

pH Scale Activity Sort

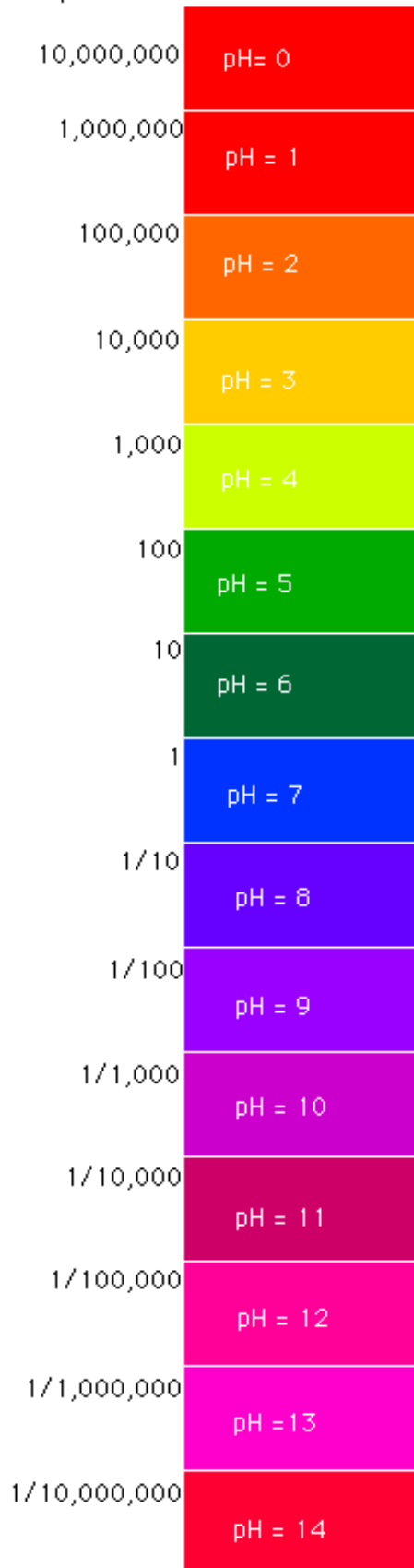
Teacher Directions:

- Print out pH scales, one per student. These are glued in the notebook, towards the left side of the page. Answers will be written on the right side.
- Photocopy the examples onto cardstock, cut apart, and place one set per zip-top bag.
- Students will work in groups to determine the correct placement of the examples according to the clues.
- The clues will be read verbally by the teacher, one at a time, pausing in between to allow students to determine the placement of the examples onto the pH scale.
- Once all the clues have been read, have students finalize the placements.
- One at a time, reveal the correct item for each pH value.
- Students will write the examples into the notebook next to the correct pH value.
- Have students make corrections as needed.
- See which group has the most placed correctly!

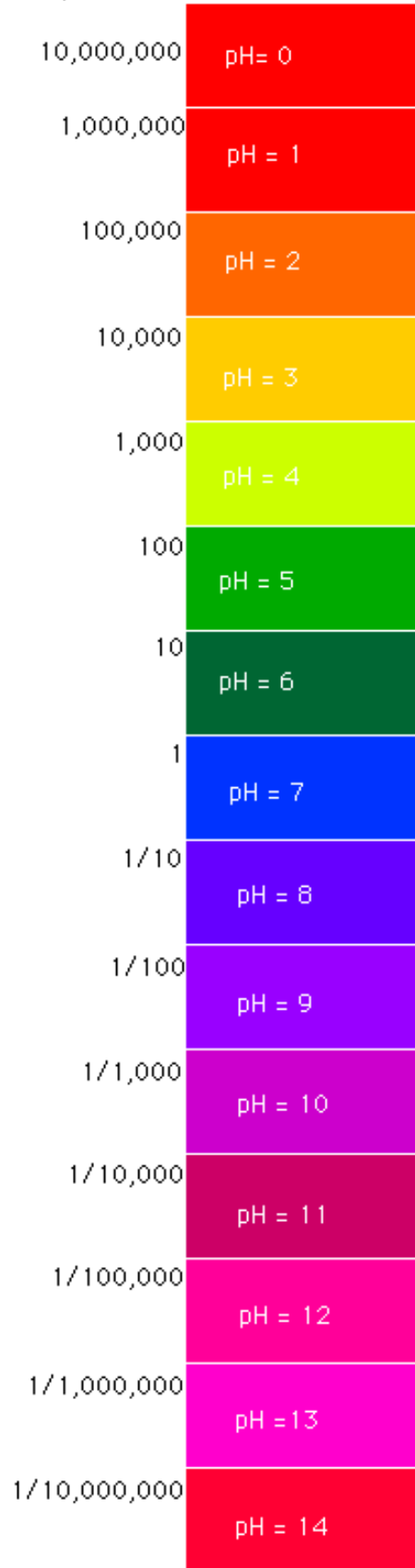
Teacher Clues:

- 1) We drink acids when we are thirsty.
- 2) Water is pH neutral.
- 3) This is found in Utah and it has a concentration of $1/1,000^{\text{th}}$ for Hydrogen Ions.
- 4) The strongest acid is found in car batteries.
- 5) The strongest base unclogs your sink.
- 6) You may swim in this very weak base during vacation.
- 7) This second strongest acid is found in your stomach.
- 8) You may spit out this very weak acid.
- 9) Your favorite soft drink has 10,000 times more Hydrogen Ions than pure water.
- 10) Ammonia has a concentration of $1/10,000^{\text{th}}$ for Hydrogen Ions.
- 11) Bleach is the second strongest base.
- 12) Lemon juice is more acidic than soft drinks.
- 13) Coffee is less acidic than tomato juice.
- 14) Baking soda is more basic than sea water.
- 15) In your bathtub, it may have this pH as it goes down the drain.

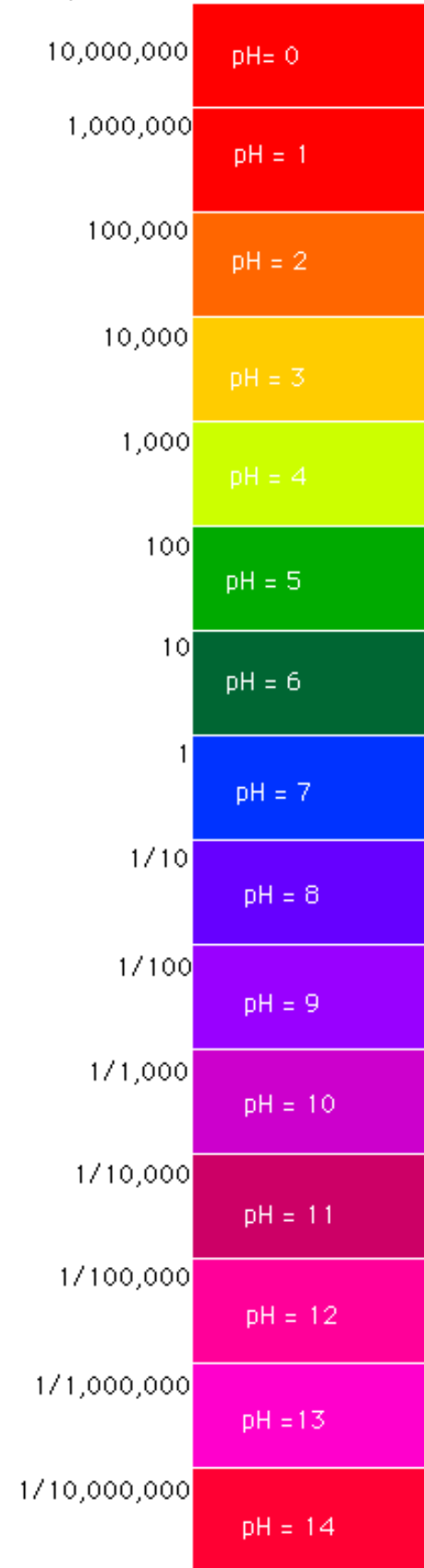
Concentration of Hydrogen ions compared to distilled water



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Concentration of Hydrogen ions compared to distilled water



Battery acid, Strong Hydrofluoric Acid
Hydrochloric acid secreted by stomach lining
Lemon Juice, Gastric Acid Vineger
Grapefruit, Orange Juice, Soda
Tomato Juice Acid rain
Soft drinking water Black Coffee
Urine Saliva
"Pure" water
Sea water
Baking soda
Great Salt Lake Milk of Magnesia
Ammonia solution
Soapy water
Bleaches Oven cleaner
Liquid drain cleaner

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Examples of solutions at this pH

10,000,000	pH = 0	Battery acid, Strong Hydrofluoric Acid
1,000,000	pH = 1	Hydrochloric acid secreted by stomach lining
100,000	pH = 2	Lemon Juice, Gastric Acid Vineger
10,000	pH = 3	Grapefruit, Orange Juice, Soda
1,000	pH = 4	Tomato Juice Acid rain
100	pH = 5	Soft drinking water Black Coffee
10	pH = 6	Urine Saliva
1	pH = 7	"Pure" water
1/10	pH = 8	Sea water
1/100	pH = 9	Baking soda
1/1,000	pH = 10	Great Salt Lake Milk of Magnesia
1/10,000	pH = 11	Ammonia solution
1/100,000	pH = 12	Soapy water
1/1,000,000	pH = 13	Bleaches Oven cleaner
1/10,000,000	pH = 14	Liquid drain cleaner