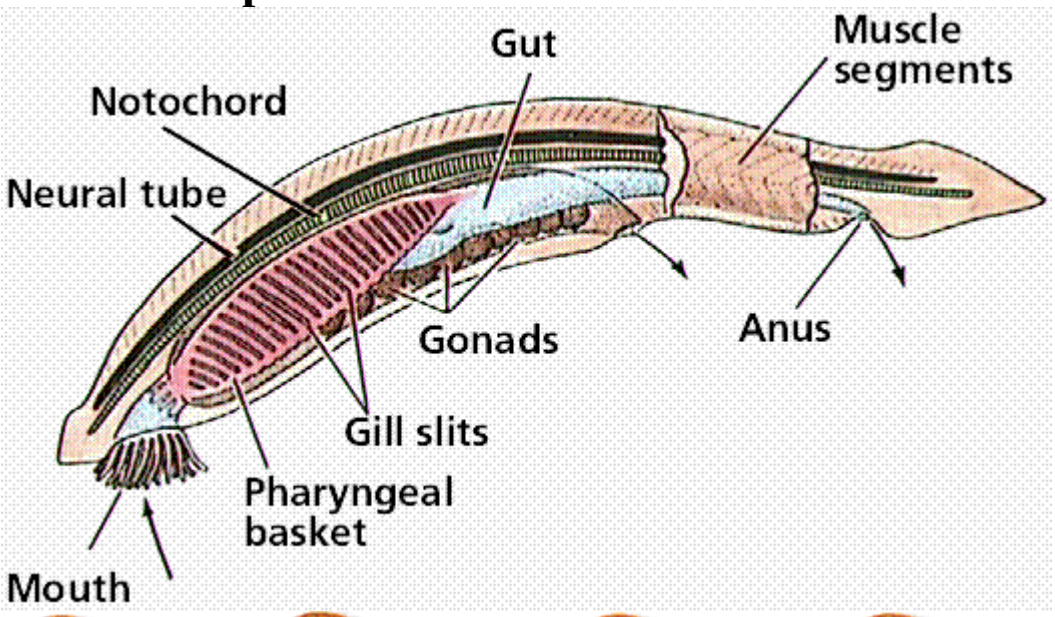
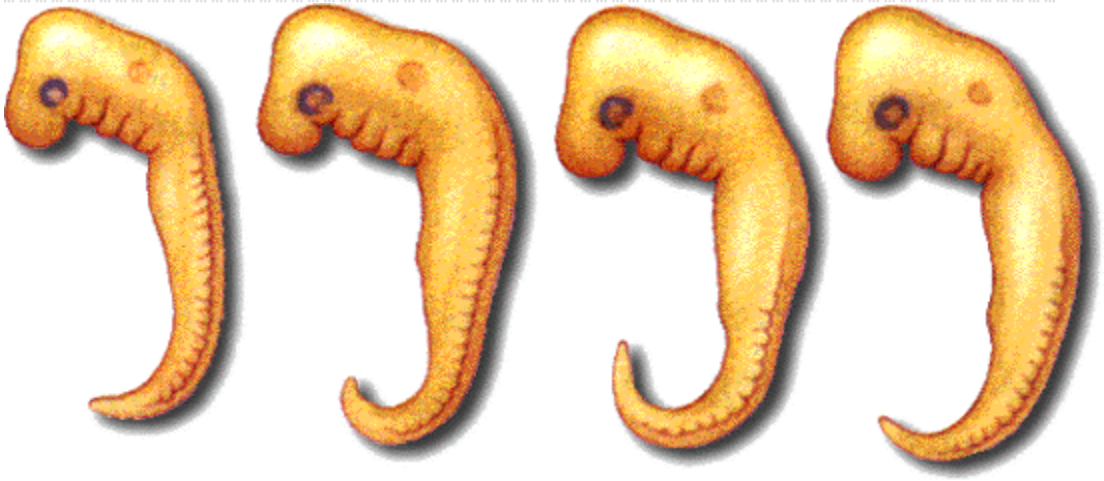
UNIT 7 Notes #1 Phylum Chordata
(Subphylum Vertebrata)

Kingdom – Animalia
Phylum – Chordata
- All members have:
1) a hollow dorsal nerve cord,
2) a notochord
3) pharyngeal (throat) gill slits/pouches at some point in their development.



