# Chapter 5 Vocabulary

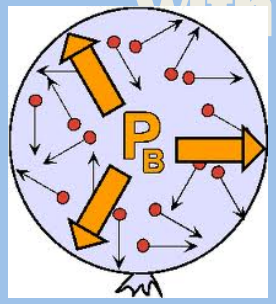
1. Fluid – a form of matter that flows when any force is applied
   - liquids and gases

2. Liquid – a phase of matter with medium energy that
   - can flow
   - Changes shape
   - Has CONSTANT volume

3. Gas – a phase of matter with high energy that
   - Can flow
   - Has any volume
   - NO shape

4. Solid – a phase of matter with low energy that
   - CANNOT flow
   - Has DEFINITE volume
   - Has DEFINITE shape

5. Pressure – a force that acts on all areas of a fluid within a fluid

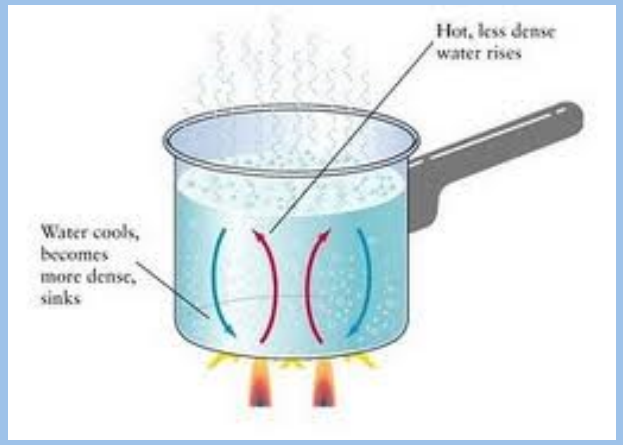



6. Intermolecular Forces – the forces between atoms that can be attractive or repulsive


7. Evaporation – a phase change from liquid to gas at a temperature below boiling point

8. Condensation – a phase change from a gas to a liquid

9. Convection – the transfer of heat through the motion of fluids



# Properties of Solids

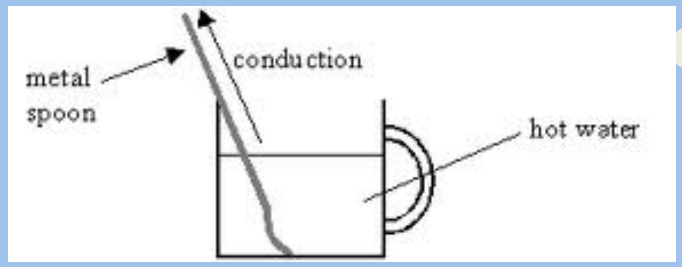
10. Strength – a solid's ability to maintain shape under the application of force

11. Elasticity – a solid's ability to be stretched and compressed, then return to original size

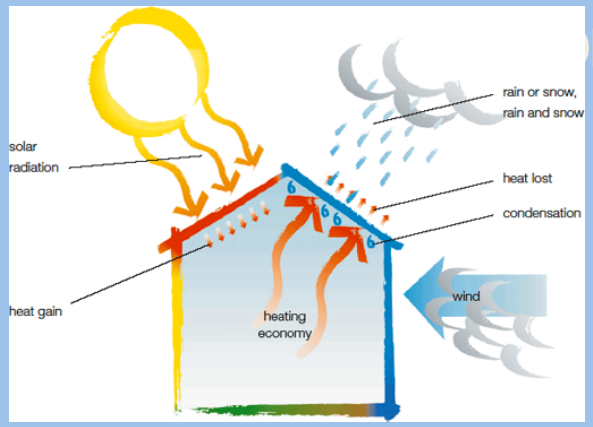
12. Brittleness – a solid's tendency to crack or break easily

