Review– Naming Chemical Compounds

The following are a good mix of naming and formula writing problems to help you get some practice. I will expect that you know how to name both ionic and covalent compounds in your work.

Name the following chemical compounds:

1) NaBr _____

2) $Ca(C_2H_3O_2)_2$ _____

3) P_2O_5 _____

4) $Ti(SO_4)_2$ _____

5) $FePO_4$ _____

6) K_3N _____

7) SO_2 _____

8) CuOH _____

9) $Zn(NO_2)_2$ _____

10) V_2S_3 _____

Write the formulas for the following chemical compounds:

11) silicon dioxide _____

12) nickel (III) sulfide _____

13) manganese (II) phosphate _____

14) silver acetate _____

15) diboron tetrabromide _____

16) magnesium sulfate heptahydrate _____

17) potassium carbonate _____

18) ammonium oxide _____

19) tin (IV) selenide _____

20) carbon tetrachloride _____

Covalent Compound Scavenger Hunt

1) List three covalent objects that can be found in the sinks in this classroom:

a) _____

b) _____

c) _____

2) Haikus are three line Japanese poems where the first line has five syllables, the second has seven syllables, and the third has five syllables. Write a haiku about how the electrons behave when a covalent compound is formed.

3) Find one example of an edible covalent compound somewhere in the book and give its name, molecular formula, and empirical formula.

Name: _____

Molecular formula: _____

Empirical formula: _____

4) Give the names and molecular formulas of five covalent compounds that has "oxide" somewhere in the name. These compounds must actually exist, so don't just make them up!

a) _____

b) _____

c) _____

d) _____

e) _____

Acids and Bases Review

1. List 3 strong acids and explain why these acids are considered strong acids.

   $HClO_4$, H_2SO_4, HNO_3 They are strong since they dissociate 100% in water giving the maximum amount of H^+ ion from the compound

2. List 3 weak acids and explain why these acids are considered weak acids.

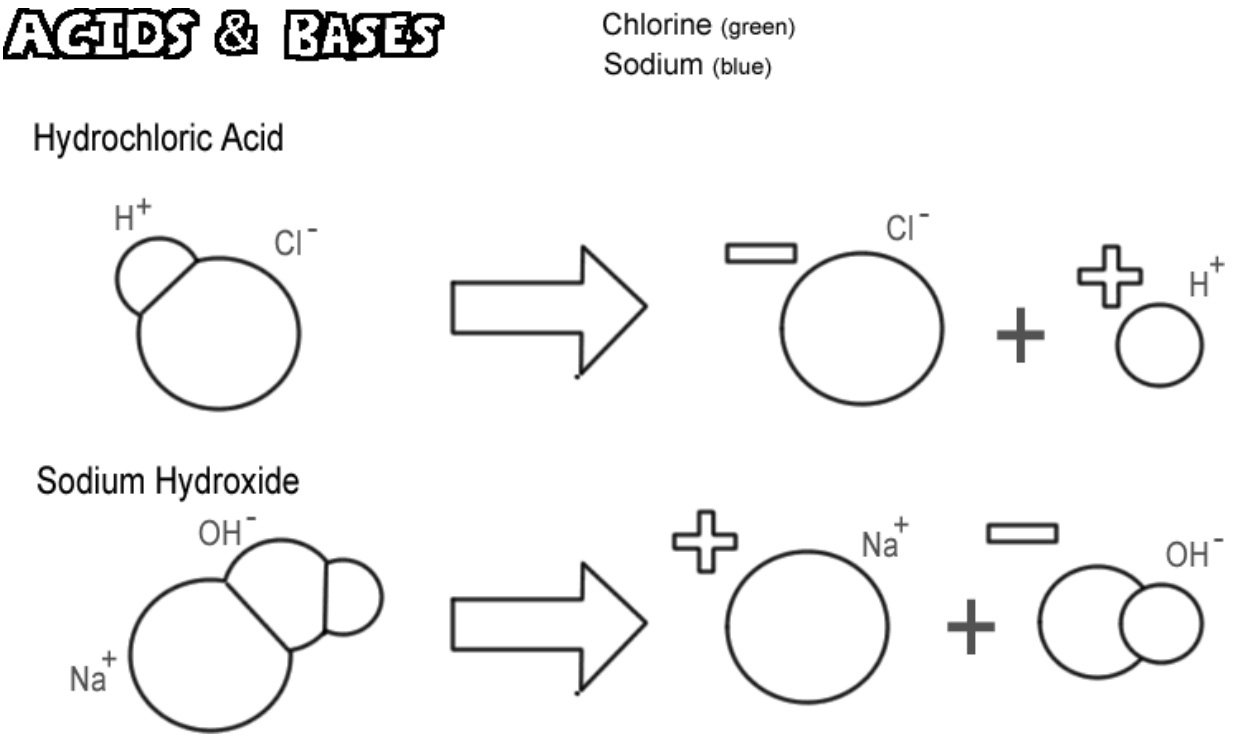
   $HC_2H_3O_2$, H_3PO_4, HNO_2 They are weak since they dissociate much less than 100% in water so there is a large portion of the original acid present

3. List 2 strong bases and explain why these bases are considered strong bases.

   NaOH, $Ba(OH)_2$ They are strong since they dissociate 100% in water giving the maximum amount of OH^- ion from the compound . The water formed is a very stable compound

