



NEET · CBSE eBOOKS

CLASS 11 & 12th



Learning Inquiry
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CLASS 11th

Animal Kingdom

misoostudy



01. Basis of Classification

Level of body organization :

Protoplasmic level	→	In protozoans, acellular body performs all biological activities.
↓		
Cellular level	→	In sponges, cells are arranged as loose cell aggregates and division of labour occurs among cells (Tissues absent).
↓		
Tissue level	→	In coelenterates and ctenophores, cells performing the same function are arranged into tissues.
↓		
Organ level	→	In platyhelminthes and other higher phyla tissues are grouped together to form organs.
↓		
Organ system level	→	In higher animals, organs further organise to form organ systems e.g. Aschelminthes, Annelida, Arthropoda, Mollusca, Echinodermata and Chordata.

Symmetry:

- (a) **Asymmetry** :- When any plane that passes through the centre does not divide the body of animals into two equal halves.
e.g. : most of sponges are asymmetric.
- (b) **Radial symmetry** : When any plane passing through the central axis of the body divide the animal into two identical halves.
e.g. : Coelenterates, ctenophores and echinoderms (adult)
- (c) **Bilateral symmetry** : When the body can be divided into identical left & right halves in only one plane.
e.g. : Platyhelminthes to chordates.

Germinal layers :-

- (a) **Diploblastic** : Animals in which the cells are arranged in two embryonic layers ectoderm and endo-derm with an interveining undifferentiated mesoglea e.g. Sponges, Coelenterates and Ctenophores.
- (b) **Triploblastic** : Those animals in which the developing embryo has a third germinal layers Mesoderm in between the ectoderm and endoderm e.g. Platyhelminthes to chordates.

Body Cavity or Coelom :

Presence or absence of a cavity between the body wall and gut wall is very important in classification.

- (a) **Acoelomates** : Animals in which the body cavity is absent
e.g. Platyhelminthes
- (b) **Pseudocoelomates** : Animals in which body cavity is not lined by mesoderm, instead, the mesoderm is present as scattered pouches in between the ectoderm and endoderm. Such a body cavity is called pseudocoelom.
e.g. Aschelminthes.

(c) **Coelomates** : Animals possessing coelom i.e. the body cavity which is lined by mesoderm on all sides

On the basis of embryonic development, the coelom is of two types.

(i) **Schizocoel** : Coelom formed by splitting of a mesodermal mass
e.g. Annelida, Arthropoda, Mollusca.

(ii) **Enterocoel** : Coelom formed by fusion of gut pouches during embryonic stage
e.g. Echinodermata, Hemichordata and Chordata.

Body plan :

(a) **Cell-aggregate type** : e.g. Sponges

(b) **Bling Sac type** : Animals in which digestive system is incomplete, it has only single opening to the outside of the body that serves as both mouth and anus.
e.g. Coelenterates to Platyhelminthes

(c) **Tube-within-tube type** : Found in those animals having complete digestive tract i.e. with separate openings mouth and anus.
e.g. Nematelminthes to chordates

Segmentation :

(a) **Pseudometameric** : e.g. Tapeworms

(b) **Metameric** : In Annelids, arthropods and chordates.

In these animals, the body is externally and internally divided into segments with a serial repetition of atleast some organs, this is called metameric segmentation and the phenomenon is known as Metamerism.

Notochord :

It is a mesodermally derived rod-like structure formed on the dorsal side during embryonic development in some animals.

(a) **Non-chordates** : Animals without notochord e.g. Porifera to hemichordata

(b) **Chordates** : Animals with notochord.

Circulatory system :

(a) **Open type** : In which the blood remain filled in tissue spaces due to absence of blood capillaries. e.g. Arthropods, Molluscs, Echinoderms, Hemichordates and some lower chordates like tunicates.

(b) **Closed type** : In which the blood is circulated through a series of vessels of varying diameters i.e. arteries, veins and blood capillaries
e.g. Annelids, Cephalopod molluscs, Vertebrates etc.

Embryonic development :

On the basis of fate of blastopore, animals can be divided into two categories :

(a) **Protostomiate** : Animals in which mouth is formed first (Blastopore → Mouth)
e.g. Platyhelminthes to Mollusca

(b) **Deuterostomiate** : Animals in which anus is formed earlier than mouth (Blastopore → Anus)
e.g. Echinoderms, Hemichordates and Chordates.