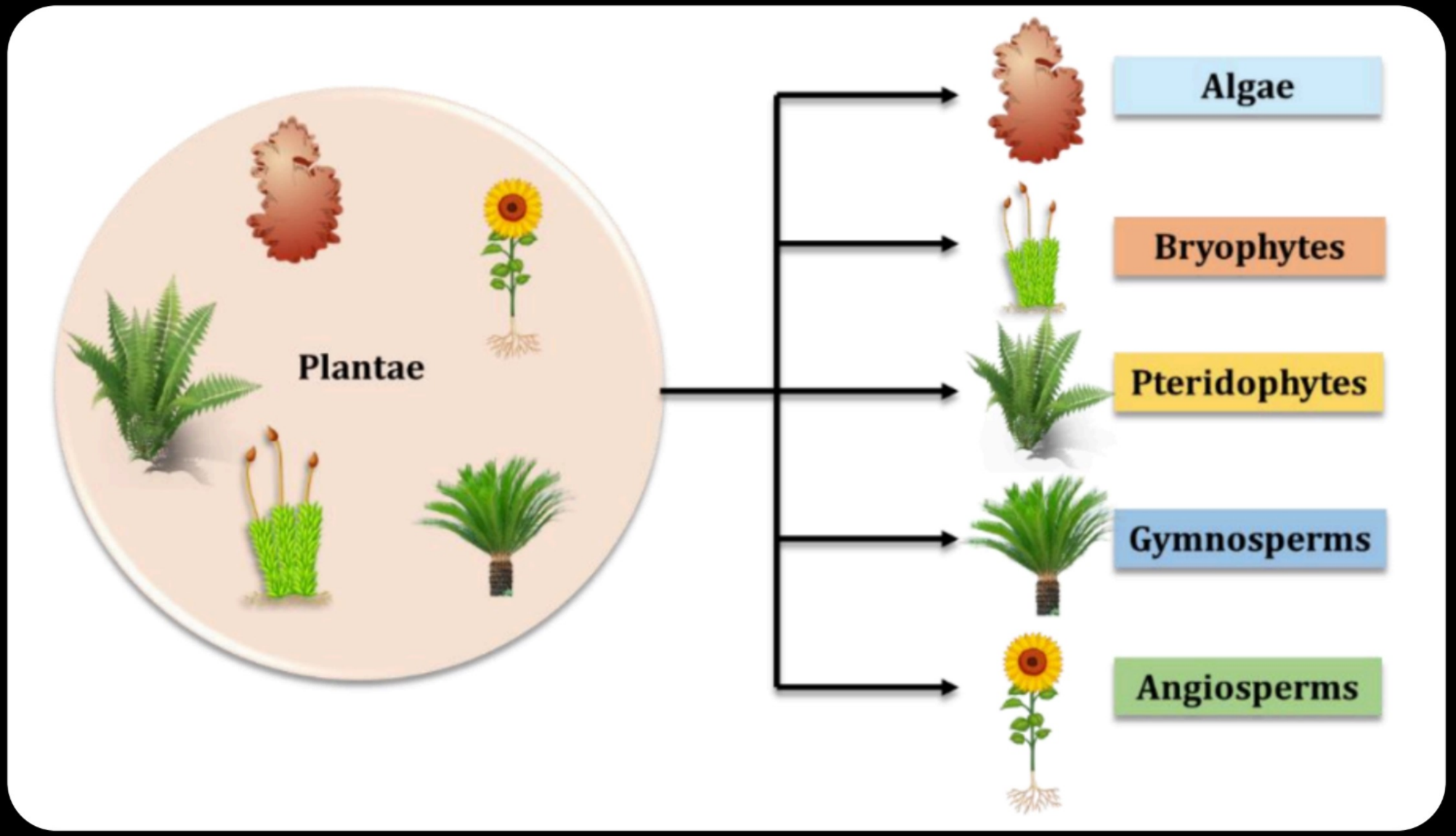

Welcome
Appy's Squad
Chapter
PLANT
Kingdom


HELLO LOVELIESSS AND CUTIESS
PLANT KINGDOM L-1
FROM AAPU MAM <3
APPY KINGDOM FIZZ
BY - Jyotisikha


Plantae
Algae
Bryophytes
Pteridophytes
Gymnosperms
Angiosperms

CLASSIFICATION OF PLANT KINGDOM

Artificial System of Classification

Natural System of Classification

Phylogenetic System of Classification

ARTIFICIAL SYSTEM OF CLASSICATION

- In this type of classification plants are classified on the basis of one or few superficial morphological characters like habit, colour, number and shape of leaves. i.e. over all morphology is not considered.
- Classification proposed by Linnaeus is Artificial, Based on Androecium structure and numbers.
- In this system equal weightage is given to both vegetative and reproductive characters.
- Not acceptable because vegetative characters are more easily affected by environment.

