

Animal Taxonomy

Introduction



South Carolina
Aquarium

What is taxonomy?

- The system of classifying organisms

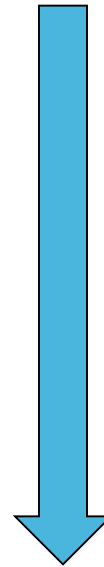
Why is it important?

- It's the best way to organize organisms so we can learn more about them

Taxonomy Levels (Taxa)

- Domain
- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

General



Specific

Domains & Kingdoms

- Domain Archaeobacteria
- Domain Eubacteria
- Domains Eukarya
 - > **Kingdom Protista (Protists)**
 - > **Kingdom Fungi**
 - > **Kingdom Plantae (Plants)**
 - > **Kingdom Animalia (Animals)**

Kingdom Animalia

- Very diverse group
- ~ 10 million species in the world
 - > **Vertebrates (1%)**
 - > **Invertebrates (99%)**
- Eat other organisms for energy (heterotrophs)
- Can live on land, in the water (fresh, salt and brackish) and in the air
- Have the ability to move (most)
- Reproduce sexually (most)
- Cells lack a cell wall

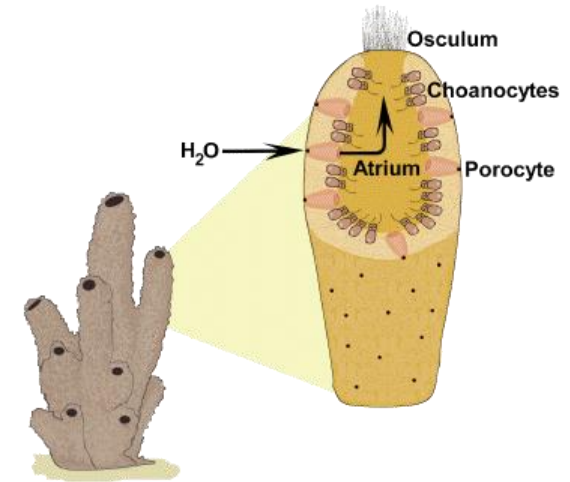
Invertebrate & Vertebrate Phyla

- Kingdom Animalia
 - > Phylum Porifera
 - > Phylum Cnidaria
 - > Phylum Mollusca
 - > Phylum Annelida
 - > Phylum Echinodermata
 - > Phylum Arthropoda
- Kingdom Animalia
 - > Phylum Chordata

+ Plus 28 others

Phylum Porifera

- Sessile (not moving)
- Many pores and canals
- Very simple body organization
- Filter feeders
- Defense: spicules, toxic, warning colors
- Asymmetrical

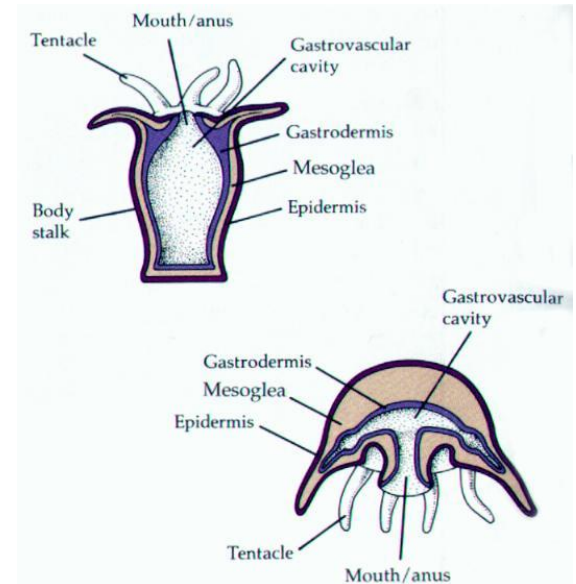


Sponges

Phylum Cnidaria

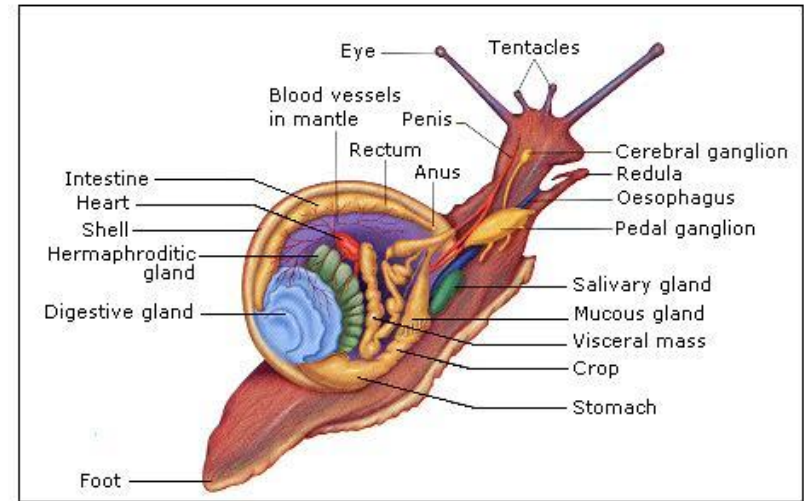
- Tentacles
- Stinging cells (nematocysts)
- Radial symmetry
- Simple digestive, muscular, reproductive and nervous systems
- No circulatory, respiratory or excretory systems

