



BYJU'S Classes

Animal Kingdom- L7



ANTHE

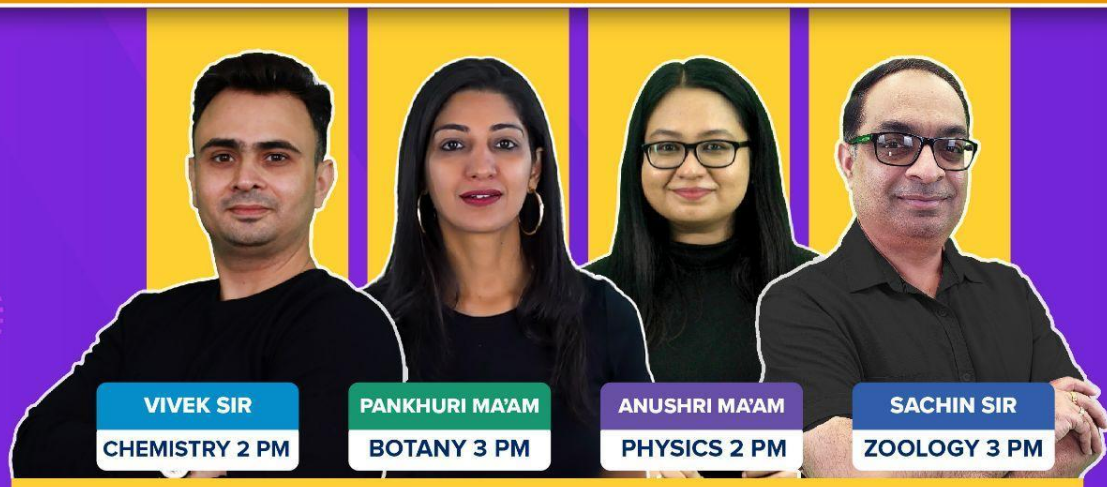
AAKASH NATIONAL TALENT HUNT EXAM

— **Your Gateway To Success** —

For Class VII to XII

Current Students & Passouts

MONDAY AND WEDNESDAY | 2 PM CHEMISTRY, 3 PM BOTANY
TUESDAY AND THURSDAY | 2 PM PHYSICS, 3 PM ZOOLOGY



VIVEK SIR
CHEMISTRY 2 PM

PANKHURI MA'AM
BOTANY 3 PM


ANUSHRI MA'AM
PHYSICS 2 PM

SACHIN SIR
ZOOLOGY 3 PM

ENQUIRE FOR DROPPERS BATCH

(LINK IN DESCRIPTION)




Aakash
+ BYJU'S
DROPPERS
BATCH
FROM
1st AUGUST

12TH CLASS | TUESDAY, THURSDAY
11TH CLASS | MONDAY, WEDNESDAY, FRIDAY

3 PM | 4 PM | 5 PM | 6 PM



VIVEK SIR

CHEMISTRY | 3:00 PM



ANUSHRI MA'AM

PHYSICS | 4:00 PM



SACHIN SIR

ZOOLOGY | 5:00 PM



PANKHURI MA'AM

BOTANY | 5:00, 6:00 PM



PUSHPENDU SIR

ZOOLOGY | 6:00 PM

FREE FOR 14 DAYS!



Aakash





A collage of various sea animals including a crab, snail, starfish, lobster, squid, whale, octopus, jellyfish, seahorse, and dolphin.

Animal Kingdom



Recall:



