***Acids and Bases bigtube[1]***

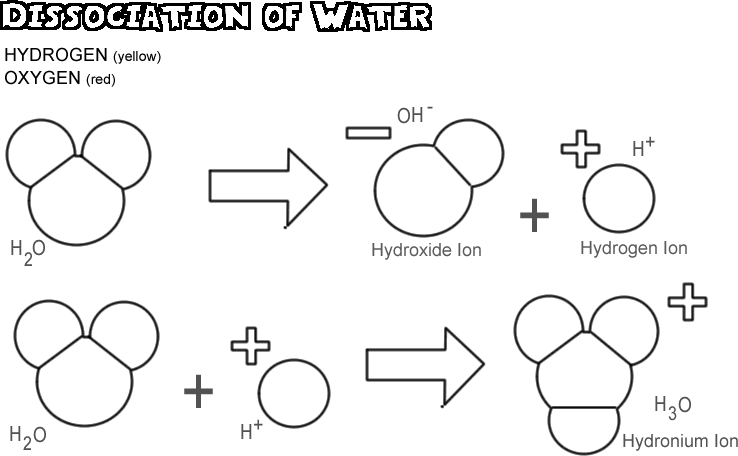
The degree of **acidity** or **alkalinity (basic)** is important in organisms. The body must constantly maintain a near neutral pH (7) in the blood and body tissues. To do this, the body produces **buffers** that can **neutralize** acids. Acidic and basic conditions in the body occur due to different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

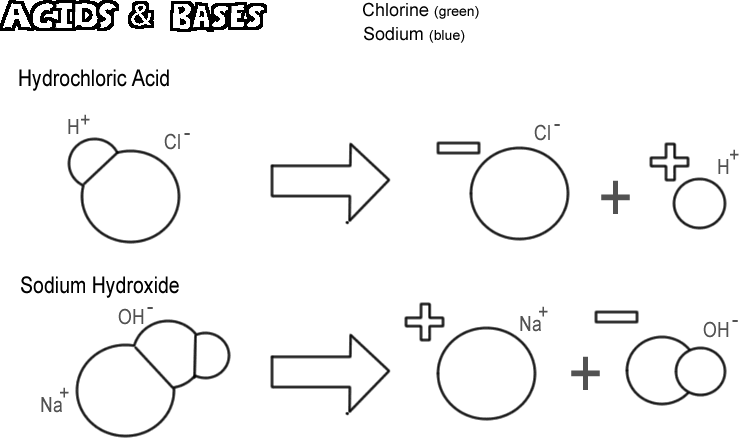
The force of attraction between molecules is so strong that the oxygen atom of one molecule can actually remove the hydrogen from other water molecules. This reaction is known as d**issociation**, and it takes place in our cells. Water (**H20) dissociates** into **H+**and**OH- ions.** The **OH- ion is** calledthe **hydroxide ion,** while the **H+ ion** iscalled the **hydrogen ion.**  **Free H+ ions** can react with another water molecule to form the **H3O+** or **hydronium ion.**

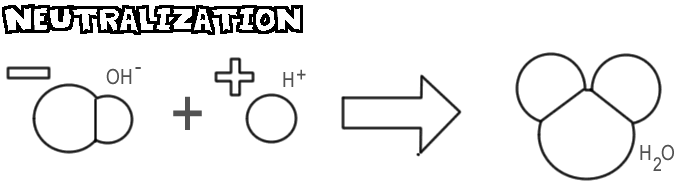
**Acidity or alkalinity** is a measure of the relative amount of **H+ and OH- ions** dissolved in a solution. **Neutral solutions** have an equal number of **H+ and OH- ions. Acids** have more **H3O+ ions** than **OH- ions. Acids** taste **sour** and can be **corrosive. Digestive fluids** in thebody are acidic and must be neutralized by buffers. **Bases** contain more **OH- ions** than **H3O+ 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**.

***Color the following diagrams according to the key.***





***Questions:***

1. Why is the water molecule so important to organisms?

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2. What ions form when water dissociates?

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3. What is meant by the term alkalinity?

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4. What is produced by the body to help neutralize acidic conditions?

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5. What is the name for the **OH- ions**?

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6. What is the name for the **H+ ion**?

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7. How does the hydronium ion form? What is its formula?

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8. Why do most proteins need near a neutral pH?

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9. What two substances form from an acid-base neutralization?

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10. Acids have an excess of \_\_\_\_\_\_\_\_\_\_\_\_ ions.