ATOMIC ENERGY CENTRAL SCHOOL, INDORE

CLASS XI

BIOLOGY

MODULE 4.3

UNIT – I / CHAPTER 4

ANIMAL KINGDOM

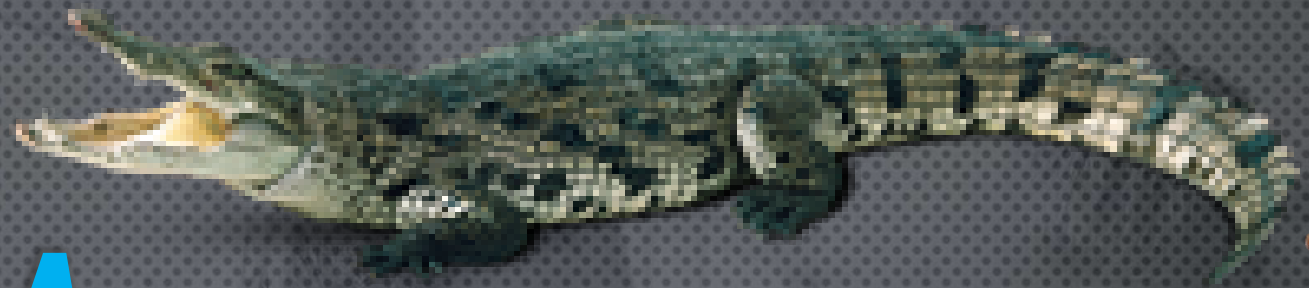
NEERAJ KUMAR BAMANIA

PGT(SS) - BIOLOGY

ATOMIC ENERGY CENTRAL SCHOOL, INDORE

ANIMAL KINGDOM

MODULE 4.3



- Annelida
- Arthropoda
- Mollusca
- Echinoderma

PHYLUM ANNELIDA (SEGMENTED WORMS)

- Annelida are aquatic [marine and fresh water] or terrestrial; free-living, and sometimes parasitic.
- Their body surface is distinctly marked out into segments or metameres **[metamerically segmented]** and, hence, the phylum name Annelida (Latin, annulus: little ring).
- They exhibit **organ-system level** of body organization.
- They are **coelomate** [true body cavity]. This allows true organs to be packaged in the body structure.
- They are **bilateral symmetric** and **triploblastic**.
- They possess longitudinal and circular muscles which help in locomotion.

PHYLUM ANNELIDA (SEGMENTED WORMS)

- Aquatic annelids like Nereis possess lateral appendages, **parapodia**, which help in swimming.
- A closed circulatory system is present.
- **Nephridia** (sing. nephridium) help in osmoregulation and excretion.
- Neural system consists of paired **ganglia** (sing. ganglion) connected by lateral nerves to a double ventral nerve cord.
- **Nereis**, an aquatic form, is dioecious [Sexes are separate], but **earthworms** and **leeches** are monoecious [having both the male and female reproductive organs in the same individual].
- Reproduction is sexual.

PHYLUM ARTHROPODA

- Insects, arachnids and crustaceans are members of the largest category of creatures on the planet: arthropods.
- Arthropods have hard, external shells called "exoskeletons," segmented bodies and jointed legs.
- Some familiar examples are prawns, butterflies, houseflies, spiders, scorpions and crabs and some
- They exhibit organ-system level of organisation.
- They are bilaterally symmetrical, triploblastic, segmented and coelomate The coelomic cavity is blood-filled.

PHYLUM ARTHROPODA

- THE BODY OF ARTHROPODS IS COVERED BY CHITINOUS THE BODY CONSISTS OF HEAD, THORAX AND ABDOMEN.
- THERE IS AN OPEN CIRCULATORY SYSTEM, AND SO THE BLOOD DOES NOT FLOW IN WELL DEFINED BLOOD VESSELS.
- RESPIRATORY ORGANS ARE GILLS, BOOK GILLS, BOOK LUNGS OR TRACHEAL SYSTEM.
- SENSORY ORGANS LIKE ANTENNAE, EYES (COMPOUND AND SIMPLE), STATOCYSTS OR BALANCE ORGANS ARE PRESENT.
- EXCRETION TAKES PLACE THROUGH MALPIGHIAN TUBULES.
- THEY ARE MOSTLY DIOECIOUS.
- FERTILISATION IS USUALLY INTERNAL.
- THEY ARE MOSTLY OVIPAROUS.
- DEVELOPMENT MAY BE DIRECT OR INDIRECT.

