The body cavity, which is lined by mesoderm is called **coelom.**

Animals possessing coelom are called coelomates, e.g., Annelids, Molluscs, Arthropods, Echinoderms, Hemichordates & Chordates.

In some animals, the body cavity is not lined by mesoderm, instead, the mesoderm is present as scattered pouches in between the ectoderm and endoderm. Such a body cavity is called **pseudocoelom** and the animals possessing them are called **pseudocoelomates**, e.g., Aschelminthes.

The animals in which the body cavity is absent are called **acoelomates**, e.g., Platyhelminthes.

Phylum Nematoda

Gr., *nema*=thread; *eidos*= form

1. Body of Phylum Nematoda is un-segmented, bilaterally symmetrical, elongated and tapering at both ends.

2. Triploblastic animals with perivisceral cavity is more extensive than that of Platyhelminthes.

3. Body of of phylum Nematoda is generally covered with thick, flexible multi-layered collagenous cuticle and often bears cuticular setae (hairs), spines or annulations.

4. Cuticle moulted periodically.

5. Epidermis or hypodermis syncytial; i.e., the nuclei are not separated from each other by cell membranes.

6. Only longitudinal body-wall muscles; no circular body-wall muscles.

7. Body cavity of of Phylum Nematoda is pseudocoel filled with parenchyma in most cases.

8. Alimentary canal provided with distinct mouth and anus (complete digestive tract). Muscular pharynx and the inner surface of the gut usually not lined by cilia. Extracellular digestion.

9. Mouth of of Phylum Nematoda is surrounded by six lips.

10. Blood vascular system and respiratory system are absent in of Phylum Nematoda.

11. Haemoglobin sometimes present in the pseudocoelomic fluid.

12. Excretory system without nephridia and flame cells. In the class Adenophorea glandular renette cells with a duct or in the class Secernentea excretory canal system without flame cells act as excretory system.

13. Dorsal and ventral nerve cords in the epidermis.

14. Chemosensory organs are small cuticular projections called amphids which are situated on the lips, derived from cilia and opening to the exterior through a small pore, and lined with modified non-motile cilia called sensillae.

15. Sexes of of Phylum Nematoda are separate (gonochoristic).

16. Tubular gonads are present in of Phylum Nematoda.

17. Amoeboid sperm cells.

18. Fertilization is internal in of Phylum Nematoda.

19. Determinate cleavage (mosaic).

20. of Phylum Nematodaare eutelic animals.

21. Generally complex life history.

22. They are free-living or phytoparasitic or zooparasitic.

Classification of Phylum Nematoda

The phylum Nematoda is divided into two classes:
1. Adenophorea or Aphasmidia and

2. Secernentea or phasmidea.

Class 1. Adenophorea or Aphasmidia (Gk. Adenophorea = gland-bearing; Gk. Aphasmida – without phasmids):

1. Most species possess caudal adhesive glands and epidermal glands.

2. Phasmids (caudal papillae bearing pores connecting with glandular pouch called phasmids which are thought to be chemosensory in function) are absent.

3. Amphids are post labial and variously shaped such as pouch-like or tube-like, rarely pore-like.

4. Coelomocytes well developed.

5. Excretory organs are only renette cells but without collecting tubules.

6. Usually two testes in males.

7. Mostly marine, and include both free- living and parasitic species. The free-living species include both terrestrial, freshwater, and major marine forms.

Examples:
Enoplus sp., *Anticoma* sp., *Metonchdiamus* sp., *Dorylaimus* sp, *Tylencholaimus* sp., *Xiphinema* sp., *Trichodoris* sp.

Class 2. Secernentea or Phasmidia:
Characters:
1. Caudal phasmids present.

2. Labial amphids pore-like.

3. Excretory system canal-like and comparatively more complex.

4. Epidermal and caudal adhesive glands absent.

5. Males with a single testis.

6. Mostly parasitic.

7. Free-living species are largely terrestrial.

Examples: *Ancylostoma* sp. (Hookworm), *Strongylus* sp., *Trichostrongylus* sp. (Hair worm), *Ascaris* sp., *Wuchereria* sp.