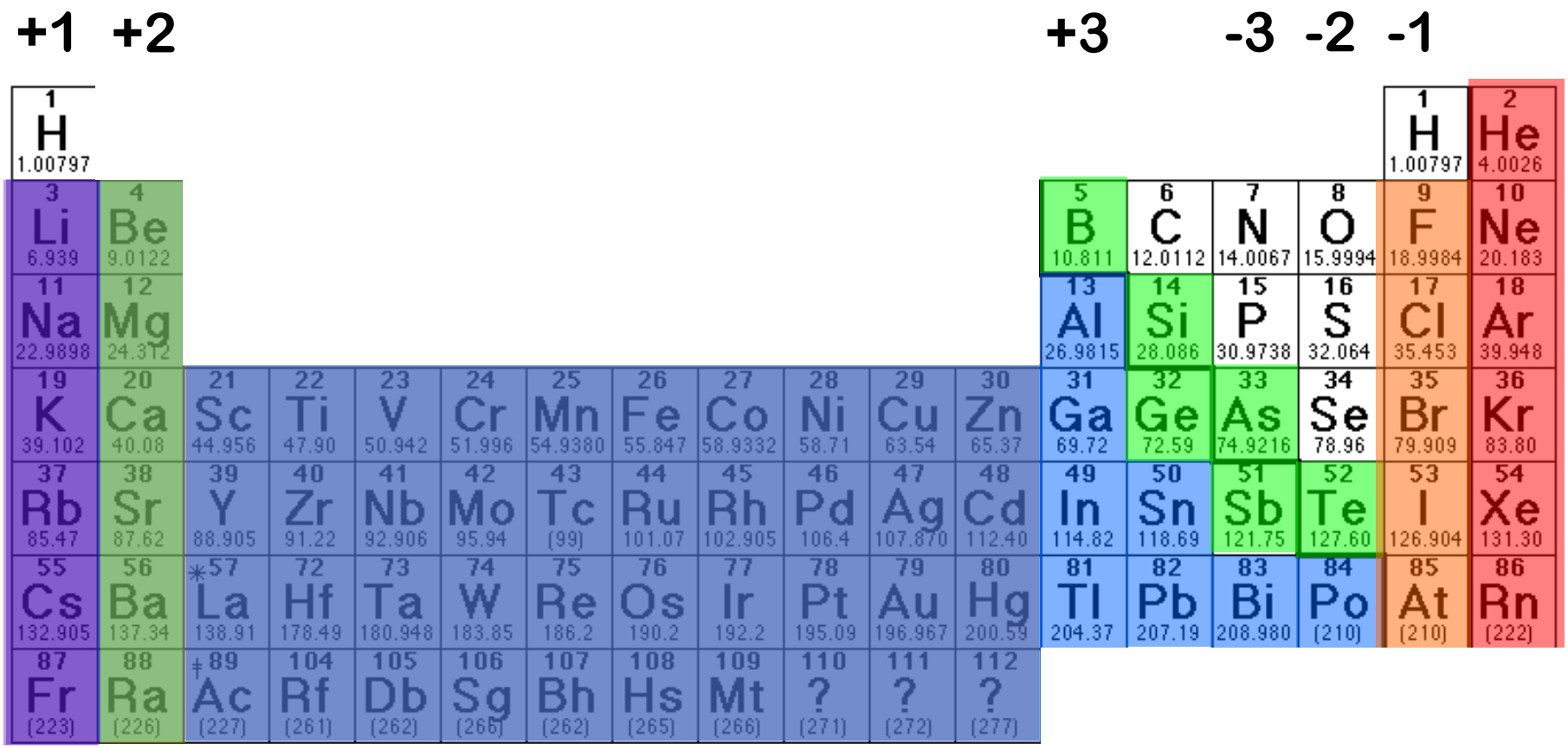
Everybody wants to be Noble

- Please, please let me have 8 valence electrons!
  - Fine print: or 2, if I'm really close to Helium
- I really, really want my last s and p orbitals to be full
  - OK, just my 1s if I don't have any p's
- I am sworn to follow the Octet Rule
  - With the exception for Helium, of course

