



CBSE

Mind Maps

CLASS 12

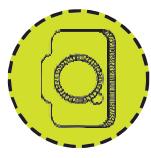
CHEMISTRY



Prepare, Revise & Practice Online on
www.Oswaal360.com or on

mind mAPS

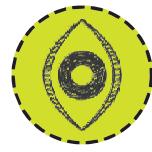
Learning MADE Simple



Presenting words and
Concepts as Pictures!!



anytime, as frequency as you like
till it becomes a habit!



When?

- To Unlock the imagination and come up with ideas
- To Remember facts and figures easily
- To Make clearer and better notes
- To Concentrate and save time
- To Plan with ease and ace exams

mind map **AN INTERACTIVE MAGICAL TOOL**

What?

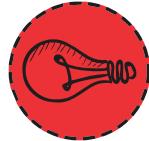
why?

Result

How?



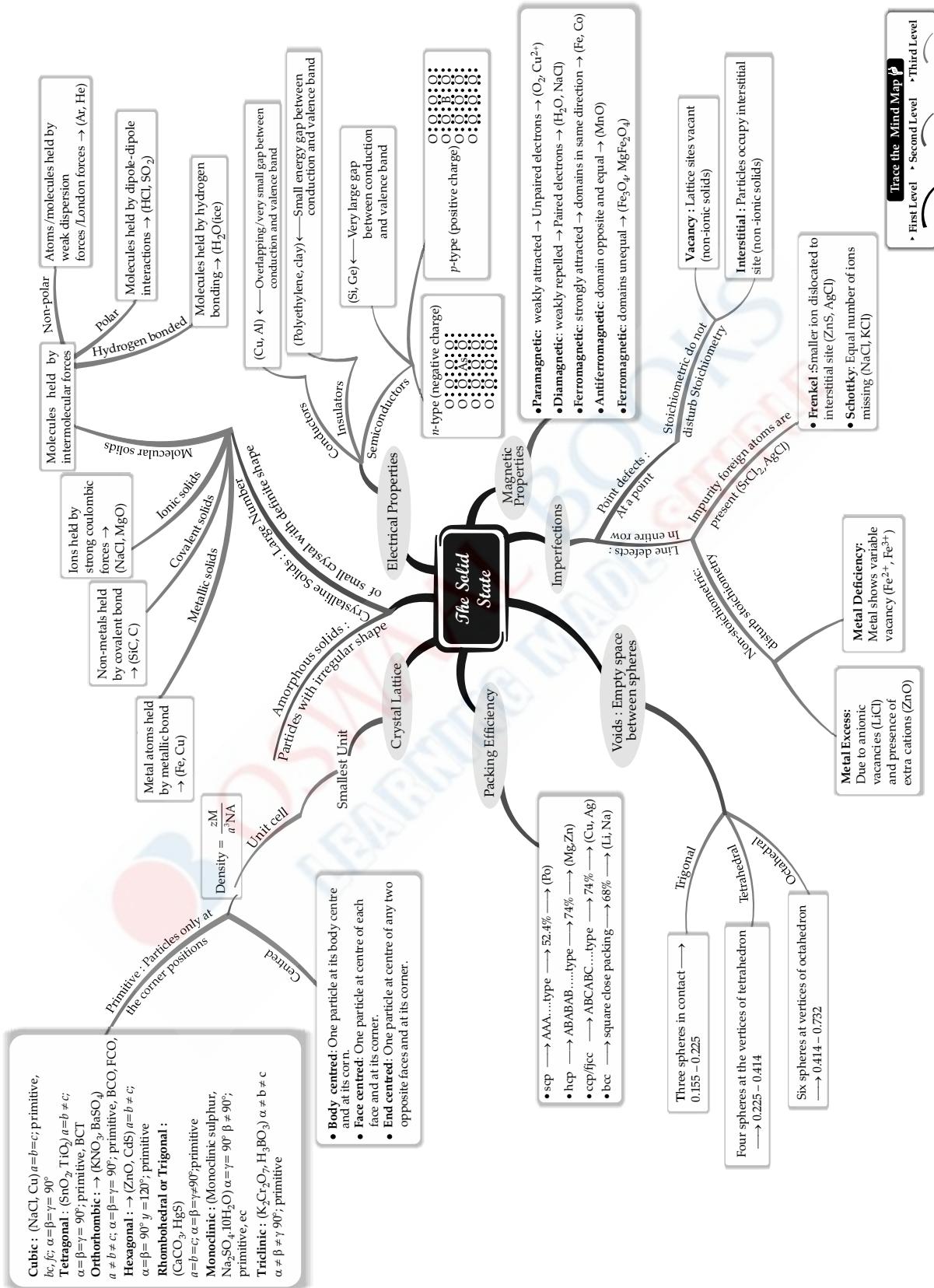
Learning made simple
'a winning combination'