FASHION SHOW CLASSIFICATION

NATURAL SYSTEM OF CLASSICATION

- NATURAL CLASSIFICATION: - In this type, plants are classified on the basis of their complete (gross) morphological characters of (stem, root, leaves, flowers etc.). Based on natural affinities among the organism and consider not only the external character, but also internal features, like ultra-structure, anatomy, embryology, and phytochemistry.
- Natural classification of flowering plants was given by George

Bentham and Joseph Dalton Hooker also.

ARTIFICIAL SYSTEM

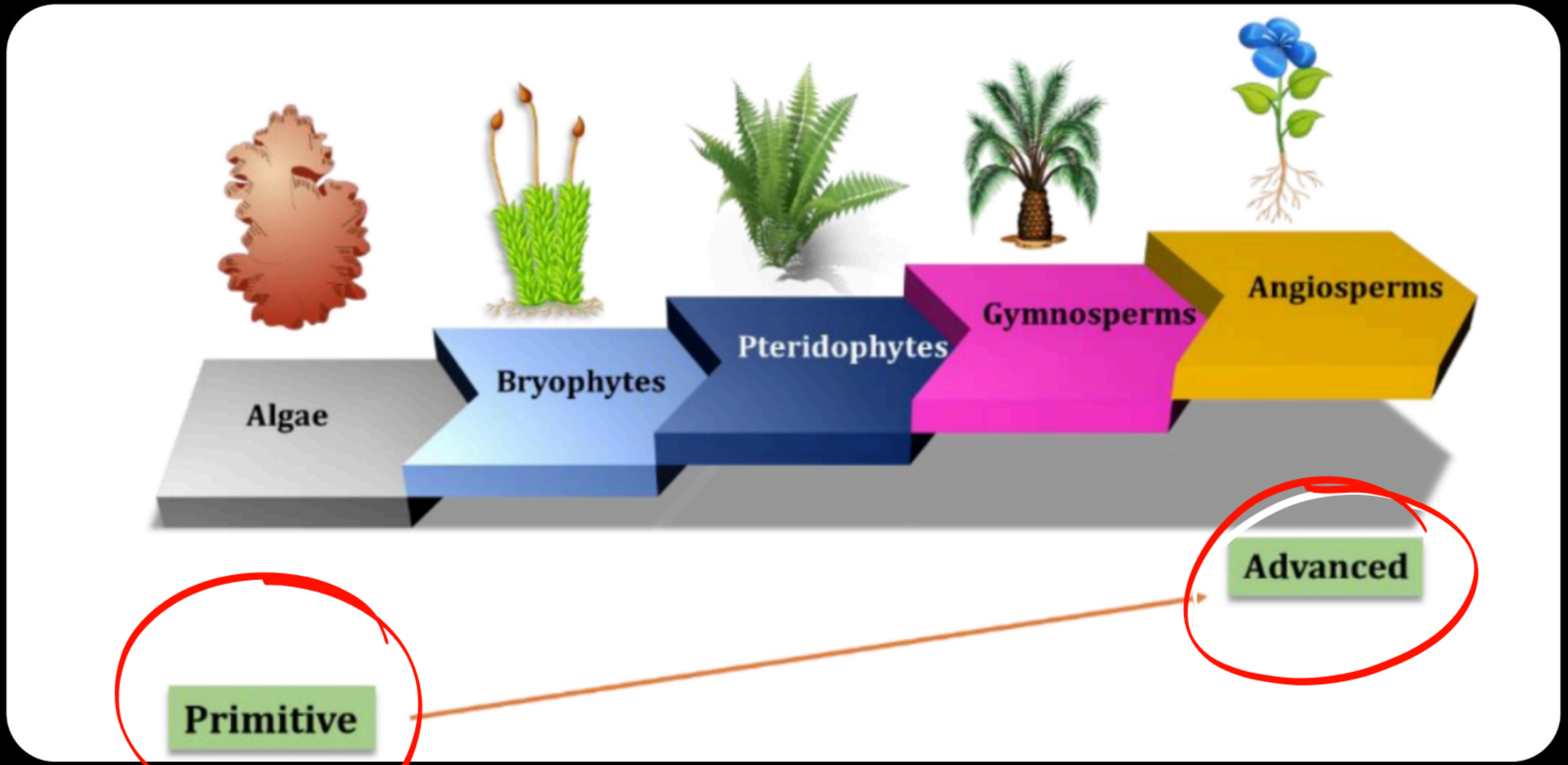
is like judging people by clothes.

