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Phylum Mollusca

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General characters of Phylum Mollusca

- The name Mollusca (in Latin mollis = soft), was first used by the French Zoologist, Cuvier in 1798 to describe squids and cuttlefish, animals whose shell is reduced and internal or entirely absent.
- It was only later that the true affinities between squids and multiform and other molluscs such as snails and bivalves were fully recongnised.
- Next to arthropods from biodiversity perspective, molluscs comprise the largest group of species.



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General characters

1. The body soft and bears no segmented appendages.
2. Body divided into three regions,
 - (i) Head (which may be indistinct in pelecypods).
 - (ii) Ventral, muscular foot (used for creeping, swimming) or even adhesion (arms of cephalopods).
 - (iii) Visceral mass



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3. Bilaterally symmetrical; viscera and shell coiled in gastropods and in some cephalopodas.
4. Body triploblastic made up of 3 germ layers.
5. Body skin single layered, mostly ciliated and with mucous glands.
6. Body usually small and soft, enclosed in an envelope, the mantle that secretes shell of various shapes and sizes.



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Class 1. Monoplacophora

Key characters

Bilaterally symmetrical animals, metamerically segmented but segmentation internal.

Shell dorsal and consisting of a single piece (hence the name Monoplacophora).

Mantle covering the dorsal surface of body.

A large flattened foot surrounded by the pallial groove, in which situated 5 or 6 pairs of gills externally.

8 pairs of dorso-ventral pedal retractor muscles.



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Class 2. Amphineura

Key characters

Body either elongated and vermiform or dorso-ventrally flattened.

Head indistinct, without eyes and tentacles.

Foot broad, flat, sole-like and ventral in position.

Shell and mantle covering the body from dorsal and lateral sides.

6-60 pairs of gills situated laterally in the pallial cavity on either side of foot, sometimes they may be reduced to a pair.

Mouth and anus at the opposite ends of body



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Class 3 Gastropoda

Asymmetrical body with a mantle and shell.

Single shelled animals, often conical, wound around an axis or columella. The shell as a whole constitutes the spire which is composed of a varying number of whorls. The tip of the cone is the apex, while the base is formed by the last whorl which is wider and borders a circular or oval opening.

Shows greater degree of cephalization, as head is distinct, bearing tentacles, eyes and a mouth.

Foot ventral and muscular.



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Class 4. Bivalvia

Body bilaterally symmetrical, laterally compressed with extensive mantle lobes which secrete a single shell composed of two halves.

The two halves of the shell hinged dorsally where they held together by a new structure, the ligament and completely enclose the rest of the body, the inner side of the mantle delimits the pallial or mantle cavity which has an open communication with the surrounding water.

No distinct head; eyes, tentacles and radula absent.



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Class 5. Scaphopoda

Body elongated, along the anterior-posterior axis.

Body has a tubular tusk or tooth-shaped shell open at both ends.

Head reduced and lacks eyes, but surrounded by numerous thread like tentacles or captacula.

The captacula possess an adhesive knob at their tip together, small particles of food present in the sand and pass them to the mouth.

Gills absent.