

# Coelom

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## Definition of coelom

Coelom in Greek language means a hollow cavity. It is a fluid-filled cavity between alimentary canal and body wall. It is lined on all sides by mesoderm. The peritoneal cavity of abdomen is also a part of coelom and there are similar spaces around our heart and lungs. The structure and mode of development of coelom differs among different group of animals.

## Types of animals based on coelom

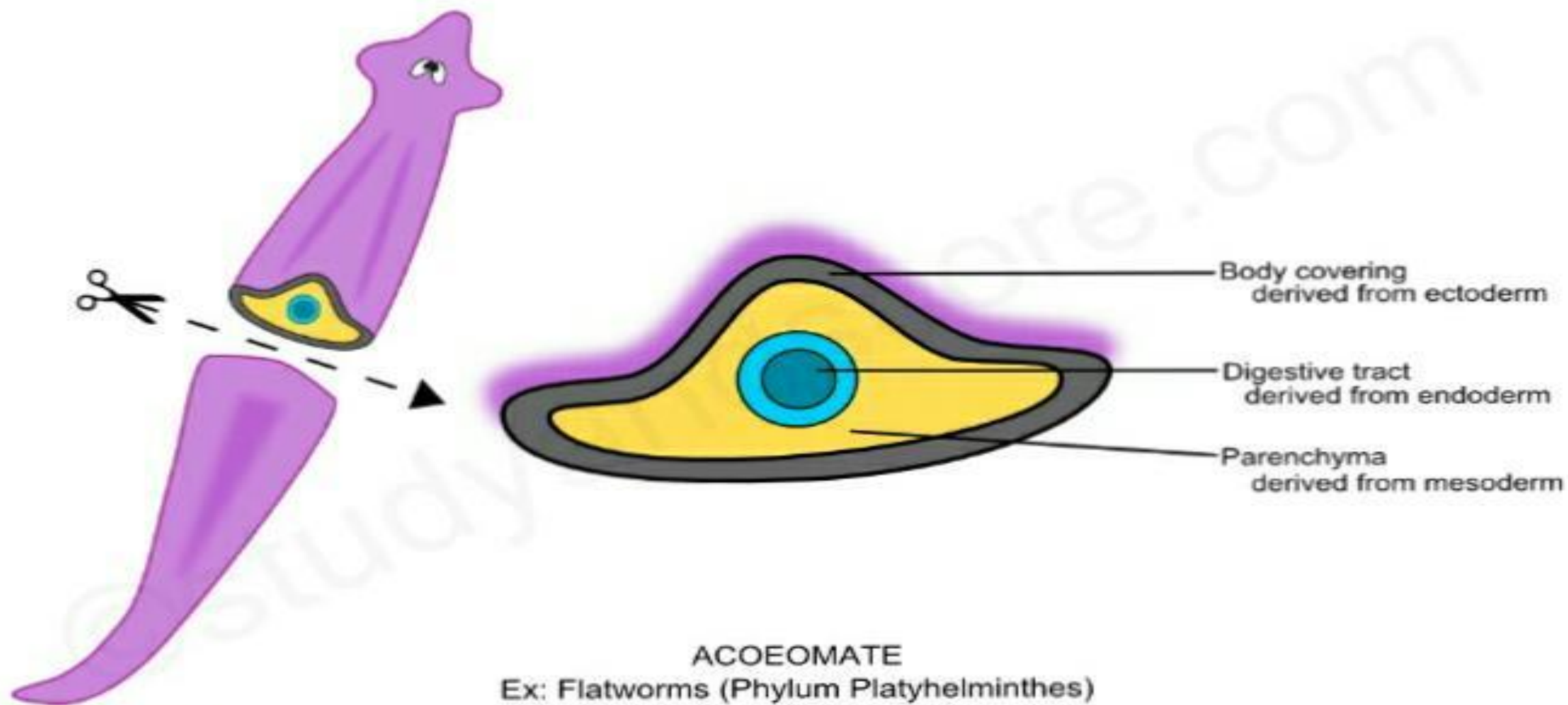
There are three structural types of body plans related to the coelom.