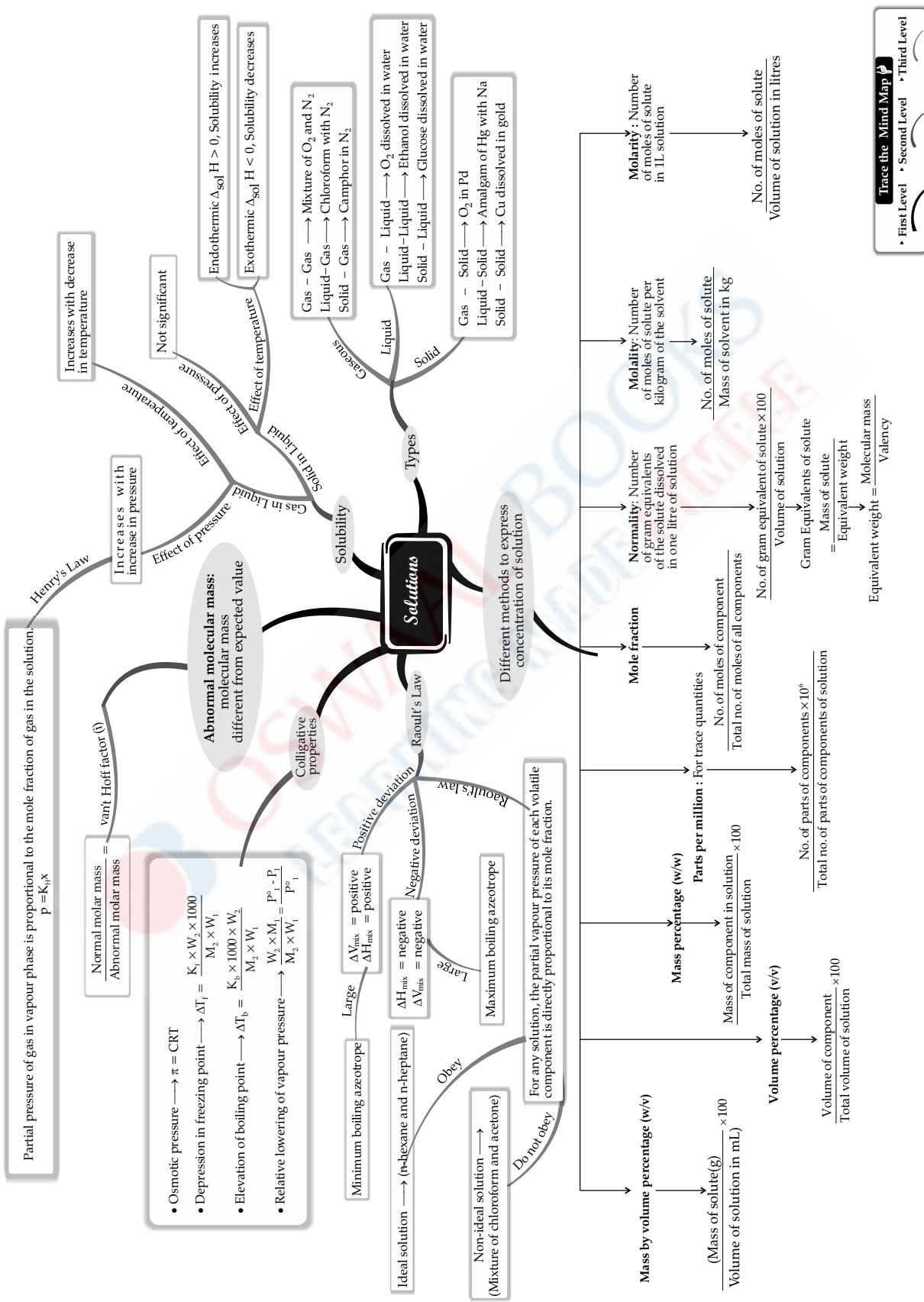


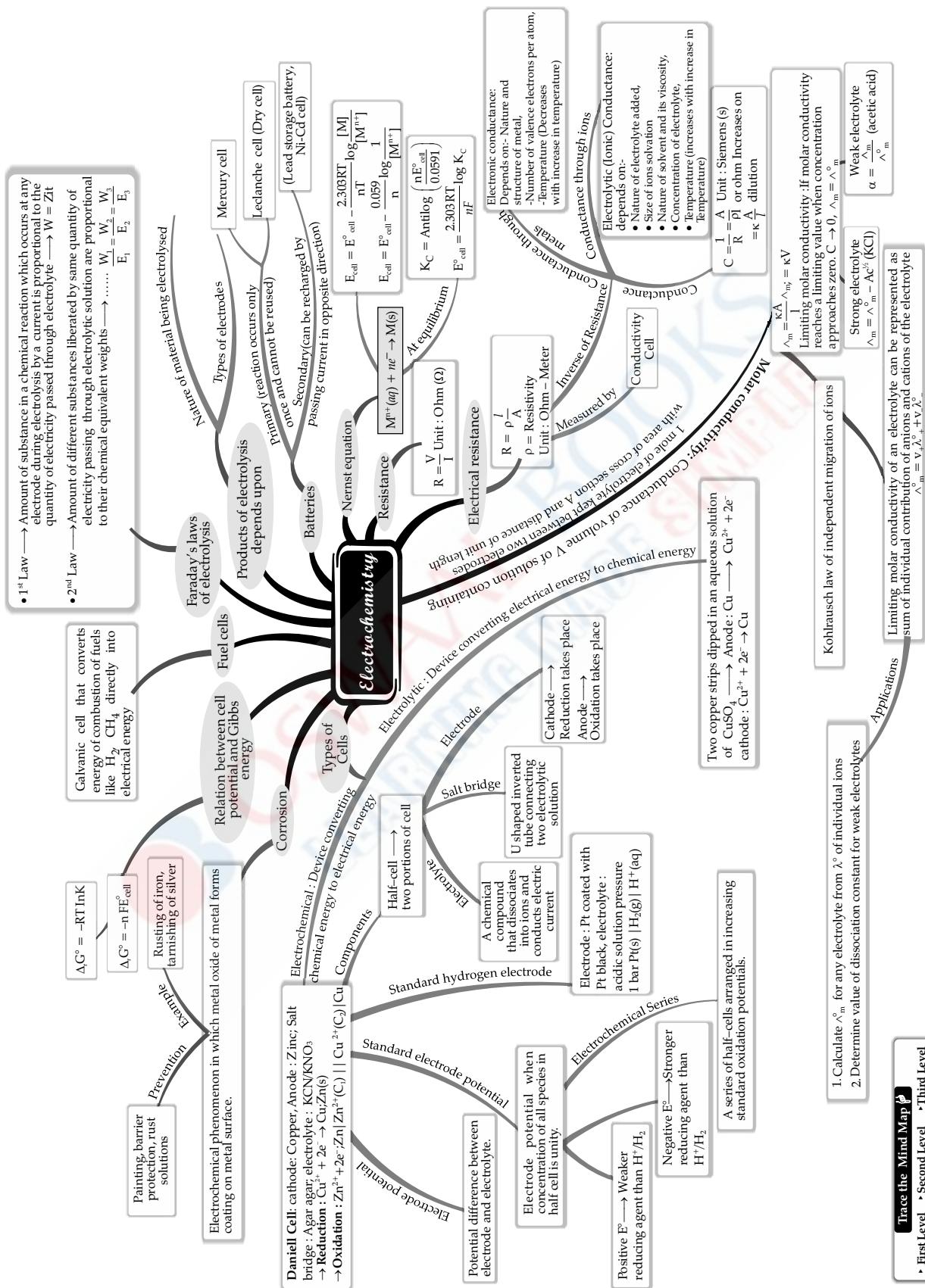
With a blank sheet of paper
Coloured Pens and
Your Creative Imagination!

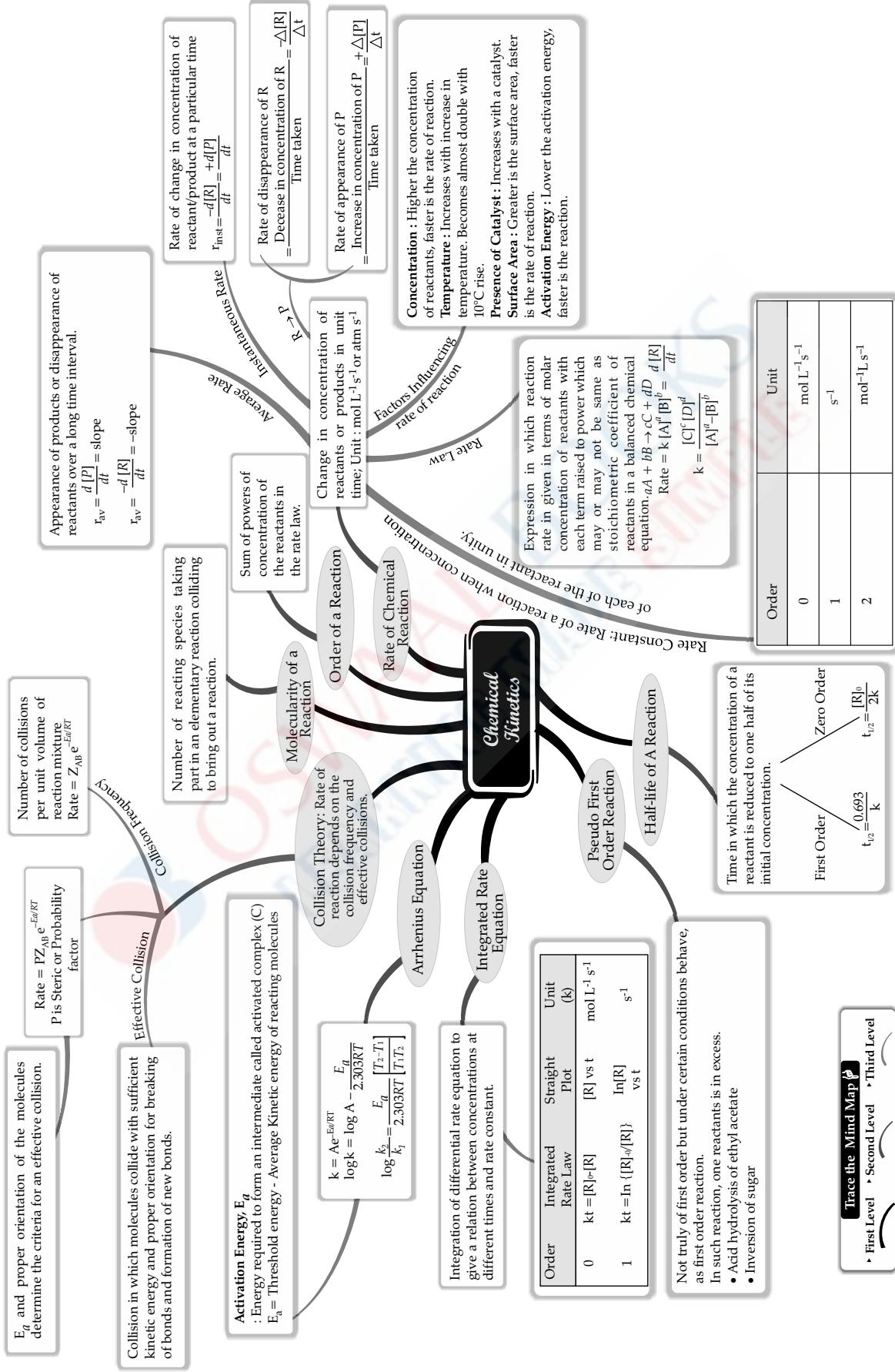
What are Associations?