Kingdom Animalia

Porifera

Ctenophora

Aschelminthes

Arthropoda

Echinodermata

Chordata

Coelenterata

Platyhelminthes

Annelida

Mollusca

Hemichordata





Classification of Chordates

Classification of Chordates

Chordata

Urochordata/Tunicata

Cephalochordata

Vertebrata

Classification of Chordates

Chordata

Urochordata/Tunicata

Cephalochordata

Vertebrata

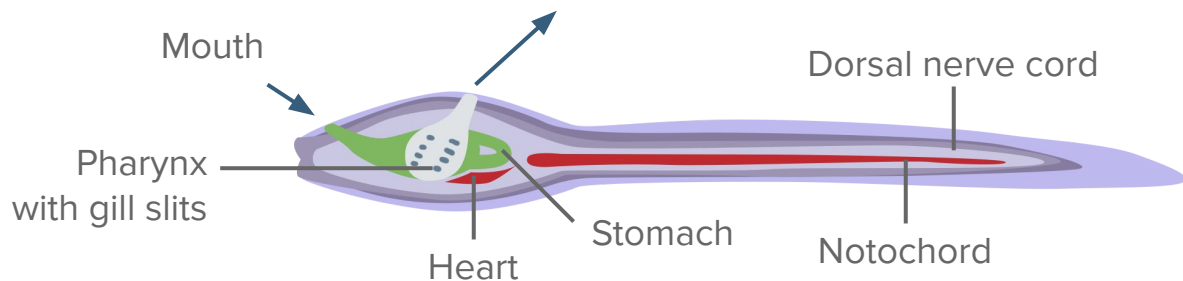
Subphylum Urochordata

Chordata



Urochordata/Tunicata

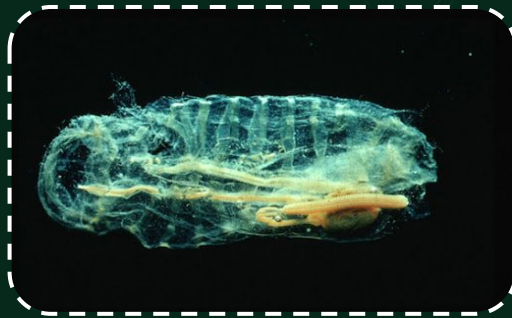
Larval Tunicate



Subphylum Urochordata



Ascidia



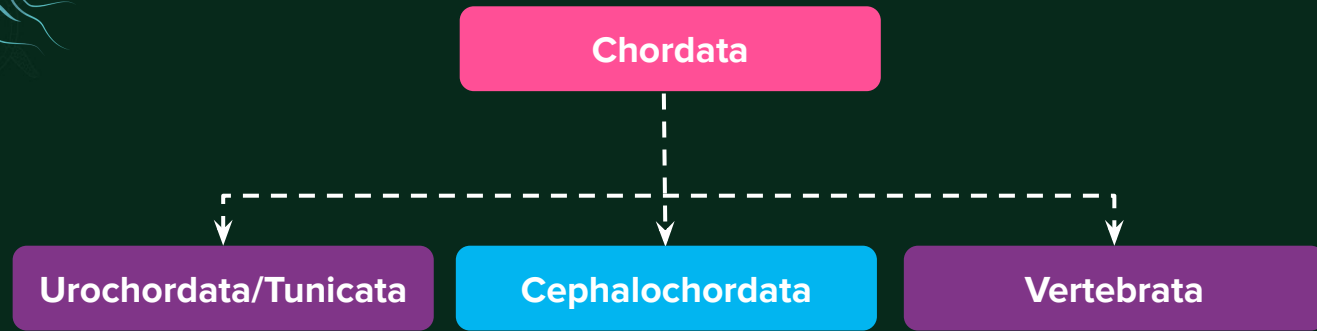
Salpa



Doliolum



Classification of Chordates

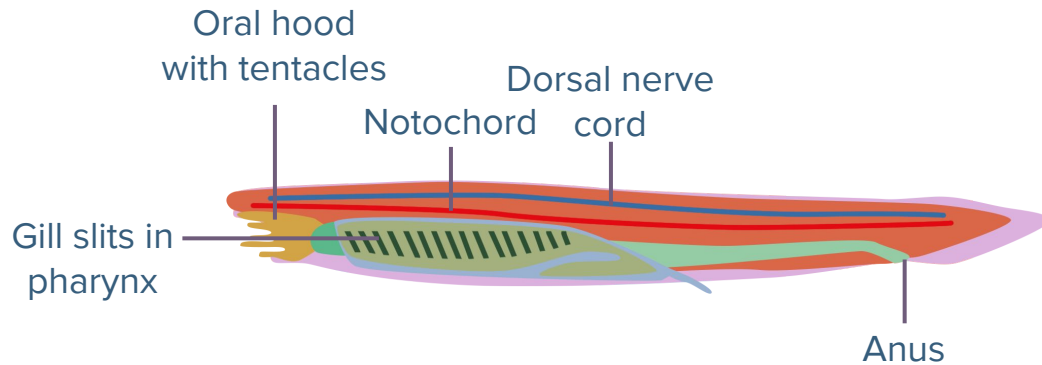


Subphylum Cephalochordata

Chordata



Cephalochordata



***Branchiostoma* (Amphioxus or Lancelet)**



Subphylum Cephalochordata

- They are **exclusively marine**
- Notochord extends from **head to tail**, persists **throughout life**



