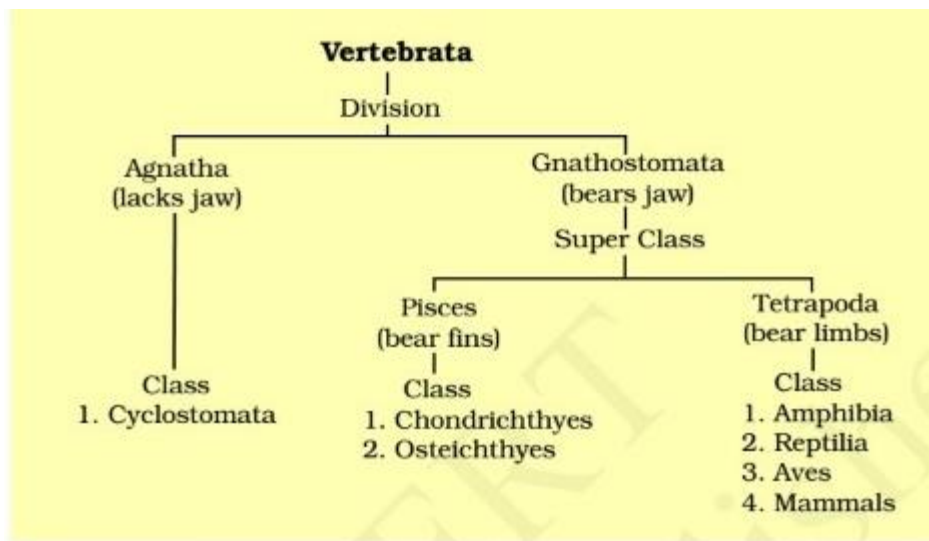
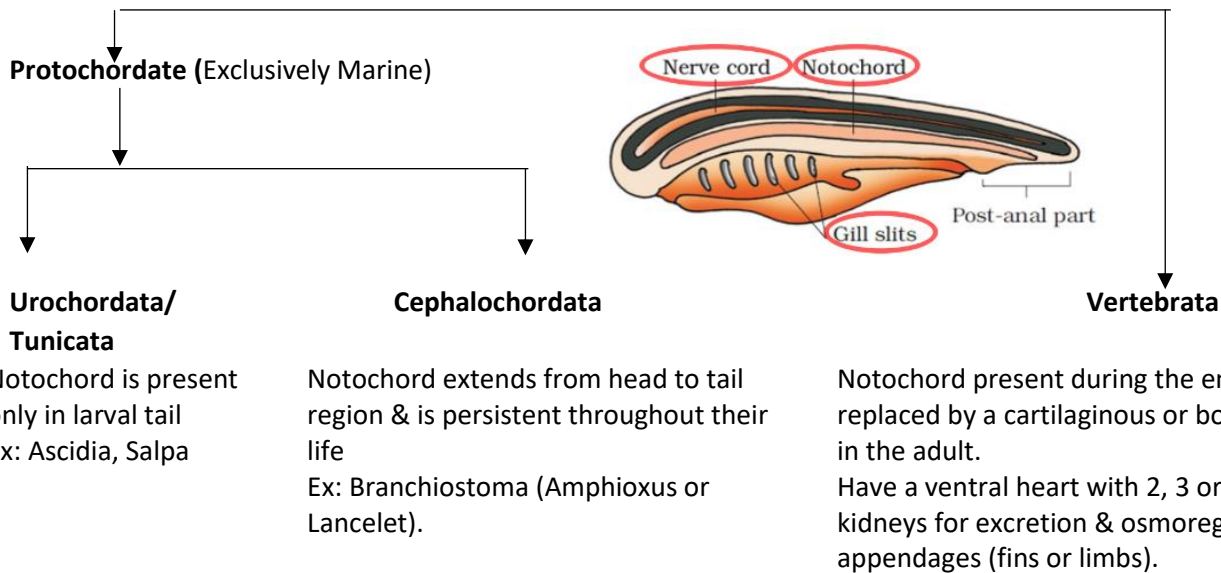