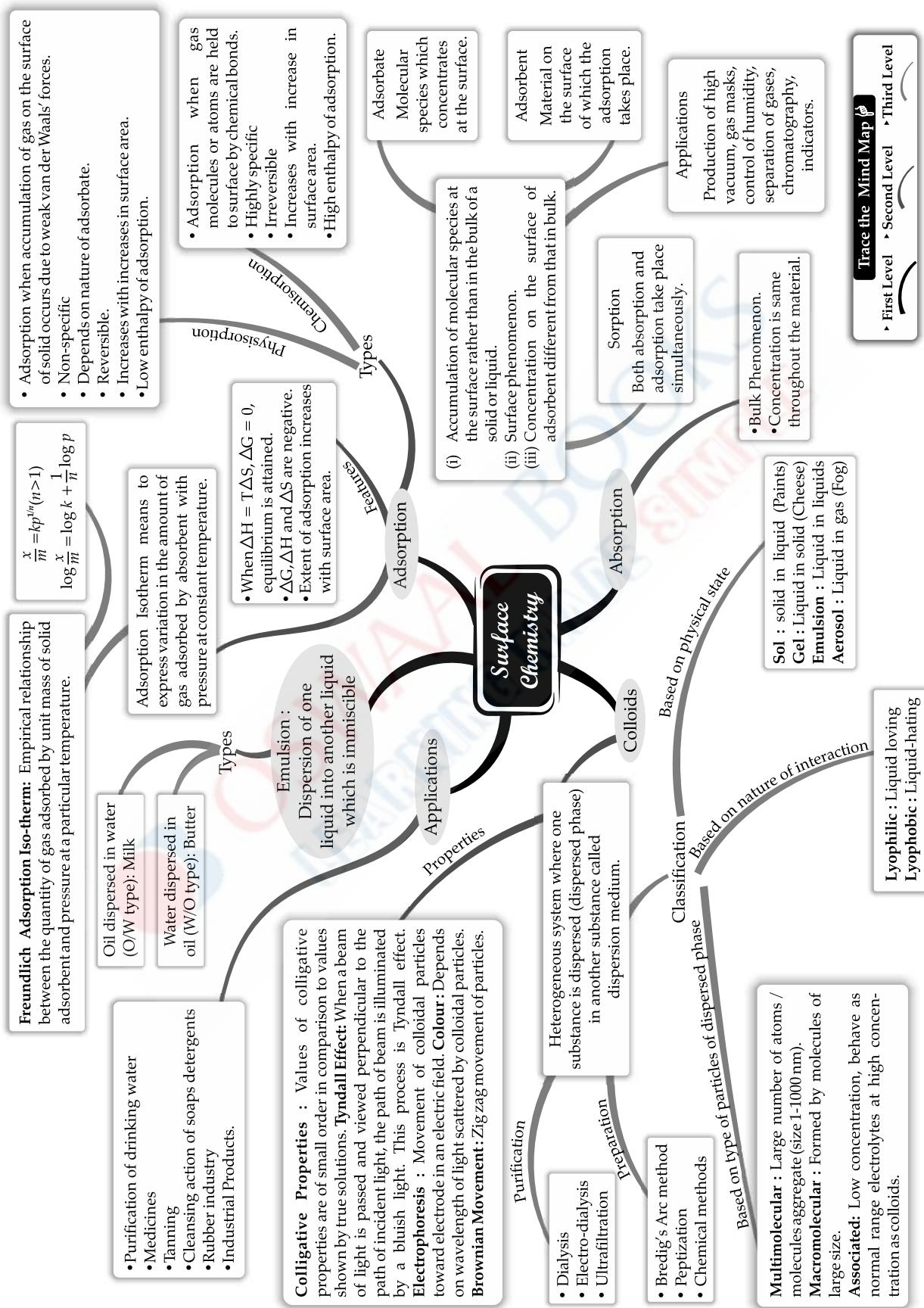
It's a technique connecting the core concept at the Centre to related concepts or ideas. Associations spreading out straight from the core concept are the First Level of Association. Then we have a Second Level of Association emitting from the first level and the chronology continues. The thickest line is the First Level of Association and the lines keep getting thinner as we move to the subsequent levels of association. This is exactly how the brain functions, therefore these Mind Maps. Associations are one powerful memory aid connecting seemingly unrelated concepts, hence strengthening memory.