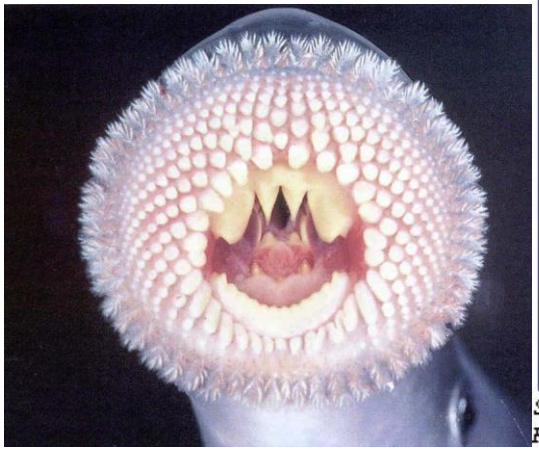


- Very few chordates are invertebrates, the majority of chordates are vertebrates (have backbones).

- These animals are classified into a subphylum called <u>"Vertebrata".</u>
- Within this subphylum, vertebrates have been further classified into several main classes.

<u>1) Class Agnatha (Without Jaws)</u>
Example: Lampreys and hagfish
- No paired fins, no scales and no jaws.

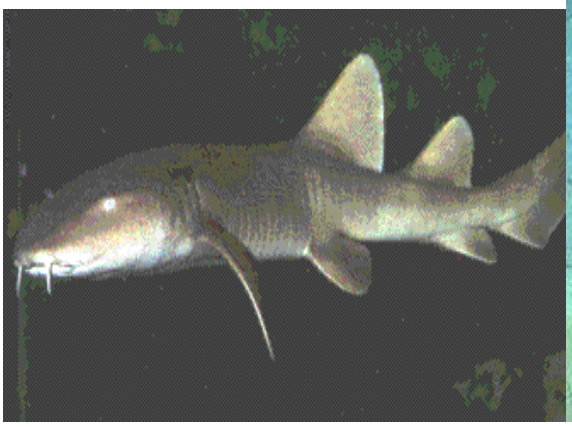
- They use a sucking disk to attach to host fish.



Sea Lamprey on **Lake Trout** *Photo courtesy Great Lakes Fishery Commission*

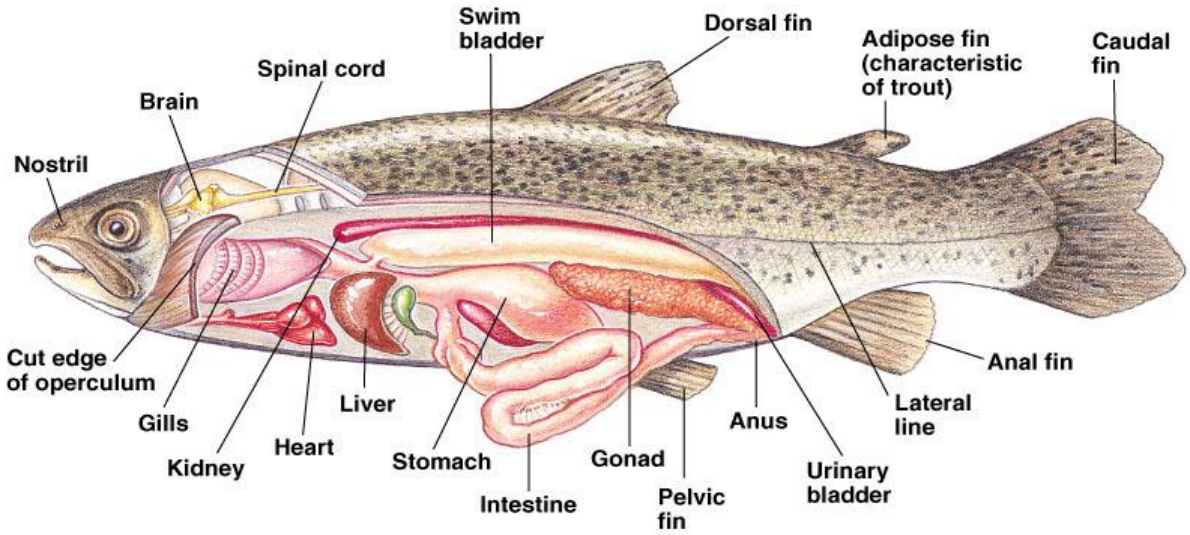
- Skeleton of cartilage (firm, flexible tissue, not as hard as bone). Lack backbones when they reach adulthood.
- Use gills for respiration
- Heart with a single ventricle.

