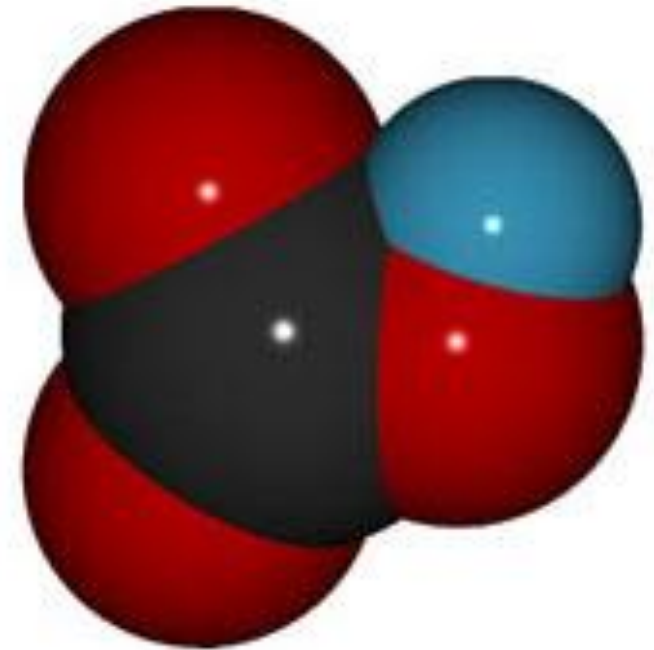
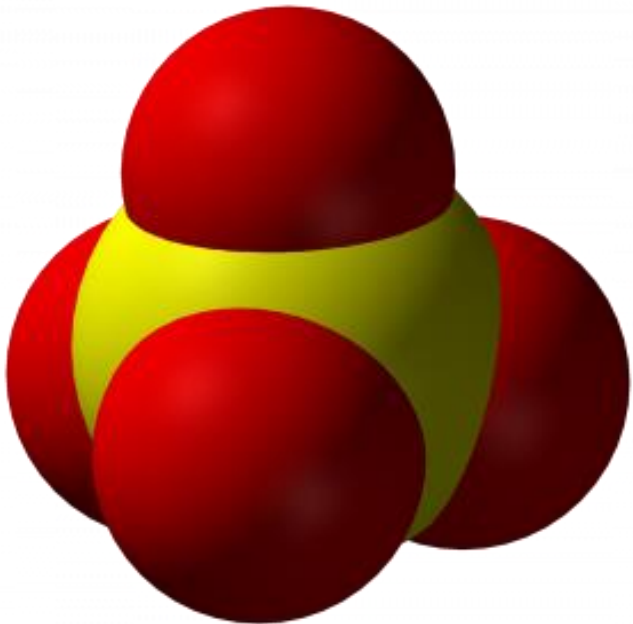
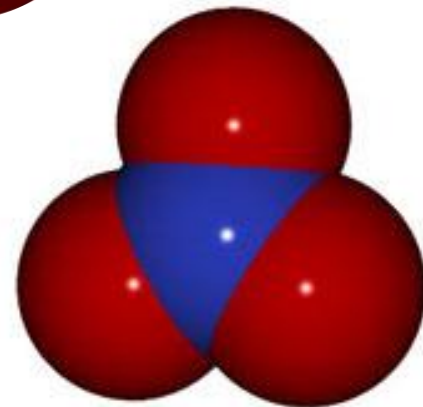
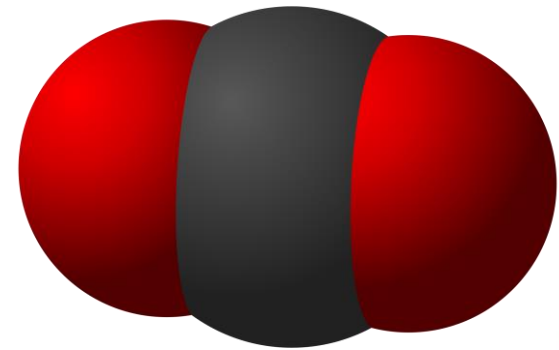
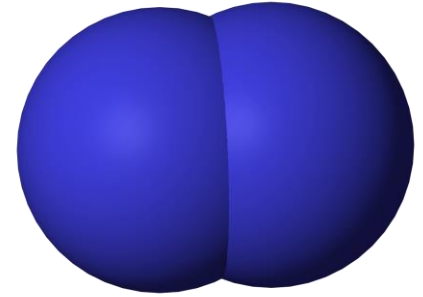