Oxidation Number



Ions

- **Cations – positive charge**

  Ca t ion = +

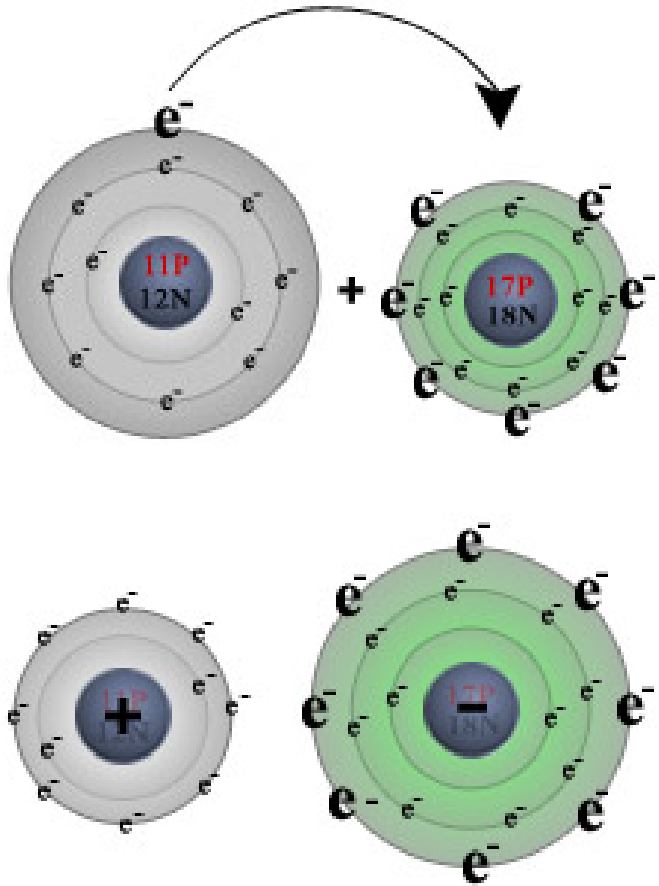
itive

- **Anions – negative charge**

  A n ion = negative

Ionic Bonding

Na^{+} $:\ddot{\underset{\cdot\cdot}{Cl}}:^{-}$



http://www.visionlearning.com/library/module_viewer.php?mid=55

Ionic Bonding

- The bond is formed through the transfer of electrons
- Electrons are transferred to achieve noble gas configuration
- Cations and anions are held together by their opposite charges
- Ionic compounds are called salts.

Names

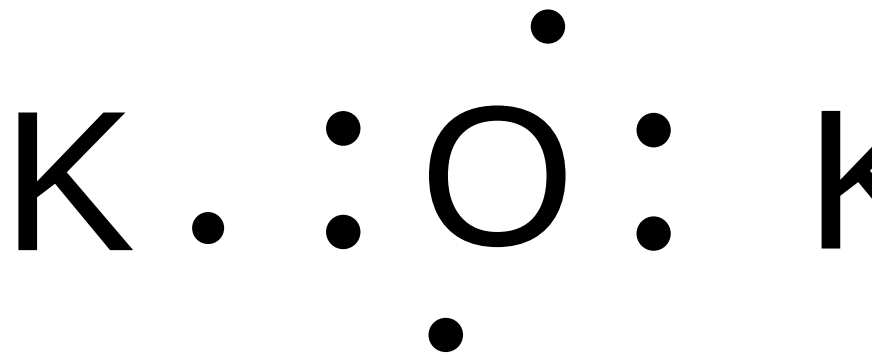
- Start with the cation (metal) name
- Add the first part of the anion (non-metal) name, with “ide” to the end