EXAMPLES: ARTHROPODS

Trilobite

Tick

Spider

Scorpion

Crab

Crayfish

Barnacles

Centipede

Millipede

Ant

Grasshopper

PHYLUM MOLLUSCA

- Mollusca are the second largest animal phylum. They are terrestrial or aquatic.
- They exhibit organ-system level of organization.
- They are bilaterally symmetrical, triploblastic, coelomate animals. There is little segmentation.
- They have an open circulatory system and kidney-like organs for excretion. The anterior head region has sensory tentacles.
- The mouth contains a file-like rasping organ for feeding, called radula.
- They are usually dioecious and oviparous with indirect development.
- Body is covered by a calcareous shell and is unsegmented with a distinct head, muscular foot and visceral hump. A soft and spongy layer of skin forms a MANTLE over the visceral hump.
- Examples are octopus, snails and mussels.

PHYLUM ECHINODERMATA

- These animals have an endoskeleton of calcareous ossicles [calcium carbonate structures] and, hence, the name Echinodermata (spiny skinned organisms).
- They are exclusively free-living marine animals with organ-system level of organisation.
- They are triploblastic with a coelomic cavity [coelomate animals]. The adult echinoderms are radially symmetrical but larvae are bilaterally symmetrical.
- Water-driven tube system [water vascular system] are used for locomotion, capture and transport of food and respiration.

PHYLUM ECHINODERMATA

- They are triploblastic and coelomate animals.
- Digestive system is complete. An excretory system is absent.
- Sexes are separate. Reproduction is sexual. Fertilisation is usually external.
- Development is indirect with free-swimming larva.
- Examples: Star fish, Sea urchin, Sea lily, Sea cucumber, Brittle star.

EXAMPLES: ECHINODERMS

Sea Lily

Sea Star
(starfish)

Brittle Star

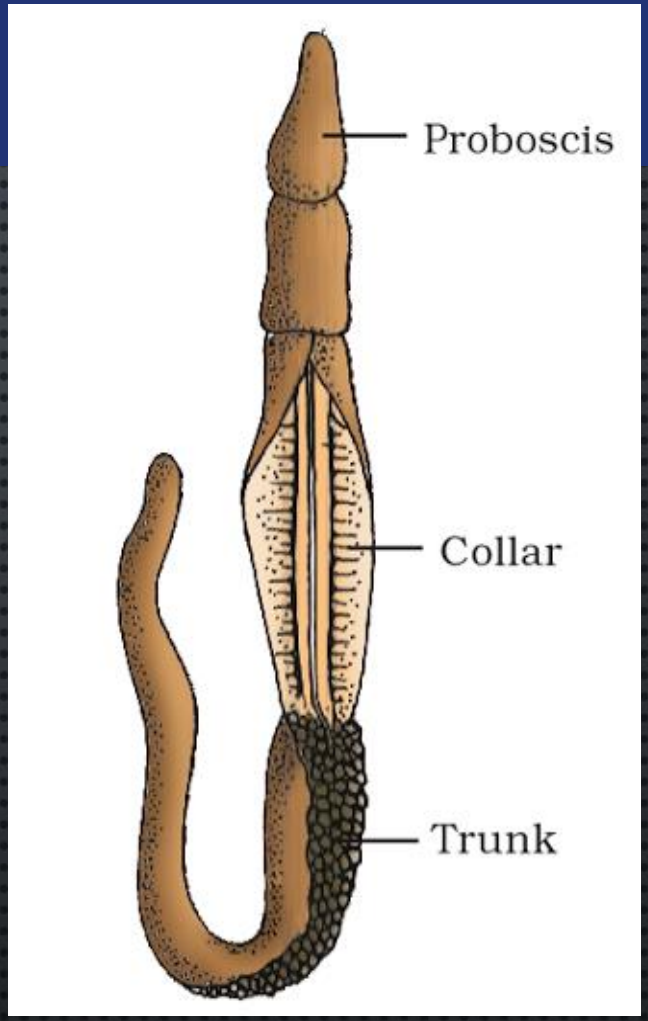
Sea Urchin

Sand Dollar

Sea Cucumber

PHYLUM HEMICHORDATA

- Hemichordata was earlier considered as a sub-phylum under phylum Chordata. But now it is placed as a separate phylum under non-chordata.
- This phylum consists of a small group of worm-like marine animals with organ-system level of organisation.
- They are cylindrical [bilaterally symmetrical], triploblastic, coelomate animals.
- The body is Circulatory system is of open type.
- Respiration takes place through gills.
- Sexes are separate. Fertilisation is external. Development is indirect.
- Examples: Balanoglossus and Saccoglossus.



ANIMAL KINGDOM

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NEERAJBAMANIA@HOTMAIL.COM