

ATOMIC ENERGY CENTRAL SCHOOL,
INDORE

MODULE 4.4

**UNIT 1 :
DIVERSITY
IN THE
LIVING
WORLD**

**CHAPTER
4
ANIMAL
KINGDOM**



PREPARED BY-

**NEERAJ
KUMAR
BAMANIA**

**PGT(SS) –
BIOLOGY**

AECS INDORE.

Animal Kingdom Classification System

PHYLUM- CHORDATA

Distinguishing features

- 1 Presence of Notochord
- 2 Dorsal hollow nerve cord
- 3 Paired pharyngeal gills slits
- 4 Post anal tail present
- 5 Heart is ventral

SUB PHYLA -

1. **Urochordata** or **Tunicata**, Notochord only in larval tail e.g. *Ascidia*
2. **Cephalochordata** notochord head to tail in all stage e.g. *Branchiostoma*
3. **Vertebrata**: Notochord replaced by a vertebral column.

SUB PHYLUM- VERTEBRATA

AGNATHA -without jaw

- CLASS- Cyclostomata-
- Ectoparasite on fish
- - Circular mouth
- - No scales and paired fins
- - Marine but go in fresh water for spawning and die. Larva returns to ocean.
- Eg. *Petromyzon*, *Myxine*.

Gnathostomata - with jaws

Class - Chondrichthyes

- They have **cartilaginous endoskeleton**.
- Mouth is located **ventrally**.
- Notochord is persistent throughout life.
- Gill slits are separate and without operculum (gill cover).
- These animals are **predaceous** [shark].
- Due to the **absence of air bladder**, they have to **swim constantly** to avoid sinking.
- Heart is two-chambered (one auricle and one ventricle).
- **Cold-blooded (poikilothermous)**
- Examples: Scoliodon (Dog fish), Pristis (Saw fish), Carchaiodon (Great white shark), Trygon (Sting ray).

Class - Osteichthyes

- It includes both marine and fresh water fishes with **bony endoskeleton**.
- Their body is streamlined. Mouth is mostly **terminal**.
- They have four pairs of gills which are covered by an operculum on each side.
- Skin is covered with cycloid/ctenoid scales.
- **Air bladder** is present which regulates buoyancy.
- Heart is **two- chambered** (one auricle and one ventricle).
- They are **cold-blooded**
- Sexes are separate.
- Fertilisation is usually external.
- They are mostly **oviparous** and development is direct.
- Examples: Flying fish, Sea horse, Fighting fish, Angel fish etc.

CLASS AMPHIBIA

Aquatic and terrestrial both.

Two pairs of limbs.

No neck.

Body has head and trunk only.

No external ear, tympanum on surface.

Heart three chambered.

Cloaca present.

Respiration by gills, skin and lungs.

Sexes separate.

Fertilisation external,
development direct.

eg. *Ranatigrina*, *Bufo*, *Hyla* etc.

Class Reptilia

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Creeping or crawling
mode of locomotion.

Skin with
scales/scutes.

Tympanum on surface.

Heart three chambered
(Four chambered in
crocodile).

Fertilisation internal,
development direct.

eg. *Chelone*, *Testudo*,
Naja, *Hemidactylus* etc.

Class Aves -

presence of feather, beak and forelimb in form of wing.

Hind limb adapted to clasping, walking and swimming.

No glands on skin (only oil gland at tail base).

Hollow bones (pneumatic).

Air sacs connected to lungs to supplement respiration.

Crop and gizzard are additional chambers in digestive system.

Warm blooded.

Heart four chambered.

Sexes separate.

Fertilisation internal and development direct.eg.

Columba, *Psittacula* etc.

Class Mammalia

Aquatic, terrestrial and aerial.

Mammary glands present for milk production.

Two pairs of limbs.

Skin with hair.

Ear with pinna.

Homoiothermic.

Heart four chambered.

Excretion by kidneys.

.Sexes separate.

Internal fertilisation, vivipary (exception *Platypus*).

eg. Whale, Rat , Man, Tiger etc.

Respiration by lungs

References

1. NCERT. BIOLOGY TEXTBOOK FOR CLASS XI
2. CONCEPTS OF BIOLOGY (R.L. KOTPAL / BENDRE/TYAGI)

<https://www.ruf.rice.edu/~bioslabs/studies/invertebrates/kingdoms.html>