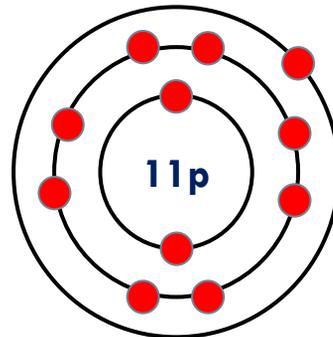
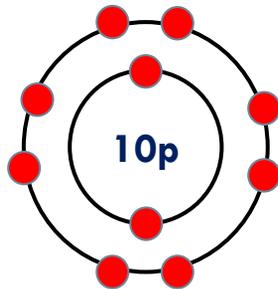


Ions

- What is an ion?
 - ▣ Electrically charged atom
- How do they form?
 - ▣ When an atom loses or gains electrons

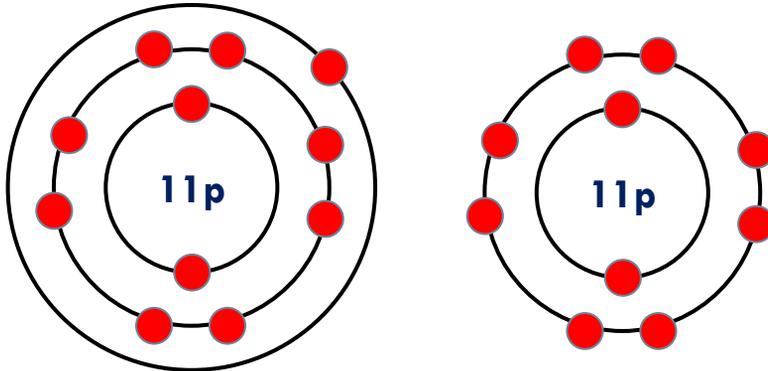
Ions

- Why do they form?
 - ▣ Octet Rule - An atom is “happy” when its outer shell is full with 8 electrons



Ions

- Atoms will gain or lose electrons to get a full outer shell

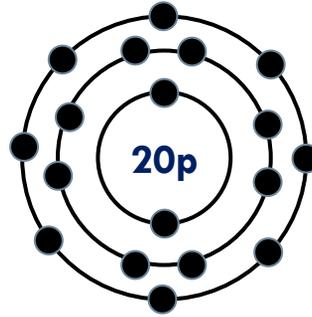
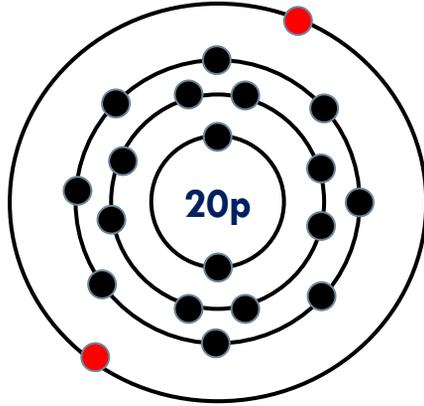


2 Types of Ions

- Cation – positive charge
 - ▣ When atoms lose electrons
- Anion – negative charge
 - ▣ When atoms gain electrons

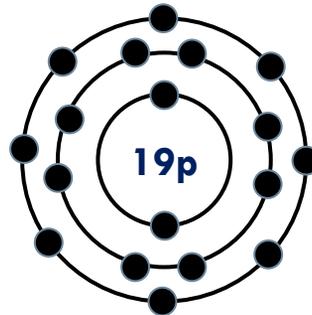
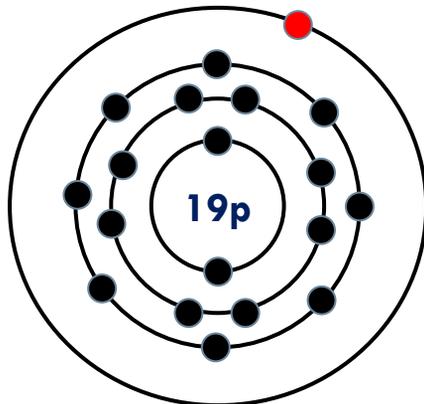
Predicting Charges

