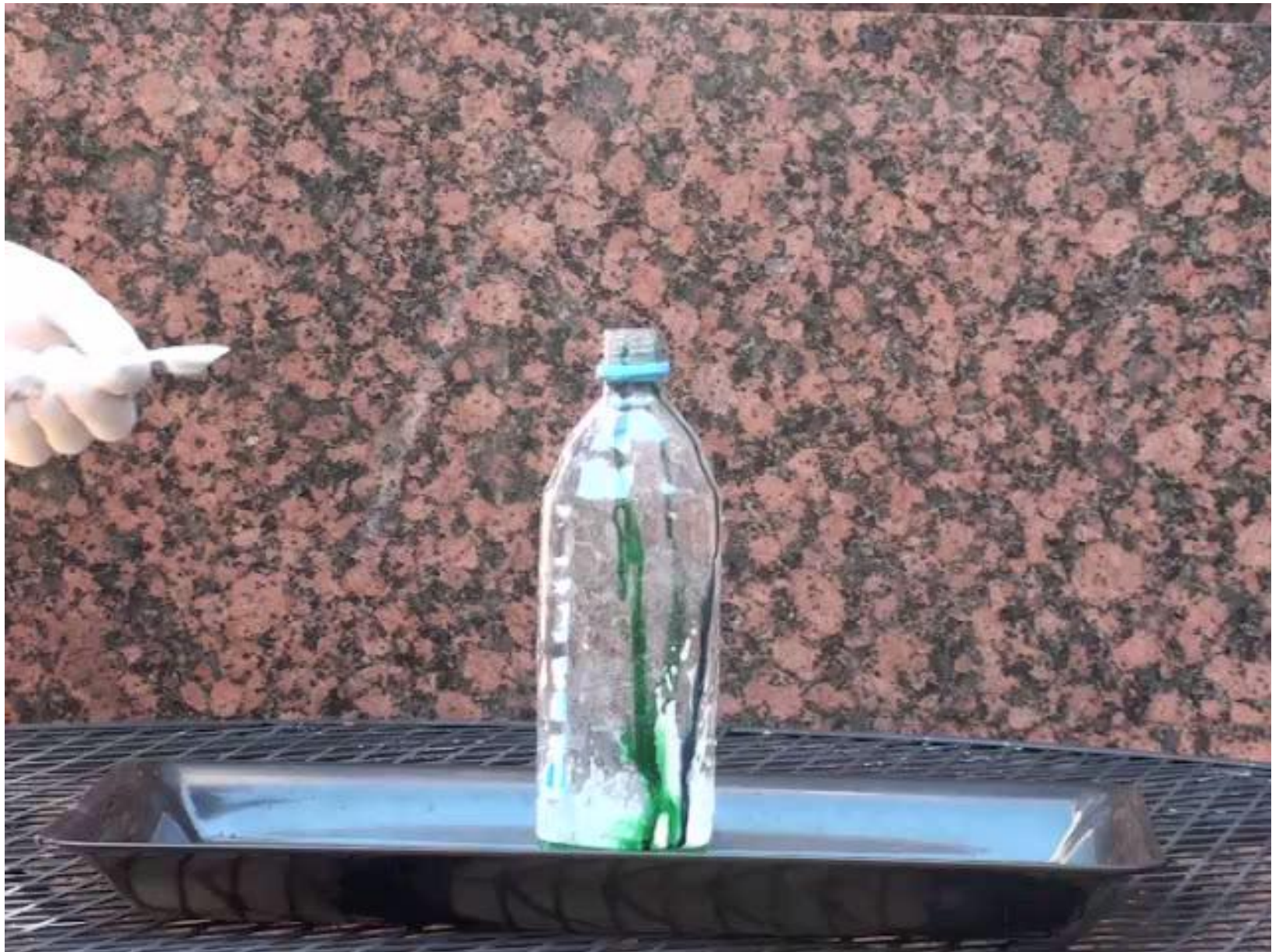


A Catalyst and the Rate of Reaction

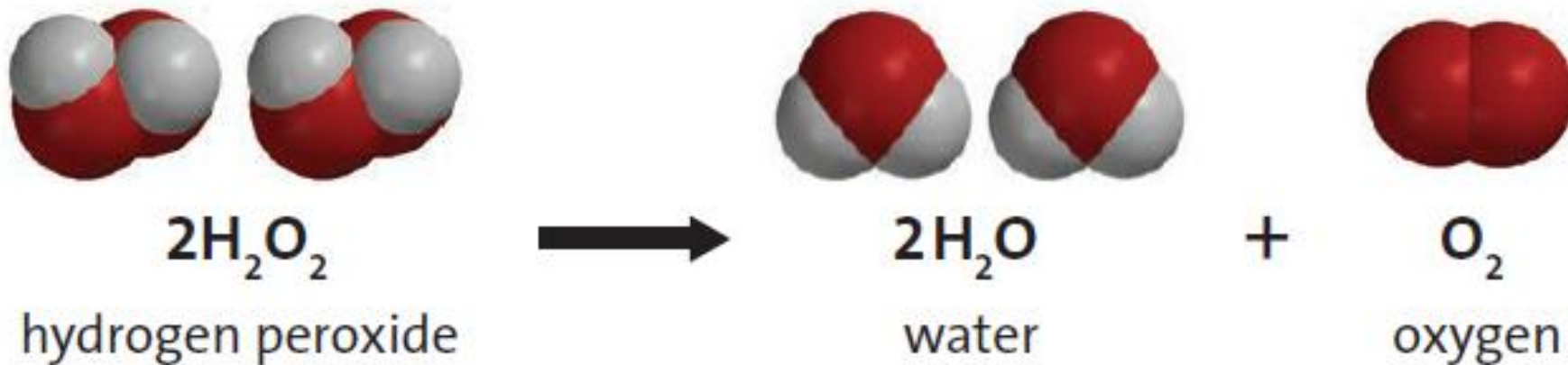
- Objective
- *To be able to define a catalyst as a substance that increases the rate of a chemical reaction but is not incorporated into the products of the reaction.*

Elephant Toothpaste



Genie in a Bottle

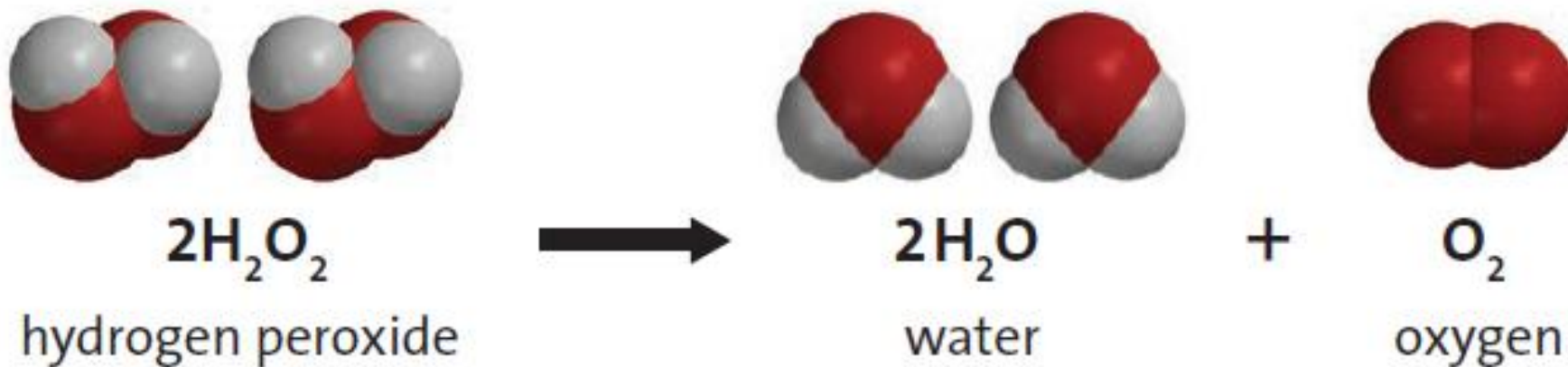




Which new substances are created when hydrogen peroxide decomposes? Water and Oxygen

What does a catalyst do in a chemical reaction?

Catalyst help a reaction happen faster but do not change themselves during the reaction.



If the catalyst is involved in the chemical reaction, why isn't it included as a product in the chemical equation?

A catalyst does not end up in the products so it is not included in the chemical reaction.

Activity

- Complete the Activity and answer questions 3 thru 6 on the activity sheet.
- Complete the Take it Further Activity and answer questions 7 thru 9 on the activity sheet
- 15 minutes

Activity Questions

- 3. What clues did you have that a chemical reaction occurred in this activity?
- Bubbling and a change in temperature
- 4. What is the catalyst in this activity?
- A substance in the yeast

Activity Questions

- 5. What evidence do you have that hydrogen peroxide decomposed faster when you added yeast?
- Bubbles of oxygen gas were produced after the yeast was added.

Activity Questions

- 6. When writing the chemical equation for this reaction, should yeast be included on the product side of the chemical equation?
- Sometimes a catalyst is written above or below the arrow in a chemical equation, but is never included with the reactants or products.

Activity Questions

- 7. How do you know that a chemical reaction occurs when a piece of Al foil and salt are placed in copper II sulfate solution?
- Bubbling, color change, temperature change and a different solid (a precipitate) was formed.

Activity Questions

- 8. What is the catalyst in this activity?
- Salt
- 9. How is adding the salt to the Al similar to adding yeast to the hydrogen peroxide?
- Both are catalysts. They speed up the reaction but are not part of it.

Key Concepts

- A catalyst is a substance that can help the reactants in a chemical reaction *react with each other faster*.
- A catalyst does not actually become *part* of the reaction.