NATURAL SYSTEM

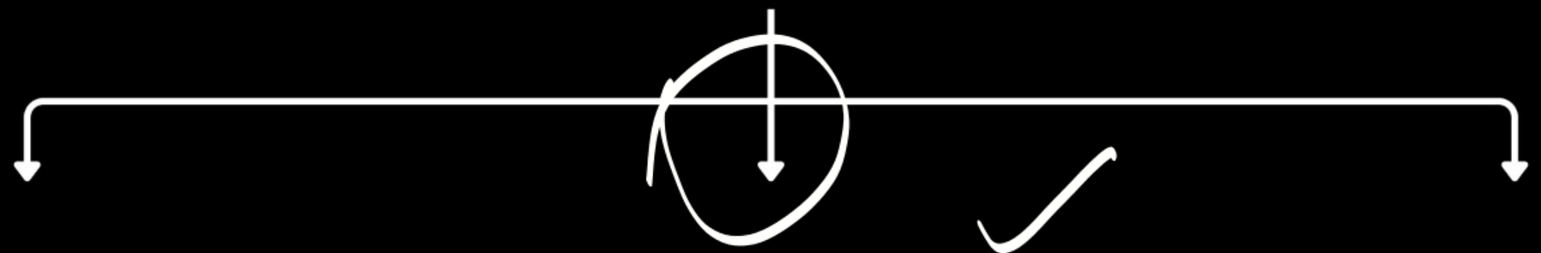
is like knowing them by personality, family history, and habits.

PHYLOGENETIC SYSTEM OF CLASSIFICATION

- In phylogenetic classification, the plants are arranged on the basis of their evolution (organisms belong same taxa have a common ancestor.)


Algae
Bryophytes
Pteridophytes
Gymnosperms
Angiosperms
Primitive
Advanced

ADVANTAGES



Artificial System of Classification

- Easy to use
- Easy to change

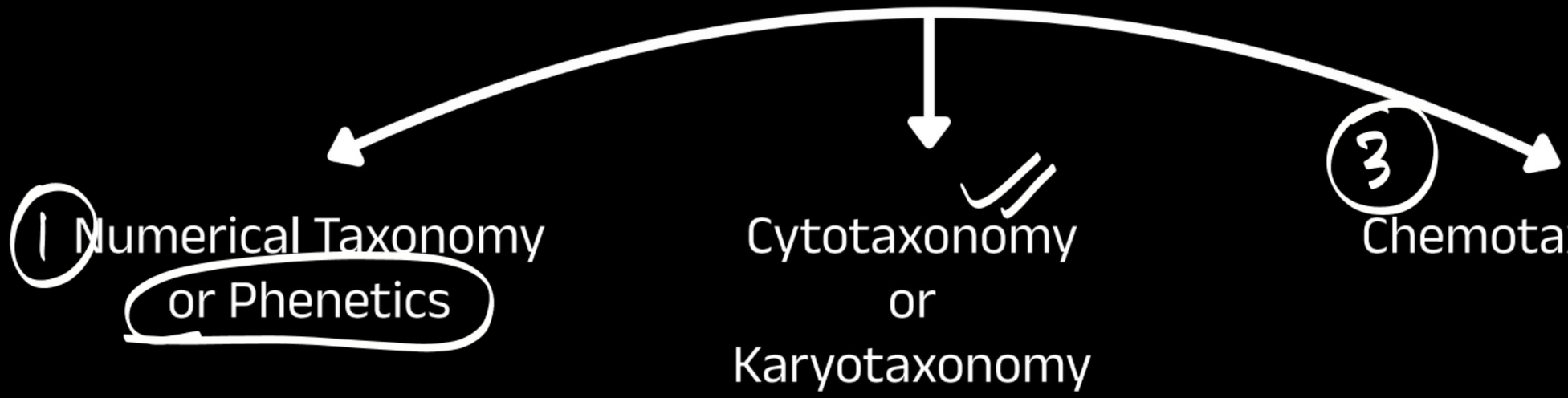
Natural System of Classification

- Avoid heterogenous grouping of unrelated organism
- Indicate natural relationship among organisms

Phylogenetic System of Classification

- Clear view of organisms evolutionary relationship

BRANCHES OF TAXONOMY



“THREE WAYS TO SOLVE THE MYSTERY OF PLANT RELATIONSHIPS!”

PHENETIC CLASSIFICATION OR NUMERICAL CLASSIFICATION:

- In it plants are classified on the basis of numbers of similarities and dissimilarities.
- This classification is easily carried out by using computers and it is based on all observable characteristics.