□ Calcium



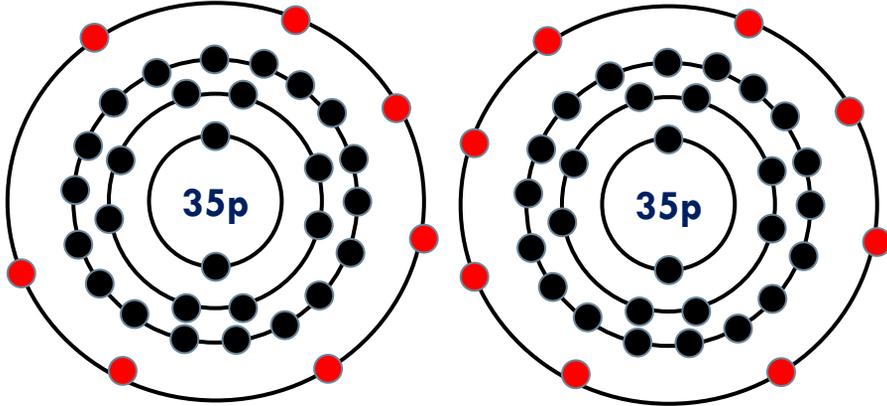
Predicting Charges

□ Potassium

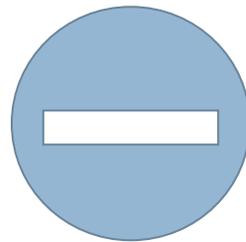
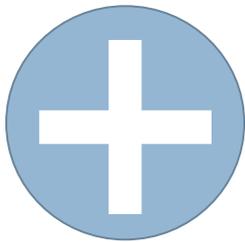