Branchiostoma (Amphioxus or Lancelet)



Classification of Chordates

Chordata

Urochordata/Tunicata

Cephalochordata

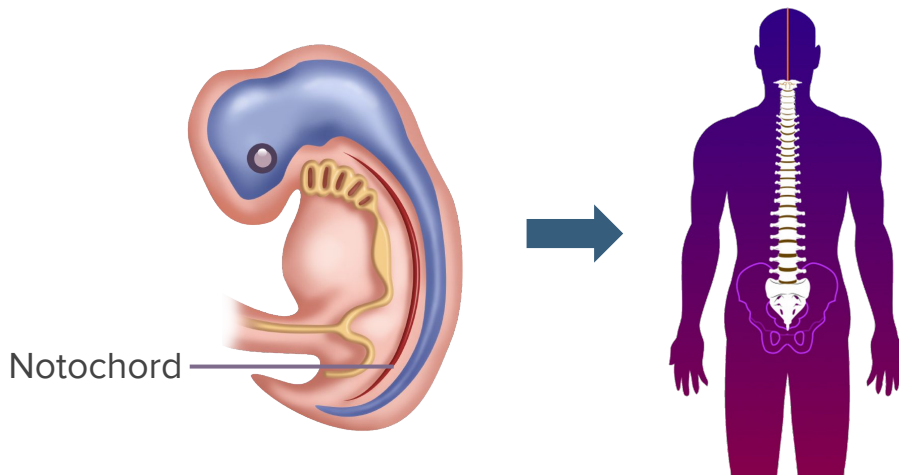
Vertebrata

Subphylum Vertebrata

Chordata



Vertebrata

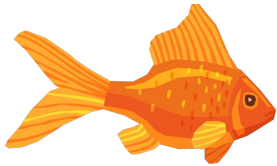


Subphylum Vertebrata

The notochord is replaced by a **bony vertebral column** in the adult.



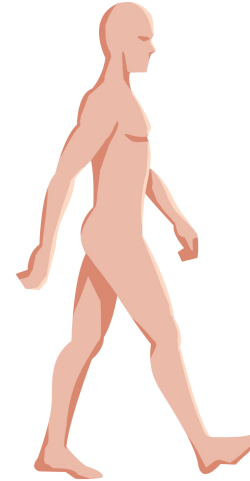
Reptiles



Fishes



Rat



Human



Amphibians



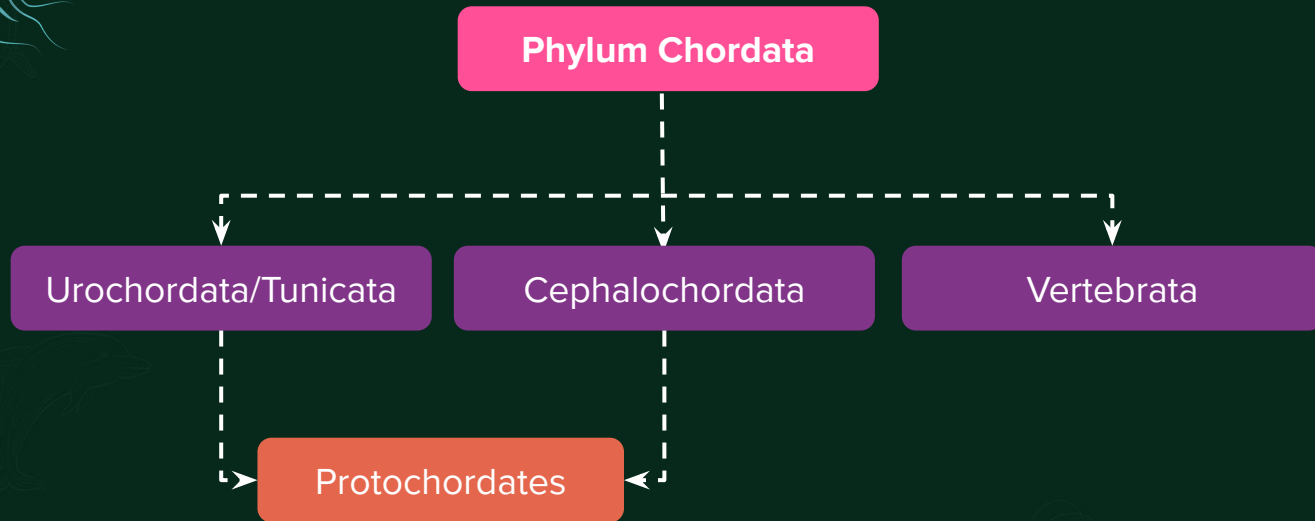
Mammals



Birds



Classification of Chordates



**All vertebrates are chordates but all
chordates are not vertebrates**



Question Time





The notochord is persistent throughout life in

- (a) Urochordates and Cephalochordates
- (b) Cephalochordates
- (c) Urochordates and Vertebrates
- (d) All Chordates





