**Reduced Cladogram of the Kingdom Animalia** (from tolweb.org)



1

5The most notable characteristic shared by ecdysozoans is a three-layered [cuticle](https://en.wikipedia.org/wiki/Cuticle) (four in [Tardigrada](https://en.wikipedia.org/wiki/Tardigrade)[[7]](https://en.wikipedia.org/wiki/Ecdysozoa#cite_note-IZ-7)) composed of organic material, which is periodically molted as the animal grows.

4

2

3

**Arthropoda**

Onycophora

Tardigrada

**Nematoda**

**Platyhelminthes**

**Annelida**

**Mollusca**

**Ecdysozoa**

**Lophotrochozoa**

**Animalia**

Choanoflagellates

**Bilateria**

Myxozoa

**Cnidaria**

Ctenophora

Placozoa

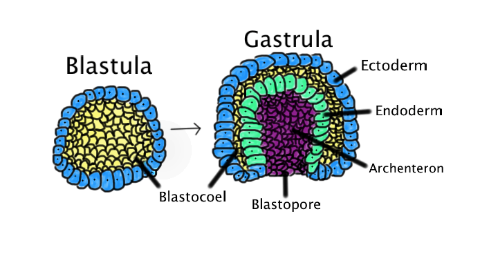
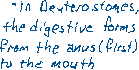
**Porifera**

**Deuterostomia**

**Chordata**

**Echinodermata**

**Protostomia**



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1. Animals consume organic material, breathe oxygen, are able to move, reproduce sexually, and grow from a hollow sphere of cells, the **blastula**, during embryonic development.

2. Animals with **bilateral symmetry**, i.e., they have a head (anterior) and a tail (posterior) as well as a back (dorsal) and a belly (ventral); therefore, they also have a left side and a right side. Bilateral embryos are **triploblastic**, having three germ layers: **endoderm**, **mesoderm**, and **ectoderm**.

3. In **deuterostomes**, the first opening (the blastopore) of the **gastrula** becomes the anus,

4. in **protostomes**, the blastopore becomes the mouth.

5. The most notable characteristic shared by **ecdysozoans** is a three-layered cuticle (four in Tardigrada) composed of organic material, which is **periodically molted** as the animal grows, a process called ecdysis.

(Notes from Wikipedia)



**Sample animals of some of the main groups we will study this year:**

A worm on the ground

Description automatically generatedA snail on a white background

Description automatically generatedA close-up of a pink sponge

Description automatically generatedPorifera (Sponges) Cnidaria (Jellyfish) Molluscs (Shellfish) Annelida (Worms)

Nematoda (Whip worms) Arthropods Crustaceans, Insects… Echinoderms (Sea stars)



**Animal Body Systems**

All life has two (2) **primary functions**:



1.



2.



To perform these two primary functions, life has five (5) **secondary functions**:

i.



ii.



iii.



iv.



v.



Most large animals have (or had if they are now extinct) **eleven (11) body systems** to perform the five secondary functions that support the two primary functions. Let’s make the list:

