

# Chemical Nomenclature

Does the formula have 2 elements?  
Is it binary?

Is one of the two elements hydrogen?

This is an acid. Name it by starting with "hydro", then add the name of the second element changing the ending to "-ic", then add the word "acid".  
E.g. HCl = hydrochloric acid

Is one of the two elements a transition metal (d-block or p-block)?

To name this compound, you will need to know the charge on the transition metal. This can be determined from the formula. Name it by naming the transition metal first, followed by a Roman numeral of the charge on the transition metal in parenthesis, followed by the name of the second element with the ending changed to "-ide".  
E.g. AlCl<sub>3</sub> = aluminum (III) chloride

Are the two elements two ions with one being an alkali metal or alkali earth metal?

This is a salt. It is named by naming the metal ion (cation) first then naming the anion second changing the ending of the anion to "-ide".  
NaCl = sodium chloride

Are both elements non-metals?

A non-metal + a non-metal is a covalently bonded molecule. Name it by using prefixes\* for the subscript which follows each element symbol and the ending "-ide" for the second element.  
E.g. CO = carbon monoxide  
Caveats: If the prefix for the first non-metal would be "mono", it is excluded. Obviously, oxygen is not named "oxygide", it is simply "oxide".

Start back at the beginning.

A polyatomic ion is involved. Identify it by name and charge. There may be two polyatomic ions. Does the formula start with a metal ion?

To name this compound, name the metal cation first, then the name of the polyatomic ion.  
E.g. Na<sub>3</sub>PO<sub>4</sub> = sodium phosphate

Does the formula start with hydrogen?

This is an acid. Name it by naming the polyatomic ion and changing the ending from:  
ate → ic or  
ite → ous.  
E.g. H<sub>2</sub>PO<sub>4</sub> = phosphoric acid  
Caveats: Note how the name of the polyatomic ion reverted to the name of the element and then the ending was added. That is true often but not always. How can you tell? Time and experience.

Does the formula include two polyatomic ions?

Name this by naming the first polyatomic ion first and the second, second.  
E.G. NH<sub>4</sub>NO<sub>3</sub> = ammonium nitrate

Start back to the beginning.

Please note: All numbers following element symbols are subscripts that I cannot format in this application.

- \*1 - mono
- 2 - di
- 3 - tri
- 4 - tetra
- 5 - penta
- 6 - hexa
- 7 - hepta
- 8 - octa
- 9 - nona
- 10 - deca