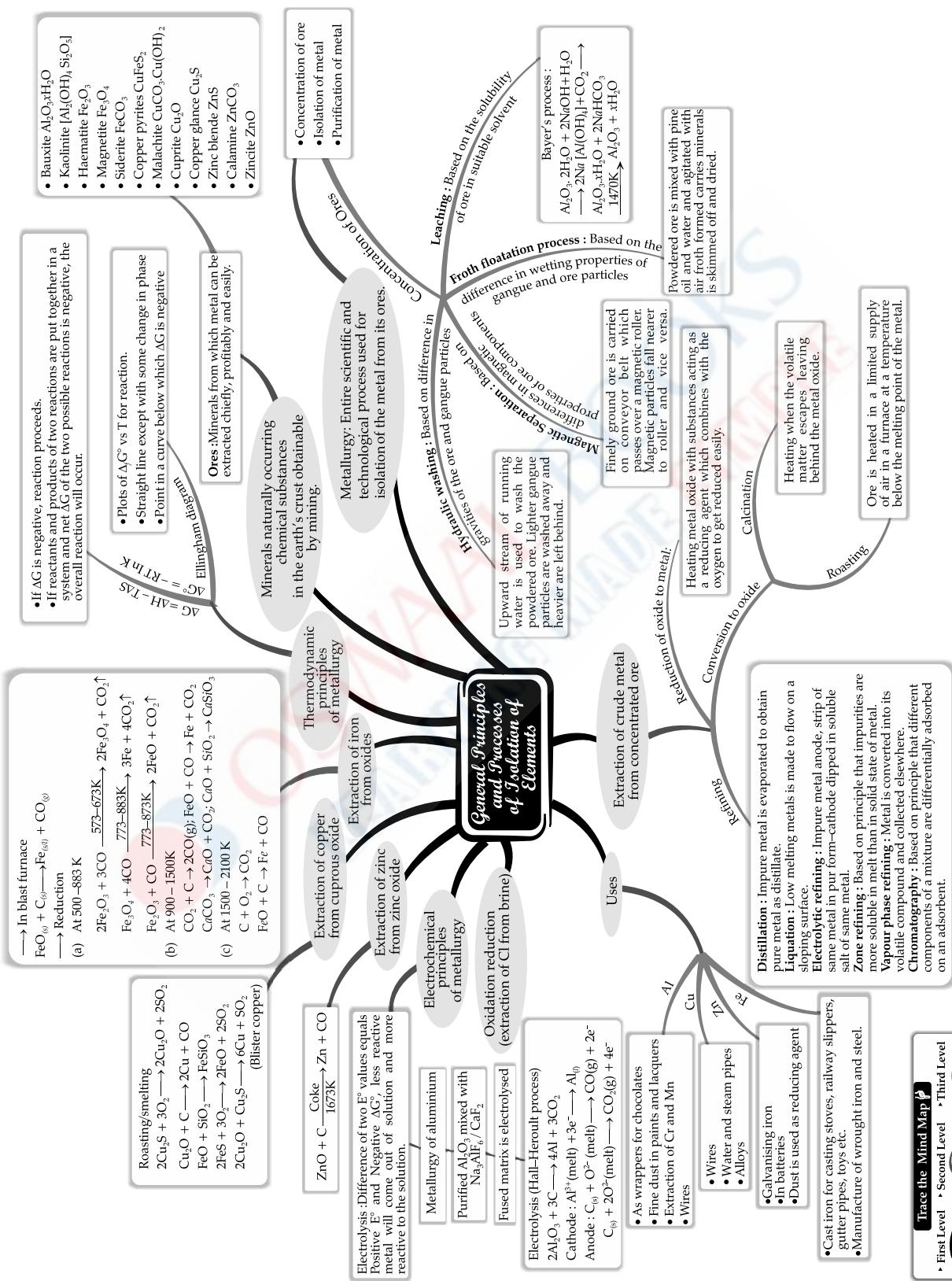


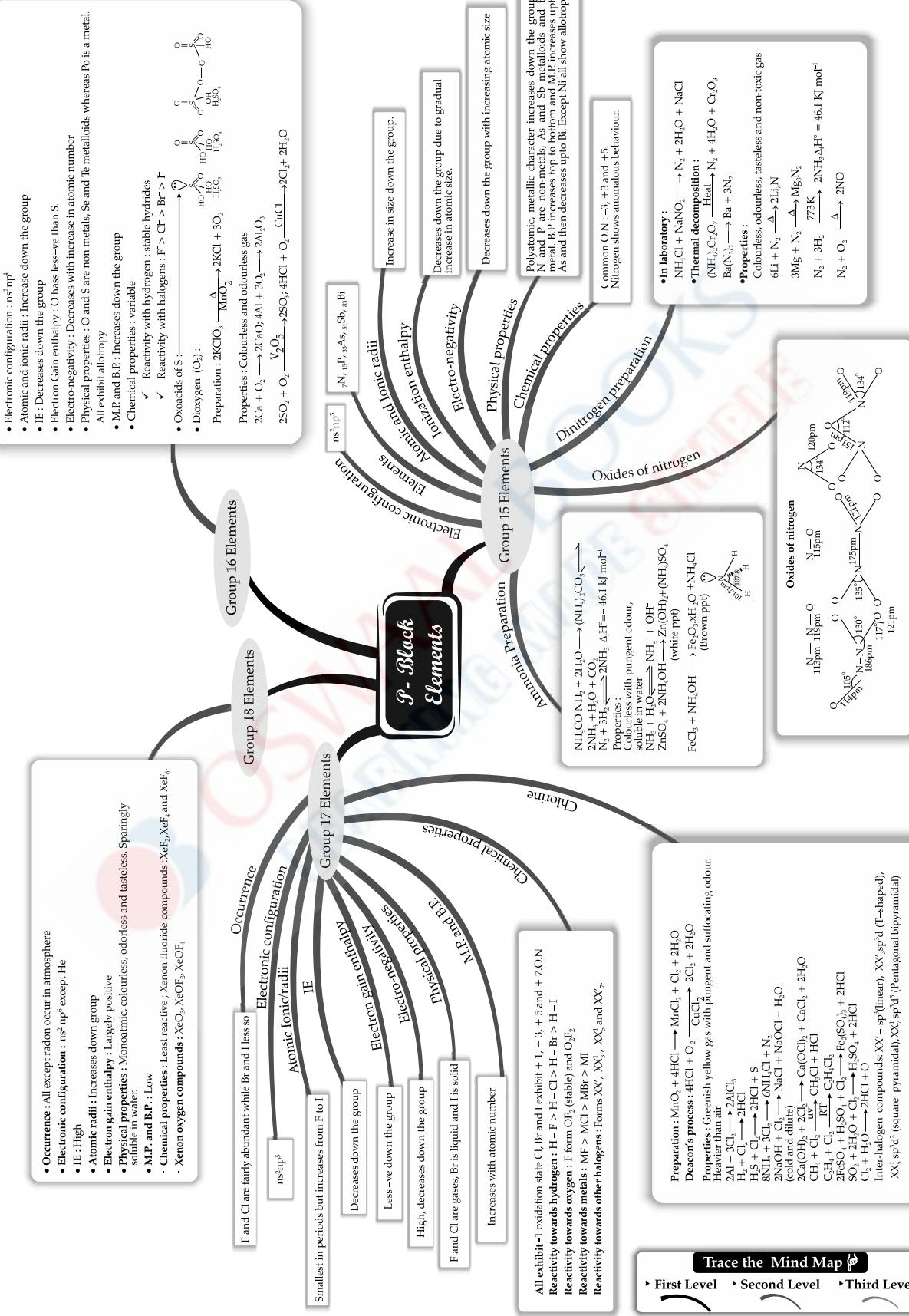


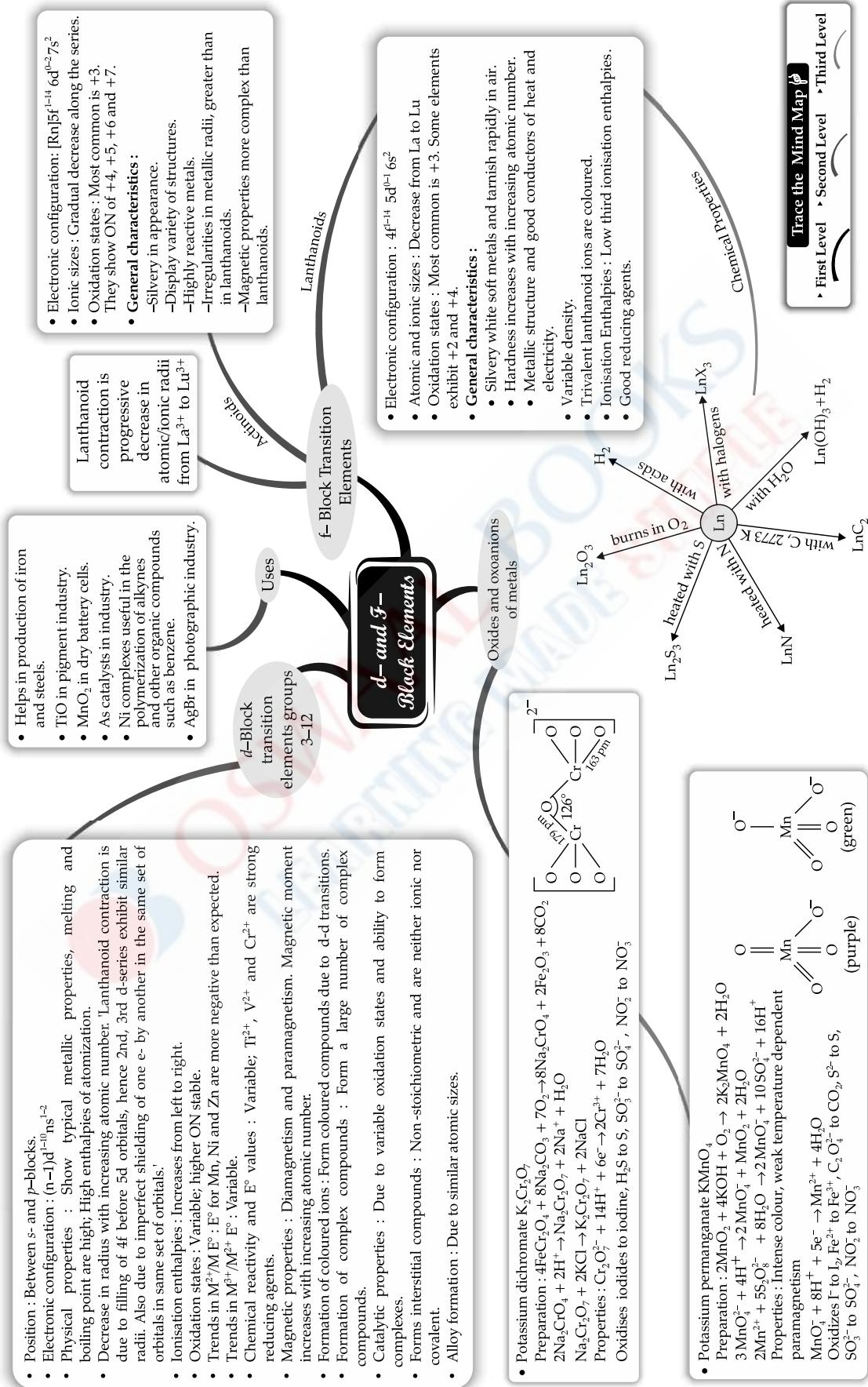