Predicting Charges

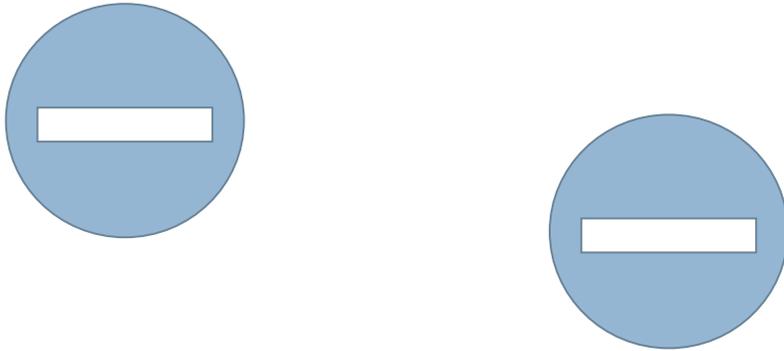
□ Bromine



2 Types of Charges

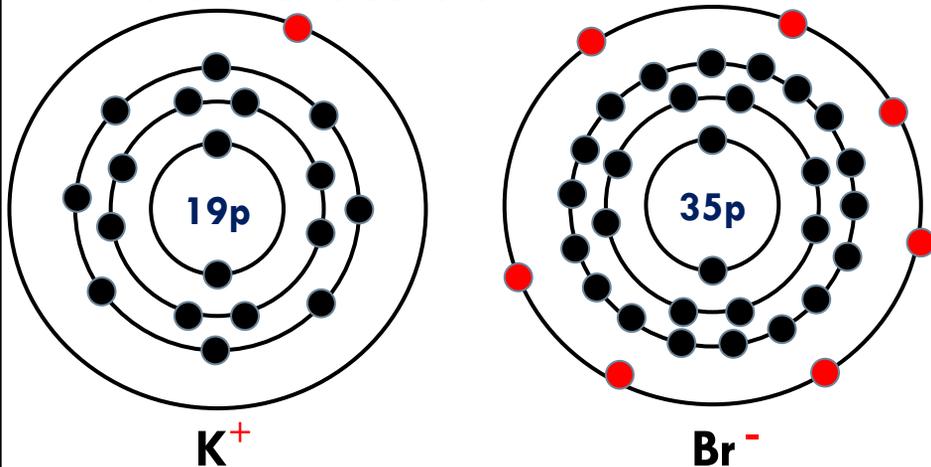


2 Types of Charges



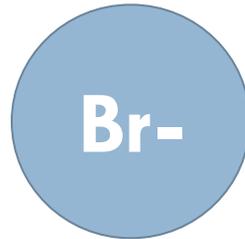
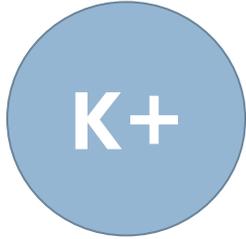
Ionic Bond

□ Transfer of electrons



Ionic Bond

- Made between a cation (+) and anion (-)



Ionic Bond

- Overall positive charge must equal overall negative charge



Ionic Bond

□ Overall positive charge must equal overall negative charge



Ionic Bond

□ Overall positive charge must equal overall negative charge

<http://www.chemfiles.com/flash/formulas.html>

Ionic Bond

- Ions combine to form crystals

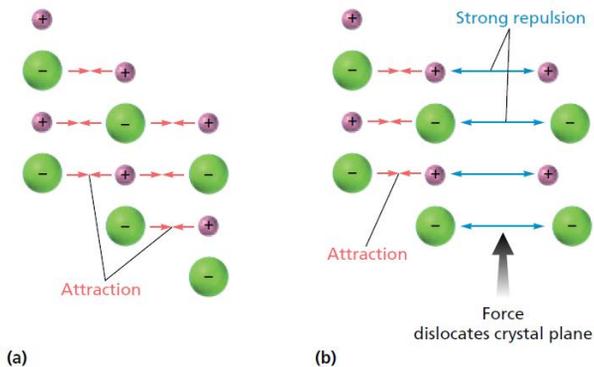
http://www.middleschoolchemistry.com/multimedia/chapter4/lesson5#ionic_bond_in_sodium_chloride

Ionic Compound Properties

- High melting and boiling points
- Hard, but brittle
- Ions that move freely are good electrical conductors
 - ▣ Ionic solids = poor conductors
 - ▣ Molten or dissolved ionic compounds = good conductors

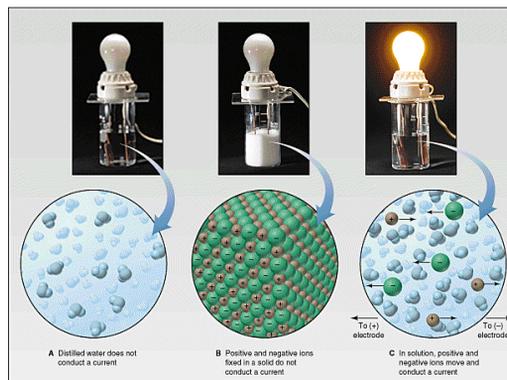
Ionic Compound Properties

- High melting and boiling points due to strong electrostatic attractions between ions
- Hard, but brittle



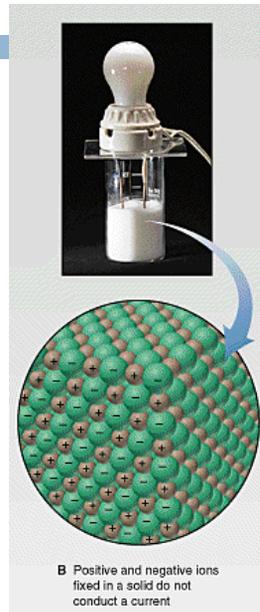
Ionic Compound Properties

- Ions that move freely are good electrical conductors
 - ▣ Ionic solids = poor conductors
 - ▣ Molten or dissolved ionic cmpds = good conductors



