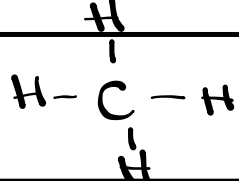
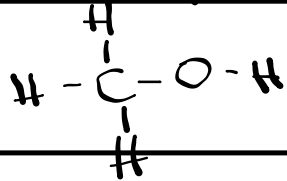
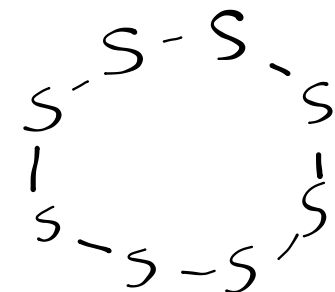
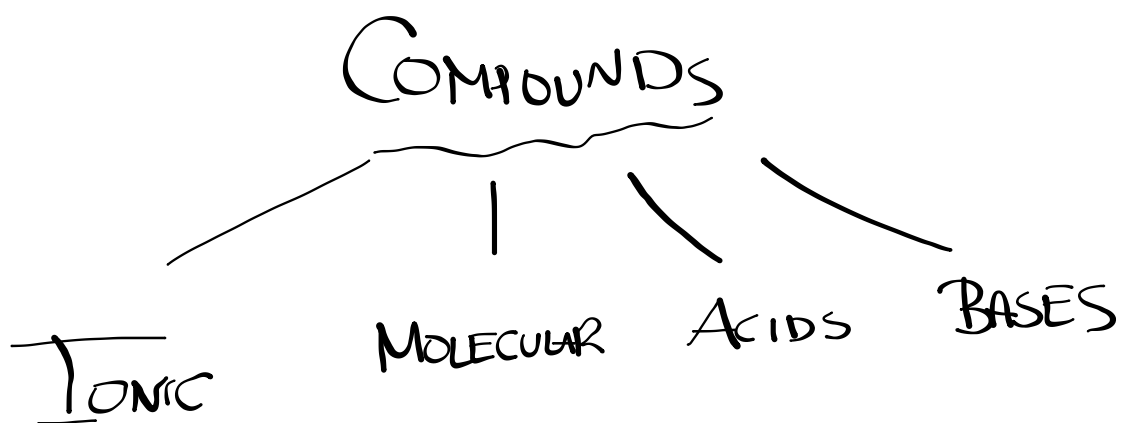


Molecular Models

What are the three-dimensional structures of the molecular substances: water (H_2O), hydrogen peroxide (H_2O_2), hydrogen sulfide (H_2S), methane (CH_4), methanol (CH_3OH), ethanol ($\text{C}_2\text{H}_5\text{OH}$), propane (C_3H_8), ammonia (NH_3), chlorine and sulfur (cyclooctasulfur)?

| Name | Molecular Formula | Structural Diagram |
|----------|------------------------|--|
| | CH_4 |  |
| | CH_3OH |  |
| | | |
| | | |
| | | |
| | | |
| chlorine | Cl_2 | $\text{Cl}-\text{Cl}$ |
| | S_8 |  |



Naming and Writing Formulas for Acids and Bases

(H⁺ ion)
Acids are aqueous hydrogen compounds that turn blue litmus red.

(OH⁻)
Bases are aqueous solutions of ionic hydroxides that turn red litmus blue.

IDENTIFYING BASES FROM FORMULA

Two conditions:

- Must be ionic
- Anion must be hydroxide ion (OH⁻)

Ex. NaOH
Na⁺ OH⁻
sodium hydroxide

CH₃OH x.
~~CH₃⁺ OH⁻~~

IDENTIFYING ACIDS FROM FORMULA

Most acid can be identified from **starting with H**-or ending in **-COOH**.

i.e. HCl, H₂SO₄, CH₃COOH

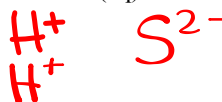
Note: NH₃ and CH₄ are not acids!

When naming acids, common names (for common acids) or IUPAC names can be used.

IUPAC (modern) Acid Names

- name the acid as an aqueous hydrogen compound

Ex. aqueous hydrogen sulfide - H₂S_(aq)



Classical Acid Names

- used the suffix **-ic** Ex. sulfuric

- used hydro and the suffix **-ic** Ex. hydrochloric

- used suffix **-ous** Ex. sulfurous

Rules for Naming Acids

1. If anion ends in -ide, the acid is "hydro_____ic acid"

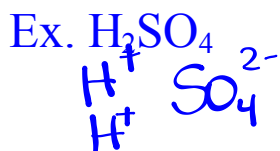
Ex. HCl



aqueous hydrogen chloride

hydrochloric acid

2. If anion ends in -ate, the acid is "_____ic acid"

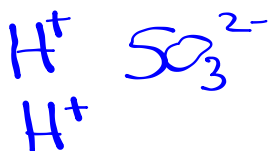


aqueous hydrogen sulfate

sulfuric acid

3. If anion ends in -ite, the acid is "_____ous acid"

Ex. H_2SO_3



aqueous hydrogen sulfite

sulfurous acid

"acetate"

acetic acid



p. 271-273

EXERCISE # 26-33