

UPDAAN



2025

Bharat Mata Ki Jai

ACIDS, BASES AND SALTS

→ **INTRODUCTION TO ACIDS AND BASES**
(LIVE EXPERIMENTS)

CHEMISTRY

Lecture - 01

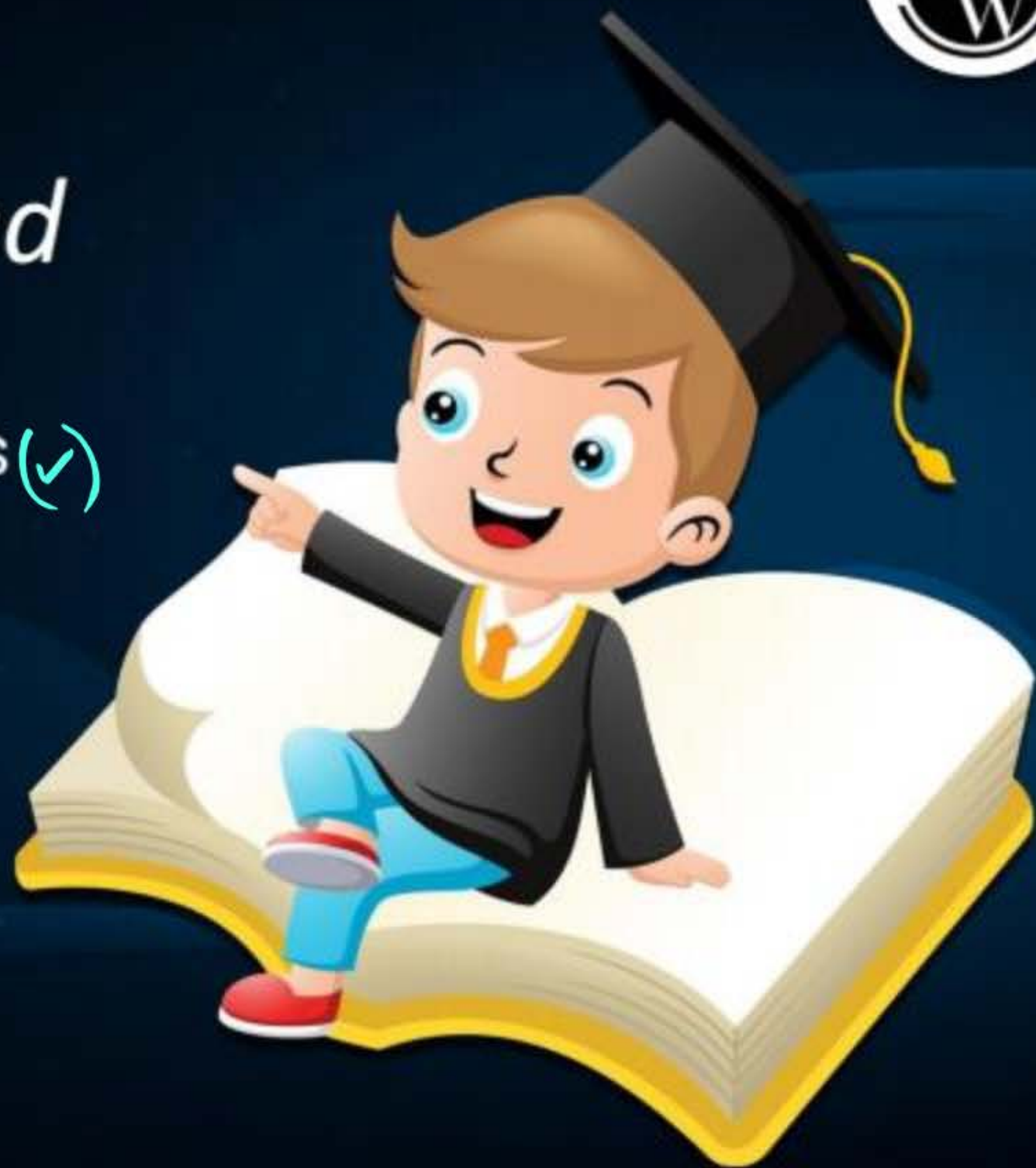
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Topics

to be covered

- 1 General Properties of Acids and Bases (✓)
- 2 Indicators and Their Types (✓)



Knowledge Ride On



General Properties of Acids and
Bases

Knowledge Ride On



Indicators and Their Types



'Insaniyat Ka Gyaan + Efficiency Hacks'



Hasmukhlal: Sunil Bhaiya ka ghar ka naam pata hai kya hai?

