**Bonding in metals**

**Structure of metal crystal:**

Closely packed, positively charged metal ions.

\*The valence electrons drift among the ions.

**Metallic bond**- attraction between a positive metal ion and the electrons surrounding it.

This is known as “the sea of electrons.”

Unlike a nonmetal, the valance electrons are loosely held.

**Discussion questions:**

1. Why do metal atoms lose electrons easily? (their valence electrons are not strongly held.)
2. Look at figure 1 pg 69, can you tell which electrons “belong” to which metal ions? (no, you can’t.) this is because it’s in a sea of electrons.

**Properties of metals**

* Solid at room temperature
* Shiny luster
* High malleability (rolled into sheet or beaten into shapes)
* Ductile (bent easily or pulled into wire)
* Electrical conductor

Because valence electrons move freely

* Thermal conductor
* High melting point

**Discuss:** Explain to students that copper is generally used for electrical wire. Gold and silver are better conductors of electricity.

Ask: Why are these metals not used instead of copper? (Too expensive, not worth the extra cost.)

**Discussion questions:**

Is an alloy a compound or a mixture? (mixture-the metal ions do not bond to each other)