5.1 Acids and Bases

Many familiar compounds are acids or bases. Classification as acids or bases is based on

_____ _____.

- Acids and bases can be very dangerous.
  - Both can be very_____.

NEVER try to identify an acid or base by _____

or_____!

- The strength of acids and bases in measured on the ___ scale.

pH below 7 =_____, pH above 7 =_____, pH 7 = _____

- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  _____ ____ _____
- Each decrease of 1 on the pH scale indicates _____ more acidic (logarithmic scale)

For example, pH 4 is _____ times more acidic than pH 5.

pH 3 is _____ times more acidic than pH 6.

The pH of acids and bases cannot be determined by_____.

Instead, pH is measured by other chemicals called _____ or

by a pH meter that measures the _____ _____of the solution.

pH _____ change _____based on the solution they are placed in.

_____ is the most common indicator, and is used on

_____ paper.

Two colours of litmus paper: _____= basic and

_____= acidic.

Blue = pH _____7, Red = pH _____7.

_____ _____contains many indicators that turn different colours at different pH values (can be in liquid form, or on paper strips like litmus).

A _____uses electrical probes to measure how solutions conduct electricity.

Indicators change colour at different pH values, so different indicators are used to identify different pH values.

Bromothymol blue for pH 6 – 7.6,
phenolphthalein for pH 8.2 – 10.

Many natural sources, such as beets and _____, are also indicators.

If you know a compound's chemical formula, you may be able to identify whether it as an acid.

Acids often behave like acids only when _____

Therefore, acids often are written with symbol (aq) = aqueous = water.

The chemical formula of an acid usually starts with _____

Acids with a carbon usually have the C written first.

$HCl_{(aq)}$ = hydrochloric acid, $HNO_{3(aq)}$ = nitric acid,
$CH_3COOH_{(aq)}$ = acetic acid

Naming acids
Hydrogen + …*-ide* = _____

$HF_{(aq)}$ = hydrogen fluoride = _____

Hydrogen + …*-ate* = …*ic* acid

$H_2CO_{3(aq)}$ = hydrogen carbonate = _____

Hydrogen + …*-ite* = …*ous* acid

$H_2SO_{3(aq)}$ = hydrogen sulphite = _____

If you know a compound's_____, you may be able to identify it as a base.

Bases often behave like bases only when dissolved in water.

Therefore, bases are often written with the symbol (aq) = aqueous = water.

The chemical formula of a base usually ends with _____

Bases can be gentle or very caustic.

Examples of common bases:

- $NaOH_{(aq)}$
- $Mg(OH)_{2(aq)}$
- $Ca(OH)_{2(aq)}$
- $NH_4OH_{(aq)}$

- Acids and bases can conduct electricity because they release _____in solution.

Acids release_____.

Bases release _____

The pH of a solution refers to the _____of ions it has.

Square brackets are used to signify concentration, $[H^+]$, $[OH^-]$

High $[H^+]$ = l_____ pH, very _____

High $[OH^-]$ = _____pH, very _____

A solution cannot have BOTH high $[H^+]$ and $[OH^-]$; they cancel

each other out and form water. This process is called_____.

_____