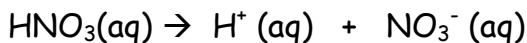


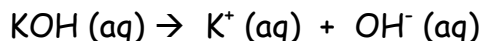
What are Acids, Bases, and Salts?

*The Swedish chemist Svante Arrhenius introduced the theory of ionization and used this theory to explain much about the behavior of acids and bases.*

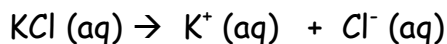
- ◆ An Arrhenius acid is defined as any compound that dissociates in aqueous solution to form \_\_\_\_\_ ions.



- ◆ An Arrhenius base is defined as any compound that dissociates in aqueous solution to form \_\_\_\_\_ ions.



- ◆ Salts are compounds that dissociate in aqueous solution releasing neither \_\_\_\_\_ ions nor \_\_\_\_\_ ions.



*Using the Arrhenius definition, classify the following examples as acids, bases, or salts:*

HBr	_____	KCl	_____
Mg(OH) <sub>2</sub>	_____	H <sub>3</sub> PO <sub>4</sub>	_____
HCl	_____	HClO	_____
KNO <sub>2</sub>	_____	Al(OH) <sub>3</sub>	_____
HFO <sub>4</sub>	_____	KC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	_____
Ba(OH) <sub>2</sub>	_____	NaCl	_____

Acids and bases can also be identified using an operational definition. Operational definitions are simply a list of properties.

### ACIDS:

- ◆ A \_\_\_\_\_ taste is a characteristic property of all acids in aqueous solution.
- ◆ Acids react with some metals to produce \_\_\_\_\_ gas.
- ◆ Because aqueous acid solutions conduct electricity, they are identified as \_\_\_\_\_.
- ◆ Acids react with bases to produce a \_\_\_\_\_ and water.
- ◆ Acids turn \_\_\_\_\_ different colors.

### BASES:

- ◆ Bases tend to taste \_\_\_\_\_ and feel \_\_\_\_\_.
- ◆ Like acids, aqueous basic solutions conduct \_\_\_\_\_, and are identified as \_\_\_\_\_.
- ◆ Bases react with \_\_\_\_\_ to produce a salt and \_\_\_\_\_.
- ◆ Bases turn \_\_\_\_\_ different colors.

### Naming Acids, Bases, and Salts

Since bases and salts are \_\_\_\_\_ compounds, they are named in the usual way:

$\text{KNO}_3$  \_\_\_\_\_  $\text{NH}_4\text{OH}$  \_\_\_\_\_

$\text{KNO}_2$  \_\_\_\_\_  $\text{Al}(\text{OH})_3$  \_\_\_\_\_

- **Binary acids** consist of \_\_\_\_\_ elements, the first being \_\_\_\_\_.

Binary acids are named using the format:

**hydro\_(root word of second element)\_ic acid**

- **Ternary acids** consist of \_\_\_\_\_ elements. Do **NOT** use a prefix. Simply change the ending of the polyatomic ion's name and add the word "acid":

**-ate becomes \_\_\_\_\_ and -ite becomes \_\_\_\_\_**

Name the following acids:

$\text{H}_3\text{PO}_3$  \_\_\_\_\_  $\text{HC}_2\text{H}_3\text{O}_2$  \_\_\_\_\_

$\text{H}_2\text{CO}_3$  \_\_\_\_\_  $\text{HClO}_2$  \_\_\_\_\_

$\text{HF}$  \_\_\_\_\_  $\text{H}_2\text{SO}_3$  \_\_\_\_\_