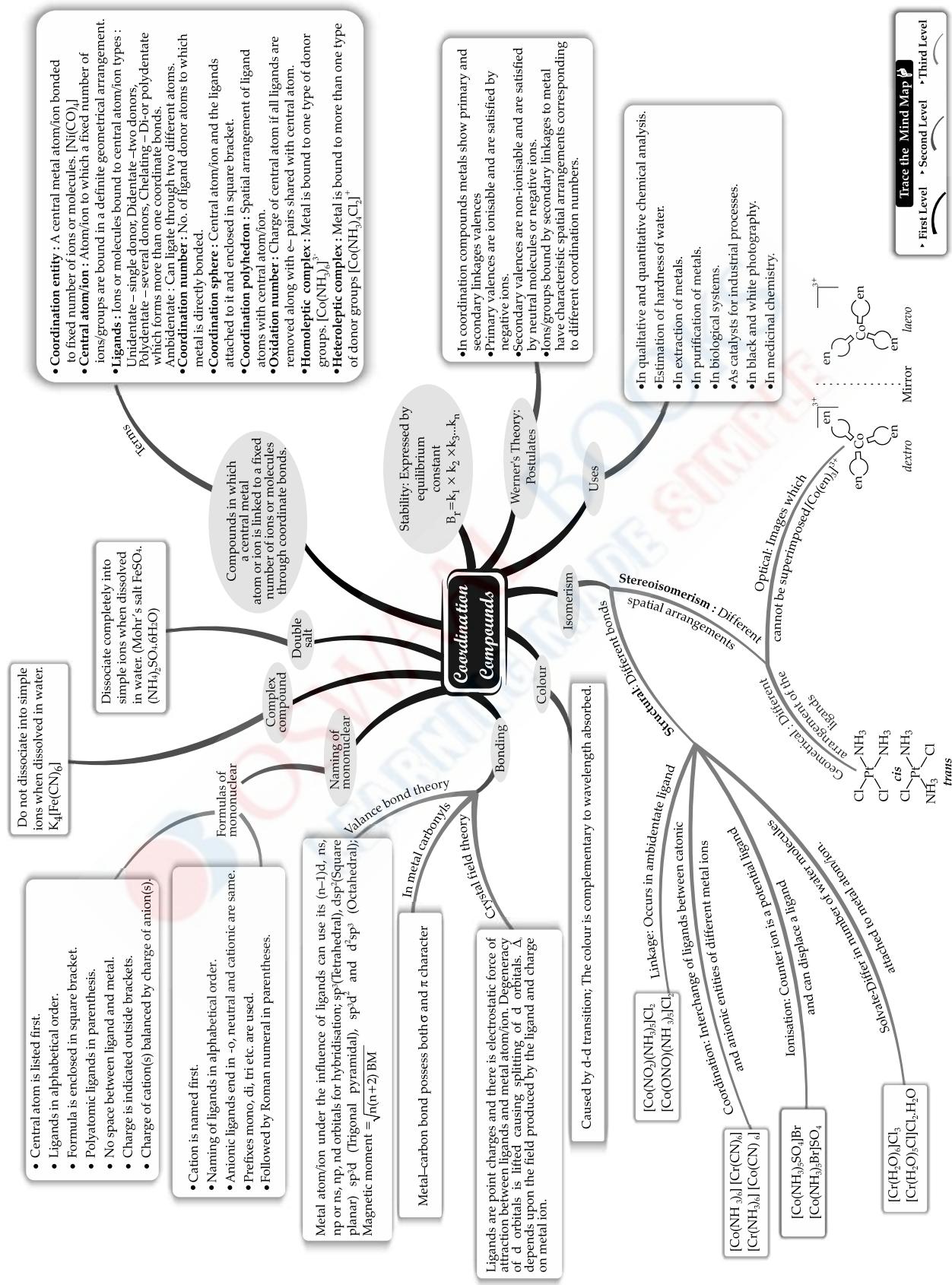


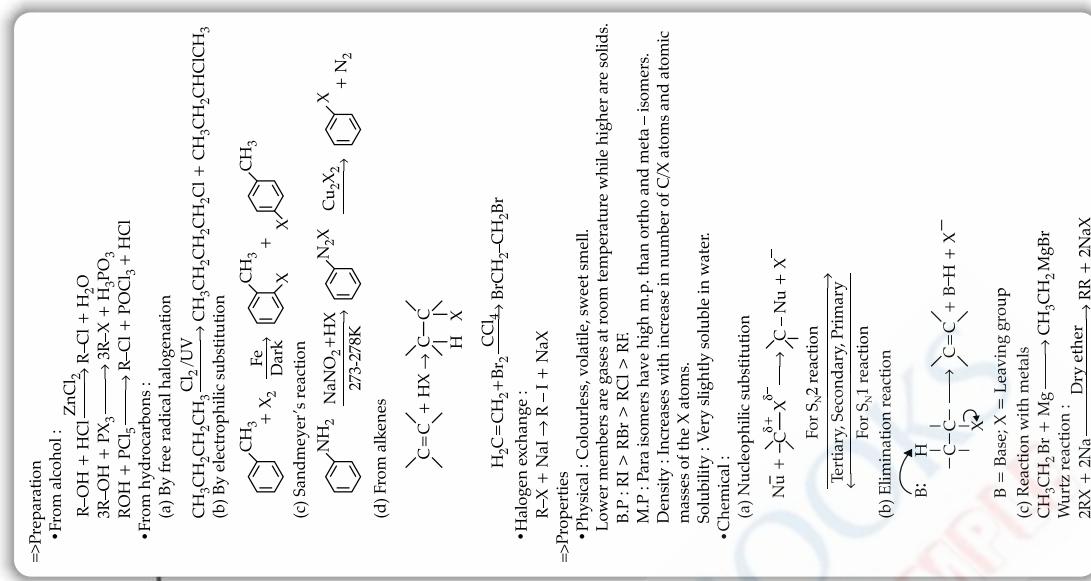
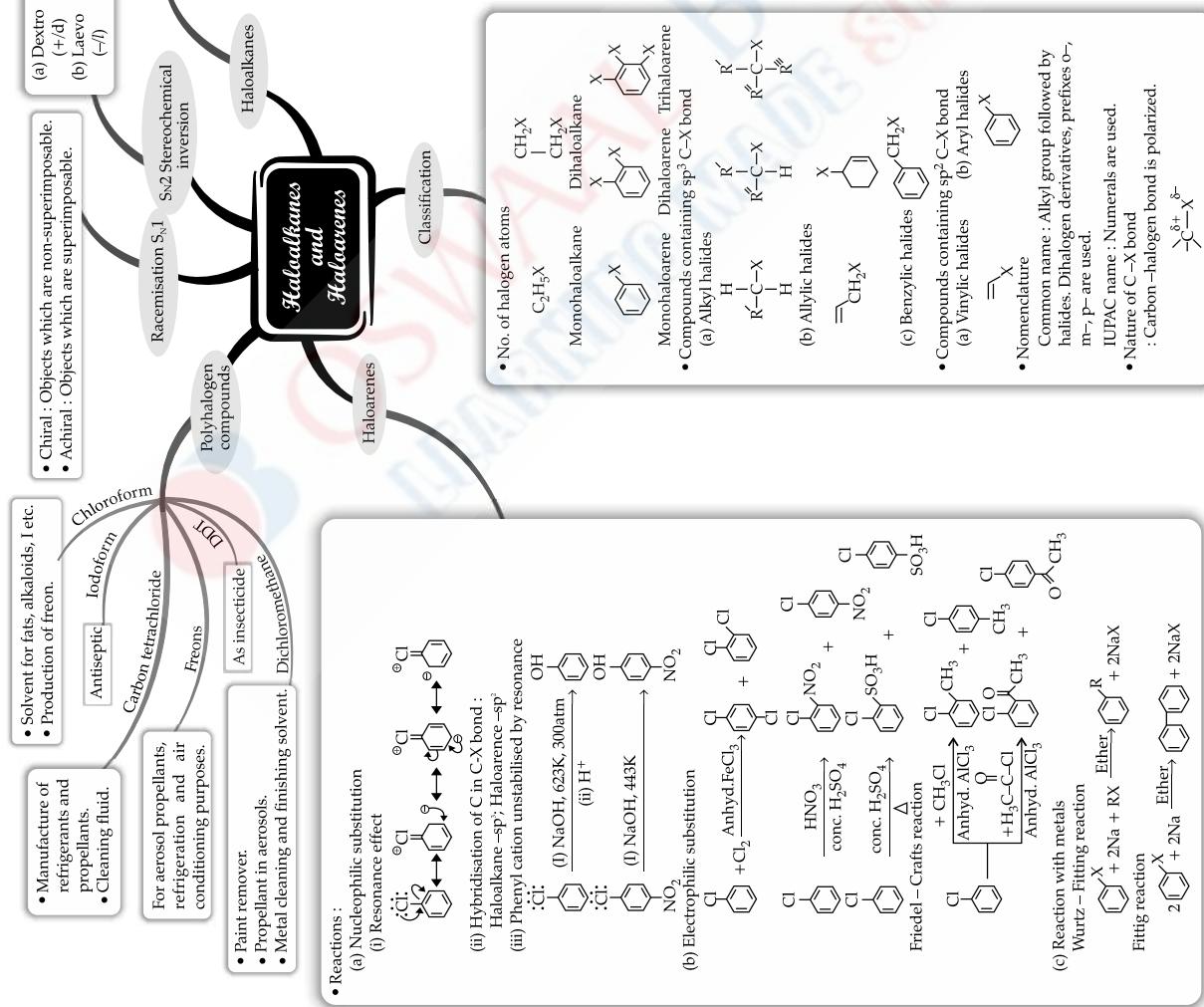