Chordata



Cyclostomata (Circular Mouthed Fishes)	Chondrichthyes (Cartilaginous fishes)	Osteichthyes (Bony fishes)
<ul style="list-style-type: none"> • Circular & sucking mouth without jaws • Ectoparasites on fishes • 6-15 pairs of gill slits • Scales and fins are absent • Cartilaginous vertebral column and cranium • Closed type circulation • Marine but migrate to freshwater for spawning (release egg) where they die, larvae after metamorphosis come back to the ocean • Examples: <i>Petromyzon</i> (Lamprey), <i>Myxine</i> (Hagfish) 	<ul style="list-style-type: none"> • Cartilaginous endoskeleton, Ventral Mouth • Gill is without operculum • Notochord present throughout life • Placoid scales present (makes Skin tough) • Teeth are modified placoid scales which are backwardly directed. Jaws very Powerful. • Swims constantly to avoid sinking (Air bladders absent) • 2- chambered heart & poikilothermous • Separate sexes, internal fertilisation & many are viviparous • Claspers (use to transfer sperm) are present on male's pelvic fin • Electric organs -<i>Torpedo</i> • <i>Trygon</i> has poison sting • Examples: <i>Scoliodon</i> (Dogfish), <i>Trygon</i> (Stingray), <i>Pristis</i> (Sawfish), <i>Carcharodon</i> (Great white shark) 	<ul style="list-style-type: none"> • Streamlined body, bony endoskeleton, 4 pairs of gills with operculum • Skin is covered by cycloid scales • 2-chambered heart & air bladder for buoyancy, poikilothermous • Sexes are separate, oviparous, external fertilisation with direct development • Examples: Marine- <i>Hippocampus</i> (Sea horse) Freshwater- <i>Labeo</i> (Rohu), <i>Catla</i> (Katla) Aquarium- <i>Betta</i> (Fighting Fish), <i>Pterophyllum</i> (Angelfish)

Super Class: Tetrapoda

Class IV – Amphibia (dual life)	Class V – Reptilia	Class VI – Aves	Class VII – Mammalia
<p>Aquatic as well as terrestrial</p> <p>Body divided into Head & Trunk. Tail may be present. Two pair of limbs. Eyes have eye lids. Tympanum represent ear.</p>	<p>Mostly terrestrial. Have creeping or crawling mode of locomotion</p> <p>Limbs are absent or two pairs. Tympanum represents ear.</p>	<p>Feathers for flying</p> <p>Forelimb modified into wings, hindlimbs modified for walking, swimming, clapping etc. Tympanum represents ear. Endoskeleton is fully ossified (bony) and the long bones are hollow with air cavities (pneumatic).</p>	<p>Mostly terrestrial but few can fly or live in water</p> <p>Two pair of limbs adapted for walking, running, climbing, burrowing, swimming or flying External Ears (Pinna) present. Different types of teeth are present in the jaw.</p>
<p>Skin is moist and scales are absent. Alimentary canal, urinary & reproductive tracts open into a common chamber called cloaca which opens to the exterior.</p> <p>Respiration by gills, skin or lungs</p> <p>3 chambered heart, poikilotherms</p> <p>Oviparous</p>	<p>Dry cornified skin with scales or scute</p> <p>Respiration by lungs</p> <p>3 chambered heart, Poikilotherms 4 chambered heart in crocodiles</p> <p>Oviparous</p>	<p>Dry skin with only oil glands at the base of the tail, pneumatic bones. Additional chambers for digestion, the crop and gizzard.</p> <p>Respiration by lungs. Air sacs connected to lungs supplement respiration.</p> <p>4 chambered heart, homeotherms (warm-blooded)</p> <p>Oviparous</p>	<p>Skin is hairy, mammary glands to feed the young one.</p> <p>Respiration by lungs</p> <p>4 chambered heart, homeotherms (warm-blooded)</p> <p>Viviparous Platypus (Ornithorhynchus) & Echidna (Tachyglossidae) - Oviparous</p>
<p>Sexes separate, external fertilisation with indirect development</p>	<p>Sexes separate, internal fertilisation with direct development</p>	<p>Sexes separate, internal fertilisation with direct development</p>	<p>Sexes are separate, internal fertilisation with direct development</p>
<p>Frog, Salamander, <i>Ichthyophis</i> (limbless salamander)</p>	<p>Crocodile, Alligator, Chameleon, <i>Naja</i>, <i>Viper</i>, <i>Hemidactylus</i> (Wall lizard)</p>	<p>Birds (crow, pigeon, parrot, etc.), ostrich, penguin (flightless bird)</p>	<p>Kangaroo, cat, lion, Blue whale, Dolphin</p>