

Animal Kingdom in One Comparison Table

Decoding Table 4.2: A visual breakdown of the salient features of 11 major animal phyla.

Porifera

Coelenterata

Ctenophora

Platyhelminthes

Aschelminthes

Annelida

Arthropoda

Mollusca

Echinodermata

Hemichordata

Chordata

The Master Matrix: Salient Features of Animal Phyla

A comprehensive overview of fundamental classification features.

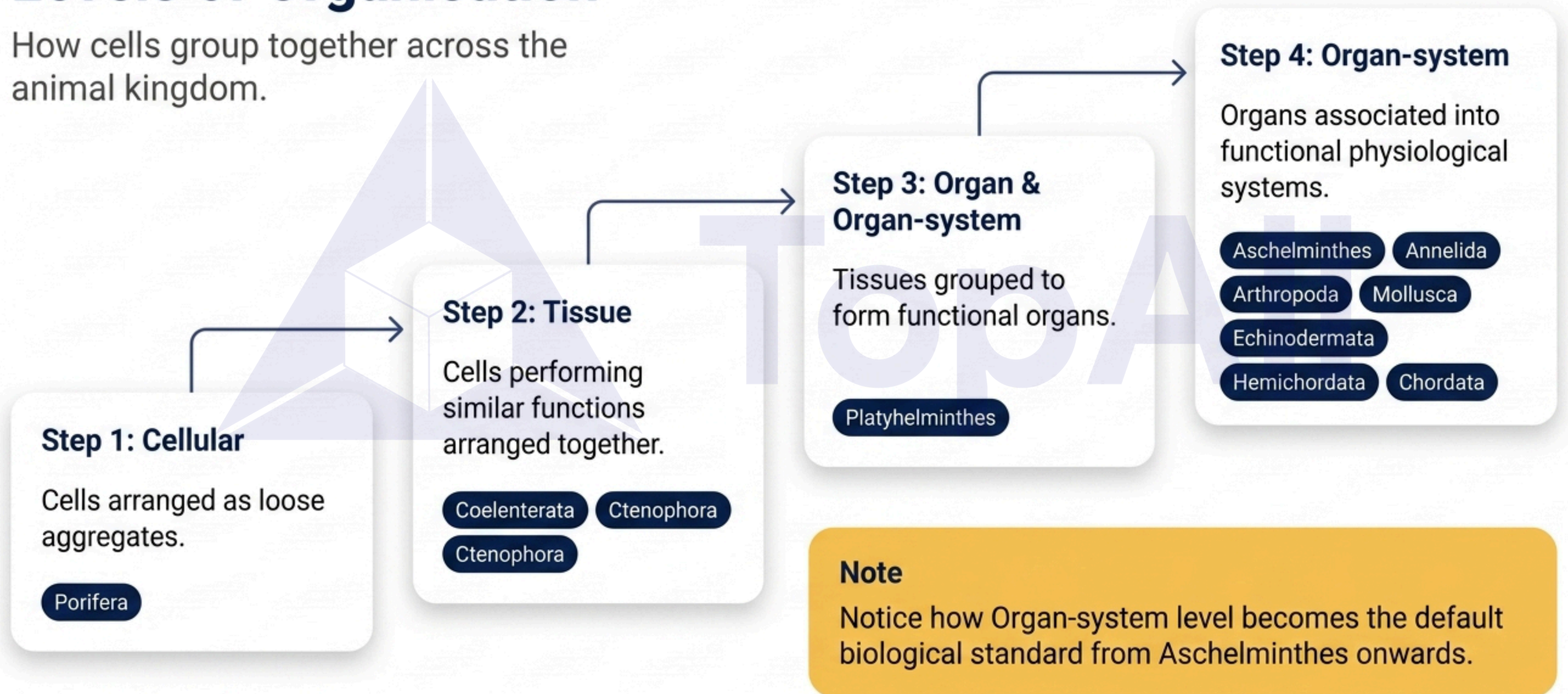


Phylum	Level of Organisation	Symmetry	Coelom	Segmentation	Digestive System	Circulatory System	Respiratory System
Porifera	Cellular	Asymmetrical	Acoelomate	Absent	Absent	Absent	Absent
Cnidaria	Tissue	Radial	Acoelomate	Absent	Incomplete	Absent	Absent
Ctenophora	Tissue	Radial	Acoelomate	Absent	Incomplete	Absent	Absent
Platyhelminthes	Organ & Organ-system	Bilateral	Acoelomate	Absent	Incomplete	Absent	Absent
Aschelminthes	Organ-system	Bilateral	Pseudocoelomate	Absent	Complete	Absent	Absent
Annelida	Organ-system	Bilateral	Coelomate	Present	Complete	Present	Absent
Arthropoda	Organ-system	Bilateral	Coelomate	Present	Complete	Present	Present
Mollusca	Organ-system	Bilateral	Coelomate	Absent	Complete	Present	Present
Echinodermata	Organ-system	Radial (Adult)	Coelomate	Absent	Complete	Present	Present
Hemichordata	Organ-system	Bilateral	Coelomate	Absent	Complete	Present	Present
Chordata	Organ-system	Bilateral	Coelomate	Present	Complete	Present	Present