Sea anemones, Jellies, Hydroids, Corals



Phylum Mollusca

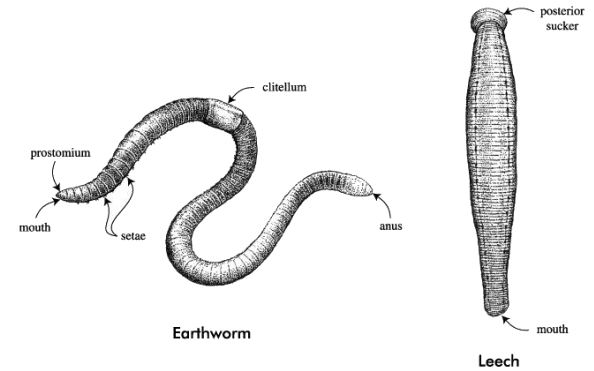
- Soft body
- Muscular foot
- Mantle that secretes hard calcium carbonate shell
- Well developed systems
- Most adults have bilateral symmetry



Snails, Bivalves, Cephalopods

Phylum Annelida

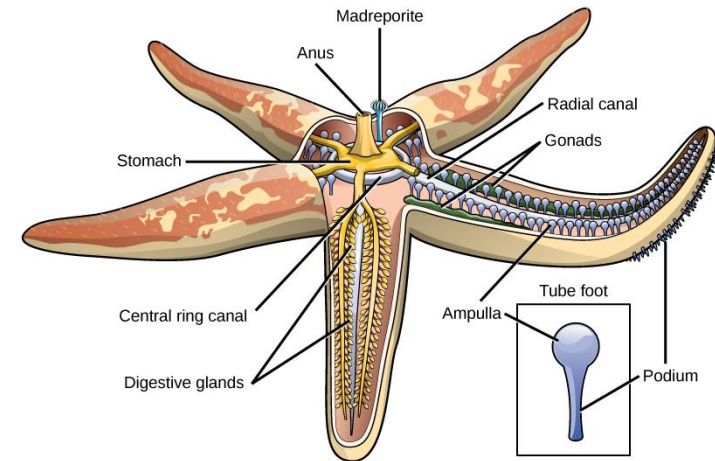
- Segmented worms
- Have specialize front segment with sensory organs
- Circular muscles around body segments for movement
- Setae used to anchor body when moving
- Bilateral Symmetry



Earthworms, Leeches, Polychaetes

Phylum Echinodermata

- Name means “spiny skin”
- Have endoskeleton
- Water-vascular system with tube feet
- Regeneration of body parts
- Radial symmetry in adult
- Bilateral symmetry in larval form



Sea stars, Sea urchins, Sand dollars, Sea cucumbers

Phylum Arthropoda

- Segmented body
 - > (head, thorax, abdomen)
- Exoskeleton made of chitin
- Molt to grow
- Paired, jointed appendages
- Bilateral symmetry



Crustaceans, Horseshoe crabs, Insects, Spiders

Phylum Chordata

- Subphylum Vertebrata (Vertebrates)
 - > **Fishes**
 - **Class Agnatha (lamprey)**
 - **Class Chondrichthyes (cartilaginous fish)**
 - **Class Osteichthyes (ray and lobe-finned fish)**
 - > **Class Amphibia**
 - > **Class Reptilia**
 - > **Class Aves**
 - > **Class Mammalia**

Fishes – 3 Classes

- Have gills
- Live in water
- Have fins
- Have an internal skeleton (bone or cartilage)



Bony fish, Sharks, Rays, Lampreys

Class Amphibia (Amphibians)



- Thin smooth or bumpy skin
- Dependent on water for reproduction
- Have lungs or gills, but can also breathe through their skin if needed
- Indicator species because they are the first to be affected by air and water pollutions

Frogs, Toads, Salamanders

Class Reptilia (Reptiles)

- Have tough, dry, scaly skin
- Breathe with lungs
- Leathery shelled eggs
- Ectothermic (cold-blooded)



Snakes, Turtles, Lizards, Crocodilians

Class Aves (Birds)

- Have feather, beaks and wings
- Have lightweight bones
- Can fly (most)
- Endothermic (warm-blooded)



Parrots, Song birds, Raptors, Penguins

Class Mammalia (Mammals)

- Endothermic (warm-blooded)
- Have hair
- Breathe with lungs
- Bear live babies
- Produce milk to feed young



Humans, Dolphins, Whales, Dogs, Cats