

# Chapter Three: Matter-Properties and Change

## Section Two: Changes in Matter

**Physical change:** a change that alters a substance without changing its composition

- Water-ice-water vapor
- Ripping paper or breaking glass
- *Boil, freeze, condense, vaporize, melt*

**Phase change:** transition of matter from one state to another

**Chemical change: (called a chemical reaction):** process that involves one or more substances changing into new substances

- Iron into rust
- $4\text{Fe (s)} + 3\text{O}_2 \text{ (g)} \rightarrow 2\text{Fe}_2\text{O}_3 \text{ (s)}$
- Reactants  $\rightarrow$  products
- *Decompose, explode, rust, oxidize, corrode, tarnish, ferment, burn, or rot*

**Law of conservation of mass:** states that mass is neither created nor destroyed during a chemical reaction – it is conserved

- $\text{Mass}_{\text{reactants}} = \text{mass}_{\text{products}}$