



جامعة المستقبل  
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Zoology  
Frist stage

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### Lecture: 3

#### Phylum: Arthropoda :-

These are the most successful group of animals. They outnumber all other animals in population strength. The body is segmented. It is covered by a hard exoskeleton made of **chitin**. During growth the exoskeleton is shed (moulting of ecdysis). The legs or paired appendages are jointed. The headregion has a pair of prominent compound eyes. Each compound eye is made up of several photoreceptor sub units called Ommatidia.

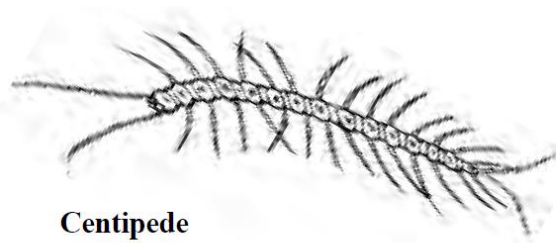
They have an open circulatory system without vessels. The body cavity is filled with a fluid called **haemolymph**. Such body cavity is known as haemocoel. These are unisexual, exhibiting **sexual dimorphism**. The young forms produced are invariably called the **larvae**. The larvae undergo **metamorphosis** and develop into adults.

This Phylum comprises five Classes:

**Class Onychophora:** It includes small worm like *Peripatus*. *Peripatus* shows Annelidan and Arthropoda characters. Hence this may be considered as a **connecting link** between the two groups.

**Class Crustacea :-** The examples for this class are **prawns, crabs** and **lobsters**. The dorsal body surface is covered by a sheild like **carapace**.

**Class Myriapoda :-** It includes **centepedes** and **millipedes**. These organisms have a distinct head and simple eyes. The centepedes have a pair of poison **claws**. The body consists of numerous segments, bearing pairs of legs.

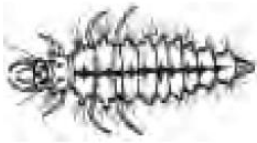


Centipede

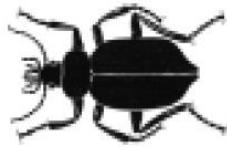


Millipede

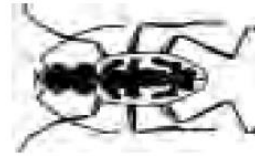
**Class Insecta** :- It comprises the common insects. The body is divided into head thorax and abdomen. In several insects, the adults have two pairs of wings on the thorax. Respiration happens through the tracheal system.



Aphid



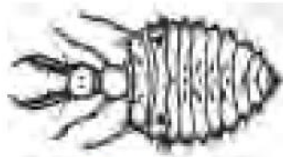
Ground beetle



Tiger beetle



Ladybird beetle



Antlion



Praying mantis

**Class Arachnida** :- It includes **scorpions, spiders, ticks** and **mites**. The body is divided into **cephalothorax** and **abdomen**. There are four pairs of legs attached to the cephalothorax.



Tick



House spider

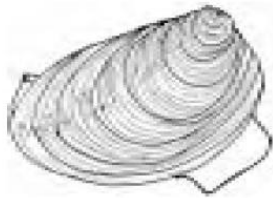
## Phylum: Mollusca

It is a very successful and diverse group of animals. Considered to be the second largest group of animals with regard to species number. These are soft bodied animals without segmentation. The body is divided into **head**, **muscular foot** and **visceral mass**. The body is covered by a **mantle** and a **shell**. Respiration happens through gills (ctinidia) in the mantle cavity. The most common larva is a **trochophore** larva. There are seven classes of which three are more prominent.

**Class Pelecypoda** or **Bivalvia** :- These are aquatic molluscs having bivalves. They burrow in mud and sand. The body is laterally compressed. (eg) **mussels, clams, oysters**.

**Class Gastropoda** :- These are either aquatic or terrestrial molluscs. They possess a spiral shell. The foot is large and flat. They have well developed head with tentacles and eyes. (eg) **snails, slugs, and limpets**.

**Class Cephalopoda** :- These are mostly marine. They are adapted for swimming. The foot is modified into eight to ten long tentacles in the head region. The shell is either internal or absent. (eg) **Octopus, Loligo, Sepia**.



Freshwater mussel



Apple snail



Chunk



Loligo

**Phylum: Echinodermata** :- These are marine organisms. While the adults are radially symmetrical the larvae remain bilaterally symmetrical. The mouth is on the lower surface. They have a **water vascular system** with **tube feet**. eg. **star fishes, brittle stars, sea urchins** and **sea-cucumbers**.



Star fish



Sea-urchin