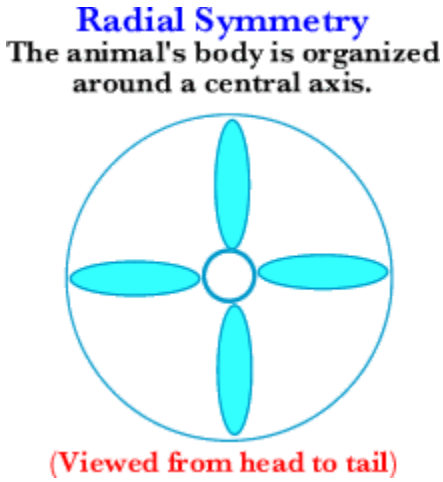
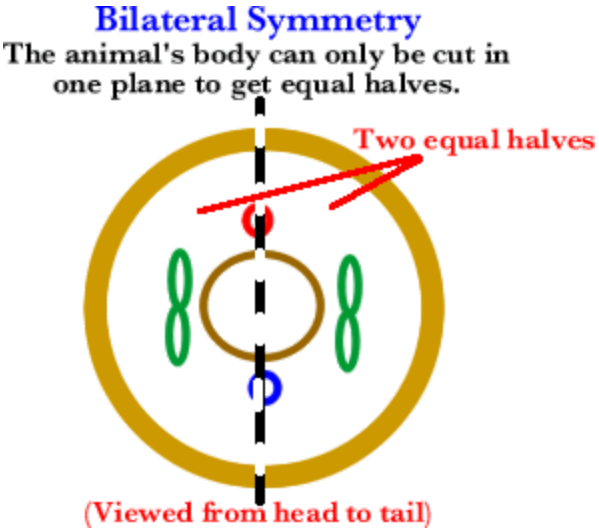
Simple Animals Classification

Radial Symmetry: Body plan in which parts of an animal's body are organized in a circle around a central axis. (Can be cut into identical halves in 2 or more planes.)



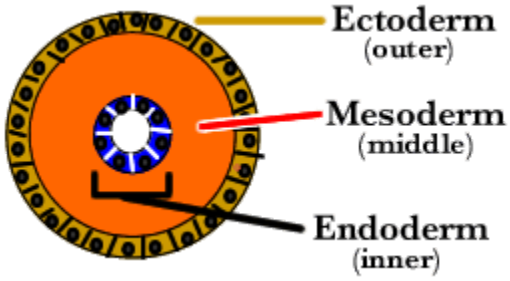


Bilateral Symmetry: Body plan in which two equal halves of a body mirror each other. (Has left and right sides.)

Ectoderm: Outer layer of cells giving rise to skin, nervous system, and external sensory organs.

Mesoderm: Middle layer of cells giving rise to muscles, blood and various systems.

Endoderm: Innermost layer of cells giving rise to linings of the digestive tract, bladder, urinary tract, respiratory tract.



Phyla of Simple Animals & Their Characteristics

Additional Online Info: http://biology.clc.uc.edu/Courses/bio106/inverts.htm

Phyla	Examples	Characteristics
Porifera	Sponges	1) Lack all organs. 2) No Symmetry.

Simple Animals Classification

Phyla	Examples	Characteristics
		3) Body wall with by pores thru which water enters. 4) Needle-like spicules provide support & protection. 5) Body wall of 2 layers (ectoderm & endoderm), each separated by a thin jelly layer.
Cnidaria **(jelly animals)**	Jellyfish Sea Anemones Coral Hydras	1) Radial Symmetry. 2) Has digestive and nervous systems. 3) Single opening acts as mouth and anus. 4) Tentacles have stinging cells (nematocysts). 5) Body wall of 2 layers (ectoderm & endoderm), each separated by jelly layer. 6) 2 basic body forms: a) **Medusa** (mobile and umbrella-shaped). b) **Polyp** (tubular and sessile (non-motile)) .
Platyhelminthes **(flatworms)**	Tapeworms Flukes Planarians	1) Bilateral Symmetry (flattened bodies top to bottom) 2) Unsegmented bodies. 3) Have digestive and nervous systems. 4) Have mouth but no anus. 5) Body wall of 3 layers (ectoderm, mesoderm & endoderm).

Simple Animals Classification

Phyla	Examples	Characteristics
Nematoda (Roundworms)	Hookworms Tapeworms Roundworms Heartworms Trichinella Whipworm	1) Bilateral Symmetry (flattened bodies top to bottom) 2) Unsegmented bodies. 3) Have digestive and nervous systems. 4) Have mouth but no anus. 5) Body wall of 3 layers (ectoderm, mesoderm & endoderm).
Annelida **(segmented worms)** **ALSO CONSIDERED COMPLEX**	Earthworms Leeches Tubeworms	1) Bilateral Symmetry 2) Cylindrical, segmented bodies. 3) Bristles or appendages on each body segment aid movement or sensory input. 4) Digestive system is one-way (mouth to anus). 5) Has nervous, excretory & circulatory systems. 6) Body wall of 3 layers (ectoderm, mesoderm & endoderm).
Mollusca	Snails Bivalves (Mussels, Clams) Squids Octopi Slugs	1) Soft, unsegmented bodies. 2) Body made of head, muscular foot, and organs (all). 3) Most with hard external shell (except slug, squid, octopi). 4) Most have **radula** (rasping tongue) - (except bivalves). 5) Body wall of 3 layers (ectoderm, mesoderm & endoderm).

Simple Animals Classification

Phyla	Examples	Characteristics
Arthropoda	Crustaceans (crabs, shrimp, pill bugs) Insects Arachnids (spiders & scorpions) Millipedes Centipedes	1) Jointed legs. 2) Exoskeleton of chitin (external). 3) Body segmentation. 4) Compound eyes. 5) Body wall of 3 layers (ectoderm, mesoderm & endoderm). 6) One-way digestive system.