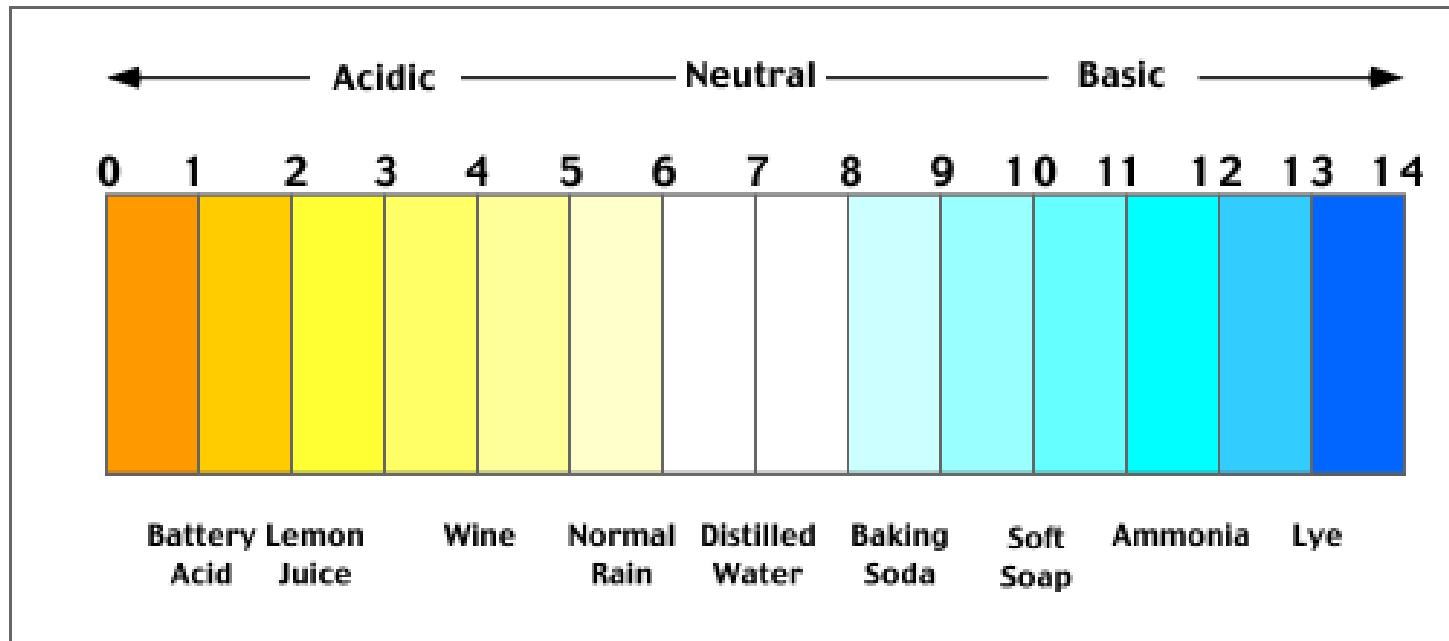


Learning Objectives

- To understand the pH scale and how it relates to acids and bases





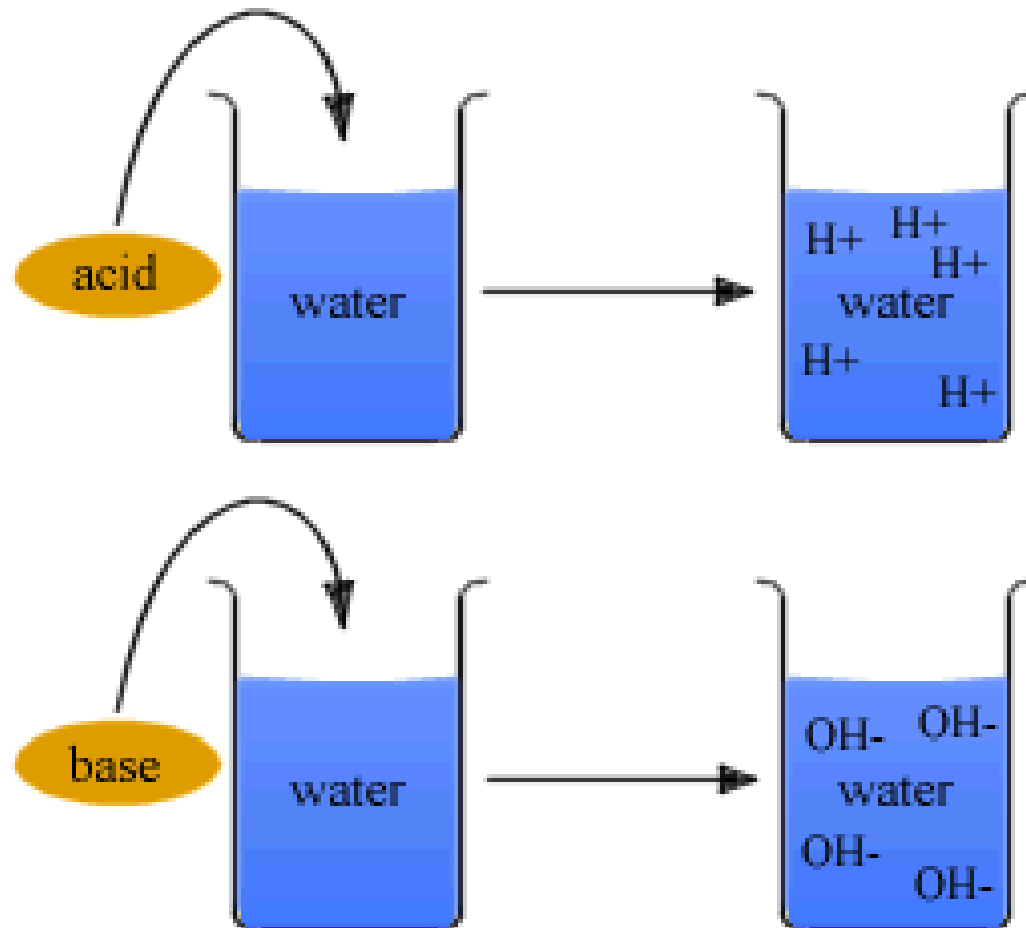
pH and Neutralization

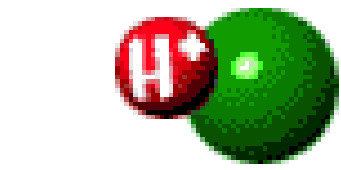
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pH

- pH is a measure of how acidic or basic a solution may be
- **p** refers to 'power' or 'potential'
- **H** refers to hydrogen
- **pH** is therefore a measure of the concentration of dissolved hydrogen
- the more dissolved **hydrogen**, the more **powerful** the acid

pH relates to the dissociation, or ionization, of an acid or base.





ACID

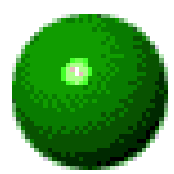
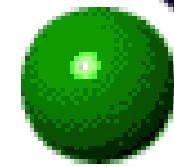
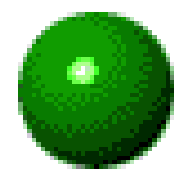
BASE



