Decomposing Hydrogen Peroxide with Yeast

Florida State Standard:
SC.8.P.9.2 - Investigate and describe how energy is transferred and transformed in chemical reactions.

Florida State Benchmark:
SC.8.P.9.2.1 - Identify and describe examples of exothermic and endothermic reactions in everyday life.

Objective:
Students will observe the catalytic decomposition of hydrogen peroxide using yeast and analyze the energy transformation involved in the reaction.

Materials:

- 3% hydrogen peroxide (H_2O_2)
- Active dry yeast
- Warm water (~100°F or 37°C)
- Liquid dish soap
- Measuring spoons
- Small bowl
- Graduated cylinder or measuring cup
- Clear plastic or glass bottle
- Food coloring (optional)
- Tray or shallow container
- Safety goggles

Safety Precautions:

- Wear safety goggles to protect your eyes.
- Perform the experiment in a well-ventilated area.
- Handle hydrogen peroxide with care; avoid skin or eye contact.
- Clean up spills immediately and wash hands thoroughly after the experiment.

Procedures:

1. Dissolve 1 tablespoon of yeast in 2 tablespoons of warm water in a small bowl.
2. Place the bottle on a tray to catch foam overflow.
3. Pour 1/2 cup of hydrogen peroxide into the bottle.
4. Add a squirt of dish soap and gently swirl to mix.
5. (Optional) Add a few drops of food coloring for visual effect.
6. Quickly pour the yeast solution into the bottle.
7. Observe the foam formation and note any heat generated by the reaction.

Note:
Clean-up:

- Dispose of the foam and liquid in a sink.
- Rinse all used equipment with water.
- Store unused materials properly for future use.