- In this classification number and codes are assigned to all the characters and the data are prepared and then processed. Those organisms which have maximum similarities are placed in same group. In this way eacH character is given equal importance and at the same time hundreds of characters can be considered.

QUESTIONS

Which System of classification was proposed by Linnaeus?

a. Artificial
b. Natural
c. Sexual
d. Artificial and sexual

QUESTIONS

Which of the following classification is based on complete or gross morphological characters?

a. Artificial classification
b. Practical classification
c. Natural classification
d. Cladistic classification

QUESTIONS

Choose the incorrect statement regarding the artificial classification :-

a. It was given by Linnaeus also.
b. Equal weightage is given to both vegetative and reproductive characters.
c. Based on few morphological characters.
d. Most acceptable classification.

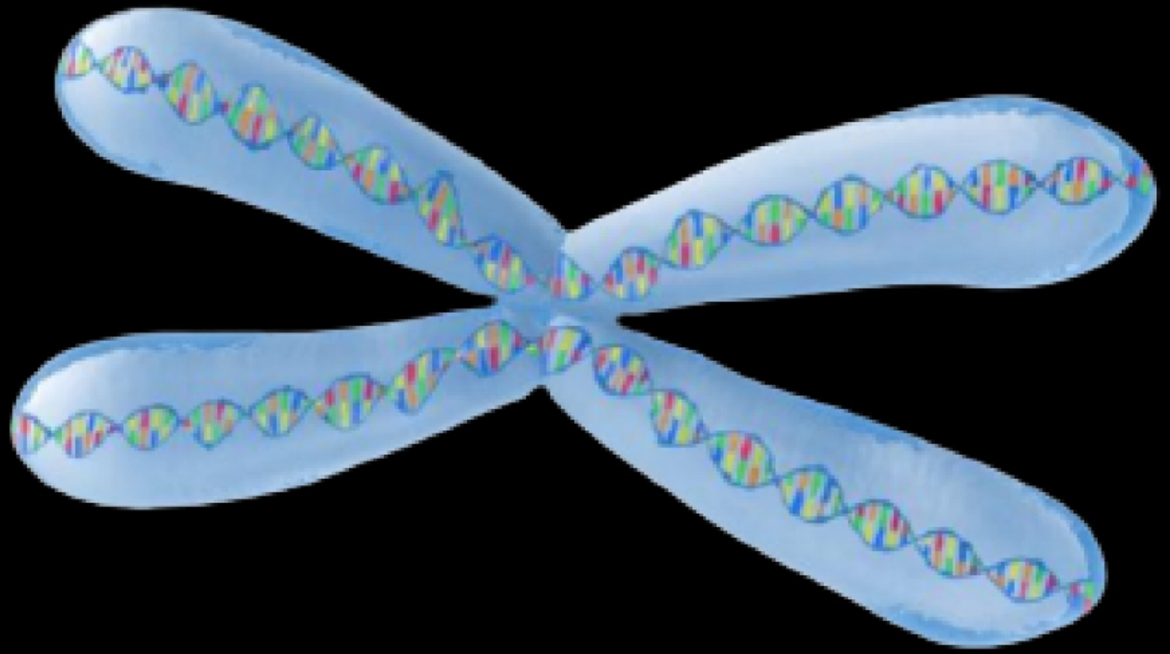
QUESTIONS

Natural classification of flowering plants was given by: -

a. Linnaeus
b. Theophrastus
c. Aristotle
d. Bentham and Hooker

CYTOTAXONOMY

- The use of cytological characters of plants in classification or in solving taxonomic problems is called cytotaxonomy. Cytotaxonomy is based on cytological information like chromosome number, structure and behaviour etc.



CHEMOTAXONOMY:

- It is based on the chemical constituents of plants. The basic chemical compounds used in chemotaxonomy are alkaloids, carotenoids, tannins, polysaccharide, nucleic acids, fatty acids, amino acids, aromatic compounds etc.

QUESTIONS

Cytological informations like chromosome number, structure and behaviour are related with :-

a. Numerical taxonomy
b. Cytotaxonomy
c. Chemotaxonomy
d. All of these

TERMINOLOGY

1 Embryo

2 Vascular System

3 Seed Formation

4 Sex Organs

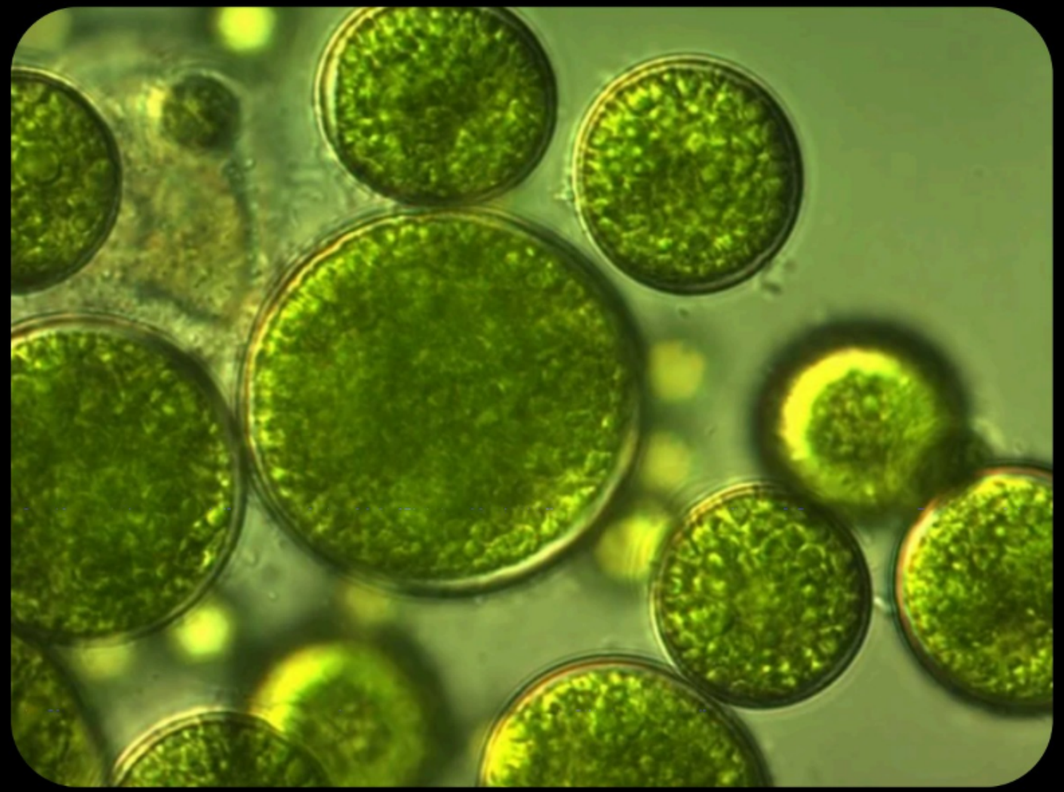
Class 11th | Biology

प्रारंभ BATCH

PLANT KINGDOM

LECTURE-1

ALGAE

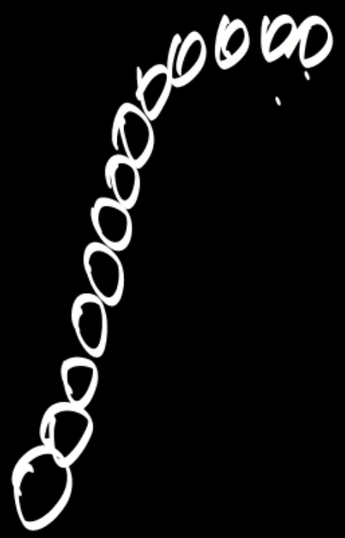


INTRODUCTION

- Non- Embryophytes (No embryo Formation)
- Non Vascular (Atracheophytes)
- Thalloid → Body is not differentiated into root, stem, leaves
- Study of Algae is PHYCOLOGY
- Mainly - Aquatic

GENERAL CHARACTERISTIC

- Occurence : Aquatic (Marine/ Freshwater)
- Body Organization : Cellular
  - Unicellular (Chlamydomonas)
  - Large & Massive (Kelps)
  - Colonial (Volvox) → coenobium
  - Filamentous (Ulothrix & Spirogyra)