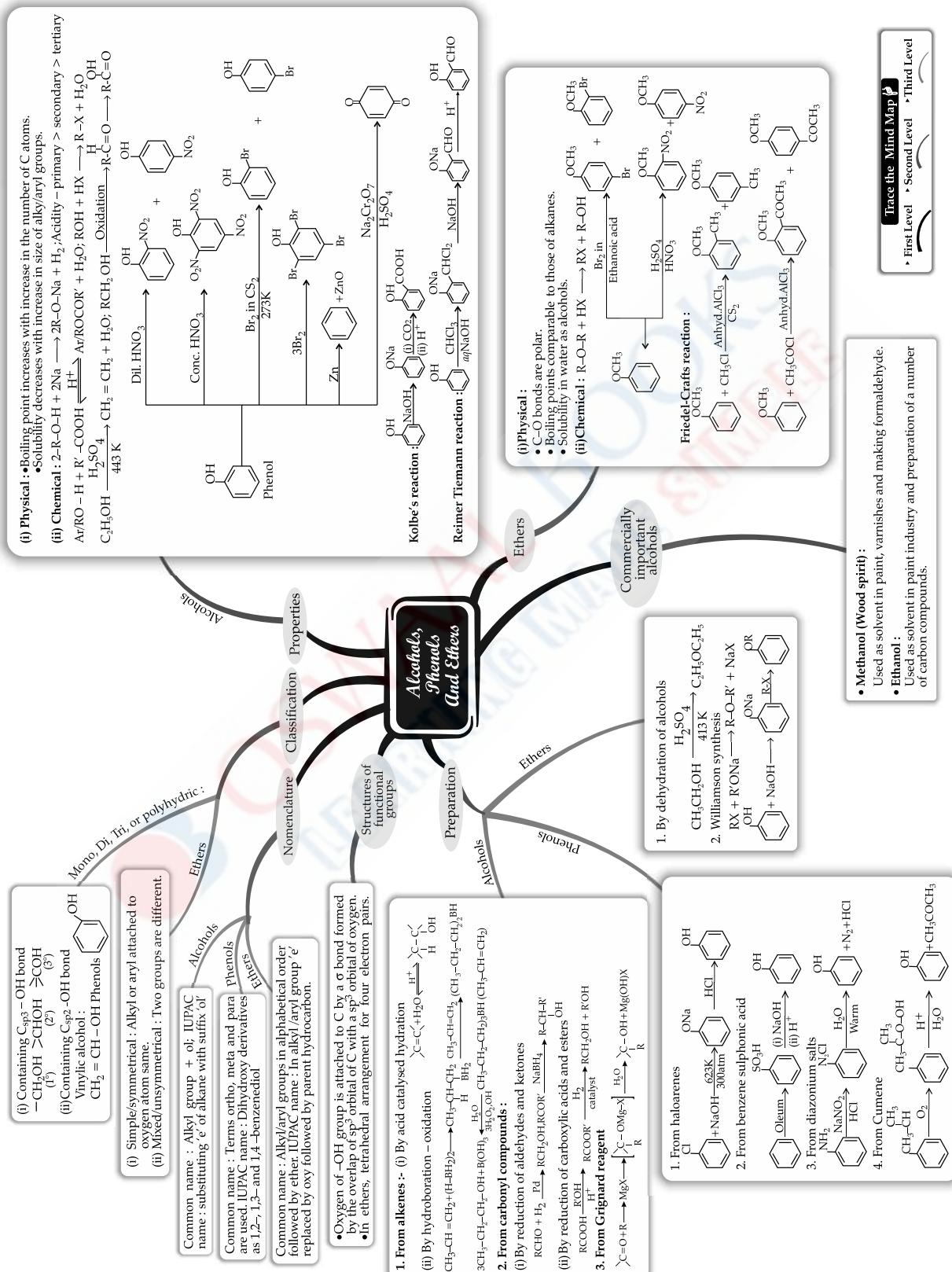


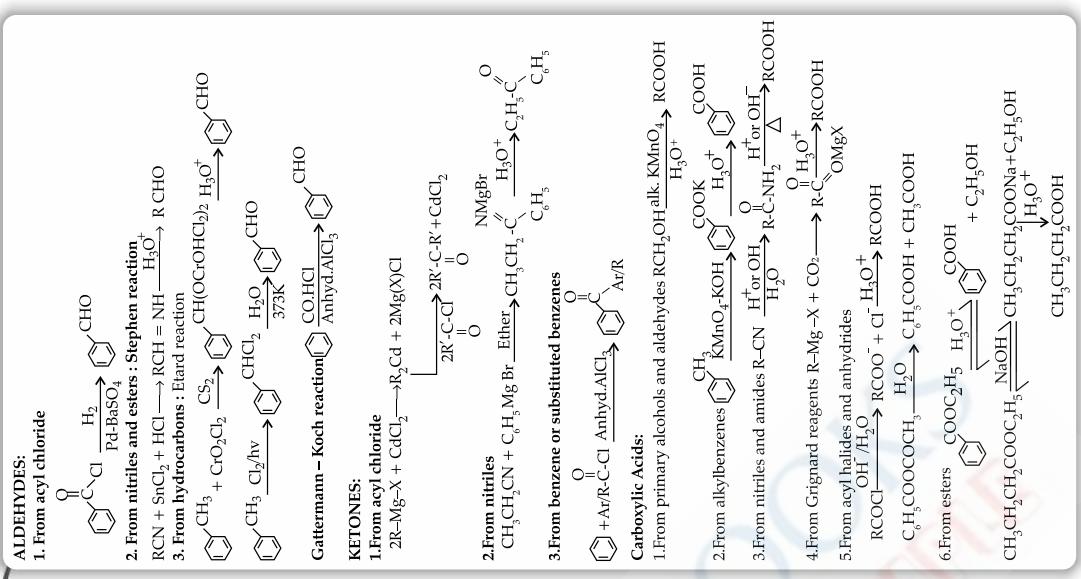
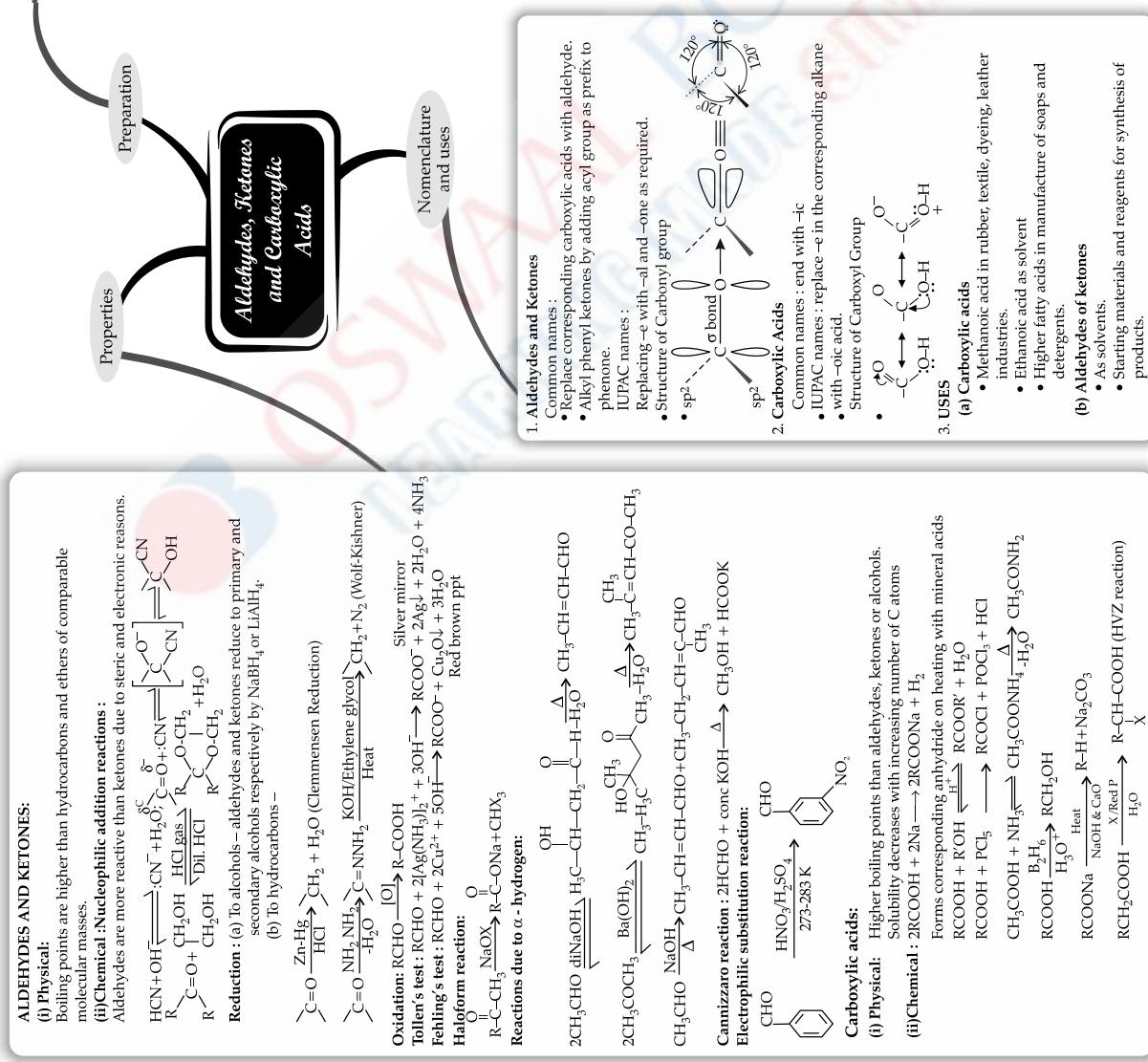


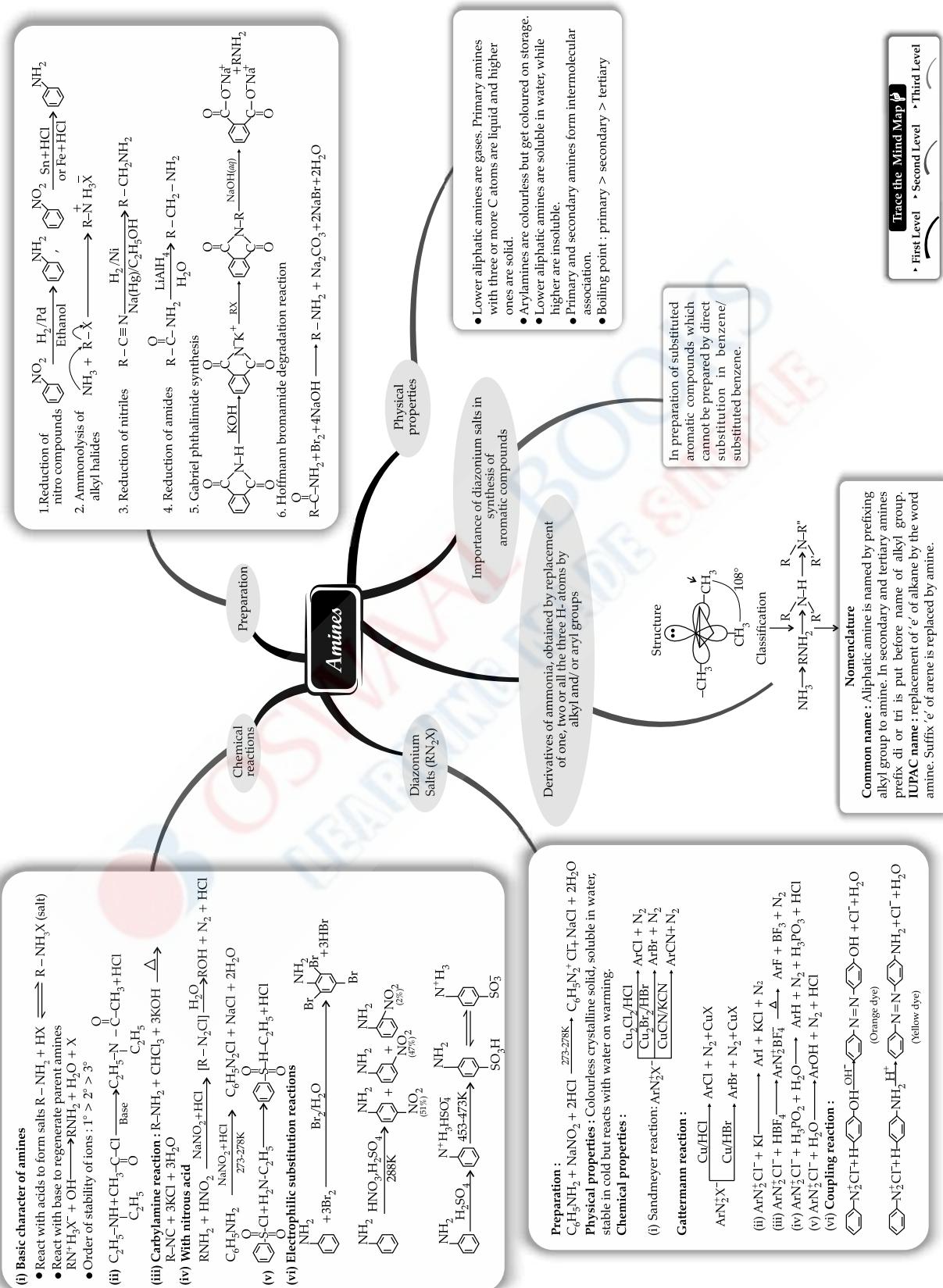


Trace the Mind Map ↗

• First Level → Second Level → Third Level







-Polymers of amino acids
-Amino acids contain $-\text{NH}_2$ and $-\text{COOH}$ group.

