

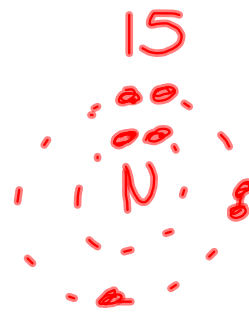
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| | Metals | Nonmetals |
|--------------------------|--------|-----------|
| Lustre | Shiny | Dull |
| Conductivity | ✓ | ✗ |
| Location | Left | Right |
| State | S | S, l, g |
| Electrons in Outer Orbit | few | lots |
| Gain or Lose? | | |
| Charges of Ion formed | | |
| Other Properties | | |
| Examples | Na | Cl |
| | | |

Metals

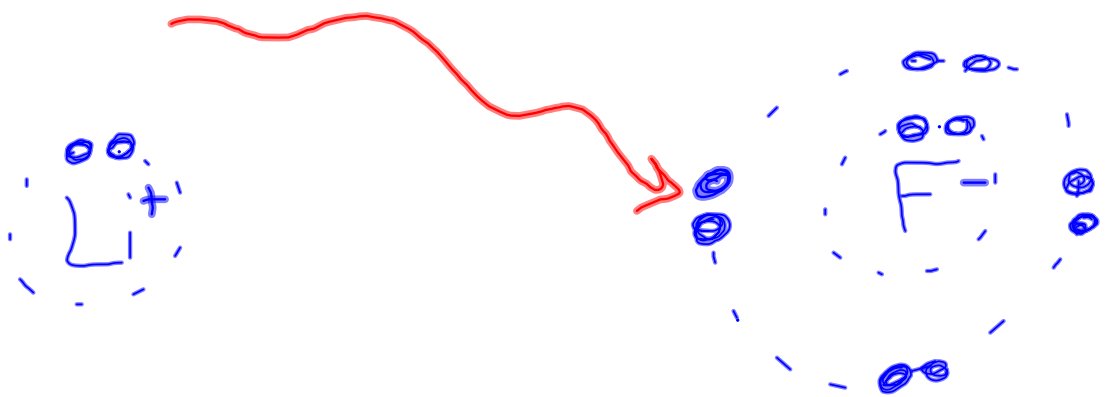


Nonmetals



| | (2) | (8) | (8) |
|---------|-----------|-----------|-----------|
| Element | 1st Orbit | 2nd Orbit | 3rd Orbit |
| H | 1 | | |
| He | 2 | | |
| Li | 2 | 1 | |
| Be | 2 | 2 | |
| B | 2 | 3 | |
| C | 2 | 4 | |
| N | 2 | 5 | |
| O | 2 | 6 | |
| F | 2 | 7 | |
| Ne | 2 | 8 | |
| Na | 2 | 8 | 1 |
| Mg | 2 | 8 | 2 |
| Al | 2 | 8 | 3 |
| Si | 2 | 8 | 4 |
| P | 2 | 8 | 5 |
| S | 2 | 8 | 6 |
| Cl | 2 | 8 | 7 |
| Ar | 2 | 8 | 8 |
| K | 2 | 8 | 8 |
| Ca | 2 | 8 | 8 |

1
2



Ions

- elements are willing to give up or gain e^- in order to have the appearance of a filled outermost orbital
- when e^- are gained or lost, an atom is then called an **ion**
- **an ion is an atom with a positive or negative charge**
- the ionic charge is the numerical value of the electric charge with a plus or minus sign

Ex. Li atom has $3p^+$ and $3e^-$

Li ion has $3p^+$ and $2e^-$ and is written Li^+

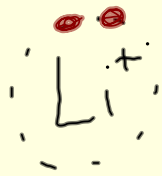
Which groups would tend to lose electrons? Gain electrons?

- metals lose electrons to become stable
~~Ex. magnesium will lose two e^- and become positively charged~~
~~Mg atom \rightarrow Mg^{2+}~~
- nonmetals gain electrons to become stable
Ex. oxygen will gain two e^- and become
O atom \rightarrow O^{2-}

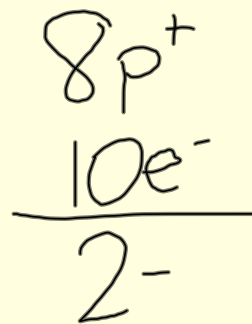
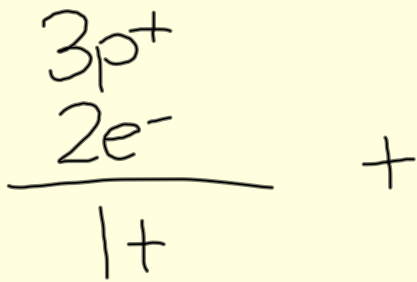
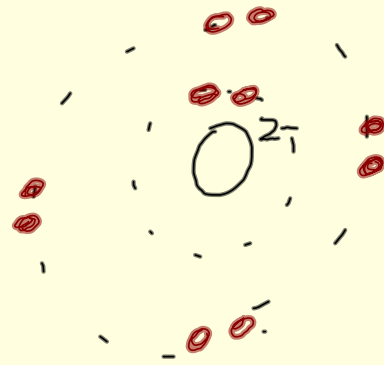


Bohr Diagrams of Stable Ions

Li $3p^+$, $2e^-$



O $8p^+$, $10e^-$



Compounds

Compounds are made by elements transferring or sharing electrons.

- the further an e- is away from the nucleus, the greater the possibility of it making a compound with another element
- the **outermost electrons** are involved in making compounds

Complete #1 p. 187

Complete Bohr Diagram worksheets

p.187 #5-6