2) Class Chondrichthyes (Cartilage Fish):
Example: Sharks, rays, skates




- Have a cartilaginous endoskeleton.
- Adapted to possess jaws, fins, and scales

3) Class Osteichthyes (Bony Fish):
Example: Perch, trout, salmon (almost any fish you can think of)

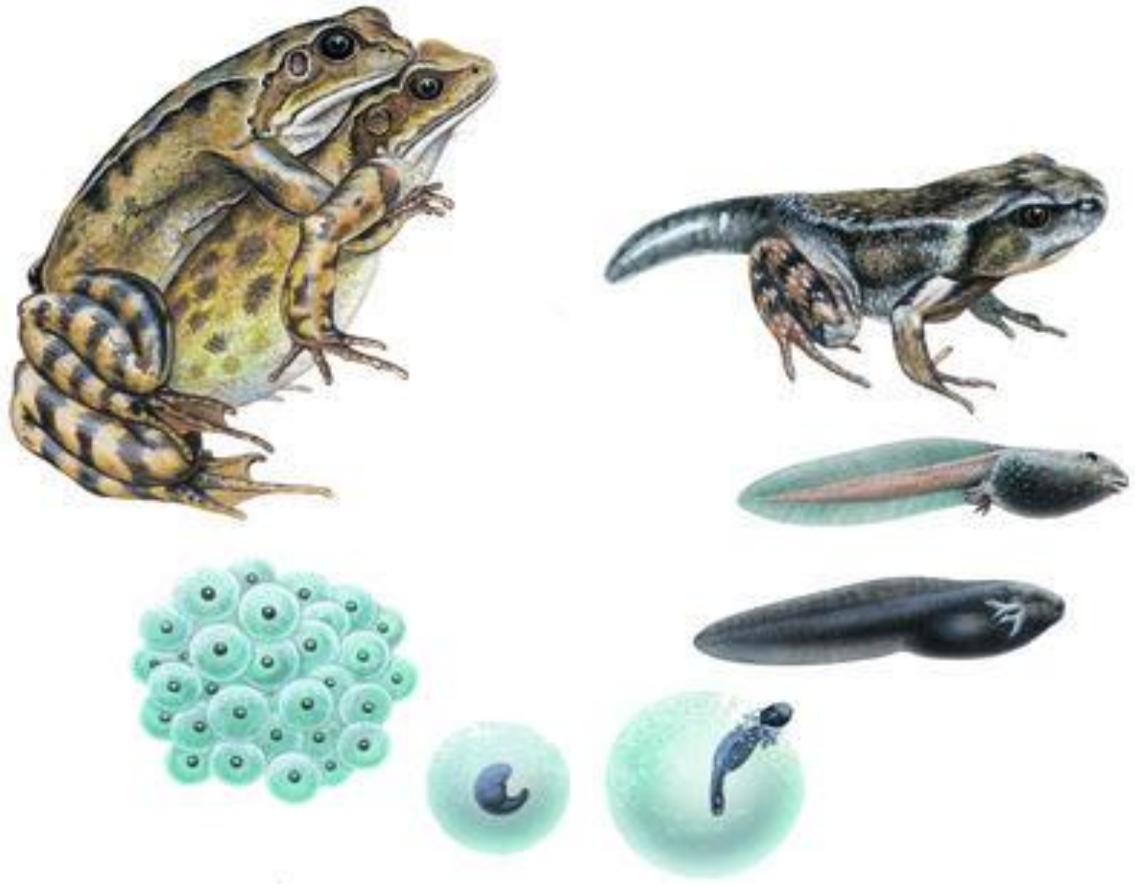


- The bony fish (skeleton of bone) make up 40% of all vertebrates.
- Swim bladder (fills with gas to maintain depth)
- Also possess jaws, fins, and scales
- Heart with single ventricle.

<u>4) Class Amphibia (Combining Life Forms):</u>

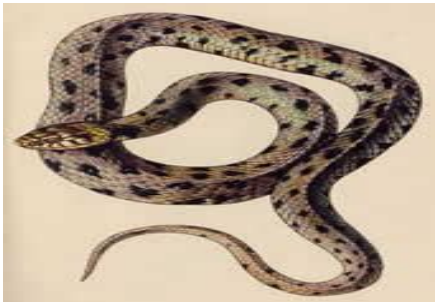
Example: Frog, toad, salamander

- Smallest of all classes, only 4000 species.
- Aquatic as larvae, usually living in freshwater with the aid of gills.
-Adults usually terrestrial and have lungs for respiration but get help in respiration from moist skin.
- Eggs lack a shell, therefore dependant on water during reproduction.
-No Claws or Scales.
-Heart with single ventricle.
- <u>Most</u> use external fertilization.



5) Class Reptilia (Crawling):

Example: Snake, Turtle, Lizard, Crocodiles



- Use only lungs for respiration.
- Scaly skin and claws usually present.
- Almost all use Internal fertilization.
- Usually possess eggs with leathery shell, allowing them to live their entire life outside of water.
- Heart with 1 or 2 ventricles, depending on species.
- Much better adapted for living on land than amphibians.

6) Class Aves:

Example: Birds

- Warm-blooded (Endothermic) – Have mechanisms to generate body heat allowing them to maintain a constant body temperature independent of the environmental temperature.

- Reptile-like endothermic animals that have an outer covering of feathers modified from scales.

- Front limbs usually modified as wings, back limbs used for walking and perching.

- Use internal fertilization

- Heart with 2 ventricles

7) Class Mammalia:

Example: Rats, Bats, Kangaroos, Pigs, Humans

-Scales modified to form hair

-Females have mammary glands for the secretion of milk.

-Warm-blooded (Endothermic)

– Live birth (Viviparous)

-Four types of teeth (Incisors, Canines, Pre-Molars, and Molars)

-Heart with 2 ventricles



Major Orders of Mammals

A) *Non- Placental Mammals*

Description	***Order Name***	***Example***
Egg Laying	**Monotremes**	**Duckbill Platypus**
Pouched	**Marsupialia**	**Opossum**

B) *Placental Mammals*

Description	***Order Name***	***Example***
Insect-eating	**Insectivora**	**Shrew**
Flying	**Chiroptera**	**Bat**
Toothless	**Endentata**	**Sloth**
Gnawing	**Rodentia**	**Rat**
Hare-like	**Lagomorpha**	**Jackrabbit**
Marine	**Cetacea**	**Dolphins**
Marine-Freshwater	**Sirenia**	**Manatee**
Trunked	**Proboscidea**	**Elephant**
Flesh-eating	**Carnivora**	**Bear**
Odd-toed Hoofed	**Perissodactyla**	**Horses**
Even-toed Hoofed	**Artiodactyla**	**Sheep**
Erect	**Primates**	**Apes**