

# Acids, Bases And Salts



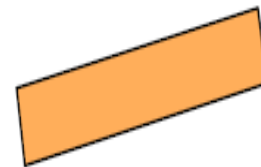
BY REKHA CHOUDHARY T.G.T SCIENCE

# Universal Indicator

- It is a mixture of several Indicators.
- It shows different colours at different concentrations of hydrogen ions in a solution.



universal indicator solution



universal indicator paper

# pH Scale

- This scale is used for measuring hydrogen ion concentration in a solution.
- The p in pH stands for potenz in German, meaning power.
- This scale goes from 0 to 14.
- Higher the hydronium ion, lower is the pH value.

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# pH Scale

Acid

Alkali



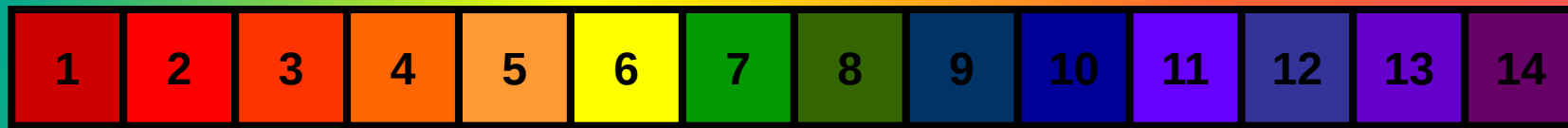
Increasingly acid

Increasingly alkali

Neutral

# pH Scale

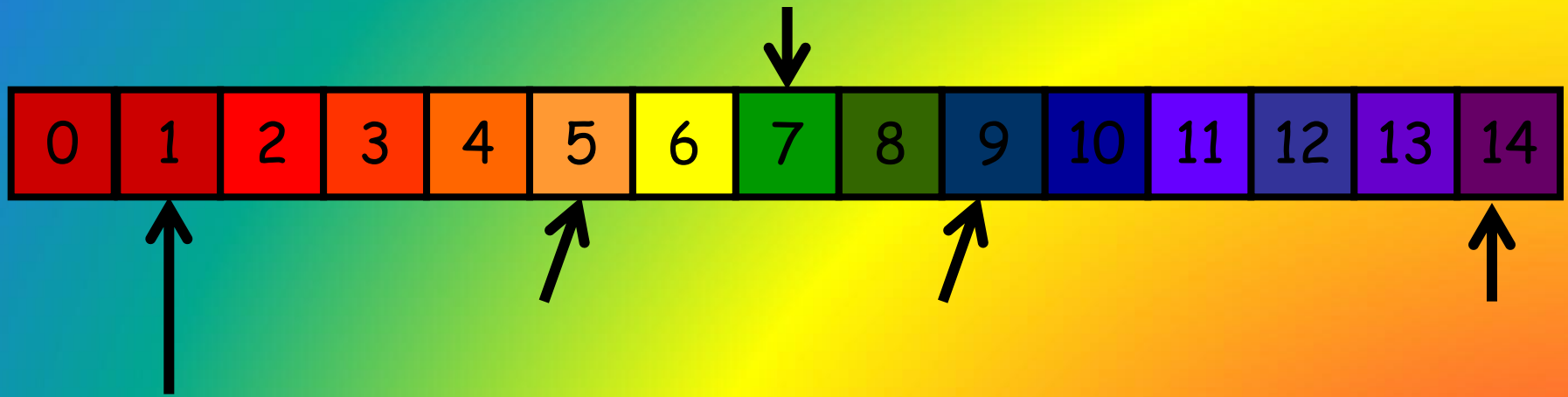
- pH of neutral solution is 7
- As the pH value decreases from 7 to 0 , it represents an increase in hydrogen ions and therefore increase in the strength of acid.
- As the pH value increases from 7 to 14 , it represents an increase in hydroxide ions and therefore increase in the strength of base.



