METALLIC BONDING

- Strong forces of attraction are responsible for the high melting point of most metals.

Metallic Bonding:

- The chemical bonding that results from the attraction between metal cations and the surrounding sea of electrons.
- Vacant *p* and *d* orbitals in metal's outer energy levels overlap, and allow outer electrons to move freely throughout the metal.
- Valence electrons do not belong to any one atom.

Packing in Metals:

- Model uniform, hard spheres to best use available space. This is called closet packing. Each atom has 12 nearest neighbors.

Metal Alloys:

- Substitutional Alloy: Some metal atoms replaced by others of similar size.
- Interstitial Alloy: Interstices (holes) is closest packed metal structure are occupied by small atoms.

Properties of Metals:

- Metals are good conductors of heat and electricity.
- Metals are malleable.
- Metals are ductile.
- Metals have high tensile strength.
- Metals have luster.