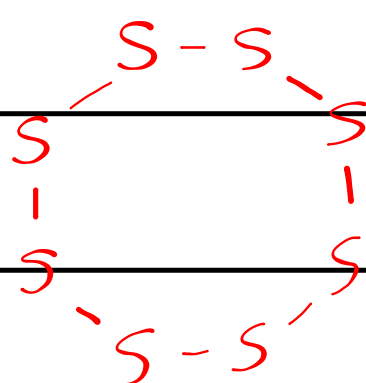


Grab Model Kits and resume activity

## Molecular Models

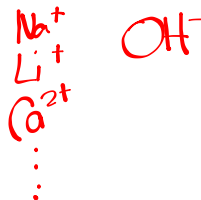
**What are the three-dimensional structures of the molecular substances: water ( $\text{H}_2\text{O}$ ), hydrogen peroxide ( $\text{H}_2\text{O}_2$ ), hydrogen sulfide ( $\text{H}_2\text{S}$ ), methane ( $\text{CH}_4$ ), methanol ( $\text{CH}_3\text{OH}$ ), ethanol ( $\text{C}_2\text{H}_5\text{OH}$ ), propane ( $\text{C}_3\text{H}_8$ ), ammonia ( $\text{NH}_3$ ), chlorine and sulfur (cyclooctasulfur)?**

Name	Molecular Formula	Structural Diagram
methane	$\text{CH}_4$	$\begin{array}{c} \text{H} \\   \\ \text{H} - \text{C} - \text{H} \\   \\ \text{H} \end{array}$
ethanol	$\text{C}_2\text{H}_5\text{OH}$	$\begin{array}{c} \text{H} \quad \text{H} \\   \quad   \\ \text{H} - \text{C} - \text{C} - \text{O} - \text{H} \\   \quad   \\ \text{H} \quad \text{H} \end{array}$
chlorine	$\text{Cl}_2$	$\text{Cl} - \text{Cl}$
sulfur	$\text{S}_8$	

## Naming and Writing Formulas for Acids and Bases

Acids are aqueous hydrogen compounds that turn blue litmus red.

Bases are aqueous solutions of ionic hydroxides that turn red litmus blue.



### IDENTIFYING ACIDS FROM FORMULA

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

i.e. HCl, H<sub>2</sub>SO<sub>4</sub>, CH<sub>3</sub>COOH

**Note:** NH<sub>3</sub> and CH<sub>4</sub> are not acids!

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

### IUPAC (modern) Acid Names

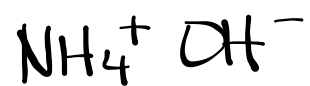
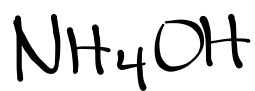
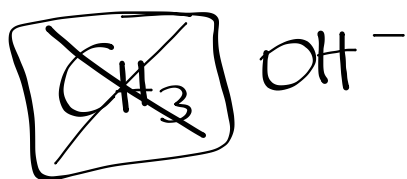
- name the acid as an aqueous hydrogen compound

Ex.  $\text{H}_2\text{S}$   
 $\text{H}^+ \text{S}^{2-}$  ← "-ide"  
 aqueous hydrogen sulfide

hydrosulfuric acid

### Classical Acid Names

- used the suffix **-ic** Ex. sulfuric
- used hydro and the suffix **-ic** Ex. hydrochloric
- used suffix **-ous** Ex. sulfurous
- and others (see inside back cover)

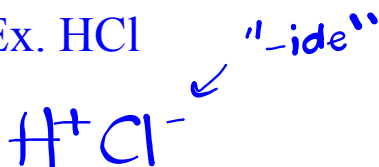


ammonium  
hydroxide

## Rules for Naming Acids (Classical)

1. If anion ends in -ide, the acid is "hydro\_\_\_\_\_ic acid"

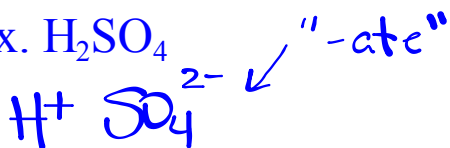
Ex. HCl



hydrochloric acid

2. If anion ends in -ate, the acid is "\_\_\_\_\_ic acid"

Ex.  $\text{H}_2\text{SO}_4$



sulfuric acid

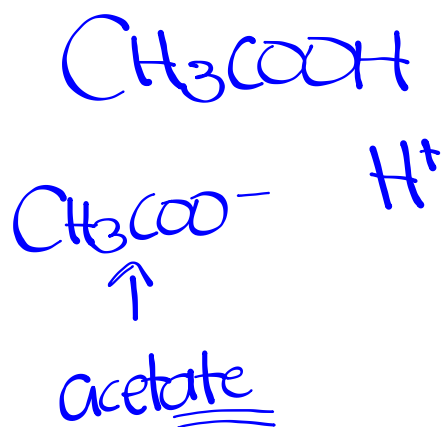
3. If anion ends in -ite, the acid is "\_\_\_\_\_ous acid"

Ex.  $\text{H}_2\text{SO}_3$



↑  
sulfite

sulfurous acid



aqueous hydrogen acetate

acetic acid

p. 271-273

EXERCISE # 26-33