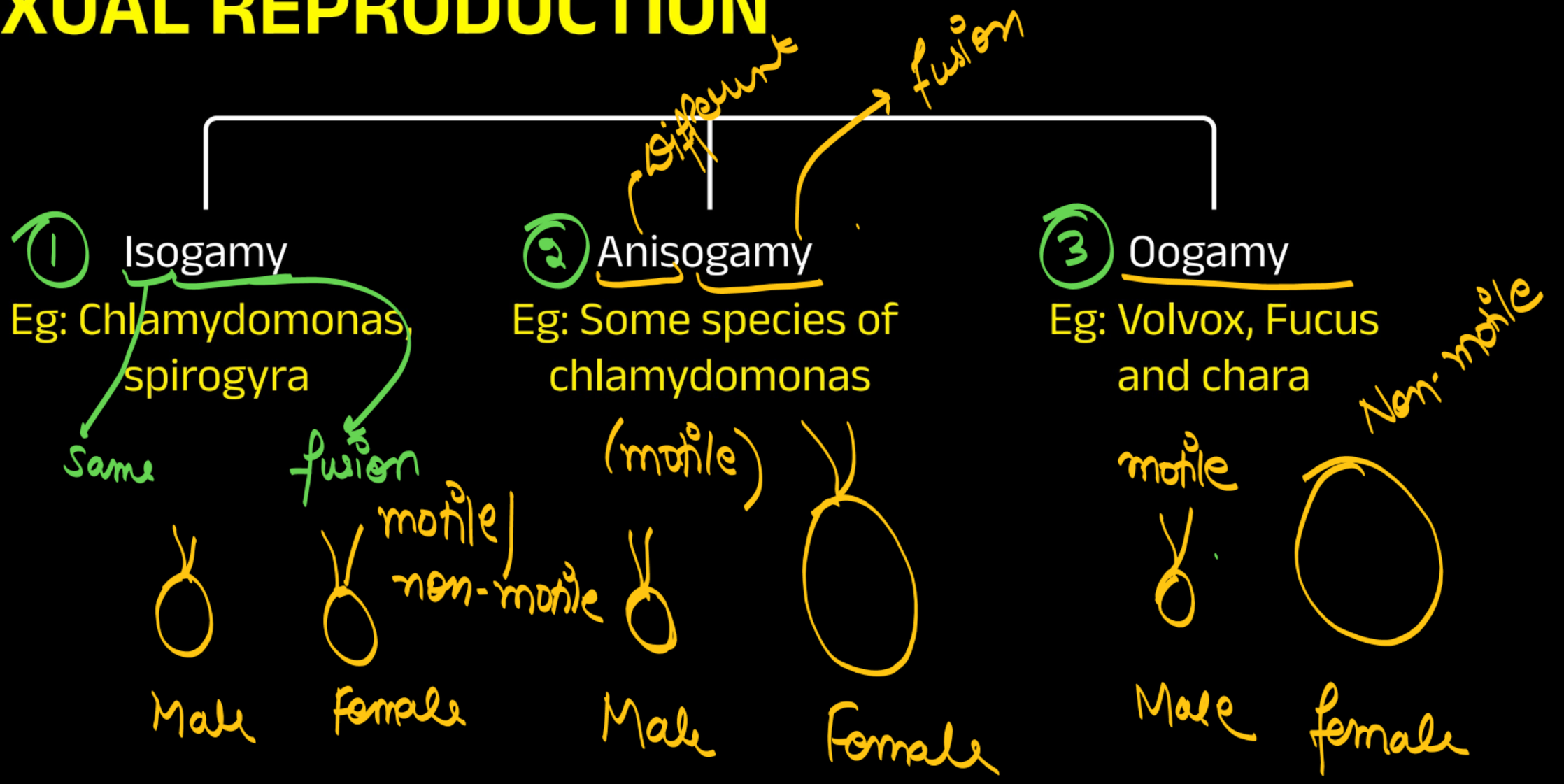


MODE OF REPRODUCTION

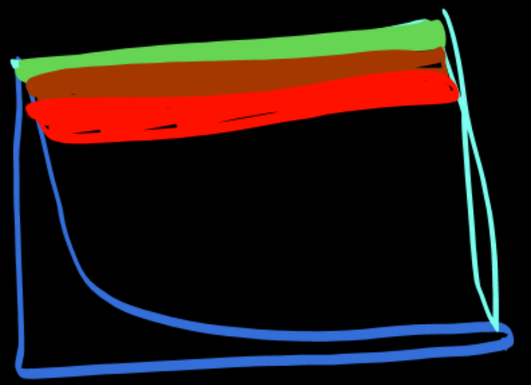
- Vegetative Reproduction- Fragmentation
- Asexual Reproduction - Zoospores
  - Motile
  - Biflagellated
  - Pyriform (Pear- Shaped)
  - Endogenous in Origin (Inside the covering)

Asexual spores.