The notochord is persistent throughout life in

- (a) Urochordates and Cephalochordates
- (b) Cephalochordates
- (c) Urochordates and Vertebrates
- (d) All Chordates





Tunicates have

- (a) a vertebral column in the tail during the adult stage
- (b) a notochord in the tail during the larval stage
- (c) a notochord in the tail during the adult stage
- (d) a vertebral column in the tail during the larval stage

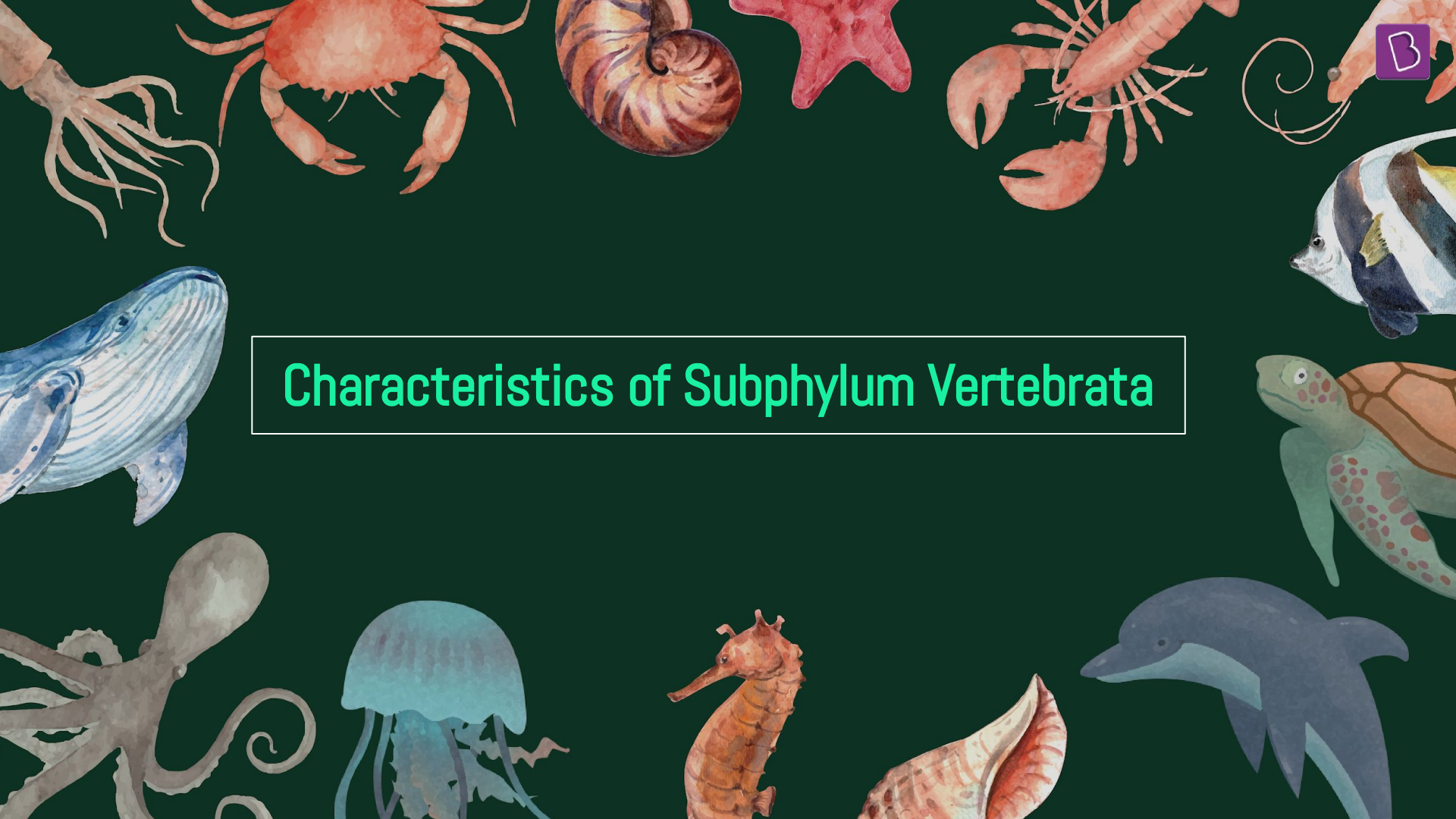




Tunicates have

- (a) a vertebral column in the tail during the adult stage
- (b) a notochord in the tail during the larval stage
- (c) a notochord in the tail during the adult stage
- (d) a vertebral column in the tail during the larval stage





