

STATION 1

CLASSIFYING ELEMENTS AND COMPOUNDS

Identify the following elements and compounds using the words provided:

Ionic compound, covalent compound, multivalent metal, polyatomic ion, metal ion, non-metal ion

- Chromium Multivalent metal
- ScCl₃ Ionic compound
- SF₆ Covalent compound
- Neon Non metal
- Nitrate Polyatomic ion
- Ammonium Polyatomic ion
- Vanadium Multivalent metal
- NO Covalent compound
- Calcium chloride Ionic compound
- Dihydrogen monohydride Covalent compound
- Cobalt Multivalent metal
- Cyanide Polyatomic ion
- Phosphide Non-metal ion
- Tungsten Metal ion
- Palladium Multivalent metal

CN⁻

STATION 2

SUBATOMIC PARTICLES

the same!

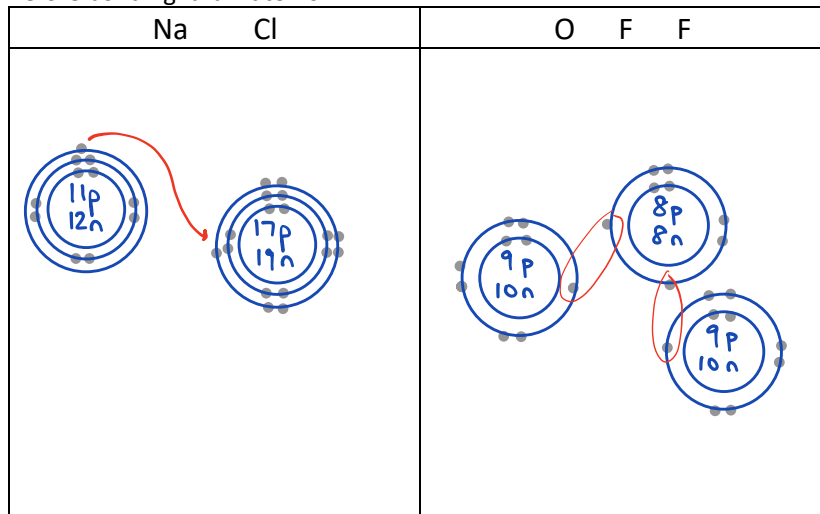
Element Name	Element Symbol (charge!)	Atomic Number	Number of Protons	Number of Electrons	Number of Neutrons	Family Name
Sodium ion	Na ⁺	11	11	10	12	Alkali Metal
Bromine ion	Br ⁻	35	35	36	45	Halogens
Krypton atom	Kr	36	36	36	48	Noble gas
Calcium ion	Ca ²⁺	20	20	18	20	Alkaline Earth Metal
Xenon atom	Xe	54	54	54	77	Noble Gases
Barium ion	Ba ²⁺	56	56	54	81	Alkaline Earth Metal
Fluorine ion	F ⁻	9	9	10	10	Halogen

A **metal** forms a cation (cation/anion) with a positive (positive/negative) charge by giving (giving/receiving) an electron

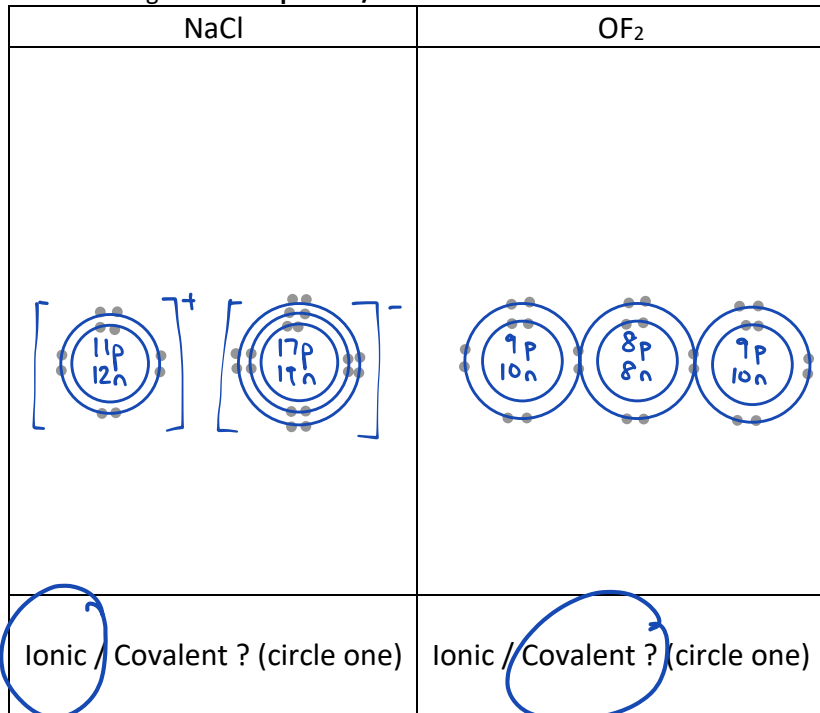
A **non-metal** forms a anion (cation/anion) with a negative (positive/negative) charge by receiving (giving/receiving) an electron