13. Ductility – a solid's ability to bend without breaking

14. Thermal Conduction – a solid's ability to transfer direct contact




15. Thermal Insulation – a solid's ability to prevent m moving



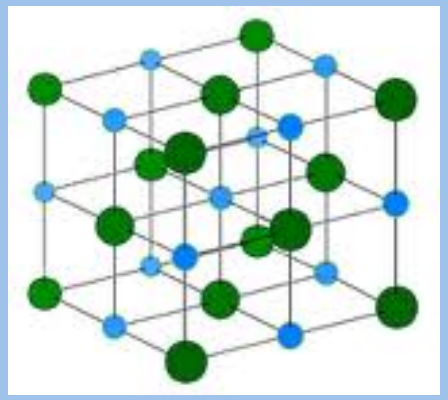
# Chapter 5 Concepts

## A. Types of Solids

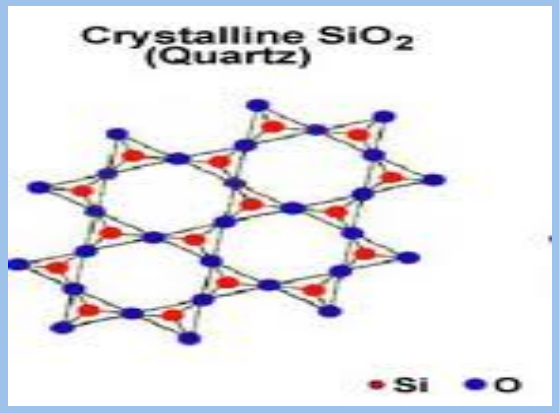
- **Crystalline (crystal-like)**

  **- solids that have an orderly, repeating pattern of molecules or atoms**

  **ex. Salt and quartz crystals**



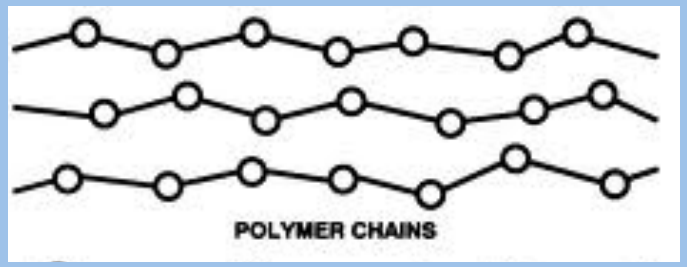