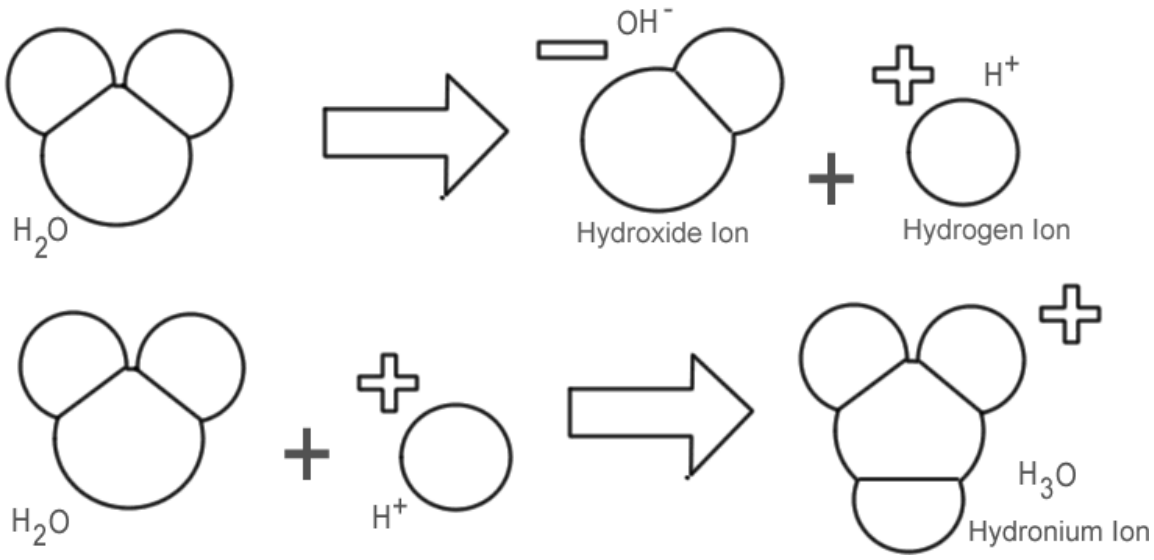
4. List 1 weak base and explain why it is considered a weak base.

   NH_3 This compound does not hold onto the proton very strongly since it is less stable when it does accept the proton (NH_4^+)



Dissociation of Water

HYDROGEN (yellow)
OXYGEN (red)



Acids and Bases

The degree of **acidity** or **alkalinity (basic)** is important in organisms. The body must constantly maintain a near neutral pH (7) in the blood and body tissues. To do this, the body produces **buffers** that can **neutralize** acids. Acidic and basic conditions in the body occur due to different **metabolic (chemical) reactions** taking place throughout the body.

1. What does alkalinity mean?

2. What pH must organisms maintain?

3. What characteristic of life would maintaining this balance be? (See textbook)

4. What chemicals does the body produce to keep neutral pH?

5. Buffers _____ acids in the body.

6. Acidic and basic conditions occur due to _____ reactions in the body.

   Water is one of the most important molecules in the body. Cells are made mostly of water and water is required for almost every metabolic reaction in the body. The force of attraction between water molecules is so strong that the oxygen atom of one molecule can actually remove the hydrogen from other water molecules. This reaction is known as d**issociation**, and it takes place in our cells. Water (**H_20) dissociates** into **H^+** and **OH^- ions.** A charged atom or molecule is called an **ion.** The **OH^- ion is** called the **hydroxide ion,** while the **H^+ ion** is called the **hydrogen ion. Free H^+ ions** can react with another water molecule to form the **H_3O^+** or **hydronium ion.** The human body requires a **neutral pH** for many reasons. One reason cells like a neutral pH is for proteins. **Basic or acidic solutions denature proteins (change their shape) so they no longer work.**

7. What is dissociation?

8. What is the chemical formula for water?

9. What is an ion?

10. Name the 2 ions form when water dissociates.

11. What is the hydroxide ion?

12. What is a hydrogen ion?

13. What is the hydronium ion and its formula?

Acidity or alkalinity is a measure of the relative amount of **H^+ and OH^- ions** dissolved in a solution. **Neutral solutions** have an equal number of **H^+ and OH^- ions. Acids** have more **H_3O^+ ions (H+)** than **OH^- ions. Acids** taste **sour** and can be **corrosive. Digestive fluids** in the body are acidic and must be neutralized by buffers. **Bases** contain more **OH^- ions** than **H_3O^+ ions. Bases** taste **bitter** and **feel slippery.**

When an acid is combined with a base, **neutralization** occurs. The result of neutralization is a **salt** and **water**. Neutralization helps return our body **pH** to **neutral.** The process of our bodies maintaining neutral pH so that proteins can work properly without being denaturated (unfolded) is known as **homeostasis**.

14. How do you measure for acidity or alkalinity?

15. What is a neutral solution?

16. Acids have more _____ ions and taste _____. And can be _____.
17. Bases contain more _____ ions than _____ ions.
18. _____ fluids are acid in the body and must be _____ by _____.
19. Bases taste _____ and feel _____.
20. What is neutralization?

21. What 2 things are produced by neutralization?

22. Neutralization keeps our pH at _____ and is an example of maintaining _____.