FREE NOTES · NCERT + NEET LEVEL

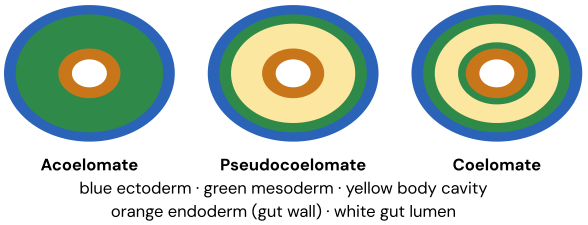
Animal Kingdom

Classification ka basis (organisation, symmetry, germ layers, coelom, segmentation, notochord) aur Porifera se Chordata tak saare phyla, features aur examples ke saath.

01 Classification ka basis
02 Animal groups ka overview
03 Porifera se Aschelminthes
04 Annelida se Mollusca
05 Echinodermata & Hemichordata
06 Chordata: features & machhliyan
07 Tetrapods: amphibians se mammals
08 Extra + tricks
09 Important Q&A
10 Common mistakes
11 Practice (NEET style)
12 Quick revision

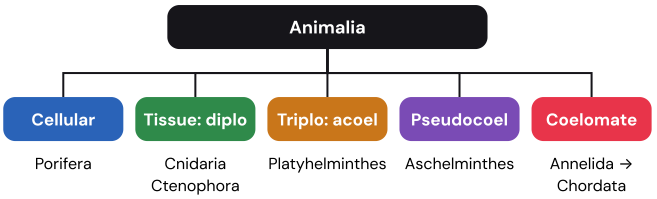
01 Classification ka basis

Feature	Types	Examples
Level of organisation	Cellular / tissue / organ / organ-system	Sponges / Cnidaria / Platyhelminthes / Annelida onwards
Circulation	Open / closed	Arthropods, molluscs / annelids, chordates
Symmetry	Asymmetrical / radial / bilateral	Sponges / Cnidaria, Ctenophora, adult echinoderms / rest
Germ layers	Diploblastic / triploblastic	Cnidaria, Ctenophora (mesoglea) / Platyhelminthes onwards
Coelom	Acoelomate / pseudo / coelomate	Platyhelminthes / Aschelminthes / Annelida onwards
Segmentation	Metameric	Earthworm
Notochord	Present / absent	Chordates / non-chordates



Body cavity types (cross-section)

02 Animal groups ka overview



Organisation aur body cavity ke hisaab se classification

Coelomates me Annelida, Arthropoda, Mollusca, Echinodermata, Hemichordata aur Chordata aate.

03 Porifera se Aschelminthes

Phylum	Key features	Examples
Porifera (sponges)	Pores (ostia), water canal system, choanocytes, spicules/spongin; hermaphrodite; internal fertilisation; indirect development	*Sycon*, *Spongilla*, *Euspongia*
Cnidaria (Coelenterata)	Cnidoblasts (stinging), gastrovascular cavity, polyp & medusa (metagenesis in *Obelia*); corals have $CaCO_3$ skeleton	*Physalia*, *Adamsia*, *Pennatula*, *Gorgonia*, *Meandrina*, *Aurelia*
Ctenophora (comb jellies)	8 comb plates for locomotion, bioluminescence, marine, external fertilisation	*Pleurobrachia*, *Ctenoplana*
Platyhelminthes (flatworms)	Dorso-ventrally flat, flame cells, hooks/suckers in parasites; *Planaria* regenerates	*Taenia*, *Fasciola*
Aschelminthes (roundworms)	Circular cross-section, complete gut with muscular pharynx, sexes separate (female longer)	*Ascaris*, *Wuchereria*, *Ancylostoma*

04 Annelida se Mollusca

Phylum	Key features	Examples
Annelida	Metameric segmentation, closed circulation, nephridia, longitudinal + circular muscles; *Nereis* has parapodia, sexes separate; earthworm and leech are monoecious	*Nereis*, *Pheretima*, *Hirudinaria*
Arthropoda (largest phylum, ~2/3 of species)	Chitinous exoskeleton, jointed appendages, open circulation; respiration by gills, book gills, book lungs, tracheae; Malpighian tubules; compound eyes, statocysts	*Apis*, *Bombyx*, *Laccifer*, *Anopheles*, *Culex*, *Aedes*, *Locusta*, *Limulus* (living fossil)
Mollusca (2nd largest)	Soft body, calcareous shell, head-foot-visceral hump, mantle, feather-like gills, radula (rasping tongue)	*Pila*, *Pinctada*, *Sepia*, *Loligo*, *Octopus*, *Aplysia*, *Dentalium*, *Chaetopleura*

05 Echinodermata & Hemichordata

- **Echinodermata**: kaanton wali skin (calcareous ossicles), sab samundari, adult radial (pentamerous), larva bilateral; **water vascular system** (chalna, khana pakadna, saans); excretory system nahi.
- Examples: *Asterias* (star fish), *Echinus* (sea urchin), *Antedon* (sea lily), *Cucumaria* (sea cucumber), *Ophiura* (brittle star).
- **Hemichordata**: keede jaisa, body = proboscis, collar, trunk; stomochord (asli notochord nahi); excretion proboscis gland se. Examples: *Balanoglossus*, *Saccoglossus*.