Key Takeaway: This matrix reveals the evolutionary progression from simple cellular aggregates (Porifera) to complex organ systems (Chordata).

Progression of Complexity: Levels of Organisation

How cells group together across the animal kingdom.





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Body Plans: The Symmetry of Animals

Categorising phyla based on their central axis of division.



Various / Asymmetrical

Any plane fails to divide them equally.

Porifera



Radial

Any plane passing through the central axis divides into identical halves.

Coelenterata

Ctenophora

Echinodermata*

Note

*Echinodermata
Exception: Adults exhibit Radial symmetry, but larvae exhibit Bilateral symmetry.



Bilateral

Divided into identical left and right halves in only one plane.

Platyhelminthes

Aschelminthes

Annelida

Arthropoda

Mollusca

Hemichordata

Chordata

Internal Architecture: Body Cavity & Segmentation



The development of the coelom (mesoderm-lined cavity) and metameric segments.

Body Cavity / Coelom

Acoelomate

Absent cavity

Porifera

Coelenterata

Ctenophora

Platyhelminthes

Pseudocoelomate

False cavity / scattered pouches

Aschelminthes

Coelomate

True cavity

Annelida

Arthropoda

Mollusca

Echinodermata

Hemichordata

Chordata

Metameric Segmentation

Present

Annelida

Arthropoda

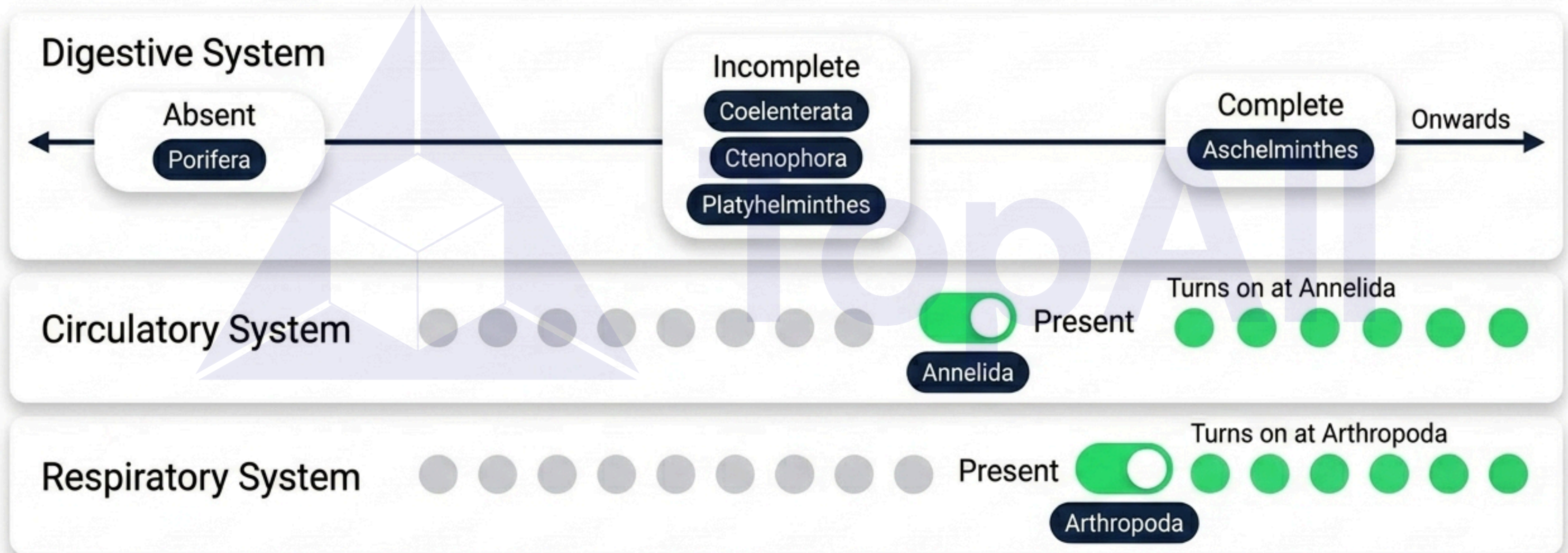
Chordata

Absent

All other 8 Phyla

The Rise of Physiological Systems

Tracking the sudden appearance of true biological systems across phyla.