Increasingly acid

Increasingly alkali

# Activity



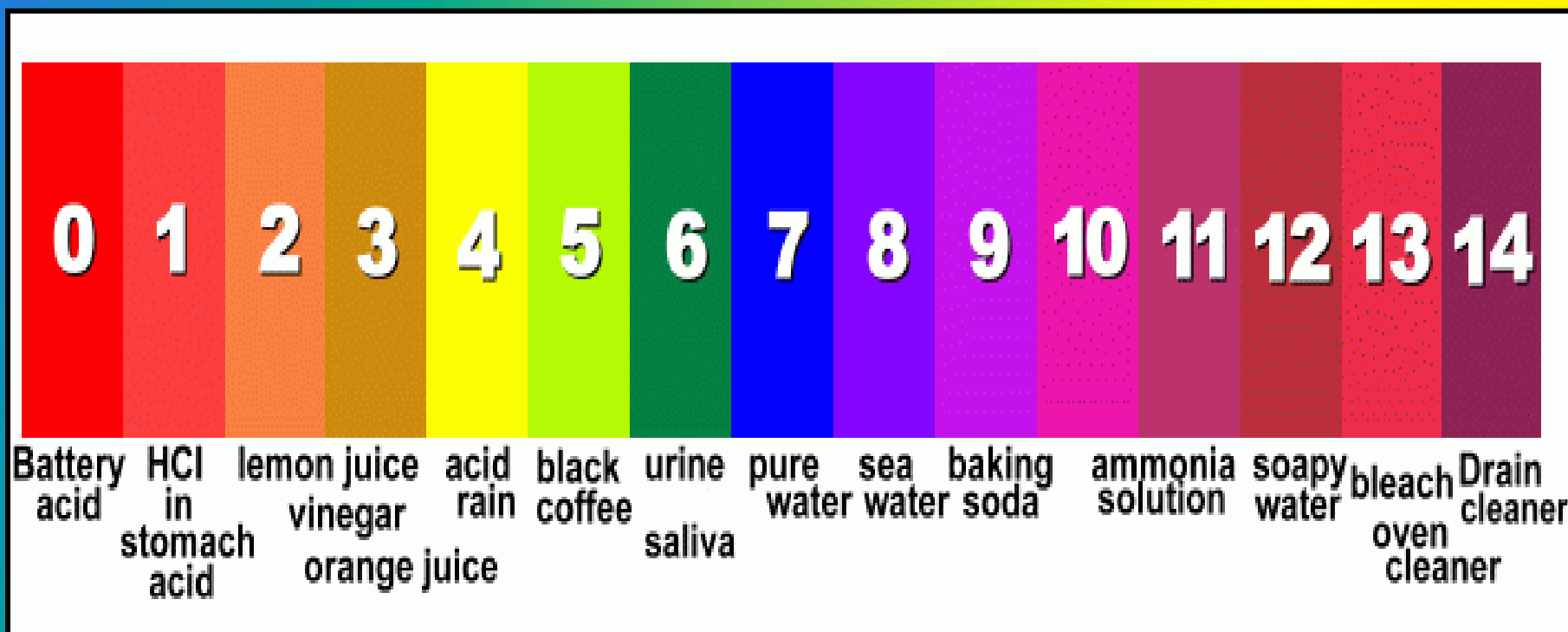
Lemon Juice

Toothpaste

Hydrochloric  
acid

Sodium  
hydroxide

Water



# STRONG VS WEAK

THE STRENGTH OF ACIDS AND BASES DEPENDS ON THE NO. OF HYDROGEN AND HYDROXIDE IONS PRODUCED.

STRONG ACIDS - PRODUCES MORE  $\text{H}^+$

WEAK ACIDS - PRODUCES LESS  $\text{H}^+$

STRONG BASES - PRODUCES MORE  $\text{OH}^-$

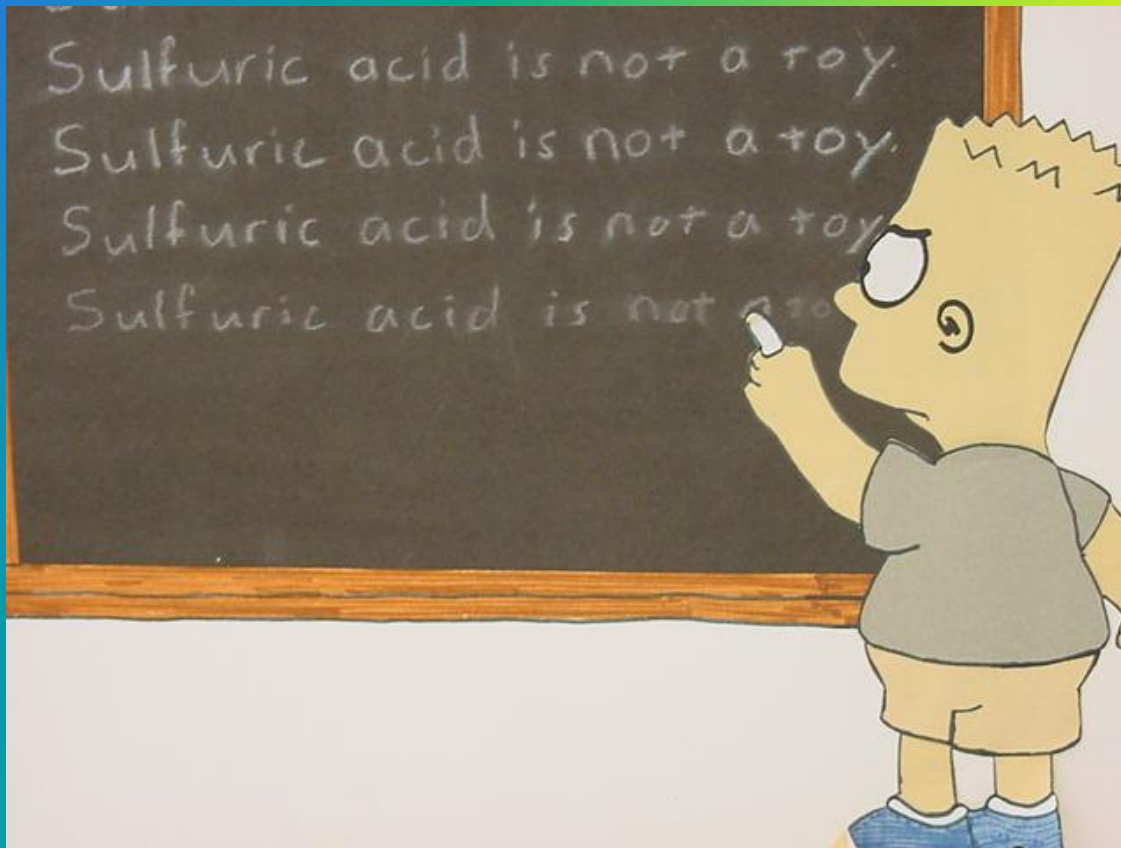
WEAK BASES - PRODUCES LESS  $\text{OH}^-$