Characteristics of Subphylum Vertebrata

Subphylum Vertebrata

Characteristic Features

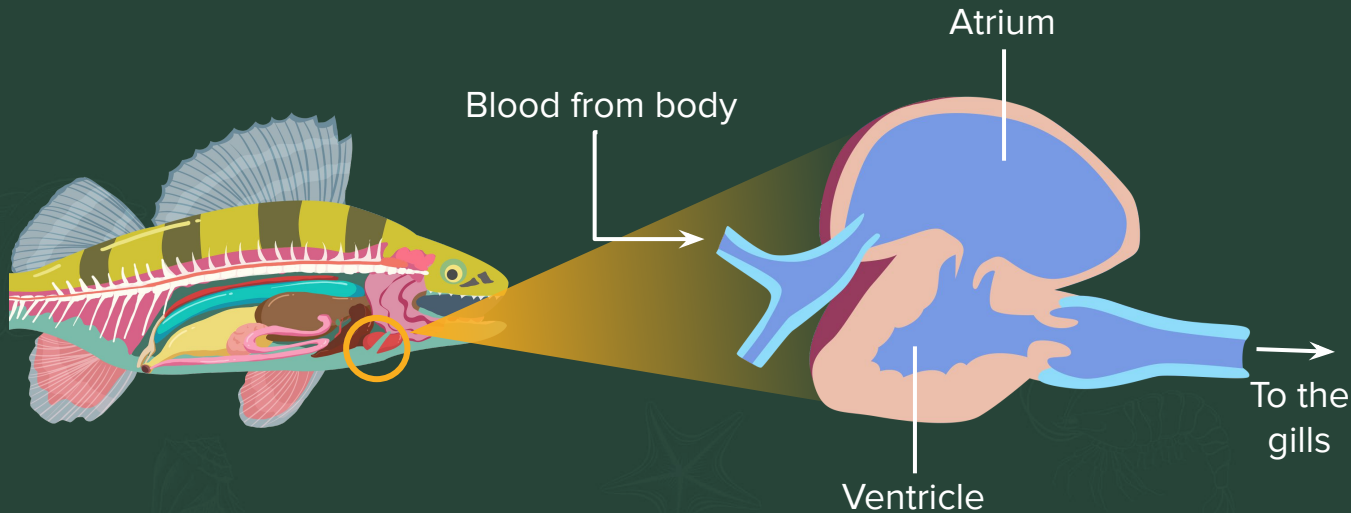
- A ventral muscular heart



Subphylum Vertebrata

Fishes have

- Ventral muscular heart with **two chambers**



Subphylum Vertebrata

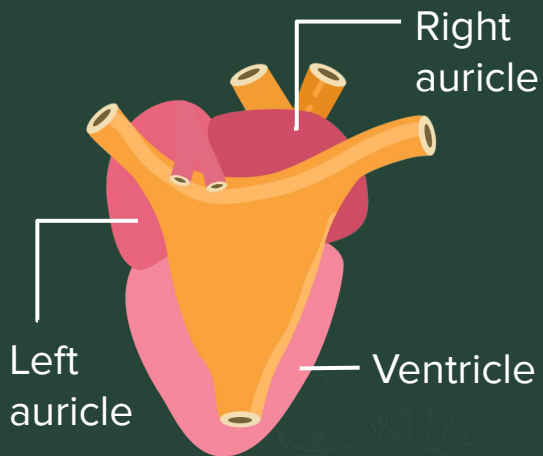
