## 3 States of Matter

| State | Definition | Examples |
|---|---|---|
| Solid | rigid; has a fixed shape and volume | ice cube, diamond, iron bar |
| Liquid | has a definite volume but takes the shape of its container | gasoline, water, blood |
| Gas | has no fixed volume or shape; takes the shape of its container | air, helium, oxygen |

## Module 2 - Isotopes, Compounds, Empirical Formula

Atoms have a constant or fixed number of protons
Atomic Number - gives the protons in the nucleus of an atom; represented as **Z**
Neutral Atom - number of protons is equal to the number of electrons
*Z = nuclear charge = number of protons = number of electrons in neutral form*
Mass Number - sum of the number of protons and neutrons; represented by **A**
An atom can be represented by the nuclear symbol $^{A}_{z}E$
Nucleons - protons + neutrons

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## Types of bonds

| | | |
|---|---|---|
| Ionic | when one atom shifts or transfers an electron to another atom; metals + nonmetals | Na+ (1A) and Cl- (7A) creates a stable bond (octet rule) |
| Covalent | atoms share electrons; nonmetals | O2-(6A) and 2 atoms of H+(1A) = $H_2O$ |
| Metallic | a metal shares an electron with another metal; positively charged ions in electrons | |

## Mixture and Pure Substances

| | | |
|---|---|---|
| Mixture | has variable composition | |
| | Homogeneous | also called a solution; does not vary in composition from one region to another |
| | Heterogeneous | contains regions that have different properties from those of other regions |
| Pure Substance | always have the same composition; either elements or compounds | |

## Other Properties

| | | |
|---|---|---|
| Extensive | changes when the amount of material changes | mass, length, volume, shape |
| Intensive | does not depend on the size of the material | temperature, odor, color, hardness, density |

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## Physical and Chemical Properties and Changes

| | |
|---|---|
| Physical Properties | odor, color, volume, state (gas, liquid, or solid), density, melting point, boiling point |
| Chemical Properties | burning, digestion, fermentation, rusting, electrolysis |

## Elements and Compounds

| | | |
|---|---|---|
| Elements | cannot be broken down into other substances by chemical means | iron, aluminum, oxygen, and hydrogen |
| Compound | substances that have the same composition no matter where we find them; can be broken down into elements | Water ($H_20$), Salt (NaCl), Ammonia ($NH_3$) |

# GenChem q1 module (FINAL) Cheat Sheet

by Jerstellar via cheatography.com/204102/cs/43933/

## Phase Changes of Matter

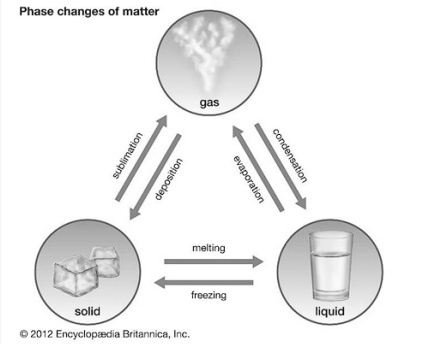


Figure 1.1. Phase Changes of Matter

## Module 1 - Matter and its Properties

Matter - has mass and occupies space.

## Fjfjd

## Fjfjd

## Fjfjd

## Fjfjd

## Ki

## Vrtb

## Fkfkf

## Fhrheheh

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