Classification :

- On the basis of relative number of $-\text{NH}_2$ and $-\text{COOH}$ group:
 - Neutral : Equal number of $-\text{NH}_2$ and $-\text{COOH}$ group.
 - Basic : More number of $-\text{NH}_2$ than $-\text{COOH}$ group.
 - Acidic : More number of $-\text{COOH}$ than $-\text{NH}_2$ group.

On the basis of place of synthesis :

- Essential - cannot be synthesized in the body.
- Non-essential - synthesized in the body.

On the basis of shape :

- Fibrous : fibre-like structure
- Globular : Spherical Peptide linkage
Structure : $\text{H}_2\text{N}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-\text{CH}_2-\text{C}(=\text{O})-\text{NH}-\text{CH}_3$

Denaturation of protein :

When a protein in its native form is subjected to physical change, globules unfold, helix get unclosed and protein loses its biological activity.

Optically active polyhydroxy aldehydes or ketones or compounds which produce units with specific functional groups on hydrolysis.

Classification :

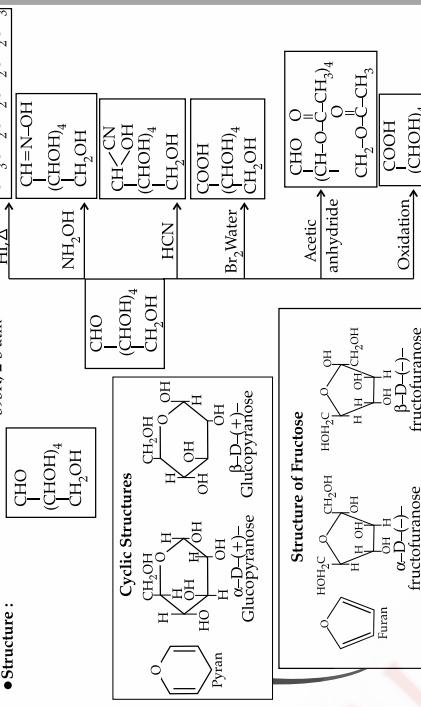
- Monosaccharides : (Aldehyde group - aldose, keto group -ketose)

Glucose - Preparation :

- From sucrose : $\text{C}_6\text{H}_{12}\text{O}_6 + \text{H}_2\text{O} \xrightarrow{\text{H}^+} \text{C}_6\text{H}_{12}\text{O}_6 + \text{C}_6\text{H}_{12}\text{O}_6$

From starch : $\text{C}_6\text{H}_{10}\text{O}_5n + n\text{H}_2\text{O} \xrightarrow[\text{H}^+]{393\text{K}; 23\text{ atm}} \text{C}_6\text{H}_{12}\text{O}_6$

Structure :



Organic compounds required in diet in small amounts to perform specific biological functions for maintenance and growth.

Classification :

- Fat soluble : Soluble in fats and oils but insoluble in water. (Vitamins A,D,E and K)
- Water soluble : B group and vitamin C are soluble in water.

Chromosomes : Particles in nucleus responsible for heredity. Chromosomes are made up of proteins and nucleic acid.

Two types : Deoxyribonucleic acid (DNA), ribonucleic acid (RNA)

Composition : In DNA, sugar is β -D-2-deoxyribose whereas in RNA is β -D-ribose. DNA contains A,G,C,T whereas RNA has A,G,C,U.

Structure :

Nucleoside : Formed by attachment of a base to 1' of sugar

Nucleotide : Formed by link to phosphoric acid at 5' of sugar.

Base Base
-Sugar-Phosphate-Sugar-Phosphate-Sugar-
Types of RNA : m-RNA, r-RNA, t-RNA

Biological Functions :

- Chemical basis of heredity.
- Responsible for identity of different species of organisms.
- Nucleic acids are responsible for protein synthesis in cell.

Optically active polyhydroxy aldehydes or ketones or compounds which produce units with specific functional groups on hydrolysis.

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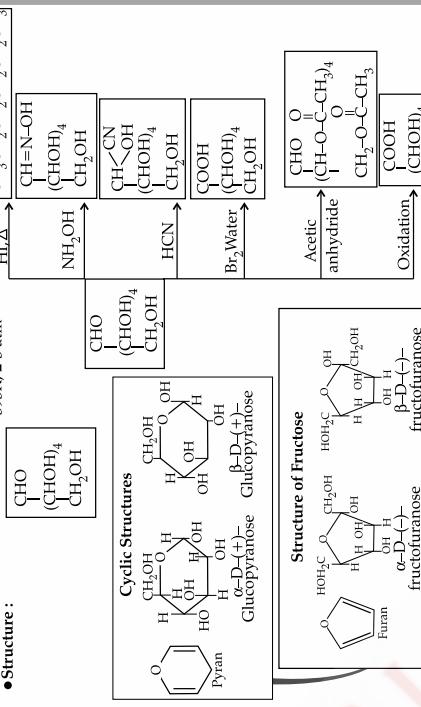
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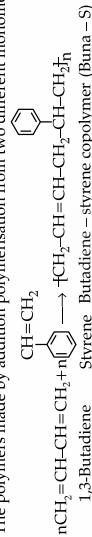
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Types of RNA : m-RNA, r-RNA, t-RNA

Biological Functions :

- Chemical basis of heredity.
- Responsible for identity of different species of organisms.
- Nucleic acids are responsible for protein synthesis in cell.

The polymers made by addition polymerisation from two different monomers are known as copolymers.



Types :

(i) Natural rubber : obtained from rubber latex.

It is a polymer of isoprene. Any vulcanizable rubber. These are homopolymers and copolymer of 1,3 butadiene derivatives.



- Expressed as an average.
- Determined by chemical and physical methods.

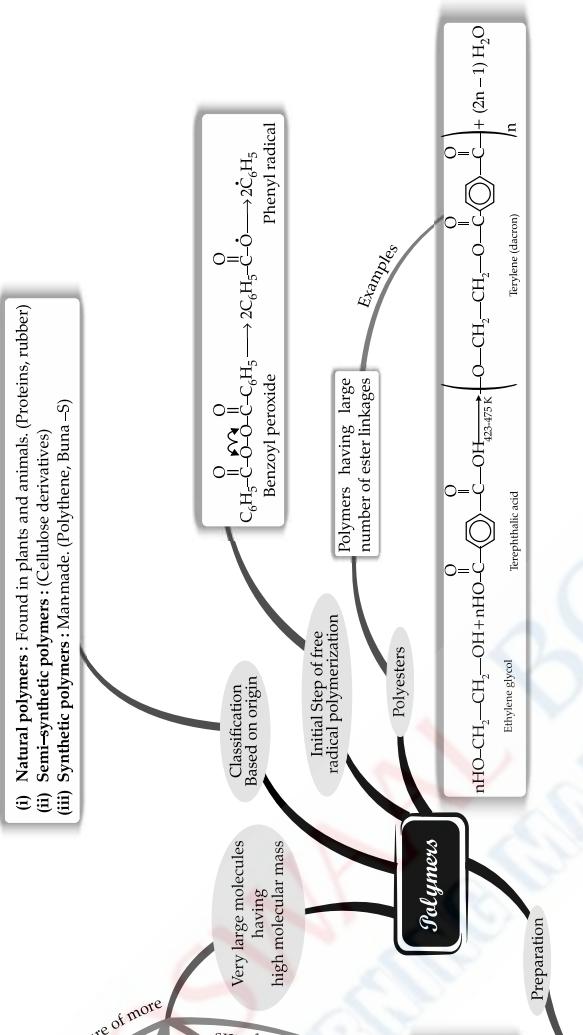
Contain functional groups similar to biopolymers (PHBV, Nylon 2–nylon 6)

Those polymers which do not degrade in environment and accumulate in the form of waste, e.g., polythene, polystyrene, etc. They consist of long chains of carbon and hydrogen atoms joined by strong interatomic bonding making it hard for microbes to break the bonds and digest them.