Reptiles and amphibians have

- Ventral muscular heart with **3 chambers**

3 - Chambered



Amphibian heart



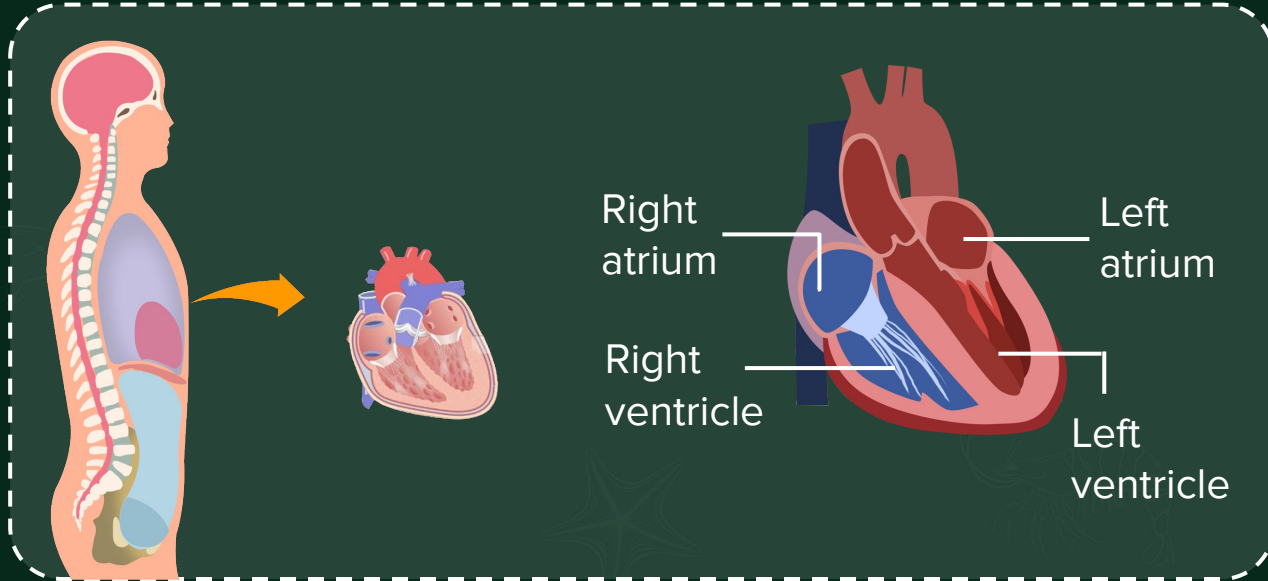
Heart of a frog



Subphylum Vertebrata

Birds and mammals have

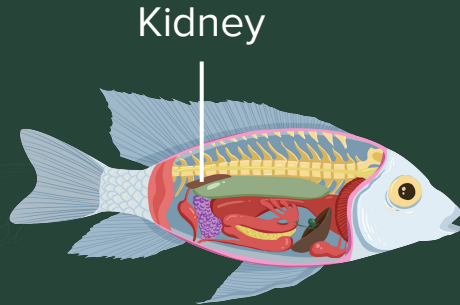
- Ventral muscular heart with **four chambers**