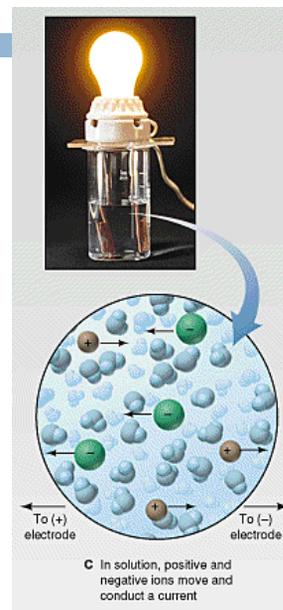
Ionic Compound Properties

- Ions that move freely are good electrical conductors
 - ▣ Ionic solids = poor conductors
 - ▣ Molten or dissolved ionic cmpds = good conductors



Ionic Compound Properties

- Ions that move freely are good electrical conductors
 - ▣ Ionic solids = poor conductors
 - ▣ Molten or dissolved ionic cmpds = good conductors



Ionic Compound Structure

□ Crystalline solids

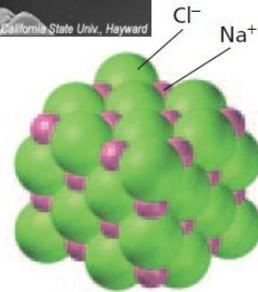
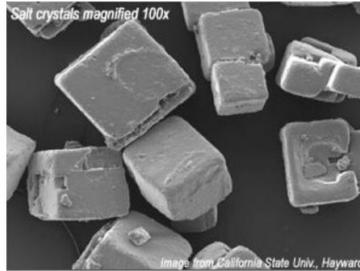
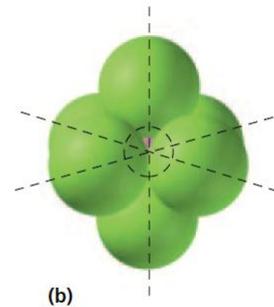
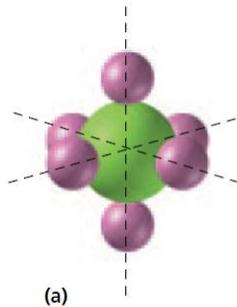


FIGURE 12 Like most ionic compounds, sodium chloride is a crystalline solid.

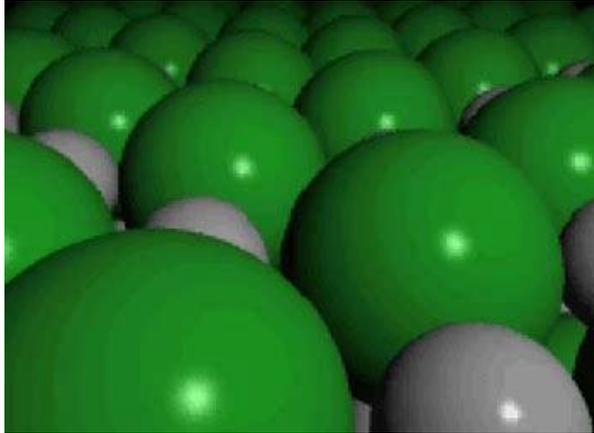
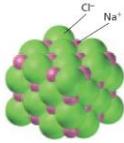
Ionic Compound Structure

□ Crystalline solids



Ionic Compound Structure

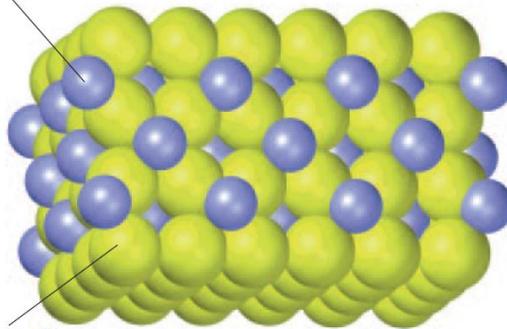
□ Crystalline solids



Ionic Compound Structure

□ Crystalline solids

Calcium ion, Ca²⁺



Fluoride ion, F⁻