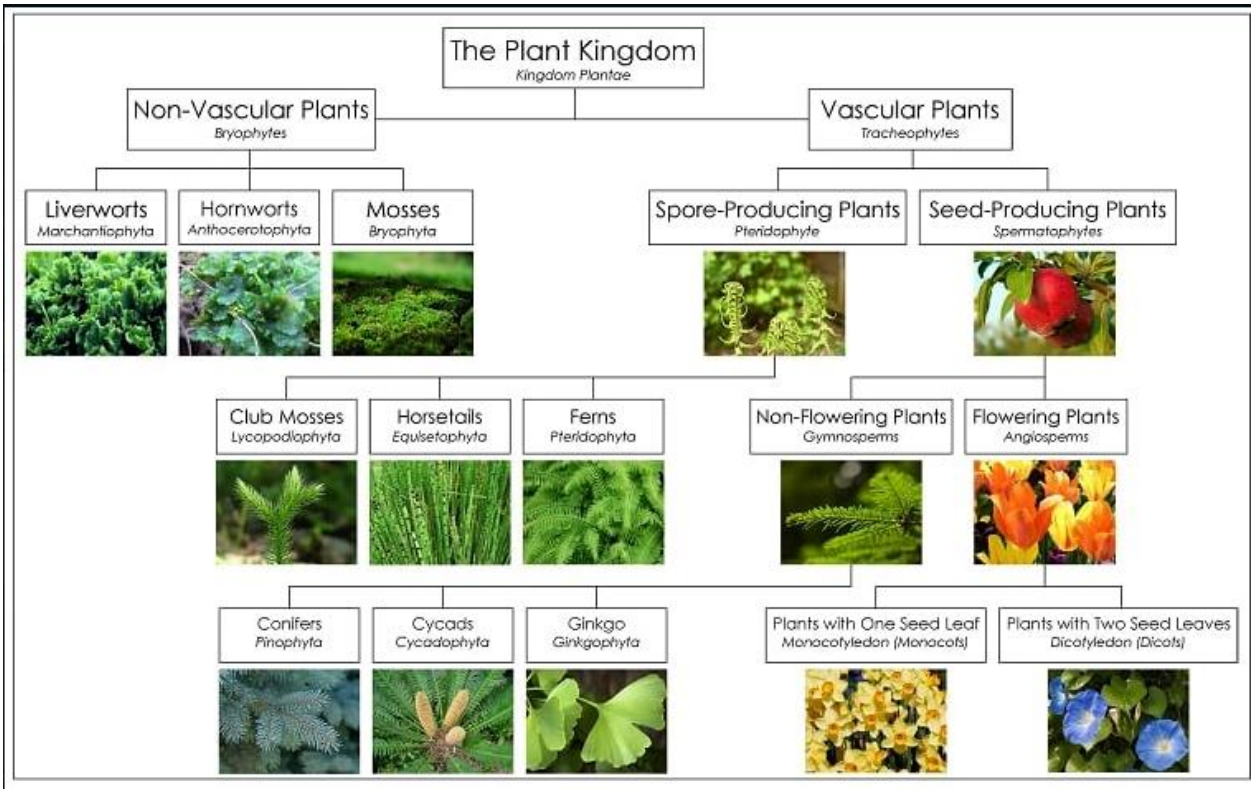
CHAPTER – 3 PLANT KINGDOM

Eukaryotic, multicellular, chlorophyll-containing, and having a cell wall, are grouped under the kingdom Plantae. It is popularly known as the plant kingdom. They include the flowering plants, conifers, and other gymnosperms, ferns, Club mosses, hornworts, liverworts, mosses, and the green algae, and excludes the red and brown algae. In this article, we will learn about the types of organisms in the Plant Kingdom, their division, etc.



1. Match the storage products listed under column I with the organism given under column II. Choose the appropriate option from the given options

Column I	Column II
A. Glycogen	1. Sargassum
B. Pyrenoids	2. Nostoc
C. Laminarin and mannitol	3. Polysiphonia
D. Floridean starch	4. Spirogyra
	5. Agaricus

Codes	A	B	C	D
(a)	3	4	1	5
(b)	4	3	5	2

(c) 5 4 1 3

(d) 2 1 4 3

Ans. (c) :

FEEDBACK :- (A) Glycogen → 5. Agaricus

(B) Pyrenoids → 4. Spirogyra

(C) Laminarin and Mannitol → 1. Sargassum

(D) Floridean Starch → 3. Polysiphonia

2. Assertion (A) : In evolution the distribution of Bryophytes and Pteridophytes, was limited

   Reason (R): The need of water for the transportation of male gametes and fertilization limited their distribution

   The correct option among the following is

   (a) (A) is true, (R) is true and (R) is the correct explanation for (A)

   (b) (A) is true (R) is true but (R) is not the correct explanation for (A)

   (c) (A) is true but (R) is false

   (d) (A) is false but (R) is true

   Ans. (a) :

   Feedback: Bryophytes and Pteridophytes are limited in distribution and restricted to narrow geographical regions because they need water for the transportation of male gametes and fertilization. They grow in cool, damp and shady places.