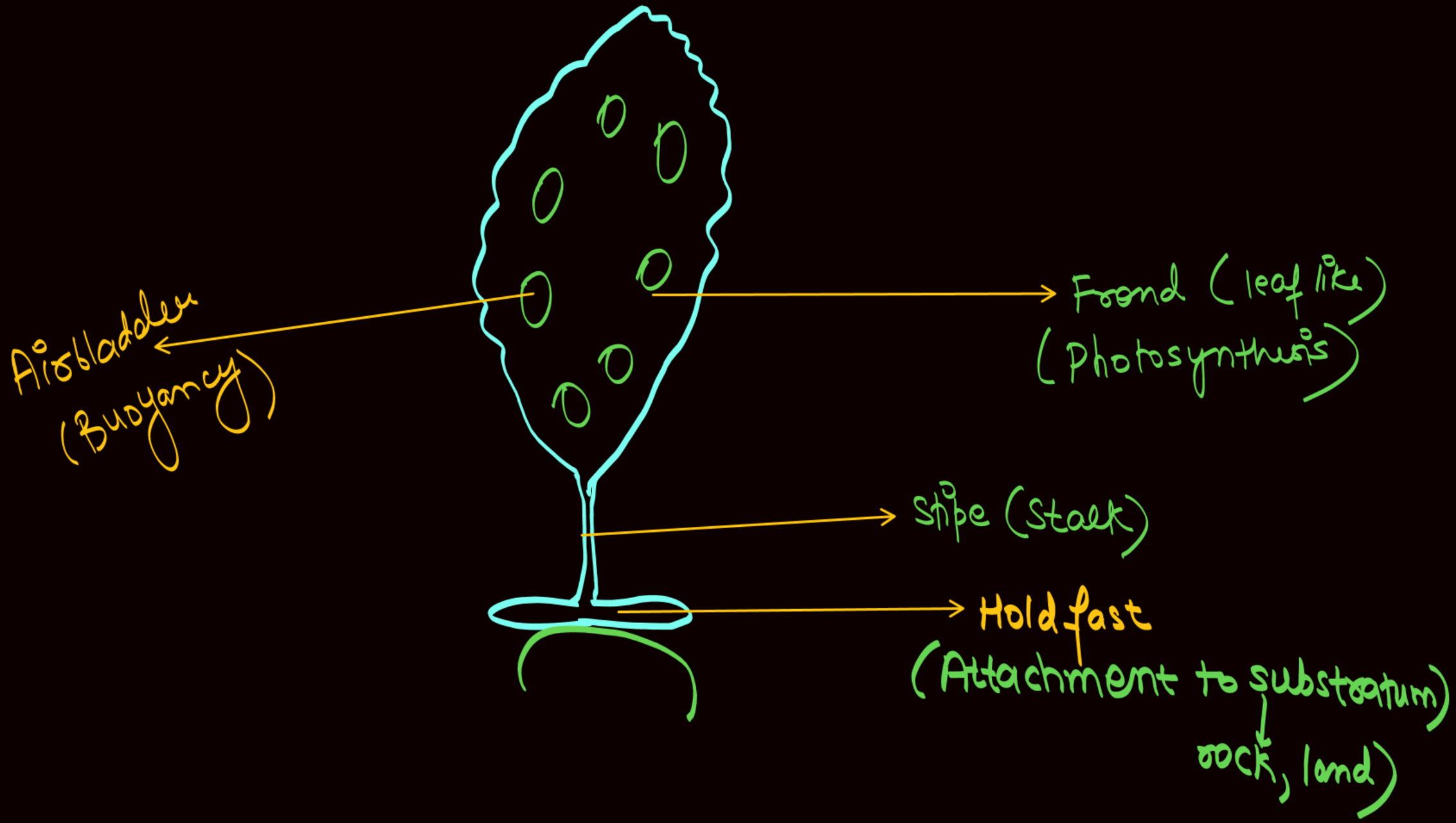
SEXUAL REPRODUCTION



Characters	Chlorophyceae	Phaeophyceae	Rhodophyceae
Also known as	Green Algae	Brown Algae	Red Algae
Habitat	Freshwater Salt water Brackish water (Found in shallowest depths)	Marine	Marine
Habit	Unicellular Colonial Filamentous	Simple Branched Filamentous	Multicellular complex Body structure



Characters	Chlorophyceae	Phaeophyceae	Rhodophyceae
		Kelps (Profusely Branched, Larger forms have air bladders for Buoyancy) Plant body divided into: 1. Holdfast: Attaches to Substratum 2. Stipe: Stalk like 3. Frond: Leaf - like photosynthetic organ	


Airbladder
(Buoyancy)
Frond (leaf like)
(Photosynthesis)
Stipe (Stalk)
Holdfast
(Attachment to substratum)
rock, land)

Hydrocolloids

Characters	Chlorophyceae	Phaeophyceae	Rhodophyceae
Cell wall	Inner Layer - cellulose Outer Layer - Pectose	Cellulose (covered with gelatinous ALGIN Hydrocolloids compound that have good water holding capacity	Cellulose Pectin Hydrocolloids Agar and carragen
Pigments	dominant cholorophyll a, b carotene Xanthophyll	dominant cholorophyll a, c carotenoids Xanthophylls	cholorophyll a, d r- phycoerythrin r- phycocyanin

