# Ionic and Metallic Bonding

## Ionic Bonding

### electrostatic forces

- attraction between positive + negative charges
    - holds electrons on atom
    - holds cations + anions together
- salt - any ionic compound
- one element donates electrons to another

### ionic bond arrangement

- exist in pattern of alternating positive + negative forms

### Properties of ionic bonding

- crystal patterns as solids
- hard + brittle
- dissolve into anions and cations when in water
- conduct electricity when dissolved in water

## Metallic Bonding

- exist as cations with valence electrons floating in between them
    - often referred to as cations floating in sea of electrons

### Properties of metallic bonding

- crystalline structure
- conduct electricity
- malleable
- ductile
- shiny

## Metals can form Alloys

### alloy

- mixture of 2 or more metals
    - properties of mixture are often superior to those of component elements
        - corrosion
        - resistance
        - hardness
        - toughness