

Vertebrate Handout

Phylum Chordata

USE YOUR LAB MANUAL TO FILL OUT THE BOXES:

Members of the Domain Eukarya can be multicellular, have a nucleus and have organelles. Members of the Kingdom Animalia are ingestive-feeding heterotrophs (meaning they eat others by ingesting them).

Phylum: Members of the Kingdom Animalia belonging to the following Phyla; Echinodermata (invertebrates) and Chordata (Vertebrates) are Deuterostomes. Members of each Phyla share certain characteristics. Use your lab manual to fill out what they have in common.

Body Plan: **Asymmetrical** (No way to cut into two equal halves)
 Radial (Many different ways of cutting into two equal halves ex: Pizza)
 Bilateral (Only one way to cut in two equal halves ex: Fork)

Tissue (germ) layers: **No tissues**
 2 Tissues (Endoderm and Ectoderm)
 3 Tissues (Endoderm, Mesoderm, Ectoderm)

Body Cavities: **2 Tissue organisms** Gastrovascular cavity
 3 Tissue Organism Acoelomate (No space between the tissues)
 Pseudocoelomate (A small space between the tissues)
 Coelomate (A large space between the tissues)

Development of Body Openings:
(COELOMATES ONLY) Protostome: Mouth developed before anus
 Deuterostome: Anus Developed before mouth

Phylum Chordata

All members of this Phylum have these 4 characteristics:

Have notochord, post anal tail, pharyngeal slits and a dorsal hollow nerve cord.

Subphylum Urochordata (INVERTEBRATE)

All members of this Subphylum have tadpoles as larvae but tunicates as adults:



Organism: Sea Squirt

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Tunicata

Body Plan: bilateral symmetry

Germ Layers: Three body layers (Ectoderm, mesoderm, and endoderm).

Body Cavity: Has no coelom

Development of body opening: deuterostomes

Phylum Chordata

Subphylum Cephalochordata (INVERTEBRATE)

All members of this Subphylum are the first have a head, it shows a tail, appendages are absent, and dorsal, caudal and ventral fins are present.



Organism: *Branchiostoma* Lancelet

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Cephalochordata

Body Plan: bilateral symmetry

Germ Layers: Three body layers (Ectoderm, mesoderm, and endoderm).

Body Cavity: Coelom

Development of body opening: deuterostomes

Phylum Chordata

Subphylum Vertebrata (VERTEBRATE)

All members of this Subphylum are the first to develop a vertebral column



Organism: *Carcharodon* Great White Shark

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Chondrichthyes

All members of this class have _cartilaginous Skeletons

Body Plan: Bilateral symmetry

Germ Layers: Three germ layers

Body Cavity: pleuroperitoneal cavity and pericardial cavity

Development of body opening: Deuterostomes



Organism: *Hippocampus* Sea Horse (Ray finned fish)

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Osteichthyes

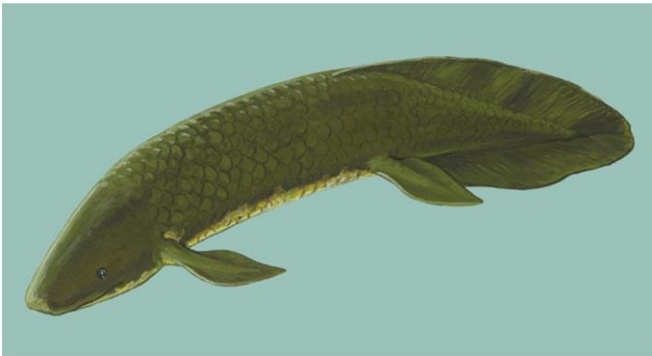
All members of this class have **cartilaginous** Skeletons

Body Plan: Bilateral symmetry

Germ Layers: Three germ layers (Ectoderm, mesoderm, and endoderm)

Body Cavity: coelom

Development of body opening: protostome



Organism: *Neoceratodus forsteri* lobe finned fish

Domain: eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Dipnoi

All members of this class have Axial Skeletons 4 gill arches and swim bladder for balance and buoyancy

Genus: Neoceratodus

Body Plan: bilateral symmetry

Germ Layers: have three germ layers

Body Cavity: Coelom

Development of body opening: Deuterostomes



Organism: *Ambystoma mexicanum* amphibian

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Amphibia

Moist skin, 3 chamber hearts and lay eggs in water.

Body Plan: Bilateral symmetry

Germ Layers: have three germ layers

Body Cavity: True coelom

Development of body opening: deuterostomes



Organism: *Coluber naja* Snake (reptile)

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

All members of this Phylum have these 4 characteristics;
Have notochord, post anal tail, pharyngeal slits and a dorsal hollow nerve cord.

Subphylum: Vertebrata

All members of this subphylum have a backbone

Class: Reptilia

All members of this class have scaly skin, 3 chamber hearts and lay eggs in land

Genus: Naja

Body Plan: Bilateral symmetry

Germ Layers: Three germ layers

Body Cavity: coelom

Development of body opening: deuterostomes



Organism: *Balaeniceps rex* (Bird)

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

All members of this Phylum have these 4 characteristics
Have notochord, post anal tail, pharyngeal slits and a dorsal hollow nerve cord.

Subphylum: Vertebrata.

All members of this subphylum have a backbone.

Class: Aves

All members of this class are: warm-blooded animals.

Body Plan: Bilateral symmetry

Germ Layers: Ectoderm, mesoderm, and ectoderm.

Body Cavity: Coelom

Development of body opening: deuterostomes



Organism: _ *Ornithorhynchus anatinus* (Monotreme mammal)

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Mammalia

All members of this class are: lactating animals

Subclass: Prototheria.

All members of this subclass: egg-laying mammals

Body Plan: Bilateral symmetry

Germ Layers: Ectoderm, mesoderm, and endoderm.

Body Cavity: coelom

Development of body opening: deuterostomes



Organism: *Macropus rufus* (Marsupial Mammal)

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Mammalia

All members of this class are: warm blooded

Subclass: metatheria

All members of this subclass: porched animals

Infraclass: Marsupialia

All members of this infraclass: are not placental mammals

Body Plan: Bilateral symmetry

Germ Layers: Ectoderm, mesoderm, and endoderm.

Body Cavity: Coelom

Development of body opening: deuterostomes



Organism: *Balaenoptera musculus* (Placental Mammal)

Domain: Eukarya

Kingdom: Animalia

Phylum: Chordata

Subphylum: Vertebrata

Class: Mammalia

All members of this class are: warm blooded

Subclass: Theria

All members of this subclass: have fins

Infraclass: Eutheria

All members of this infraclass: have gills

Body Plan: bilateral symmetry

Germ Layers: Ectoderm, mesoderm, and endoderm.

Body Cavity: Coelom

Development of body opening: Deuterostomes