CONCEPT: PH SCALE

●Recall: Many biological processes are strongly affected by the _____ of dissolved H^+.

●_____: a measurement of _____ concentration in a solution.

□ pH also *indirectly* measures [_____] in aqueous solutions.

□ **pH Scale** goes from _____ to _____ (determines if a solution is *acidic* or *basic*):

_____	solution pH ___ 7	$[H^+]$ ___ $[OH^-]$
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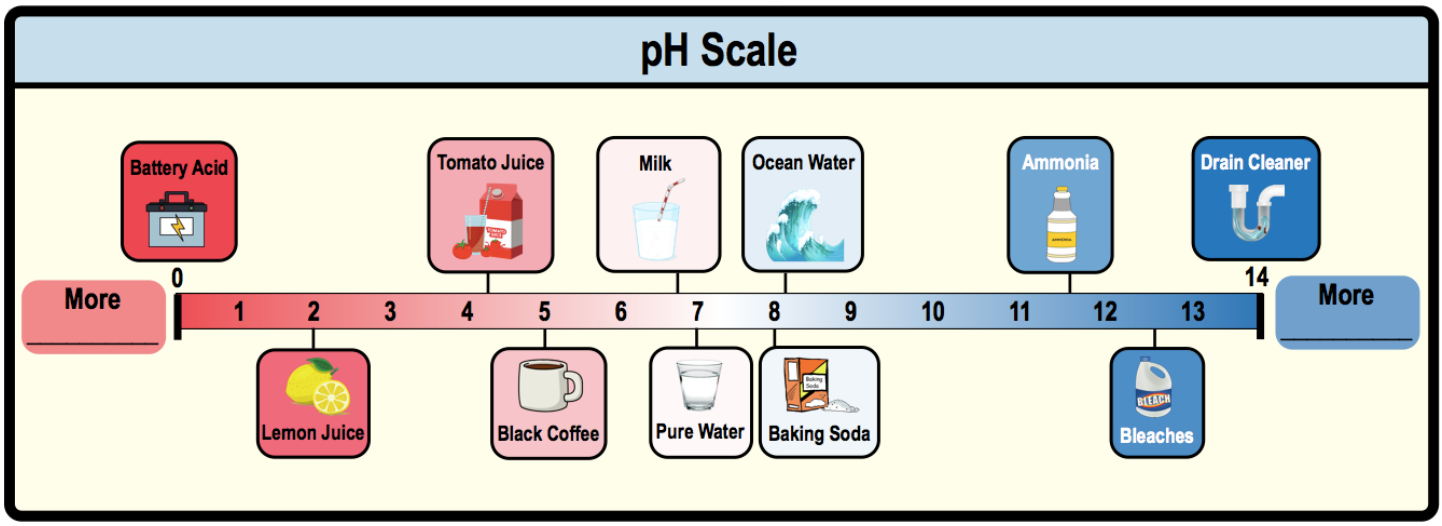
_____	solution pH ___ 7	$[H^+]$ ___ $[OH^-]$



PRACTICE: In a neutral solution, the concentration of _____.

a) Hydrogen ions is less than the concentration of hydroxide ions.
b) Water molecules is less than the concentration of hydroxide ions.
c) Hydrogen ions is greater than the concentration of hydroxide ions.
d) Hydrogen ions is equal to the concentration of hydroxide ions.

PRACTICE: A base _____:

a) Has a value of 7 on the pH scale.
b) Is a chemical that donates hydrogen ions to a solution.
c) Is a chemical that accepts hydrogen ions from a solution.
d) Has a value below 7 on the pH scale.
e) None of the above are correct.

CONCEPT: PH SCALE

Buffers

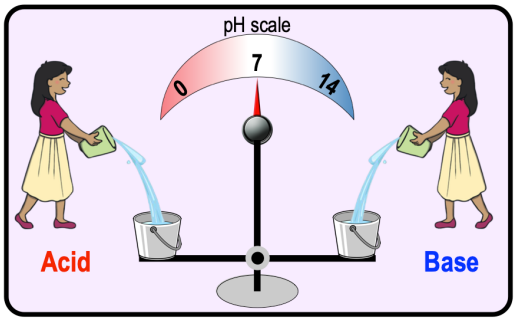
●NOTE: pH of most living organisms is ~7 (neutral) & changing the pH even slightly can be *harmful*.

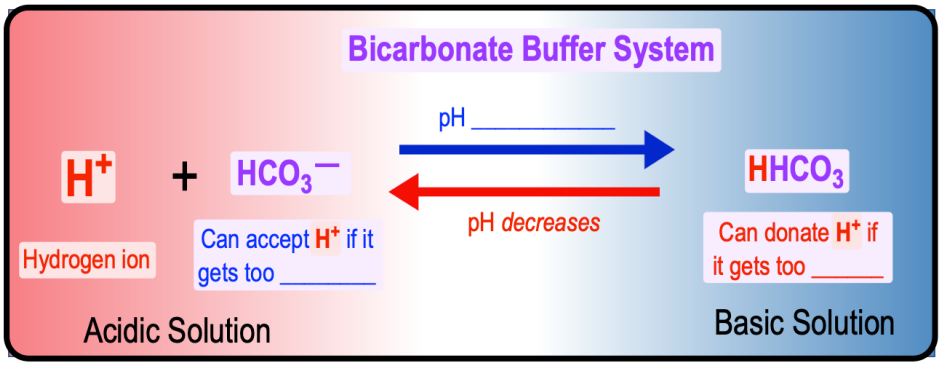
●**Buffers**: substances that _____ changes in *pH* when acids/bases are added to solution.

□ Depending on the situation, buffers can either _____ or _____ H^+ in solution.

□ Organisms use *buffers* to maintain _____ in regards to the *pH*.

EXAMPLE: Bicarbonate Buffer System in Blood.





PRACTICE: Which of the following statements about buffers is true?

a) They maintain a consistent pH only when acids are added to them, but not bases.
b) They maintain a consistent pH of 7.
c) They fluctuate in pH when acids are added to them.
d) They maintain a consistent pH when acids or bases are added to them.
e) They fluctuate in pH when acids or bases are added to them.

PRACTICE: Buffers are substances that help resist shifts in pH by:

a) Donating H^+ in acidic solutions.
b) Donating H^+ to a solution when they have been depleted.
c) Releasing OH^- in basic solutions.
d) Accepting H^+ when they are in excess.
e) Both b and d are correct.