



Properties of Matter



A. Chemical Properties

1. **Chemical property:** way a substance reacts w/ other substances to form a new substance w/ different properties
 - Examples: reactivity with water, reactivity with oxygen, reactivity with acids, and flammability
 - **Reactivity:** ability of a substance to combine chemically w/ other substances

B. Physical Properties

1. **Physical property:** things that can be observed or measured w/ out changing the composition of the substance
2. Examples:
 - Shape
 - Color
 - Odor
 - Texture
 - Hardness
 - Crystal shape



B. Physical Properties (continued)

3. **Melting point:** temperature at which a solid becomes a liquid
4. **Boiling point:** temperature at which a liquid becomes a gas
5. **Viscosity:** resistance of fluid to flow
6. **Density:** mass per unit volume



$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

Ice is less dense than water; floats on water

B. Physical Properties (continued)

7. **Buoyancy:** tendency of a less dense substance to float in a more dense liquid



Built with lightweight materials, this boat can float.

C. Chemical Changes

1. **Chemical Change:** occurs when a substance changes composition by forming one or more new substances
2. Examples:
 - Digestion of food
 - Burning
 - Decomposition
 - Rusting of metal
 - Fading of paint



D. Physical Changes

1. Physical change: Change in the physical form of a substance that occurs without a change in composition
2. Examples:
 - Cutting a piece of paper
 - Melting ice
 - Boiling water
 - Dissolving a solute into a solvent
 - Painting on wood

