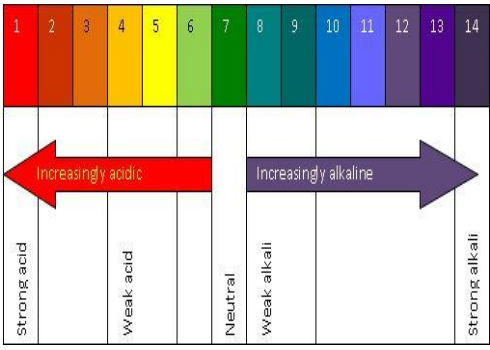
ForsythTeens

At Home Science Experiments

ACIDS vs BASES pH TESTING

Grade Levels: Middle and High School

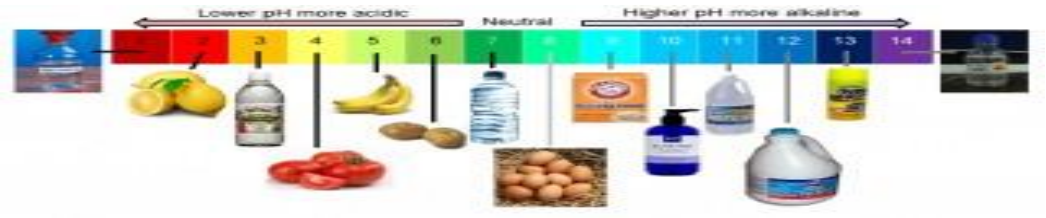
Acids and bases are found everywhere. Bases produce negative hydroxide ions (OH-) and acids produce positive hydrogen ions (H+). The greater the concentration of H+ ions the stronger the acid. When you put acids into water, you create a solution. During this reaction, the acid will release one of its protons (Hydrogen ions). This means that the positive and negative ions are no longer balanced, causing the solution to become acidic. When a base is put in water, it accepts a proton, forming a Hydroxide ion (OH-). A pH scale is used to measures how acidic or basic a solution is. The pH scale ranges from 0 to 14. A pH of 7 is neutral. A pH less than 7 is acidic over 7 is a base.



Common acid traits are: tasting sour and corrosive. Common traits of bases are: slippery to the touch and bitter tasting.

What are some common household products that are acids?

What are some common household products that are bases?



A pH scale is used to measure how acidic or basic something is. An indicator is a special type of substance that is used to tell us if the item is more acidic or more basic. Litmus and turmeric are examples of natural indicators. Red cabbage is also a great natural indicator and will be used in this experiment.

Materials

Red cabbage Eye dropper Test tubes (or clear glasses) Common household products

Procedure

1. Slice some red cabbage, put it in a pot with water and let simmer for about 30 minutes or so.
2. Strain the cabbage, reserving the liquid to divide in to test tubes or glasses.
3. Gather some household products you would like to test (bleach, cola, orange juice, pickle juice, salt, shampoo, tomato sauce, milk of magnesia, window cleaner)
4. Create a visual baseline: fill three test tubes or glasses ¼ full with cabbage indicator. In the first one, mix in one dropper full of vinegar(a known acid)and watch the color turn red. Leave the second one as a straight cabbage indicator. In the third one add a dropper full of laundry detergent(a known base) and the color will turn green.
5. Add a dropper full of substances you have chosen to remaining glasses of cabbage indicator and see what happens.

Questions

What do you notice about the acids and bases? Do they have anything in common?

What occurred during the experiment and why did it happen?

Can you turn an acid or a base into a neutral? How?

What effects would acids and bases have on teeth?

Inspiration from httpp://educationpossible.com/middle-school-chemistry-acids-bases/