Simaila: Nahi tum btao?

Hasmukhlal: Unka naam bnata hai chemical symbols of sulphur, uranium, nitrogen, nitrogen and yttrium se.

Simaila: Samaj gayi, maja aa gaya Hasmukhlal ji. Baccho tmhe aaya kya?

'SUNNY' bhaiya

RIDDLE WALLAH



Hasmukhlal: Sunil Bhaiya ka ghar ka naam pata hai kya hai?

Simaila: Nahi tum btao?

Hasmukhlal: Unka naam bnata hai chemical symbols of sulphur, uranium, nitrogen, nitrogen and yttrium se.

Simaila: Samaj gayi, maja aa gaya Hasmukhlal ji. Baccho tmhe aaya kya?

(Your nickname using chemistry)
chemical symbols

*Sundar Balak/Sundar
Kanya Be Like*



**WAHAH KYA
BAAT HAI!**

General Properties of Acids and Bases

गुणो

(अम्ल) (क्षार)

The word 'acid' is derived from the Latin word acidus, akin to acer, which means sour.

Similar

(खटता)



Recap

→ Class VIIth NCERT



LIST OF SOME COMMON ACIDS AND BASES

- H_2SO_4 : Sulphuric acid
- HCl : Hydrochloric acid $\text{CH}_3\text{COOH} \rightarrow$ Acetic acid / Ethanoic acid
- HNO_3 : Nitric acid
- H_2CO_3 : Carbonic acid

- NaOH : Sodium hydroxide
- KOH : Potassium hydroxide
- $\text{Mg}(\text{OH})_2$: Magnesium hydroxide
- $\text{Ca}(\text{OH})_2$: Calcium hydroxide



Lemon



Baking Soda



Orange



HASMUKHLAL JI
TASTE KARKE
BTAENGE!



Lemon



Baking Soda



Orange

Substance	Sour (S)/ Bitter (B)/ Any Other (A)
Lemon	Sour (स्वदरा)
Baking soda	Bitter (कड़वा)
Orange	Sour (स्वदरा)



True or False

(सत्य) → All acids taste sour while bases taste bitter.

A. True

☒ B. False

True or False

Coffee is basic in nature.

A. True

☒ B. False

Coffee is brown
And bitter in taste.

Is it an acid?

Or a base?

Don't give the answer

Without any test,

(You are in the dark

With its taste.)

Class VIIth
NCERT



Coffee tastes bitter. So, it's basic in nature.

No! Coffee is acidic in nature.

Quinic acid
Caffeic acid

gives bitter taste to
coffee

(अम्लीय)

most of the

Generally, acids taste sour.

Amino acids can taste SWEET, SOUR or BITTER.

① Bases are substances that are bitter in taste.
(क्षार) (कड़वा)



② Have you ever touched these substances?

Caustic soda (NaOH), Washing soda etc.
($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$)

Bases have a soapy texture, i.e. they are slippery to touch.

how you feel when you touch it

'CONCLUSION'



- ① Generally, acids taste sour. Some of them are bitter or even sweet in taste.
- ② Bases taste bitter.
- ③ Bases have a soapy texture.



Yes or No

To identify that a substance is an acid or a base, tasting or touching it is the best possible option.

A. True

☒ B. False *or NO*



Yes or No



To identify that a substance is an acid or a base, tasting or touching it is the best possible option.

A. True

B. False

(बालक)

(i) **No!** This can be disastrous as some acids and bases are highly corrosive, i.e. they produce a burning sensation on the skin and damage it.

(ii) Acids can taste bitter, sour as well as sweet. So, tasting is not a relied option.

KYA BOLTI PUBLIC





Indicators and Their Types

'Need of Indicators'



we can't taste or touch acids
& bases

Indicators help us
to distinguish/identify whether
a substance is an acid or a base.



Some chemical substances show a sharp change in their colour or odour in an acidic or basic medium. Such substances are called acid-base indicators.

(रंग)

→ Smell

→ (i) Indicators that show a change in colour

→ (ii) Indicators that show a change in odour

→ 'OLFACTORY INDICATORS'



Indicators That Show a Change in Colour - Litmus

NDA 2024 (1)

symbiotic association of fungi & algae

Litmus is a pale or mauve coloured dye obtained from lichens that belong to the Thallophyta division of plant kingdom.