Key Takeaway

Evolutionary Milestones: Aschelminthes marks the debut of a complete digestive tract, while Arthropoda marks the first true respiratory systems.

The 'Claim to Fame' for Every Phylum

The unique evolutionary adaptations and morphological traits that define each group.

Porifera

- Body with pores and canals in walls.

Coelenterata

- Cnidoblasts present.

Ctenophora

- Comb plates for locomotion.

Platyhelminthes

- Flat body, suckers.

Aschelminthes

- Often worm-shaped, elongated.

Annelida

- Body segmentation like rings.

Arthropoda

- Exoskeleton of cuticle, jointed appendages.

Mollusca

- External skeleton of shell usually present.

Echinodermata

- Water vascular system, radial symmetry.

Hemichordata

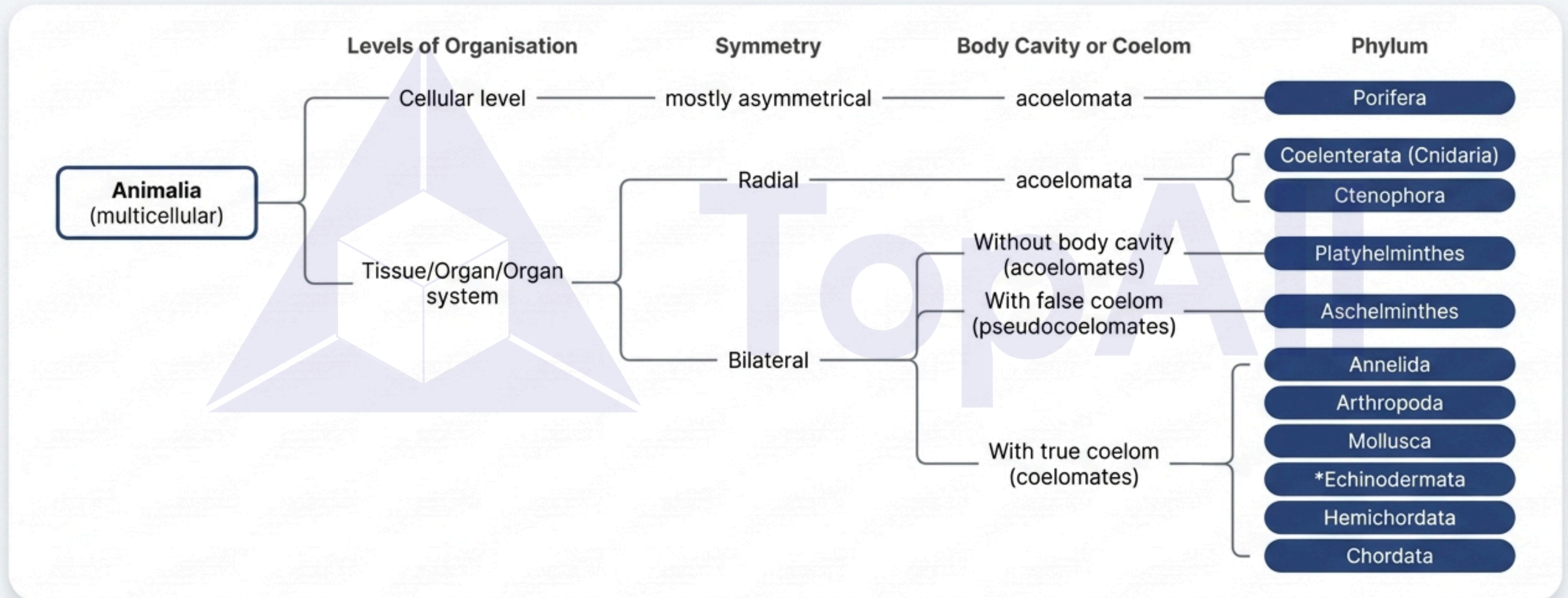
- Worm-like with proboscis, collar and trunk.

Chordata

- Notochord, dorsal hollow nerve cord, gill slits with limbs or fins.

Animal Kingdom: The Final Revision Board

A holistic view of the classification hierarchy based on fundamental features.



Key Takeaway

Biological classification is not random; it follows a logical evolutionary progression from cellular asymmetry to complex, coelomate bilateralism.



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