W
A
T
E
R

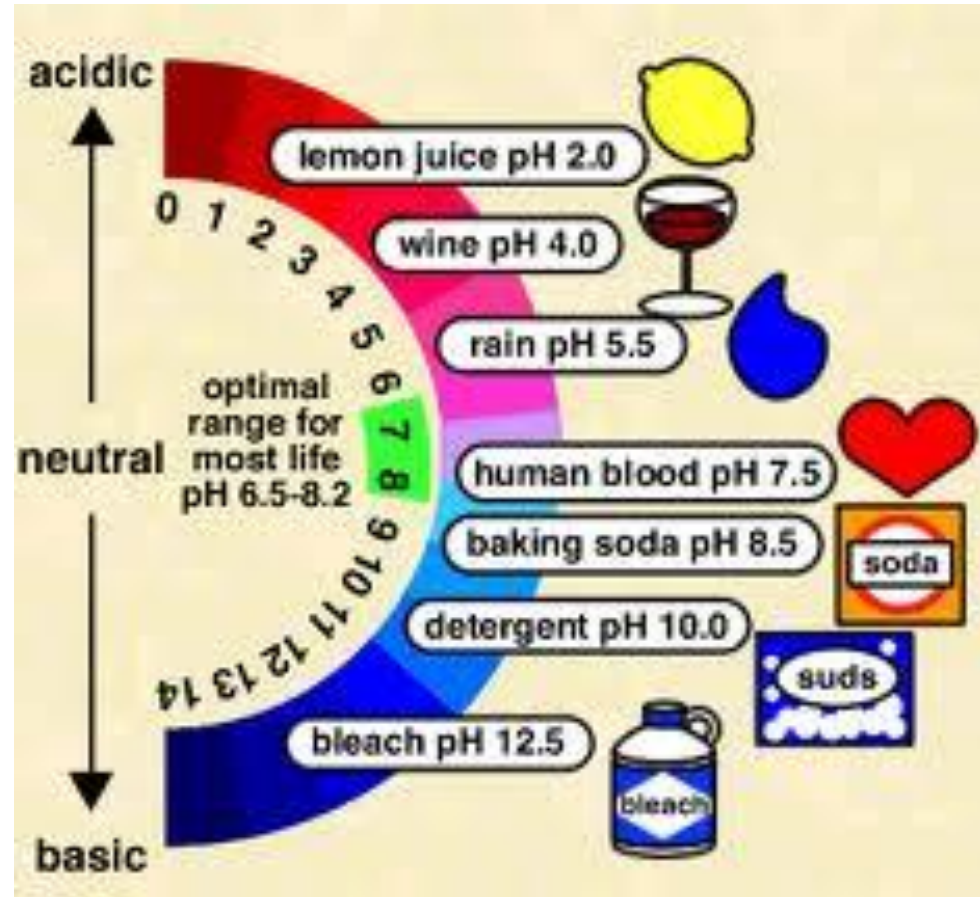
ACIDIC

BASIC

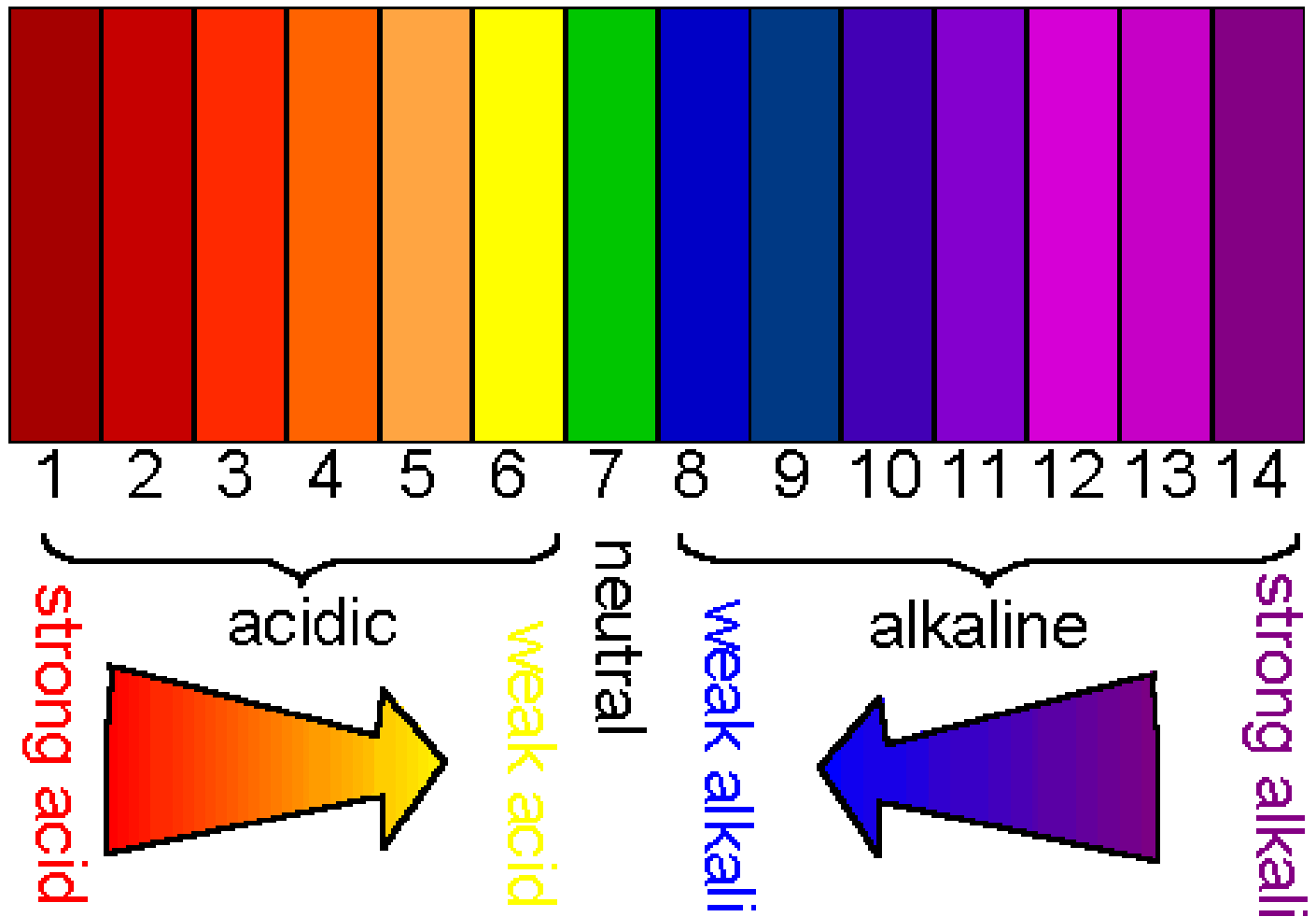


Measuring pH

- The pH scale ranges from 0 to 14
- Solutions < 7 are **acidic**
- Solutions > 7 are basic, or **alkaline**



pH Scale

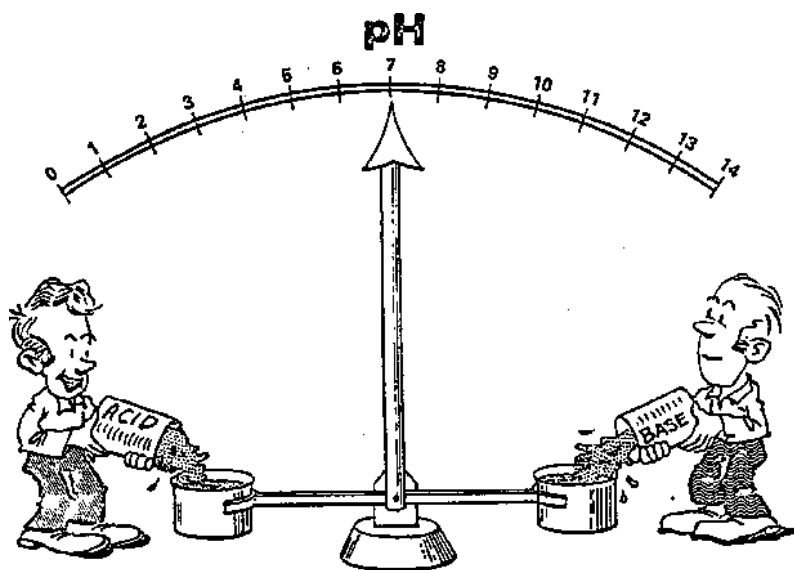


pH and the pH scale

- Both very acidic and very basic solutions are **corrosive** and **highly reactive**
- pH scale is separated by a **power of 10**
- pH of 1 is 10X **more acidic** than pH 2 and 100X **more acidic** than pH 3
- pH of 8 is 10X **more basic** than pH 7 and 10X **less basic** than pH 9

Neutralization Reactions

- A specific double displacement reaction in which an **acid** and a **base** react to produce **water** and an **ionic compound** (a **salt**)
- Results in a solution with a pH closer to 7





acid

base



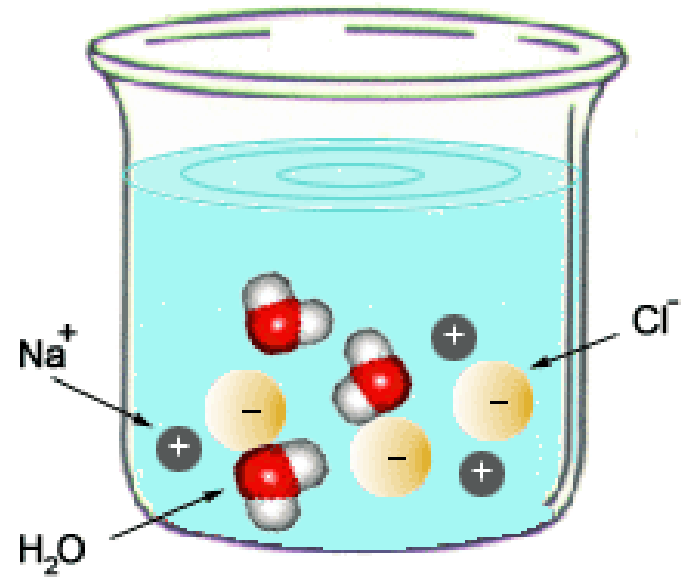
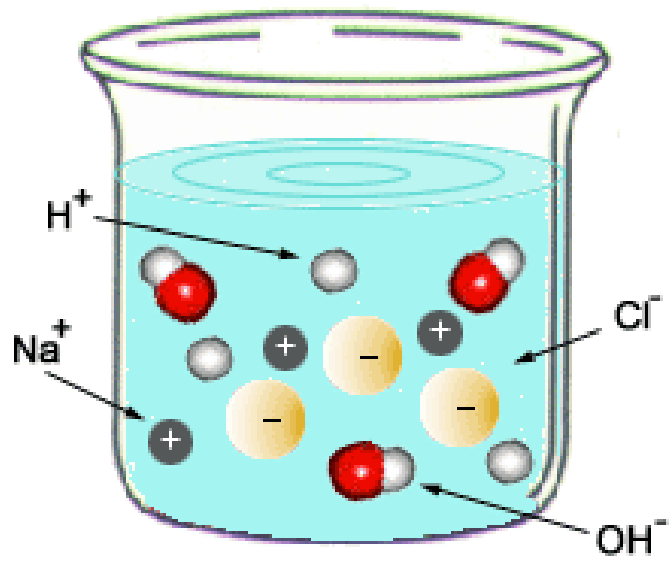
salt

water

Neutralization Reactions

- Water is H_2O
- H^+ from acid + OH^- from the base = H_2O
- General equation is this:





Examples # 1

Carbonic acid + potassium hydroxide = ?



Example # 2

Calcium hydroxide + hydrosulfuric acid = ?

Example # 3

Magnesium hydroxide + phosphoric acid = ?

(fluorine)(uranium)(nitrogen)
(tungsten)(iodine)(thorium)
(phosphorus)(hydrogen):

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■ Neutralization
Reaction
worksheet