1. Acoelomates (animals with no coelom)
2. Pseudocoelomates (animals with false coelom)
3. Eucoelomates (animals with true coelom)

## Acoelomates

Acoelomates have no coelomic cavity. The space around the internal organs is completely filled by parenchyma. Hence there is no body cavity surrounding the internal organs. Parenchyma restricts the movement of the internal organs. Only a gut, coelenteron or spongocoel exists in these animals and there is no other cavity.

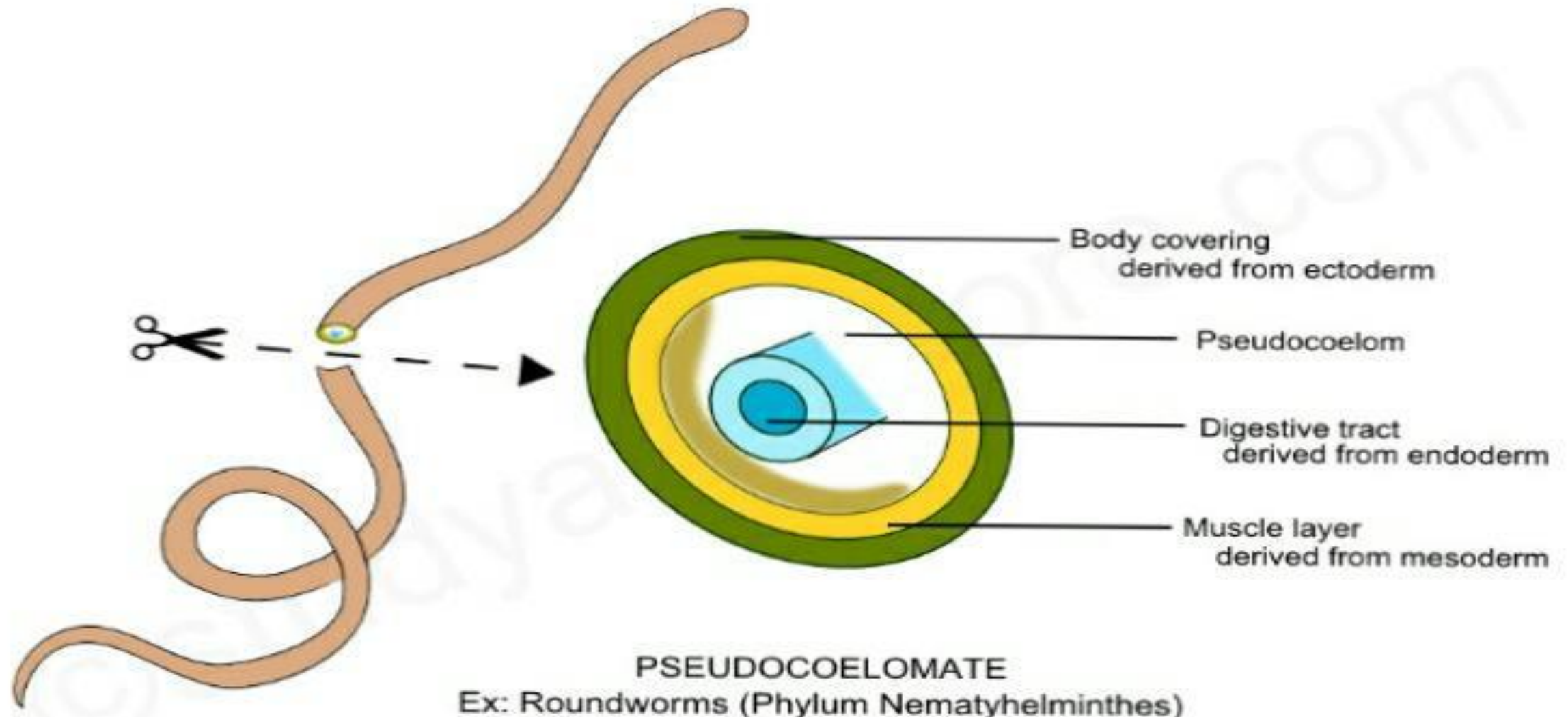
Ex: Flatworms (Platyhelminthes),  
coelenterates and sponges.



## Pseudocoelomates

As it is neither formed in mesoderm nor it is lined by mesodermal peritoneum it is called so. The internal organs lie freely within pseudocoelom.

