**Bonding in Metals**

* Metals can easily give up electrons to form an electron “**sea**”
* These cations are surrounded by mobile valence electrons which can drift freely from one part of the metal to another
* **Metallic bonds** consist of the attraction of these valence electrons for the metal cations
* Because of this, metals are….
  + Good conductors
  + Malleable
  + Ductile
* Most metals you encounter on a daily basis are **alloys**, mixtures composed of two or more elements, at least one of which is a metal
* Alloys are prepared by melting a mixture of the ingredients and then cooling the mixture
  + Brass (copper and zinc)
  + Bronze (copper and tin)
  + Sterling silver (silver and copper)
  + Dental amalgam (mercury, silver, zinc)
* Metals can replace each other in an alloy if there are approximately the same size….this type of alloy is called a **substitutional** **alloy**
* If atomic sizes differ greatly, the smaller atoms can fit in the “gaps” between the larger atoms….this type of alloy is called an **interstitial** **alloy**