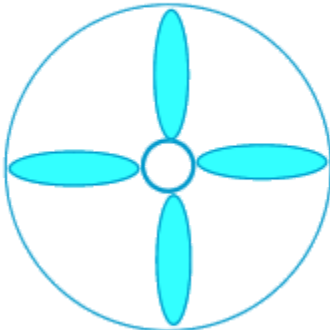


Simple Animals Classification

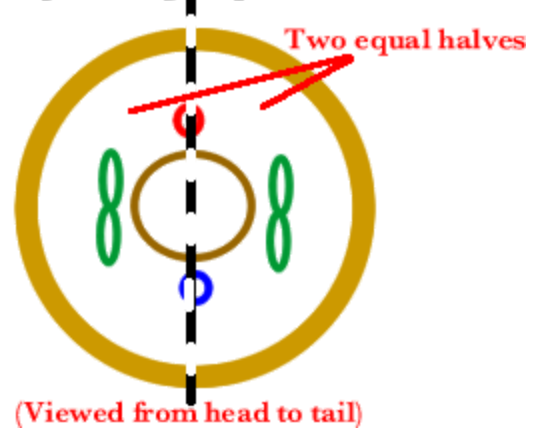
Radial Symmetry: Body plan in which parts of an animal's body are organized in a circle around a central axis. (Can be cut into identical halves in 2 or more planes.)

Radial Symmetry
The animal's body is organized around a central axis.



(Viewed from head to tail)

Bilateral Symmetry
The animal's body can only be cut in one plane to get equal halves.

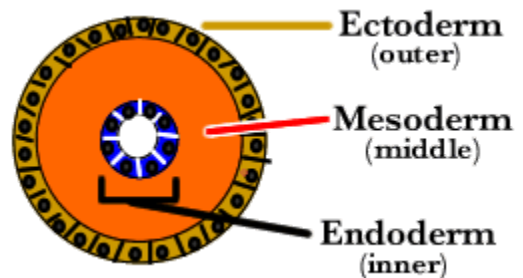


Bilateral Symmetry: Body plan in which two equal halves of a body mirror each other. (Has left and right sides.)

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

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. |