

Warm Up:

Predict the formulas for compounds formed from the following elements:

strontium and nitrogen

potassium and selenium

magnesium and arsenic

Warm Up

Pure water freezes at 0°C. A student wanted to test the effect of adding salt to the water on freezing point.

(The table shows the data that was collected)

Effect of Salt on Freezing Point of Water

What is the manipulated variable in this experiment?

Objectives:

TSWBAT:

- Predict bonding (ionic or covalent) and the shape of simple compounds by using Lewis dot structures and oxidation numbers.
- Interpret the names and formulae for ionic and covalent compounds.
- Explain how the types of intermolecular forces present in a compound affect the physical properties of the compounds (e.g. polarity and molecular shape.)

Practice Problems:

p. 199

#14-16,

#18-20

Bonding in Metals

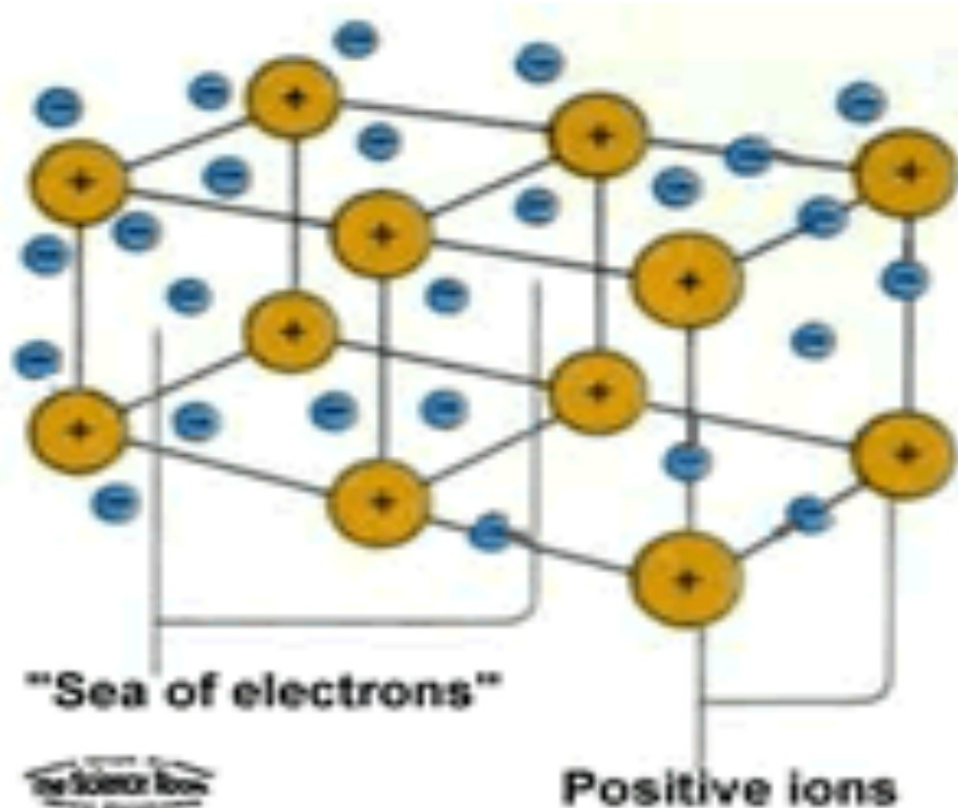
Metals are made up of closely packed cations rather than neutral atoms.

The valence electrons of metal atoms can be modeled as a "sea of electrons."

Metallic bonds: consist of the attraction of the free-floating valence electrons for the positively charged metal ions.

These bonds are what hold metals together.

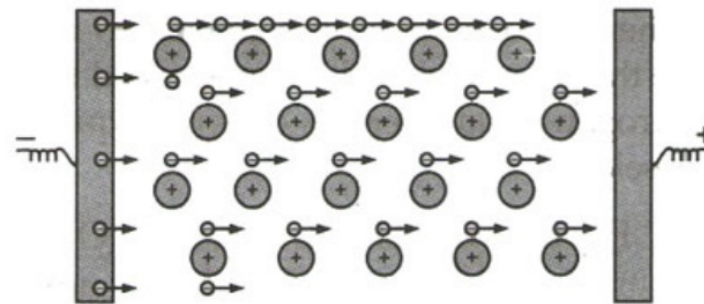
p. 202 of your textbook has some nice pictures of the different crystals metals will form.



The metal atoms arrange in a lattice and the electrons flow around them.



The unusual "sea of electrons" mode of bonding is why metals are good conductors of electricity. Electrons can flow and be pushed along the "sea." The electrons can enter one end of the metal and push electrons out the other end.



Electrical conductivity in metal crystals

A word about polyatomic anions:

If you see a compound with CO_3 or SO_4 don't try to determine the charge on each atom- take the whole polyatomic anion as a group.

So, treat Li_2CO_3 like Li_2X . What would the charge on X be?

Practice Problems: Use Aufbau Diagram on p. 133 to do electron configuration problems.

p. 207 41-45; 48

**p. 208 53; 55-56; 58-59; 61-65; 67;
73**

p. 211 1-10

What is the *net charge* of the ionic compound CaO ?

How many valence electrons does magnesium lose in magnesium chloride?



Two (2)

What is the charge on **each** fluorine ion in SrF_2 ? -1

Magnesium arsenide

Beryllium sulfide

Lithium phosphide

Potassium fluoride

Barium iodide

Aluminum oxide

Francium sulfide

Sodium arsenide

Calcium bromide

Aluminum Nitride

Gallium chloride

Boron Bromide

Sodium Oxide

Rubidium chloride

Cesium phosphide

Boron Chloride

Magnesium sulfide

Potassium nitride

Strontium Iodide

Calcium sulfide

Barium selenide

Gallium fluoride

Aluminum bromide

Sodium telluride

Lithium chloride

Strontium phosphide

Cesium nitride

Rubidium Bromide

Beryllium Oxide