In Acidic medium / Acidic Character (↑)
RED Litmus Solⁿ

Neutral

Pale Purple / Mauve

In Basic medium / Basic Character (↑)
BLUE Litmus Solⁿ

Take 3 papers, dip 1 paper in each of the above solⁿ & keep them for drying: Red Litmus Paper, Neutral litmus paper & blue litmus paper

Types of Litmus Papers

Red

Neutral

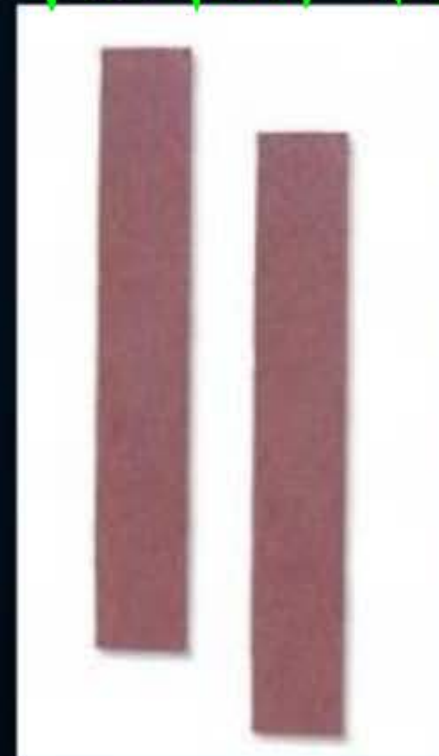
Blue

'pale purple / mauve'



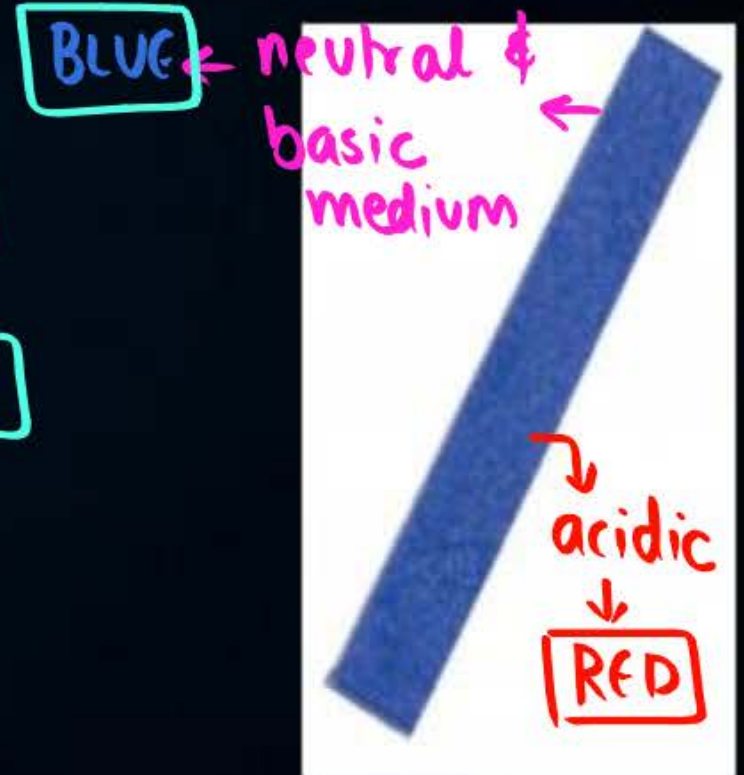
neutral & acid

RED



Acid → Red

Base → Blue



BLUE ← neutral & basic medium



Natural Indicators that Show a Change in Colour

↳ obtained from nature

Indicator	Neutral solution	Acidic solution	Basic solution
(a) Litmus solution	Pale Purple / Mauve	Red	Blue
(b) Turmeric paste	Yellow	Yellow	Brick Red
(c) Hydrangea flowers	Blue	Blue	Pink

(d) China Rose Soltn
[Gudhal]

Light Pink

Dark Pink
(Magenta)

Green

petals change)



Artificial Indicators that Show a Change in Colour

- ④ made in laboratory
- ④ synthetic indicators

	Neutral	Acidic Soltn	Basic Soltn
✓(d) <u>Phenolphthalein</u>	Colourless	Colourless	Pink
✓(e) <u>Methyl orange</u>	Orange	(Red / Pinkish red)	'Yellow'

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Bharat mata ki jai ♡

Samaj rahe ho



Let's Practice



PW Ka **ChemStar!**

QUESTION



Which of the following will be the colour of neutral litmus paper?