NaCl – Table Salt

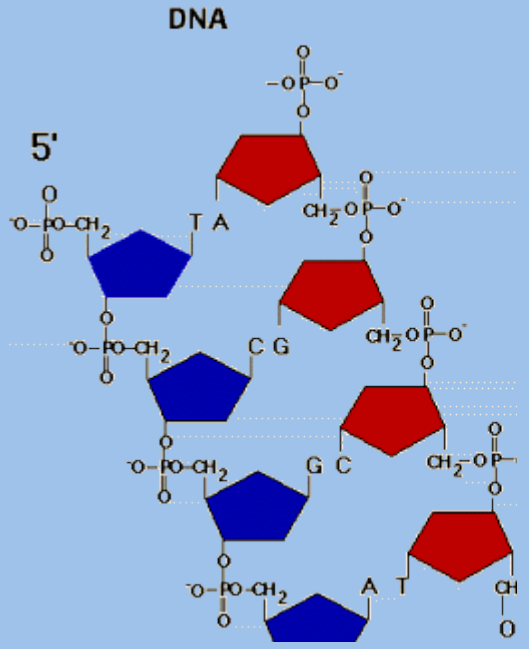


- **Polymers**

  **- solid materials that are made of long chains of individual molecules stacked in a repeating pattern**

  **ex. Proteins, DNA, rubber**

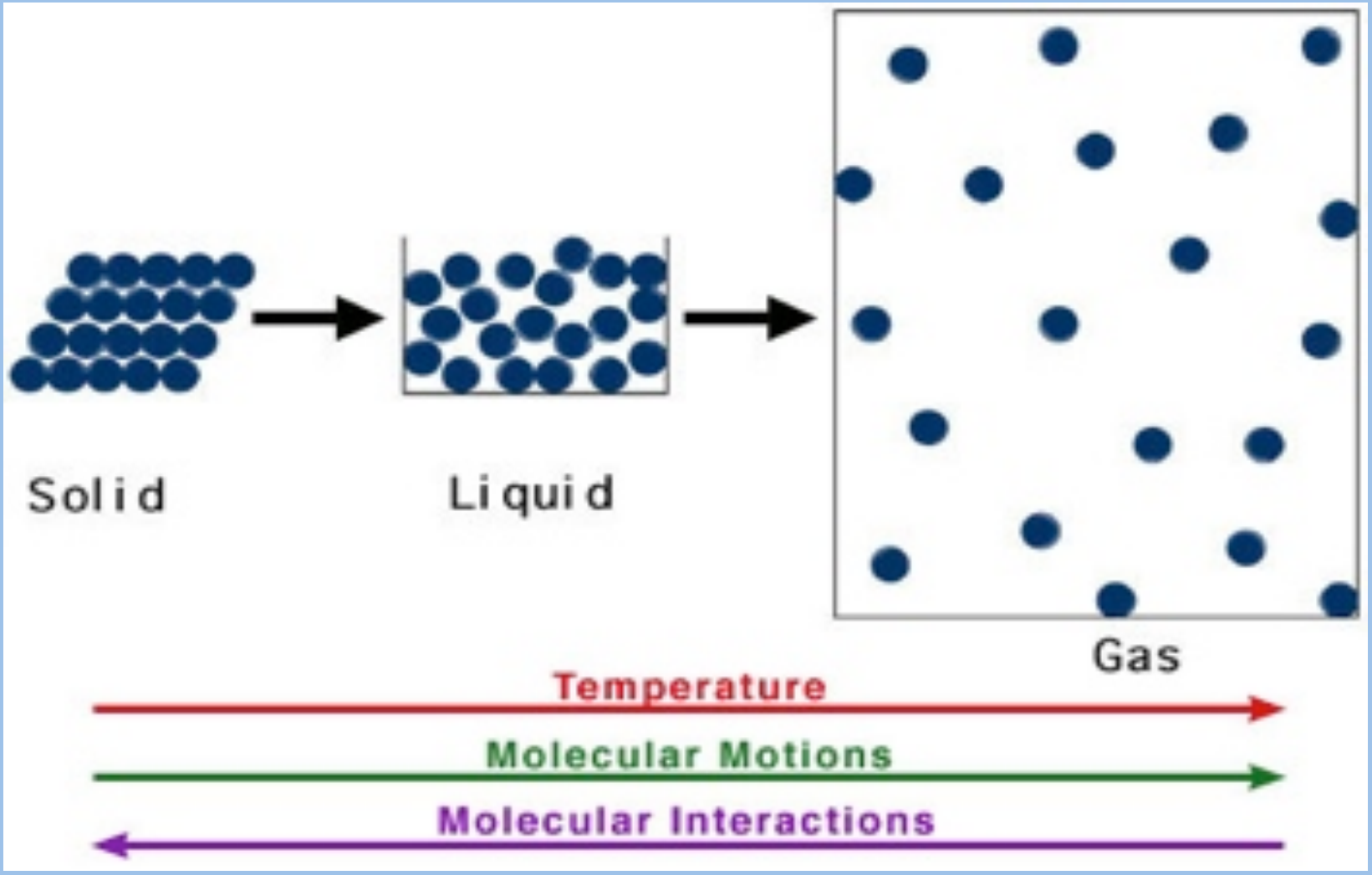


- **Amorphous (without shape or pattern)**
  **- solids made of molecules with no repeating pattern or units**

  **ex. Glass**

# B. Atoms in phases of matter



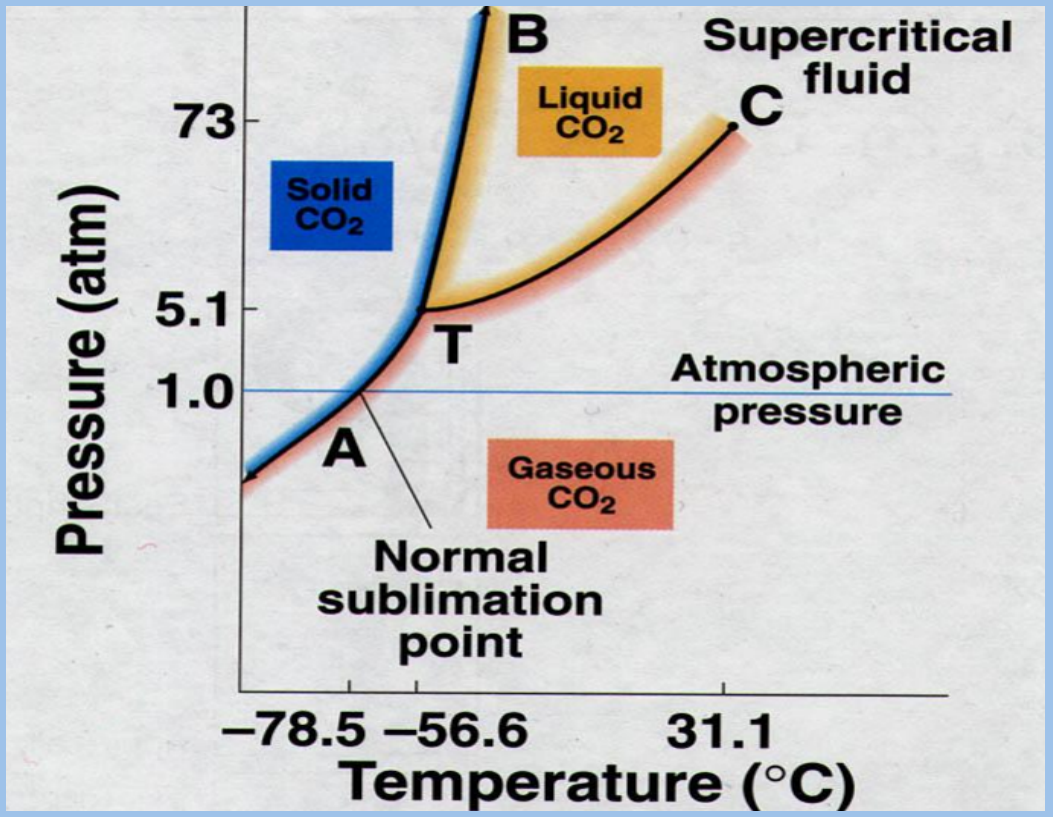
# C. Intermolecular forces and thermal energy

