SCH3U **Nomenclature of Acids** Date:_____

Naming Acids

Binary acids: **Contain two elements- _____+ _____**

- The anion does _____ contain _____.
- Prefix: _____ Suffix _____.

Examples of Binary Acids

Formula	Classical Acid Name

Oxyacids acids:

Example: Hydrogen combines with the sulfate ion to form sulfuric acid. Note that 2 hydrogen ions are required to balance the charge on the sulfate ion:

$$2H^+ + SO_4^{2-} \rightarrow H_2SO_4$$

- **The anion contains _____.**
- **If the anion ends in _____, the suffix is ____.**

Note: do NOT use the prefix _____ for oxyacids!

Examples of Oxyacids Acids

Formula	Classical Acid Name	Polyatomic Ion that combined with Hydrogen?
$H_2SO_{4(aq)}$	sulfuric acid	**SO_4 (sulfate)**
$HNO_{3(aq)}$		
$H_3PO_{4(aq)}$	phosphoric acid	
	chloric acid	
$H_2CO_{3(aq)}$		

If the anion ends in _____, the oxyacid suffix is _____.

- Example: $H_2SO_{3\ (aq)}$: _____.
- Example: $HNO_{2\ (aq)}$: _____.

If the anion is a ___...._____, then the oxyacid is a ___..._____ acid.

- Example: $HClO_{4(aq)}$:_____.

If the anion is a _____...._____, then the oxyacid is a _____...._____ acid.

- Example: $HNO_{(aq)}$:_____.

Formulas of Acids – Review & Practice

Determining the formula of an acid means essentially determining the formula of a hydrogen compound and adding the (aq) symbol to indicate that it is the solution of the compound (an ACID) with which we are concerned. A thorough knowledge of the previous work on chemical formulas and nomenclature will be required for this section.

E . g . #1: Predict the formula for hydrobromic acid.

'Hydro - - - ic' means a binary acid
'- - -brom - - -' means bromine (+H)

H^{1} + Br^{-1} = H_1Br_1 = HBr
For an acid = $HBr_{(aq)}$

E . g . #2: Predict the formula for sulfurous acid.

No 'Hydro - ' indicates that it is not binary (thus a radical)
' - - - - - -ous' indicates it contains the ' – ite' radical
'sulfur - - -' indicates it contains the sulphite radical
H^{+1} + SO_3^{-2} = H_2SO_3

For an acid = H_2SO_3 (aq)

Exercise:

hydroiodic acid
perchloric acid
nitric acid
phosphorous acid
hypochlorous acid
Hypocarbonous acid
Chloric acid
Nitrous acid
Chlorous acid
Phosphoric acid

Hydrosulphuric acid
Carbonic acid
Phosphoric acid
Chlorous acid
Sulphuric acid
Carbonous acid
Hyposulphurous acid

Hydrofluoric acid
Penitric acid
Hydrochloric acid _____

H_2SO_4 (aq)
$HClO_2$ (aq)
H_3PO_4 (aq)
H_2CO_3 (aq)
H_2S (aq)

HCl (aq)
HNO_4 (aq)
HF (aq)
H_2SO_2 (aq)
H_2CO_2 (aq)

H_3PO_4 (aq)
$HClO_3$ (aq)
HNO_2 (aq)
$HClO_3$ (aq)
H_2CO (aq)