3. From evolutionary point of view, retention of the female gametophyte with developing young embryo on the parent sporophyte for some time, is first observed in
   (a) Mosses
   (b) Pteridophytes
   (c) Gymnosperms
   (d) Liverworts
   Ans. (b) :
   Feedback :- Pteridophytes are considered as the first plants to be evolved on land. They are cryptogams, seedless and contain vascular tissue but lack xylem vessels and phloem companion cells.
   • In pteridophytes, megaspore is retained for a significant amount of time within female gametophyte on the parent sporophyte, however the permanent retention of seed is seen in Gymnosperm. Thus, pteridophytes exhibit precursor to seed habit.
4. Which of the following statements is incorrect about gymnosperms?
   (a) Their seeds are not covered
   (b) They are heterosporous

(c) Male and female gametophytes are free living
(d) Most of them have narrow leaves with thick cuticle
Ans. (c) :
Feedback :- Gymnosperms have naked seeds. All of them are heterosporous. Male and female gametophytes do not have independent existence hence are not free living. The male and female gametophytes of gymnosperms are highly reduced. They are dependent upon sporophytes and are not free living.

5. Read the following four statements (A to D) and select the option with all correct statements:-

(A) Mosses and Lichens are the first organism to colonize a bare rock

(B) Selaginella is a homosporous pteridophyte

(C) In bryophyte the main plant is the gametophyte, whereas in pteridophyte it is the sporogenous plant.

(D) In gymnosperms, male and female gametophytes are present within sporangia located on sporophyte.

(a) (B), (C) and (D)

(b) (A), (C) and (D)

(c) (A), (B) and (D)

(d) (A), (B) and (C)

Ans. (b) :

FEEDBACK :- Lichens and mosses are members of the pioneer species. They are the first living things to settle on an uninhabited rock. Pioneer community is the one which arises first on a bare rock or land. Bryophytes have diploid sets of chromosomes, while Pteridophytes have haploid set of chromosomes.

The main plant body of bryophytes is gametophytic means they have two sets of chromosomes, they are non-vascular, that is xylem and phloem are not present, in them.

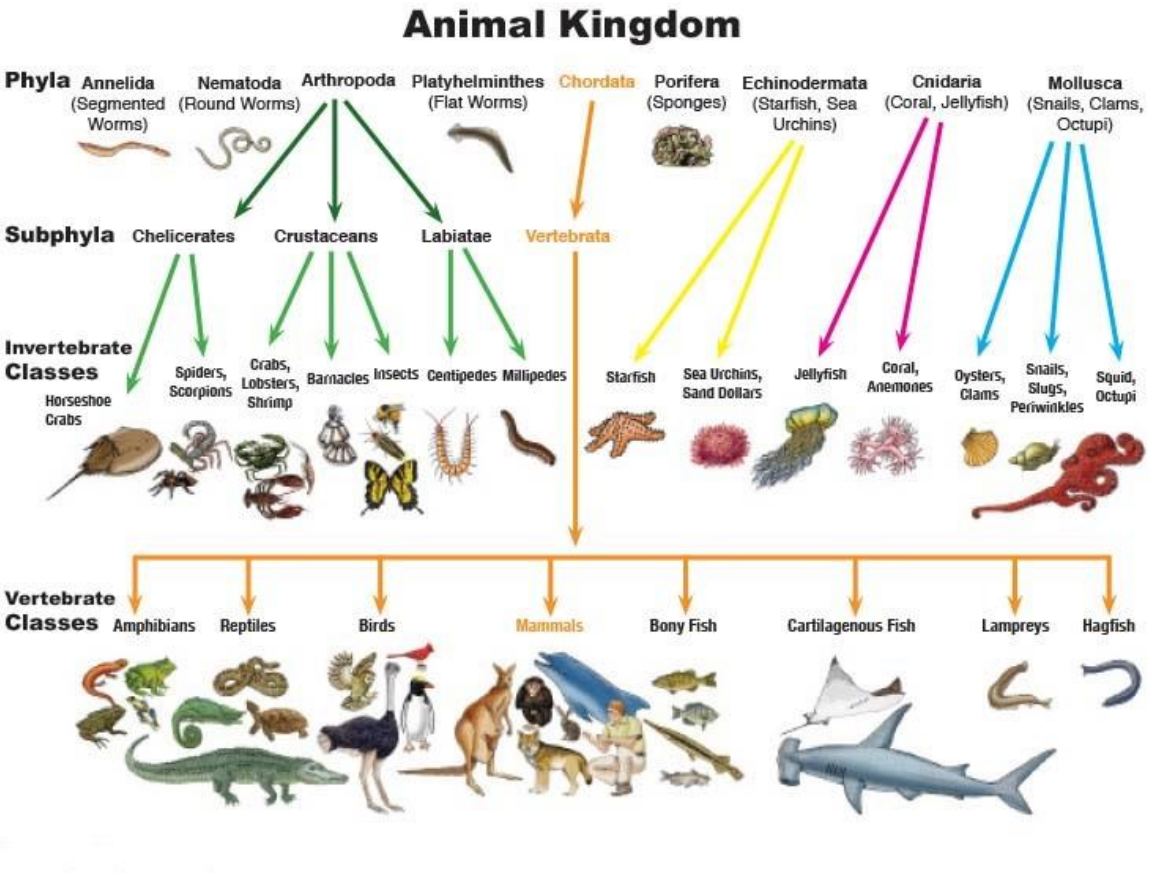
Gymnosperms, male and female gametophytes are present within sporangia located on sporophytes

Gymnosperms are seed bearing plant.