- ☐ A Red
- ☐ B Blue
- ☒ C Purple *Pale / Mauve*
- ☐ D Yellow

QUESTION

Which among the following is correct regarding the colour of given indicators in the basic medium?

- A** Turmeric: Brick red, China rose solution: Red
- B** Turmeric: Yellow, China rose solution: Red
- C** Turmeric: Brick red, China rose solution: Green
- D** Turmeric: Yellow, China rose solution: Red

II

Indicators that Show a Change in Odour

In nose ← olfactory nerve

ability to smell

← olfactory indicators

helpful for visually impaired people

Olfactory indicator	Acidic solution	Basic solution
(a) <u>Onion odoured cloth strips</u>	Smell remains same	Smell vanishes
(b) <u>Vanilla essence</u>	Smell remains same	Smell vanishes
(c) <u>Clove oil</u> (लौंग का तेल)	Smell remains same	Smell vanishes

→ (दायल)

Let's Practice



PW Ka **ChemStar!**

QUESTION



Which of the following is the best indicator for a visually impaired person to distinguish between an acid and a base?

- A** Red litmus paper
 - B** Blue litmus paper
 - C** China rose solution
 - D** ✓ Vanilla essence → 'olfactory indicator'
- Natural indicators that show a change in colour

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Concept Polish (गृहकार्य)