Ex: Round worms (Nemathelminthes) and some minor phyla grouped under Aschelminthes.



## Coelomates or Eucoelmates

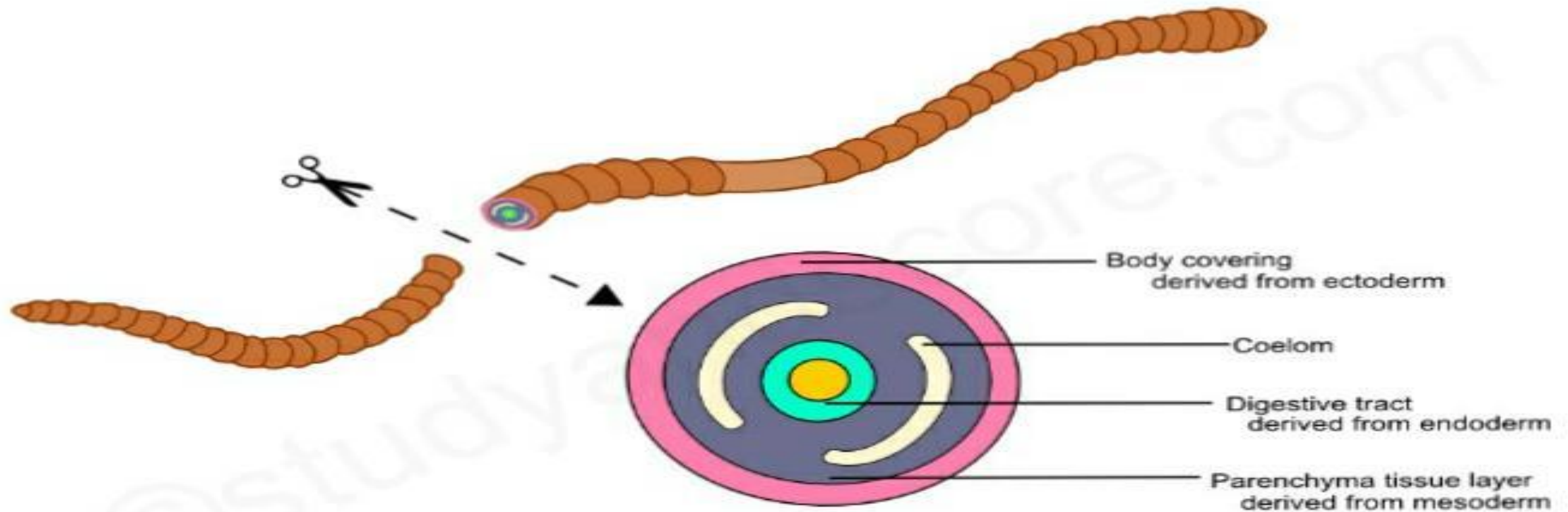
They are true coelomates in which the coelom is lined both inside the body wall and around the gut by mesoderm. The coelom is lined by the mesodermal epithelium called as peritoneum.



The portion of the epithelium that lines the outer wall of coelom is called as parietal/somatic peritoneum. The portion of the epithelium that lines the inner wall of coelom is called as visceral/splanchnic epithelium. Animals with a true coelom also have mesenteries, which suspend the body organs within the coelom.