STATION 3
BOHR MODELS

Before bonding: draw atoms



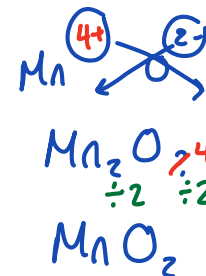
After bonding: draw compounds/molecules



STATION 4
NAMING COMPOUNDS

Write the names of these ionic or covalent compounds

- CsBr Cesium bromide
- OF₂ oxygen difluoride
- CuCl₂ Copper (II) chloride
Multivalent
- Cr₂(CO₃)₃ chromium (III) carbonate
polyatomic
- MnO₂ Manganese (IV) oxide
Multivalent
- LiNO₃ lithium nitrate
polyatomic
- P₄Cl₇ tetraphosphorus heptachloride
- Mg₃(PO₄)₂ magnesium phosphate
polyatomic
- FeCl₃ Iron (III) chloride
Multivalent
- Ca(HCO₃)₂ Calcium bicarbonate *or*
Calcium hydrogen carbonate
polyatomic



Covalent

Covalent

STATION 5
WRITING FORMULAS FOR COMPOUNDS

Write the formulas of these ionic or covalent compounds

- Aluminum fluoride
 $\text{Al}^{3+} \text{F}^{-}$ → $\boxed{\text{AlF}_3}$
- Chromium (IV) oxide
 $\text{Cr}^{4+} \text{O}^{2-}$ → $\boxed{\text{Cr}_2\text{O}_4}$ $\boxed{\text{CrO}_2}$
- Nickel (II) sulfate
polyatomic
 $\text{Ni}^{2+} \text{SO}_4^{2-}$ → $\boxed{\text{Ni}_2(\text{SO}_4)_2}$ $\boxed{\text{NiSO}_4}$ or $\boxed{\text{Ni}(\text{SO}_4)}$
- Triphosphorus monobromide
covalent
 $\boxed{\text{P}_3\text{Br}}$
- Iron (III) phosphate
polyatomic
 $\text{Fe}^{3+} (\text{PO}_4)^{3-}$ → $\text{Fe}_3(\text{PO}_4)_3$ → $\boxed{\text{FePO}_4}$
- Sulfur tetraiodide
covalent
 $\boxed{\text{SI}_4}$
- Lead (IV) hydroxide
polyatomic
 $\text{Pb}^{4+} (\text{OH})^{-}$ → $\boxed{\text{Pb}(\text{OH})_4}$
- Sodium sulfate
polyatomic
 $\text{Na}^{+} \text{SO}_4^{2-}$ → $\boxed{\text{Na}_2\text{SO}_4}$
- Nickel (III) acetate
polyatomic
 $\text{Ni}^{3+} (\text{CH}_3\text{COO})^{-}$ → $\boxed{\text{Ni}(\text{CH}_3\text{COO})_3}$
- Magnesium hypochlorite
polyatomic
 $\text{Mg}^{2+} (\text{ClO})^{-}$ → $\boxed{\text{Mg}(\text{ClO})_2}$