- Intermolecular forces (IMF) are present inside a molecule because it's made of more than one atom
- IMF is what keeps the atoms in molecules stuck together

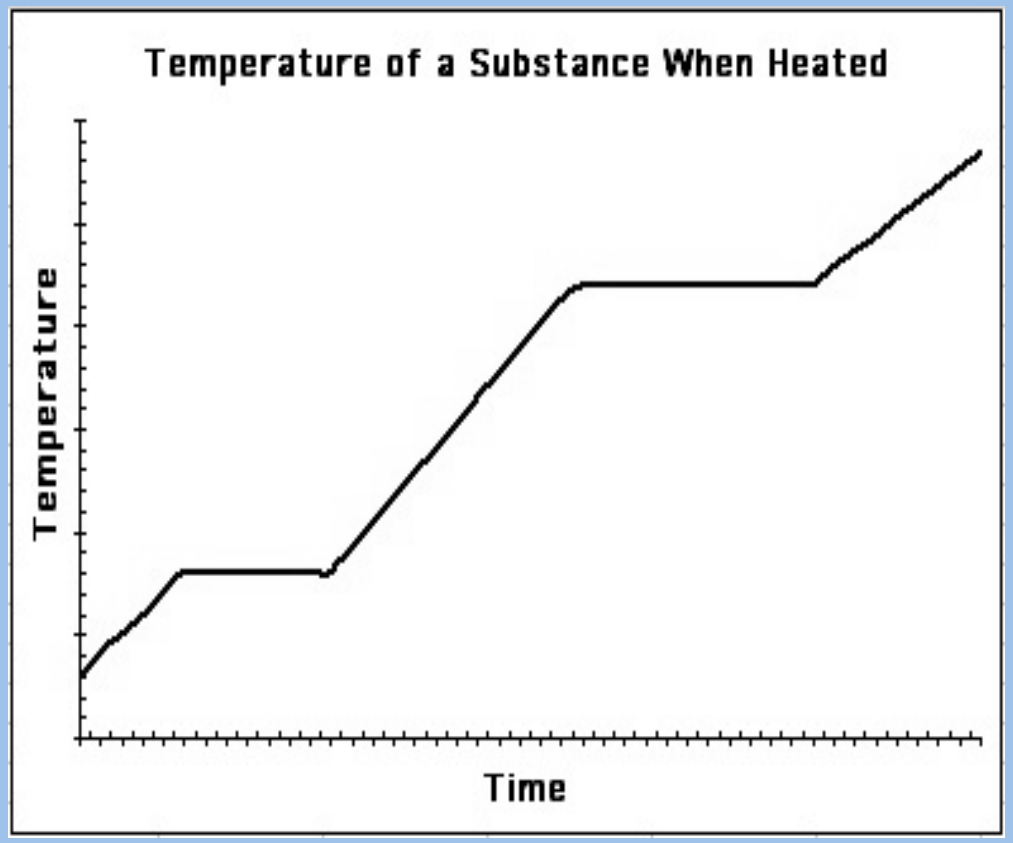
- HIGH THERMAL ENERGY = low IMF
  - When heat is present, IMF become weak
    - Solids → liquids
    - Liquids → gases

- Low Thermal Energy = High IMF
  - When heat is decreased, IMF strengthens
    - **Gases** → liquids
    - Liquids → **solids**

# D. Phase Diagrams



# Heating Phase Diagram



# Cooling Phase Diagram