Ex: Annelids, Arthropods, Mollusks,  
Echinoderms and Chordates



COELOMATE

Ex: Phylum Annelida, Arthropoda, Mollusca, Echinodermata, Chordata

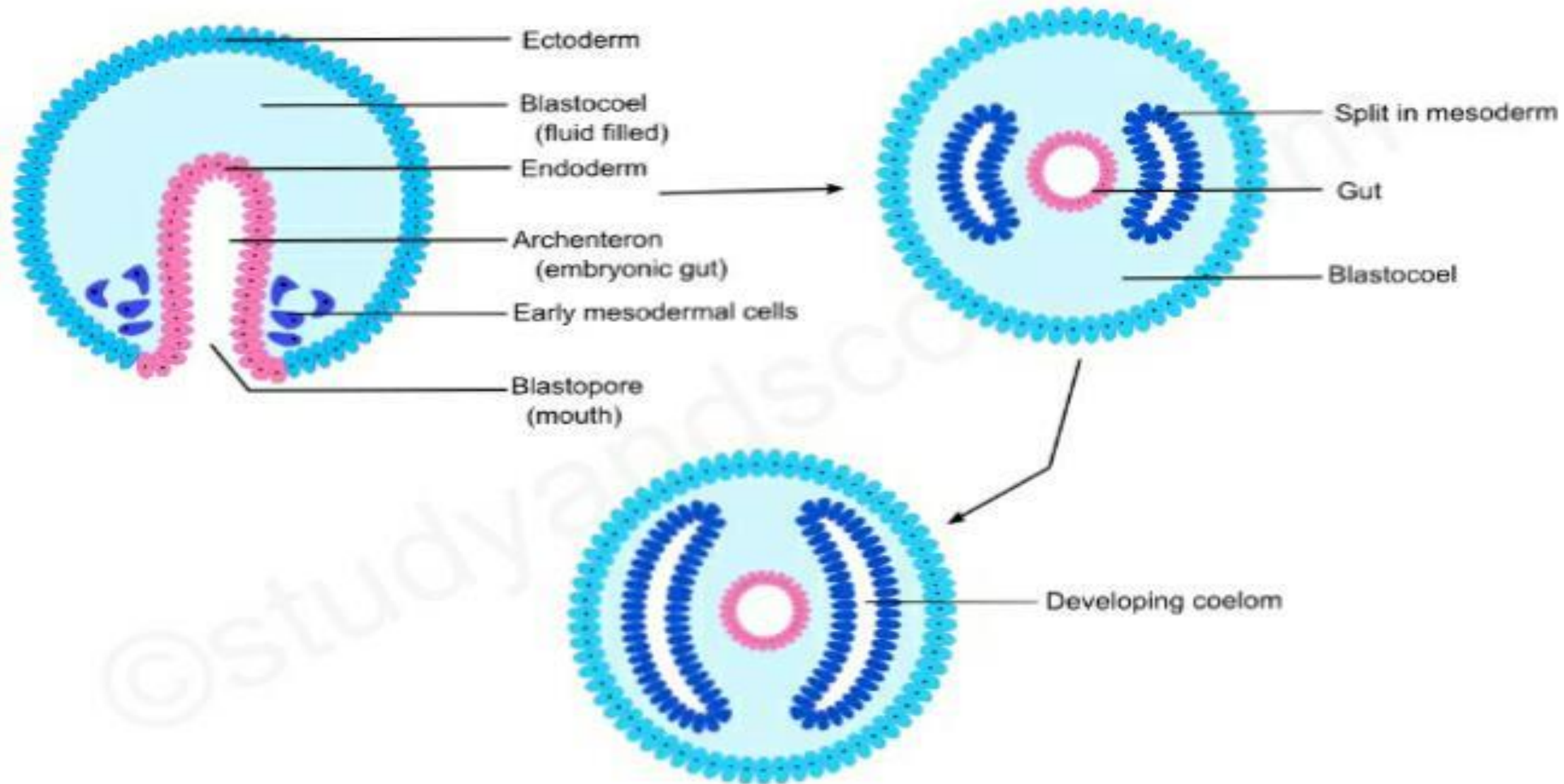
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## Types of coelomates

Based on the mode of formation of coelom, coelomates are classified into the following types:

## a) Schizocoelomates

They are true coelomates in which the body cavity originates by splitting of mesodermal tissue at the time of gastrulation. This method of coelom formation is called schizocoelous (Gr. schizo = split), and occurs in animals like annelids, arthropods and mollusks. Sometimes the schizocoelom is filled with blood and is called haemocoel as in arthropods and mollusks.

