



Kitchen Chemistry

Phases of Matter

KEY TERMS

Solid – One of the states of matter. Solids are firm and hold their shape.

Liquid – One of the states of matter. Liquids flow freely and stay at constant volume.

Gas – One of the states of matter. Gases take the shape of whatever container they inhabit and have no fixed shape or volume.

Melt – When a solid phase shifts to a liquid.

Freeze – When a liquid phase shifts to a solid.

Evaporation – When a liquid phase shifts to a gas.

Condensation – When a gas phase shifts to a liquid.

Decomposition – When a substance breaks down.

Catalyst – An outside compound that works to speed up a chemical reaction without being used up.

Exothermic Reaction – A chemical reaction that produces heat.

DISCUSSION

EXPERIMENT #1

- Predict what will happen in the plastic bag
- How does the plastic bag mimic nature?
- What do the droplets on the sides of the bag represent? (clouds)

EXPERIMENT #2

- What caused the Hydrogen Peroxide to bubble? (the air from the decomposition and the dishsoap)
- What does Hydrogen Peroxide (H_2O_2) break down into? (Water and Oxygen)
- What does an exothermic reaction produce? (heat)

EXPERIMENT #1 *WATER CYCLE BAGS*

WHAT YOU NEED AT HOME

- A plastic baggy
- A marker
- A little water
- A window
- Tape

HOW TO DO IT

- Draw a line across the bottom of the bag at about two inches to show water level
- Add water to this line
- Seal the bag
- Tape the bag to a south-facing window.
- Watch what happens over the course of two days

EXPERIMENT #2 *ELEPHANT TOOTHPASTE*

WHAT YOU NEED AT HOME

- $\frac{1}{2}$ cup Hydrogen peroxide (3%)
- $\frac{1}{4}$ cup Warm water
- Small clear pop bottle, rinsed and dried
- Small bowl
- Dishwashing soap
- Funnel
- 1 packet of active dry yeast
- Large rectangular baking pan

HOW TO DO IT

- In a small bowl, combine warm water with yeast. Set aside for a moment
- Set up the bottle in the middle of baking pan (or sink) to capture the mess
- Using the funnel, pour half a cup of hydrogen peroxide into the bottle
- Add a little dish soap to the container.
- Pour the yeast down the funnel, quickly move the funnel, and step back!

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