Type IV - Acidic Nomenclature (ionic)

- 2 types of acids - have H^{1+} as their cation
  - ↳ binary acids - do not have oxygen in it
  - ↳ oxyacids - have oxygen in it.

(1) Binary Acids

- **Names**
  - write hydro + 2nd element's name + ic acid

&) HCl — hydrochloric acid

H_3N — hydronitric acid

H_2S — hydrosulfuric acid

HCN cyanide — hydrocyanic acid

H_2As — Hydroarsenic Acid

- **Formulas**
  - write H^{1+}
  - write symbol & charge for anion
  - criss-cross charges

&) hydrofluoric acid

H^{1+} F^{1-}

HF

hydrotelluric acid

H^{1+} Te^{2-}

H_2Te

hydrophosphoric acid

H^{1+} P^{3-}

H_3P

(2) Oxyacids

- **Names**
  - Look at the polyatomic ion.
  - If the name of the polyatomic ion ends in:

    ate, change **ate** to **ic acid** or **ite**, change **ite** to **ous acid**

Ex) $HClO_2$ chlorite — chlorous acid

$HClO_3$ chlorate — chloric acid

H_3PO_4 Phosphate — phosphoric acid

H_3PO_3 phosphite — phosphorous acid

$HC_2H_3O_2$ acetate — acetic acid

- **Formulas**
  - write H^{1+}
  - write the appropriate polyatomic ion
    ic → ate ous → ite
  - criss-cross charges

Ex) nitric acid (ate)

H^{1+} NO_3^{1-}

HNO_3

carbonic acid

H^{+1} CO_3^{-2}

H_2CO_3

hypochlorous acid (ite)

H^{1+} ClO^{1-}

$HClO$

sulfurous acid

H_2SO_3