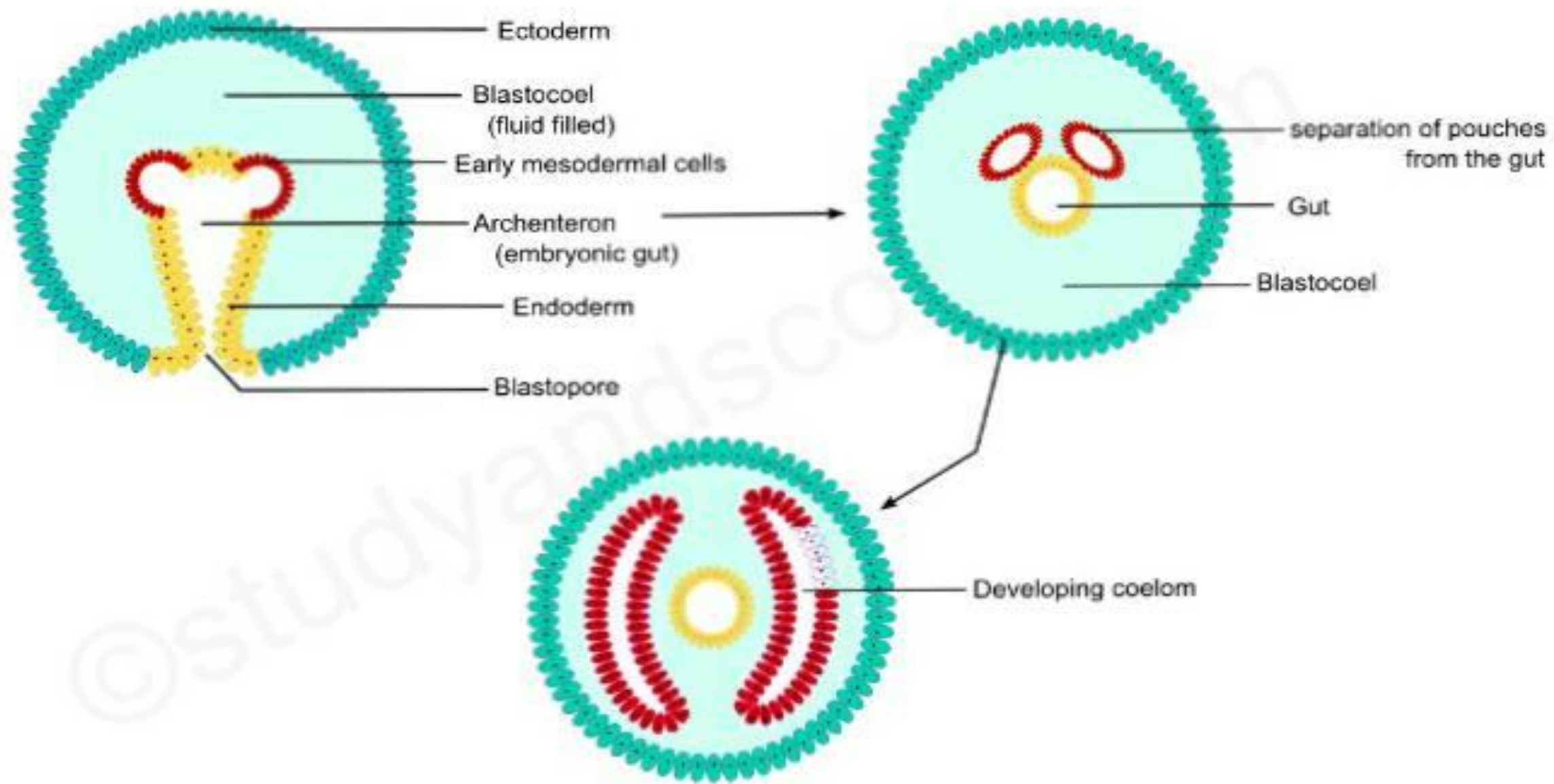


### SCHIZOCOELOMATE

Ex: Phylum Annelida, Arthropoda and Mollusca

## **b) Enterocoelomates**

In most deuterostomes, such as chordates and echinoderms, the coelom originates by out-pouching of the archenteron during gastrulation. Each pouch then expands and its mesoderm lines the gut on the inner side and body wall on the outer side. This method of coelom formation is called enterocoelous.



**ENTEROCOELOMATE**

Ex: Phylum Echinodermata and Chordata

The background is a light gray gradient. In the top-left corner, there is a white circle partially cut off by the edge, with several wavy, dashed lines in a light yellowish-gold color extending downwards and to the right. In the bottom-right corner, there is another white circle partially cut off by the edge, with several wavy, dashed lines in a light yellowish-gold color extending upwards and to the left. A solid orange line also curves across the bottom right area.

Thank-you