

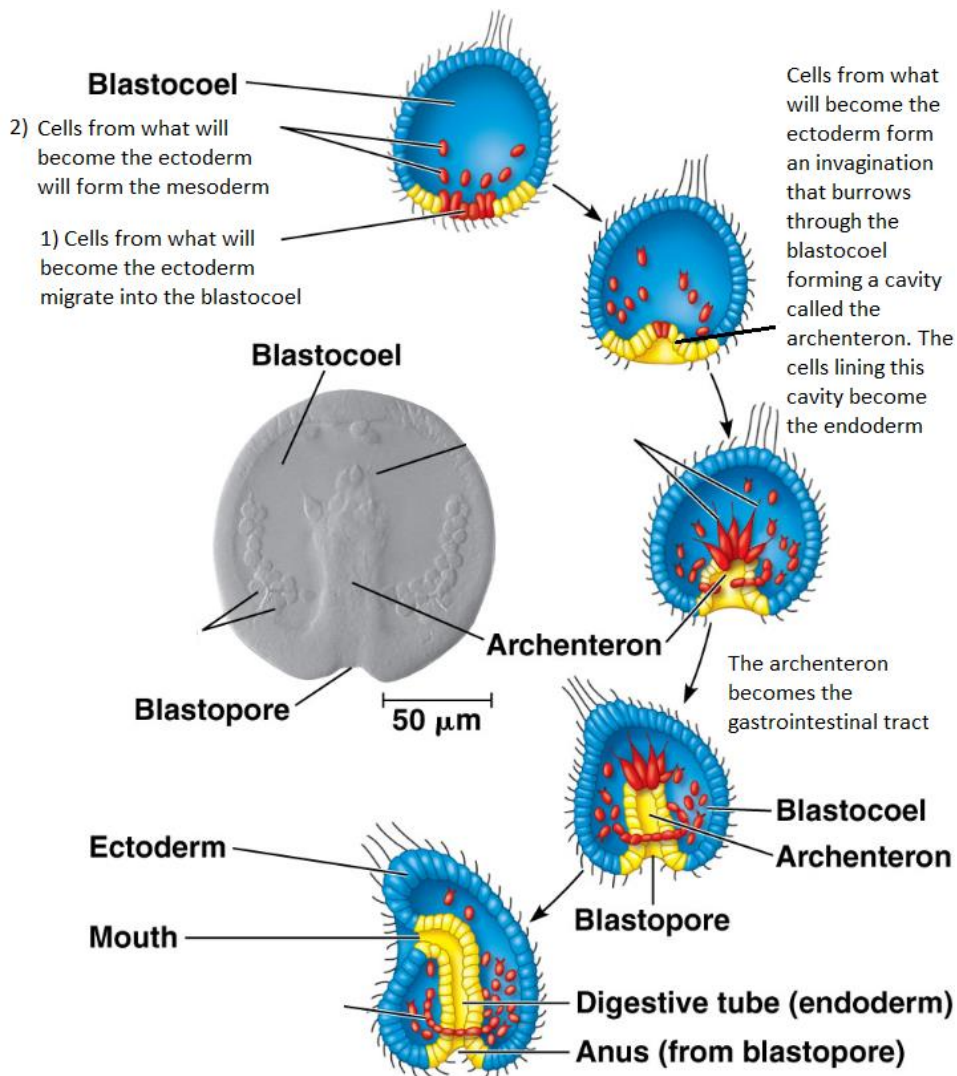
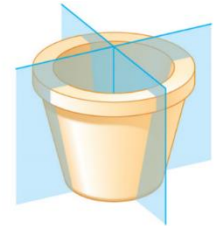
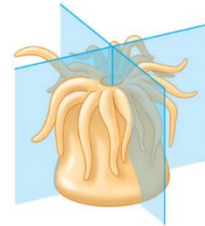
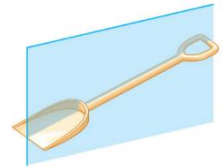
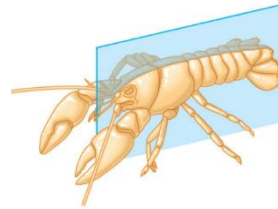
Animal Phylogeny

Bilateral symmetry

A body plan that can be divided into 2 mirror images by a single cut down a central axis

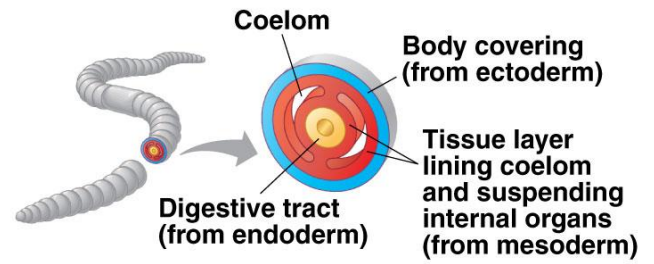
Radial symmetry

A body plan that can be divided into 2 mirror images by any cut down a central axis



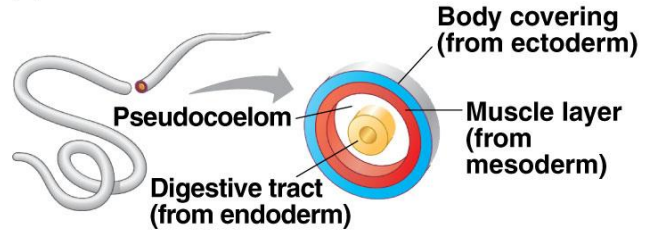
In coelomates, there is a cavity completely surrounded by epithelial tissue derived from the mesoderm

(a) Coelomate



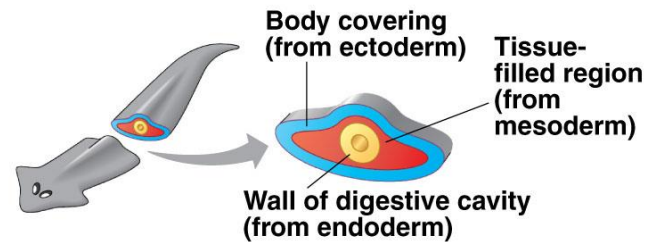
In pseudocoelomates, there is a cavity with epithelial tissue derived from the endoderm and epithelial tissue derived from the mesoderm

(b) Pseudocoelomate



In acoelomates, there is a digestive cavity like that of coelomates and pseudocoelomates, but no second cavity for additional organs

(c) Acoelomate



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Phylum

A taxonomic ranking below kingdom and above class. Kingdoms are groups of related organisms that contain many phyla, and phyla are groups of related organisms that contain many classes. Organisms in the same phylum are more closely related to each other than organisms in the same kingdom, but less closely related to each other than those in the same class.

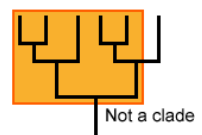
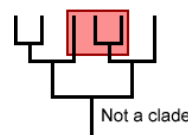
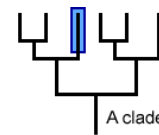
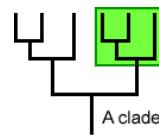
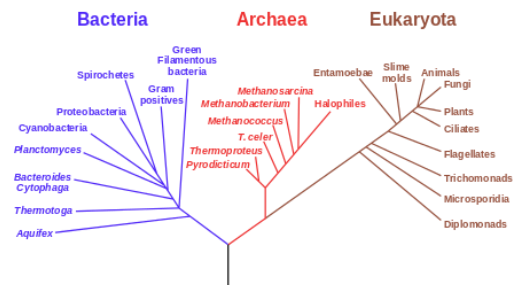
Phylogeny

The evolutionary history of a group of organisms

Clade

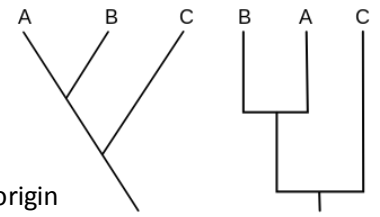
The evolutionary history of a group of organisms

Phylogenetic Tree of Life



Cladogram

A simplified phylogeny that shows the relative relationship among extant groups of organisms



Homologous

A characteristic shared between 2 groups of organisms with a common evolutionary origin but not necessarily having the same function





Derived character






A characteristic that is unique to a group of organisms

How are clades determined?

A clade is inferred from shared derived characteristics and molecular data such as homologous DNA sequences

Animalia is a kingdom and a clade. It contains about 30 phyla. Your task is to come up with a phylogeny for the

following animal phyla: Platyhelminthes , Rotifera , Nematoda , Mollusca ,

Annelida , Arthropoda , Echinodermata , Chordata , and Acoela .

Phylum	Body Symmetry	Tissues	Germ Layers	Body Cavities	Fate of Blastopore
Platyhelminthes	Bilateral	True tissues	3	Acoelomate	Protostome (becomes mouth, no anus)
Rotifera	Bilateral	True tissues	3	Pseudocoelomate	Protostome (becomes mouth)
Nematoda	Bilateral	True tissues	3	Pseudocoelomate	Protostome (becomes mouth)
Mollusca	Bilateral	True tissues	3	Coelomate	Most protostome; a few deuterostome
Annelida	Bilateral	True tissues	3	Coelomate	Most protostome; a few deuterostome
Arthropoda	Bilateral	True tissues	3	Coelomate	Few protostome; most deuterostome
Echinodermata	Radial	True tissues	3	Coelomate	Deuterostome (becomes anus)
Chordata	Bilateral	True tissue	3	Coelomate	Deuterostome (becomes anus)
Acoela	Bilateral	True tissues	3	Acoelomate	Protostome (becomes mouth, no anus)
Cnidaria	Radial	True tissues	2	N/A	N/A
Porifera	Asymmetrical	No true tissues	2	N/A	N/A

Cladogram with logic explaining each clade