# ACIDS & BASES, pH Scale, and Neutralizers



A cartoon illustration of a scientist with orange hair and safety goggles, wearing a pink shirt. The scientist is pouring a blue liquid from a beaker into a flask that already contains a green liquid with black bubbles. The entire scene is set against a white background with a brown horizontal line at the bottom.

1. What is the scale called to measure how strong acids and alkalis are?



pH

pH

pH

pH

## 2. Which indicator can go 14 different colours?

| 1                 | 2 | 3           | 4       | 5 | 6 | 7          | 8         | 9 | 10                        | 11 | 12      | 13 | 14               |
|-------------------|---|-------------|---------|---|---|------------|-----------|---|---------------------------|----|---------|----|------------------|
| Hydrochloric Acid |   | Lemon Juice | Vinegar |   |   | Pure water | Sea water |   | Sodium hydrogen carbonate |    | Ammonia |    | Sodium hydroxide |

Unicorn

Unique

Usual

Universal

3. Something with pH of 3 is?



Acid  
Alkali  
Neutral

4. Something with pH of 11 is?



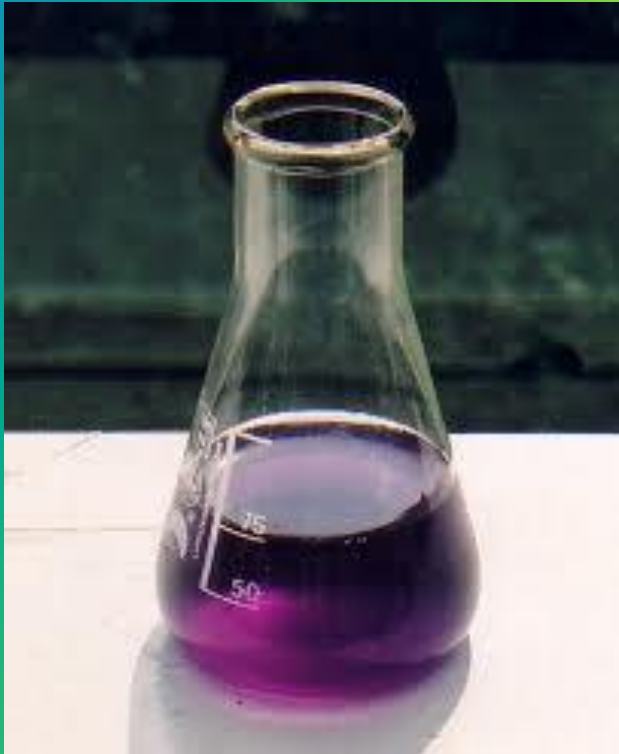
Acid  
Alkali  
Neutral

5. Something with pH of 7 is?



Acid  
Alkali  
Neutral

6. If universal indicator goes purple,  
the test substance is?



Strong acid

Weak acid

Strong alkali

Weak alkali

7. If universal indicator goes yellow,  
the test substance is?



Strong acid  
Weak acid  
Strong alkali  
Weak alkali

8. If universal indicator goes red, the test substance is?



Strong acid

Weak acid

Strong alkali

Weak alkali

9. The strongest acid pH is?



14

7

1

20

10. The strongest alkali pH is?



14

7

1

20