Rubber
Molecular masses of polymers
Non-Biodegradable polymers

A mixture of more
than one monomeric species
undergoes polymerization

- (i) Natural polymers : Found in plants and animals. (Proteins, rubber)
- (ii) Semi-synthetic polymers : (Cellulose derivatives)
- (iii) Synthetic polymers : Manmade. (Polythene, Buna-S)



Polyethene

Low density : Polymerization of ethene under 1000–2000 atm at 350–570 K + catalyst
High density : Addition polymerization of ethene in a hydrocarbon solvent at 333–343 K and 6–7 atm + catalyst

• **Teflon:** $\text{nCF}_2 = \text{CF}_2 \xrightarrow[\text{catalyst}]{\text{High pressure}} [\text{CF}_2-\text{CF}_2]_n$

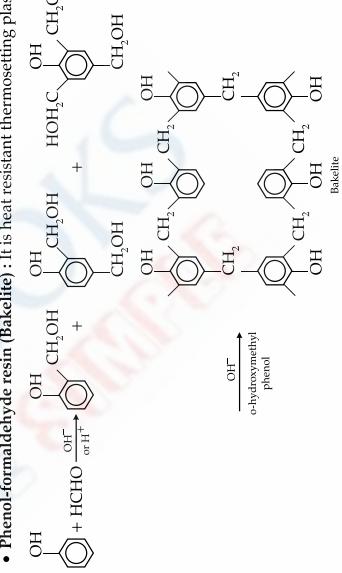
• **Potassium cyanide:** $\text{KCN} + \text{H}_2 \xrightarrow{\text{Peroxide}} \text{HCN}$

• **Nylon 6:** $\text{nHOOC(CH}_2)_4\text{COOH} + \text{nNH}_2(\text{CH}_2)_6\text{NH}_2 \xrightarrow[\text{High pressure}]{\text{H}_2\text{O}} \left[\text{N}-(\text{CH}_2)_6-\overset{\text{H}}{\underset{\text{H}}{\text{N}}}-(\text{CH}_2)_4-\overset{\text{O}}{\underset{\text{O}}{\text{C}}} \right]_n$

• **Nylon 6:** $\begin{array}{c} \text{C=O} \\ | \\ \text{H}_2\text{C}-\text{N}-\text{C}(=\text{O})-\text{CH}_2 \\ | \\ \text{H}_2\text{C}-\text{CH}_2 \end{array} \xrightarrow[\text{H}_2\text{O}]{533-543 \text{ K}} \text{H}_2\text{N}-\text{CH}_2-\text{COOH} \xrightarrow[-2\text{H}_2\text{O}]{\text{E amino caproic acid}} \left[\text{C}-(\text{CH}_2)_5-\overset{\text{H}}{\underset{\text{H}}{\text{N}}}-(\text{CH}_2)_4-\overset{\text{O}}{\underset{\text{O}}{\text{C}}} \right]_n$

Caprolactam
Bakelite

• Phenol-formaldehyde resin (Bakelite) :

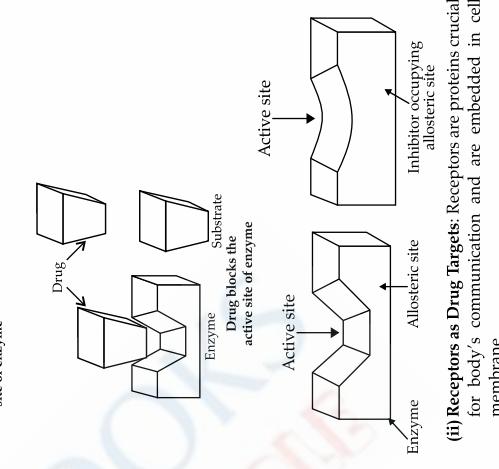
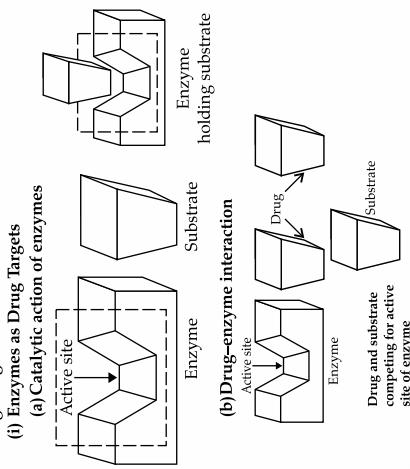


- Drugs are chemicals of low molecular masses. Interact with macromolecular targets to produce a biological response.

- Classification of drugs:**

- On the basis of pharmacological effect :** Provides range of drugs available for a particular type of problem. (Analgesics, Antiseptics).
- On the basis of drug action :** (Antihistamines inhibit action of histamine responsible for causing inflammation in the body).
- On the basis of chemical structure :** Common structural features. (Sulphonamides)
- On the basis of molecular targets :** Most useful.

- Drugs-Target Interaction:**



(ii) **Receptors as Drug Targets:** Receptors are proteins crucial for body's communication and are embedded in cell membrane.

Medicines: Chemicals which generate therapeutic and useful biological response

Therapeutic Action of Different Classes of Drugs

Chemistry in Everyday Life

- Antacids :** Substances that neutralize the excess HCl and raise pH in stomach (Ranitidine, Cimetidine).
- Antihistamines :** Interfere with natural action of histamine by competing with histamine for binding sites of receptor where histamine exerts its effect.
- Neurologically Active Drugs**
 - Tranquilizers :** Class of chemical compounds used for the treatment of stress and mild or even severe mental diseases. (Iproniazid, Phenothiazine)
 - Analgesics :** Reduce/abolish pain without causing impairment of consciousness, mental confusion, incoordination or paralysis or other disturbances of nervous system. These are classified as:
 - Non-narcotic (non-addictive) : (Aspirin, Paracetamol)
 - Narcotic : (Morphine)

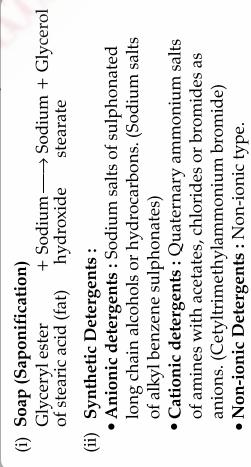
- Antimicrobials**
 - Antibiotics :** Drugs to treat infections because of their low toxicity for humans and animals. (Penicillins)
 - Antiseptics and Disinfectants :** Chemicals which either kill or prevent the growth of microorganisms. Antiseptics are applied to living tissues whereas disinfectants are applied to inanimate objects.
- Antifertility Drugs :** Birth control pills. (Norethindrone, ethynodiol)

Purpose:

- For their preservation.
- Enhancing their appeal.
- Adding nutritive value.

- (a) **Artificial Sweetening Agents :** Natural sweeteners (sucrose), artificial sweeteners (Aspartame, Saccharin)

- (b) **Food Preservatives :** Prevent spoilage of food due to microbial growth. (Table salt, sugar)

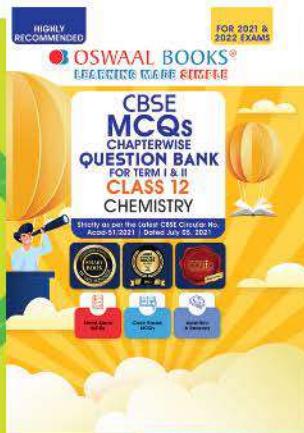


Trace the Mind Map ↗

- First Level • Second Level • Third Level

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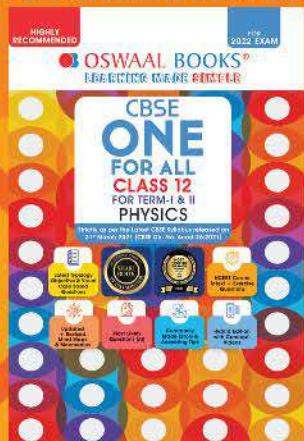
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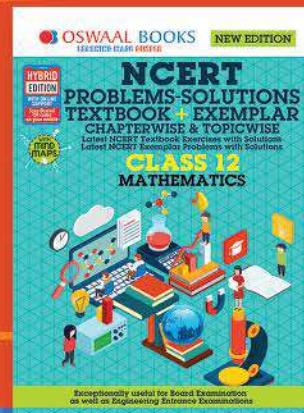
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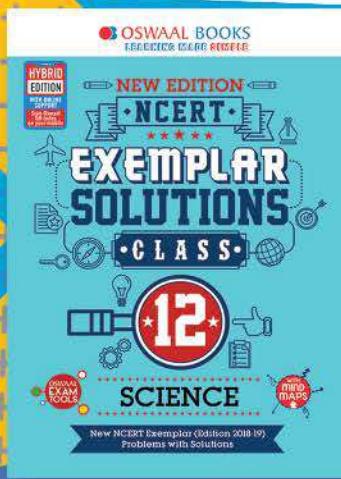


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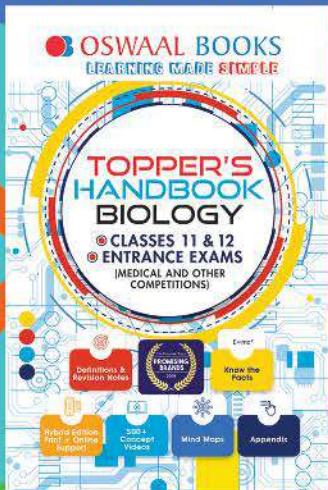
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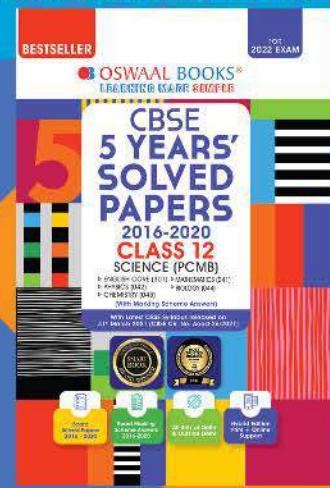
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