Selaginella belong to pteriodophytes but they are heterosporous, that is spore are differentiated into males and females.

CHAPTER -4 ANIMAL KINGDOM
Classification of animals is termed as Kingdom Animalia. It is further divided into different phyla. These are nothing but divisions in which animals/organisms with the same characteristics are included under them. Apart from the primary distinguishing features of the Animal Kingdom (Eukaryotic, Multicellular, without a cell wall and heterotrophic); each phylum has organisms that have common characteristics. In the classification of animals chart, they move from the

simplest to the most complex.



6. Assertion (A) : Radial symmetry is an advantage to sessile animals.
   Reason (R) : They live water and respond equally to stimuli that arrive from all directions.
   The correction option among the following is
   (a) A and R are true, R is correct explanation for A
   (b) A and R are true, but R is not correct explanation for A
   (c) A is true. But R is false.
   (d) A is false. But R is true.
   Ans. (a) : When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry- e.g., coelenterates, ctenophores and echinoderms.
   Radial symmetry is an advantage to sessile animals e.g.- coelenterates, sponges ctenophorans & echinoderms. They live water and respond equally to stimuli that arrive from all directions.
7. Read the following statements
   (A) Metagenesis is observed in Helminths.
   (B) Echinoderms are triploblastic and coelomate animals.
   (C) Round worms have organ-system level of body organization.
   (D) Comb plates present in ctenophores help in digestion.

(E) Water vascular system is characteristic of Echinoderms.
Choose the correct answer from the options given below.
(a) (B), (C) and (E) are correct
(b) (C), (D) and (E) are correct
(c) (A), (B) and (C) are correct
(d) (A), (D) and (E) are correct

Ans. (a) : Echinoderms are triploblastic and coelomate animals as true coelom is observed in them.
• Roundworms (Aschelminths) have organ system level of organization.
• Water vascular system is seen in echinoderms. It helps in locomotion, capture and transport of food and respiration.
• Comb plates present in ctenophores help in locomotion.
• Alternation of generation is also known as metagenesis. It is observed in members of phylum coelenterata (cnidaria)

8. Match the following organisms with their respective characteristics :

A. Pila	i. Flame cells
B. Bombyx	ii. Comb plates
C. Pleurobrachia	iii. Radula
D. Taenia	iv. Malpighian tubules

Select the correct option from the following :

	A	B	C	D
(a)	(iii)	(iv)	(ii)	(i)
(b)	(ii)	(iv)	(iii)	(i)
(c)	(iii)	(ii)	(iv)	(i)
(d)	(iii)	(ii)	(i)	(iv)

Ans. (a) : Pila → Radula
Bombyx → Malpighian tubules
Pleurobrachia → Comb plate
Taenia → Flame cell
• Pila or apple snail contain file like rasping organ called radula.
• Bombyx or silkworm is an arthropod in which excretion occur through malphigian tubules.
• The body of ctenophore pleurobranchia bears eight row of ciliated comb plate which help in locomotion.
• In Taenia, excretion occur through specialised cells called flame cells, which contain a protonephridia.
• These are mostly endoparasite found in animal including human.

9. The figure shows four animals (a), (b), (c) and (d). Select the correct answer with respect to a common characetrsitcs of two of these animals

(a) 

(b) 

(c) 

(d) 

(a) (c) and (d) have a true coelom
(b) (a) and (d) respire mainly through body wal
(c) (b) and (c) show radial symmetry
(d) (a) and (b) have cnidoblasts for self defence
Ans. (a) : True coelom, which refers to a body cavity that is completely lined by mesoderm is found in the mollusca, annelids, arthropods, echinoderms & chordates.
• In all advance invertebrate phyla have a true coelom.
• The formation of coelom splitting of mesoderm.
• This kind of coelom called shizocoelomates.
Octopus- Belong from phylum mollusca and order Octopoda.
Scorpion- It is predatory organism (Arthropod) class Arachnid.
• The coelom forms by out pocketing of the primitive gut.
• It is thus called enterocoelomates.

10. Select the correct option for Reptilia –

(a) 4 chambered heart - Chelone
(b) Tympanum represents ear - Crocodile
(c) External ear present – Neophron
(d) Dry and scaly skin – Salamndra
Ans. (b) : The tympanum represents ear – Crocodile. The tympanum an external hearing structure.