Red, orange in colour

yellowish Brown

Commercial dominant extract: thickening agents in icecream

jellies

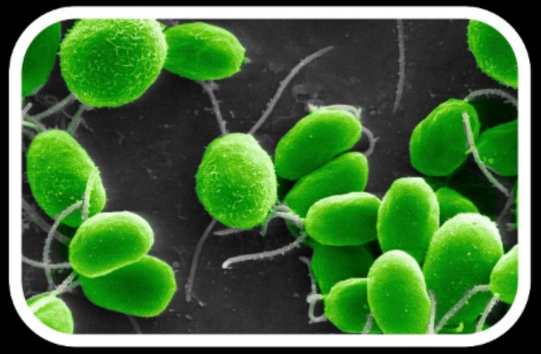
Blue in colour

Characters	Chlorophyceae	Phaeophyceae	Rhodophyceae
Colouration	Green	Olive green to shades of brown (Due to xanthophyll - fucoxanthin)	Red colour
Reserve food material	Storage body - Pyrenoids (Starch & Proteins Protein granule surrounded by starch) in chloroplast	Complex carbohydrates Laminarin or mannitol	Floridean Starch (Structurally simailar to Amylopectin & Glycogen)
Vegetative Reproduction	Fragmentation	Fragmentation	Fragmentation

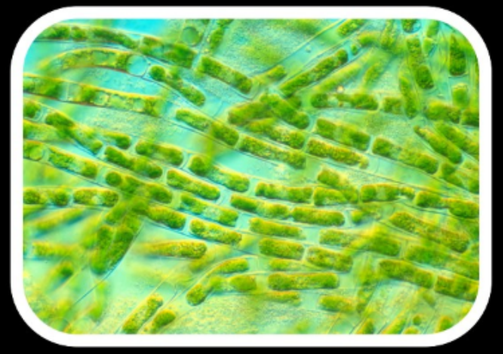
CTION

Characters	Chlorophyceae	Phaeophyceae	Rhodophyceae
Asexual Reproduction	Zoospores Motile Equal , Apically placed flagella	Zoospores Motile Biflagellate Unequal, laterally placed flagella	Non- motile spores
Sexual Reproduction	Isogamy Anisogamy Oogamy	Isogamy Anisogamy Oogamy	Oogamy (Gametes non - motile)

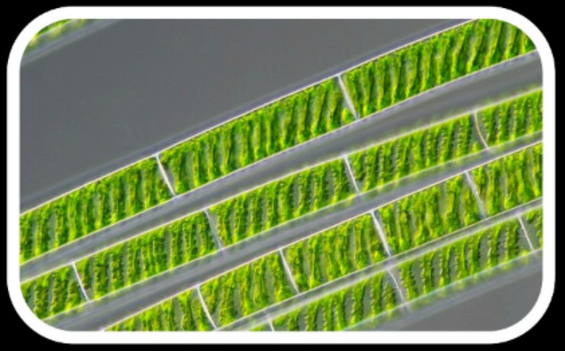
Characters	Chlorophyceae	Phaeophyceae	Rhodophyceae
Examples	Chlamydomonas	Fucus	Polysiphonia
	Ulothrix	Laminaria	Porphyra (Edible)
	Spirogyra	Ectocarpus	Gracillaria (Extraction of agar)
	Chara	Dictyota	Geliidium
	Volvox (Rolling algae)	Sargassum (Gulf weed)	Chondrus (Irish moss)
			Batrachospermum



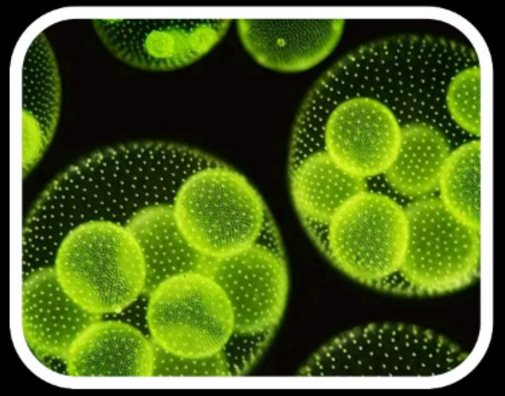
Chlamydomonas



Ulothrix



Spirogyra



Volvox (Rolling algae)

Chara

Phaeophyceae

Fucus

Lamiinaria

Dictyota

Sargassum(Gulf weed)

Ectocarpus

Polysiphonia

Porphyra (edible)

Gracillaria

Geliidium

Chondrus (Irish moss)

Batrachospermum

STAY CONNECTED

KEEP LEARNING

Thank You

Join our telegram channel
@NEXTTOPPERS_SCIENCE