06 Chordata: features & machhliyan

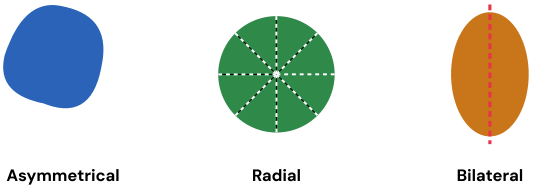
Chaar basic features: **notochord**, **dorsal hollow nerve cord**, **pharyngeal gill slits**, **post-anal tail**. Subphyla: Urochordata (notochord sirf larva ki tail me: *Ascidia*, *Salpa*, *Doliolum*), Cephalochordata (sir se poonch tak, poori zindagi: *Branchiostoma*/Amphioxus), Vertebrata (notochord ki jagah vertebral column). *Saare vertebrates chordates hain par saare chordates vertebrates nahi.*

Class	Key features	Examples
Cyclostomata	Jaw nahi, gol chusne wala munh, 6–15 jode gill slits, ectoparasites, ande dene meethe paani me jaate	*Petromyzon*, *Myxine*
Chondrichthyes	Cartilage, munh neeche, placoid scales, air bladder nahi (tairte rehna padta), 2-chamber heart, male me claspers, internal fertilisation, kai viviparous	*Scoliodon*, *Pristis*, *Carcharodon*, *Trygon* (zehreela sting), *Torpedo* (electric)
Osteichthyes	Haddi wali, munh aage, operculum, air bladder, cycloid/ctenoid scales, external fertilisation, oviparous	*Labeo*, *Catla*, *Clarias*, *Hippocampus*, *Exocoetus*, *Betta*, *Pterophyllum*

07 Tetrapods: amphibians se mammals

Class	Key features	Examples
Amphibia	Geeli skin, scales nahi, tympanum, cloaca, 3-chamber heart, thande khoon wale, external fertilisation	*Bufo*, *Rana*, *Hyla*, *Salamandra*, *Ichthyophis* (bina pair)
Reptilia	Sookhi cornified skin, epidermal scales/scutes, 3-chamber heart (crocodile me 4), thande khoon wale, skin utaarte, internal fertilisation	*Chelone*, *Testudo*, *Chameleon*, *Calotes*, *Crocodilus*, *Alligator*, *Hemidactylus*, *Naja*, *Bangarus*, *Vipera*
Aves	Pankh, chonch, aage ke pair = wings, pneumatic (khokhli) haddiyan, crop & gizzard, 4-chamber heart, garam khoon, air sacs	*Corvus*, *Columba*, *Psittacula*, *Struthio*, *Pavo*, *Aptenodytes*, *Neophron*
Mammalia	Mammary glands, baal, bahari kaan (pinna), alag-alag daant, 4-chamber heart, garam khoon, zyada tar viviparous	*Ornithorhynchus* (ande deta), *Macropus*, *Pteropus*, *Camelus*, *Macaca*, *Rattus*, *Canis*, *Felis*, *Elephas*, *Equus*, *Delphinus*, *Balaenoptera*, *Panthera*

08 Extra + tricks



Body symmetry ke types

- Non-chordate phyla ka kram (mnemonic): "**P**lease **C**ome **T**o **P**arty **A**t **A**ll **M**y **E**xciting **H**ouses" = Porifera, Cnidaria, Ctenophora, Platyhelminthes, Aschelminthes, Annelida, Arthropoda, Mollusca, Echinodermata, Hemichordata.
- Digestive system: **incomplete** (ek hi chhed: Cnidaria, Ctenophora, Platyhelminthes) vs **complete** (munh + guda: Aschelminthes se aage).
- Pachan: Cnidaria me extracellular + intracellular; Porifera me intracellular.
- Metamerism (asli segmentation): Annelida, Arthropoda, Chordata. *Taenia* me pseudo-segmentation (strobilation).
- Exam favourites: *Pteropus* = flying fox; *Hippocampus* = sea horse; *Exocoetus* = udne wali machhli; *Ichthyophis* = bina pair ka amphibian; *Limulus* = king crab (living fossil).

09 Important Q&A

Q1. Open aur closed circulatory system me antar batao.

Open: blood khuli jagah (sinuses) me jaata, cells ko seedha nehlata (arthropods, molluscs). Closed: blood hamesha vessels me (annelids, chordates).

Q2. Aschelminthes ki body cavity ko pseudocoelom kyun kehte?

Mesoderm ectoderm aur endoderm ke beech bikhre pouches me hai, cavity ko poora line nahi karta.

Q3. Excretory structures batao: Platyhelminthes, Annelida, Arthropoda (insects), Hemichordata.

Flame cells, nephridia, Malpighian tubules, proboscis gland.

10 Common mistakes

- Cnidaria ko triploblastic kehna (diploblastic hain, beech me mesoglea).
- *Balanoglossus* ko chordate kehna (Hemichordata alag non-chordate phylum hai).
- Bhoolna ki adult echinoderms radial par larva bilateral hote.
- Crocodile ka heart 3-chamber likhna (4 hai).

11 Practice (NEET style)

1. Sabse bada phylum?
2. Water vascular system kisme?
3. Comb plates kisme?
4. Ande dene wala mammal?
5. Bina air bladder wali machhli?

ANSWERS

1) Arthropoda · 2) Echinodermata · 3) Ctenophora · 4) *Ornithorhynchus* · 5) Cartilaginous (*Scoliodon*)

12 Quick revision: exam se 5 minute pehle

NON-CHORDATES

- Porifera: canal system
- Cnidaria: cnidoblasts
- Ctenophora: comb plates
- Platy: flame cells

COELOMATES

- Annelida: metameres, nephridia
- Arthropoda: jointed legs
- Mollusca: radula
- Echino: water vascular

CHORDATES

- Notochord, dorsal nerve cord, gill slits, post-anal tail
- Uro: sirf larva ki tail

HEARTS

- Fish 2, amphibia 3, reptile 3 (croc 4)
- Birds, mammals 4

Koi doubt? padhaiadda.netlify.app pe AI Doubt Solver se poocho, ya is chapter ka mock test do.