[1.2] - Naming Polyatomic Ions



Kinds of Ions

- “**Mono**”: one
- “**Di**”: two
- “**Tri**”: three
- “**Poly**” : many
- “**Atomic**” : atoms
- **Monatomic ions**: Ions that contain one atom
- **Diatomic ions**: Ions that contain two atoms
- **Triatomic ions**: Ions that contain three atoms
- **Polyatomic ions**: Ions that contain many atoms
- They can be **cations** or **anions**.



Practice Problem #1

Determine if the following are monatomic, diatomic, triatomic or polyatomic.













Polyatomic Ions

- Polyatomic ions are **many atoms** that together are **cations** or **anions**
- They usually end in “**ate**” or “**ite**”
- Polyatomic ion names and their chemical formulas can be found on the **back of your periodic table**
- **Examples:** Phosphate, sulphate, ammonium, cyanide

Common Polyatomic Ions

ion	name	ion	name
NH_4^+	ammonium	CO_3^{2-}	carbonate
NO_2^-	nitrite	HCO_3^-	hydrogen carbonate
NO_3^-	nitrate	ClO^-	hypochlorite
SO_3^{2-}	sulfite	ClO_2^-	chlorite
SO_4^{2-}	sulfate	ClO_3^-	chlorate
HSO_4^-	hydrogen sulfate	ClO_4^-	perchlorate
OH^-	hydroxide	$\text{C}_2\text{H}_3\text{O}_2^-$	acetate
CN^-	cyanide	MnO_4^-	permanganate
PO_4^{3-}	phosphate	$\text{Cr}_2\text{O}_7^{2-}$	dichromate
HPO_4^{2-}	hydrogen phosphate	CrO_4^{2-}	chromate
H_2PO_4^-	dihydrogen phosphate	O_2^{2-}	peroxide

Practice Problem #2

Find the name/chemical formula of the following polyatomic ions.

1. Nitrate : _____

2. CN^- : _____

3. SO_3^{2-} : _____

4. Phosphite : _____

5. Hydroxide : _____

6. ClO_3^- : _____

Naming compounds with Polyatomic Ions

- Follow the same steps as naming ionic compounds
- The charges on polyatomic ions are like regular charges of elements on the periodic table
- Cation is written first (Can be a metal or a polyatomic ion)
- Anion is written second (Can be a non-metal or a polyatomic ion)
- Examples:
 - Ammonium iodide: NH_4I Cation: NH_4^+ Anion: I^-
 - Calcium nitrate: $\text{Ca}(\text{NO}_3)_2$ Cation: Ca^{2+} Anion: NO_3^-

Practice Problem #3

Name the following:

1. Na_2CO_3 : _____
2. KCN : _____
3. $\text{Co}(\text{MnO}_4)_2$: _____
4. $(\text{NH}_4)_3\text{N}$: _____
5. $\text{Ni}(\text{OH})_2$: _____
6. $(\text{NH}_4)_2\text{O}$: _____

Practice Problem #4

Write the chemical formula for the following:

1. Potassium nitrate: _____

2. Copper (I) carbonate: _____

3. Ammonium phosphide: _____

4. Silver hydroxide: _____

5. Vanadium (IV) phosphate: _____

6. Manganese (III) sulphate: _____