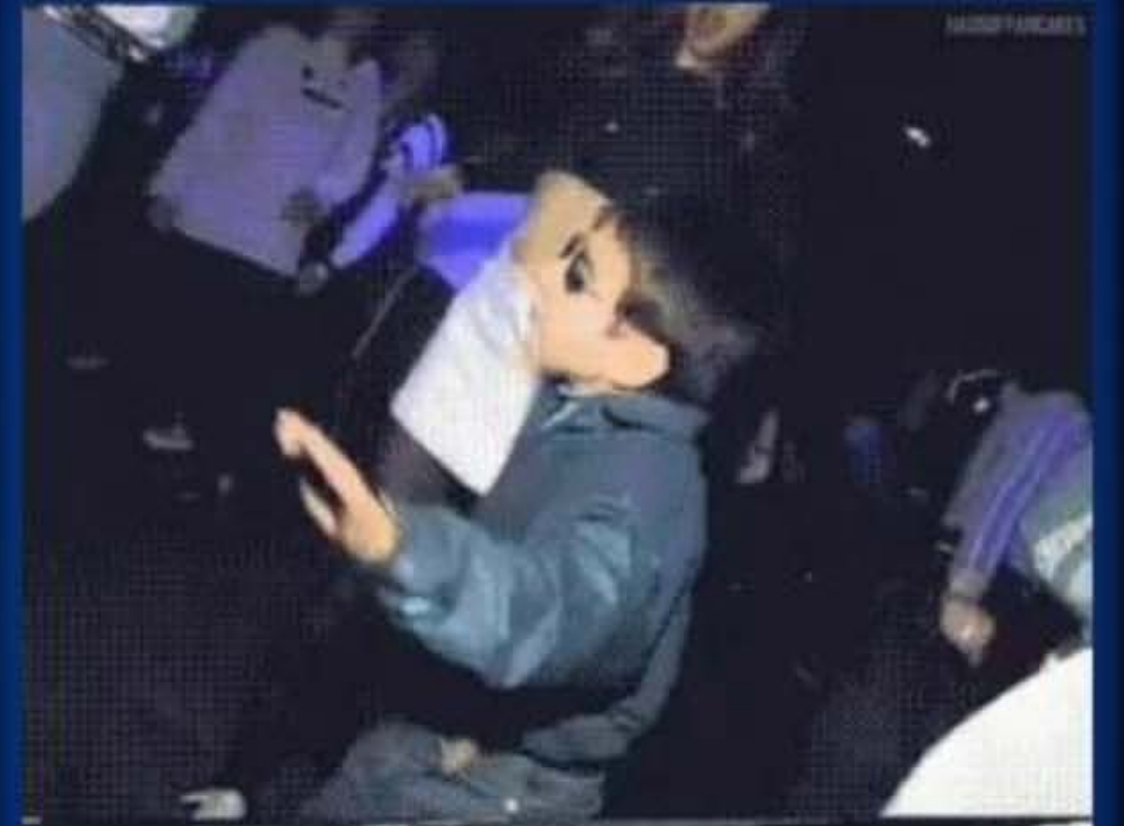
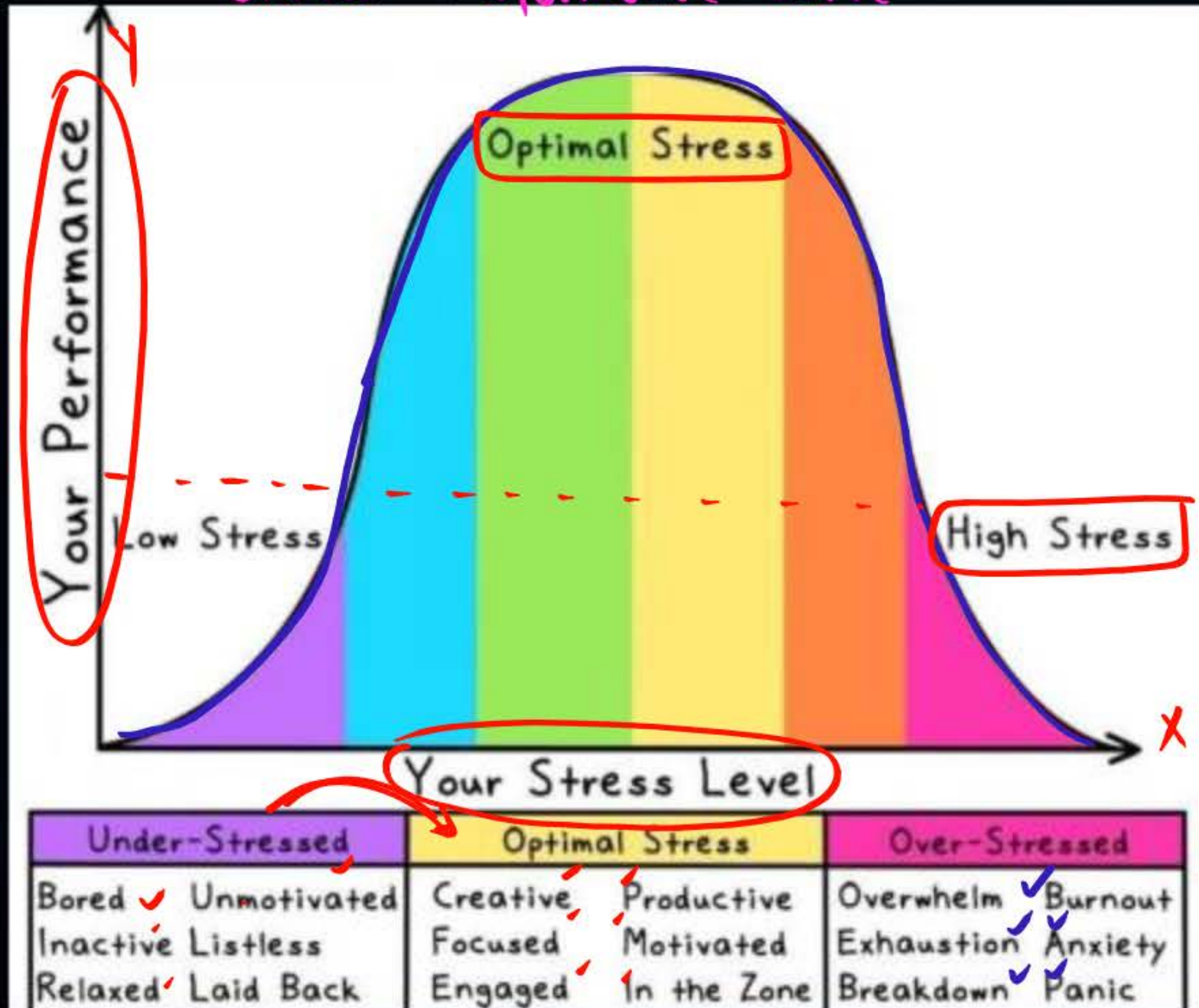
Beetroot → Group activity → Homework



EFFICIENCY HACKS BY SUNIL BHAIYA



'Stress - Performance Curve'



Insaniyat Ka Gyaan



***Insaniyat Ka Gyaan
Jo Banae Behtar Insan***



SUNIL BHAIYA IS ALWAYS THERE FOR YOU.

#sbsathhai (✓)

#pwsathhai (✓)



**THANK
YOU**