$$Mg^{2+}O^{2-}$$

Magnesium Oxide

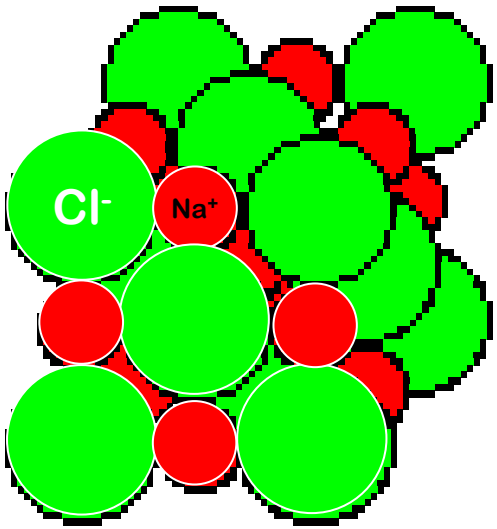
Anion Names

Nitrogen	**Nitride**
Oxygen	**Oxide**
Fluorine	**Fluoride**
Phosphorus	**Phosphide**
Sulfur	**Sulfide**
Chlorine	**Chloride**
Bromine	**Bromide**
Iodine	**Iodide**

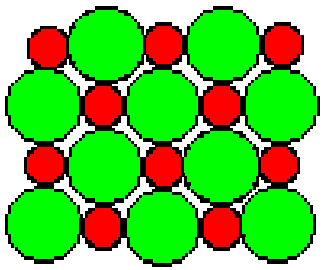


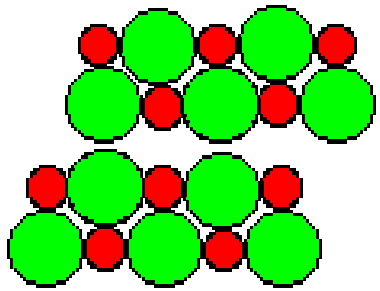
$K_2^+O^{2-}$

Potassium Oxide



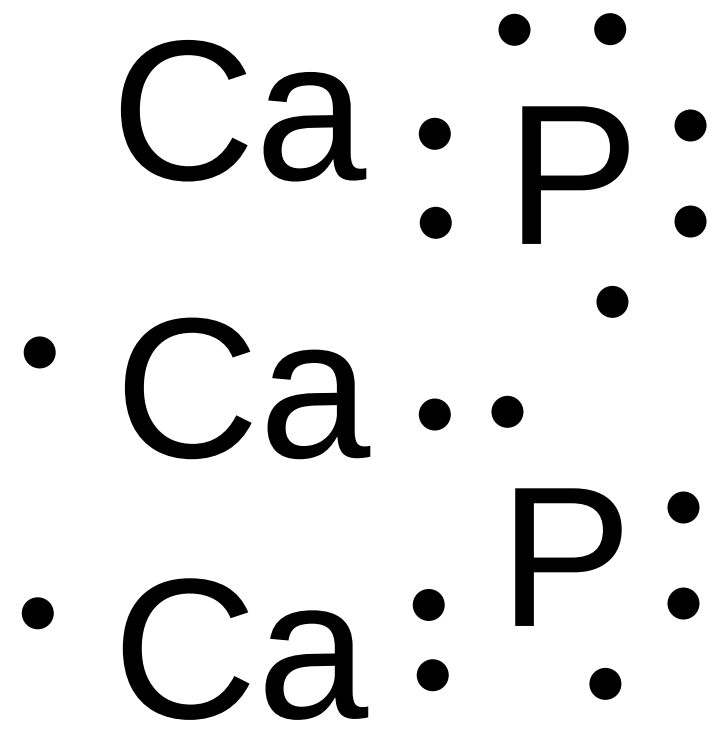
stress





Ionic Compounds

- Form crystals – a "lattice"
- Hard and brittle
- Very high melting and boiling points
- Conduct electricity when dissolved in water



$Ca_3^{2+}P_2^{3-}$