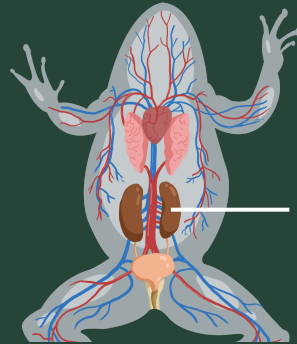
Subphylum Vertebrata

Vertebrates have

- **Kidneys** for **excretion** and **osmoregulation**

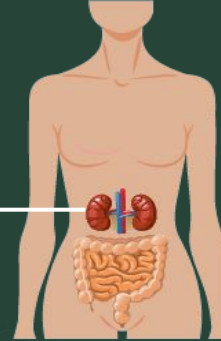


Fish



Frog

Kidney



Human

Subphylum Vertebrata

Vertebrates have

- An **Organ System Level** of body organisation



Subphylum Vertebrata

Vertebrates have

- **Paired appendages** - fins or limbs



Limbs



Fins



Question Time





The common feature of all vertebrates is the presence of

(a) limbs for locomotion

(b) an open circulatory system

(c) a persistent notochord

(d) a dorsal heart





The common feature of all vertebrates is the presence of

(a) limbs for locomotion

(b) an open circulatory system

(c) a persistent notochord

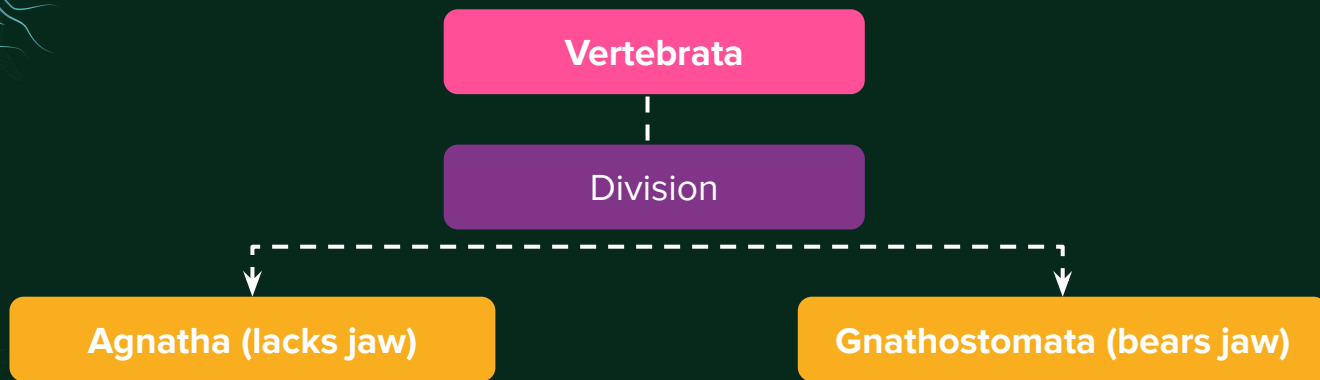
(d) a dorsal heart





Classification of Vertebrata

Classification of Vertebrata



Fishing trip





Fishing trip





Parasitic Lampreys



Classification of Vertebrata

Vertebrata

Division

Agnatha (lack jaws)

Gnathostomata (bear jaws)

Class

1. Cyclostomata

Super Class

Pisces (bear fins)

Tetrapoda (bear limbs)

Class

1. Chondrichthyes
2. Osteichthyes

Class

1. Amphibia
2. Reptilia
3. Aves
4. Mammalia

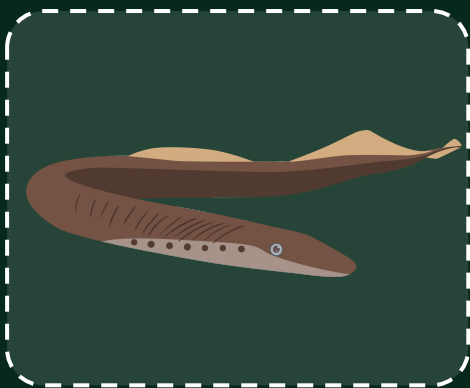


Class Cyclostomata

Class Cyclostomata

Characteristic Features

- They are **marine**
- They have **elongated body devoid of scales**



Petromyzon (Lamprey)



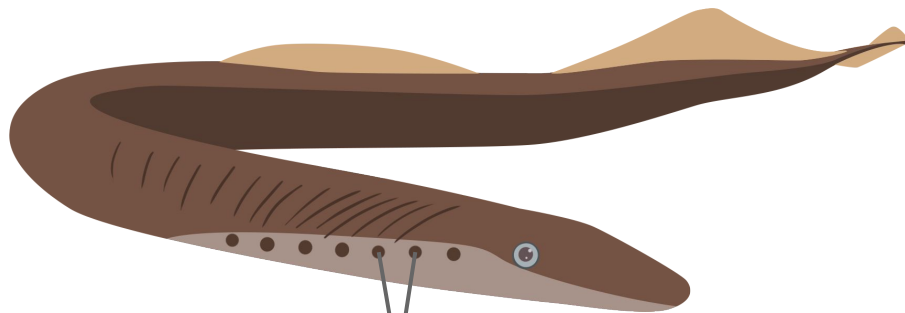
Myxine (Hagfish)



Class Cyclostomata

Characteristic Features

- 6 - 15 pairs of **gill slits**
- Lack appendages or fins



Gill slits

Petromyzon (Lamprey)



Class Cyclostomata

Characteristic Features

- **Ectoparasites** on some fishes



Class Cyclostomata

Characteristic Features

- Sucking **circular mouth** without jaws



Class Cyclostomata

Characteristic Features

- They have a **closed circulatory system**
- **Cartilaginous** cranium and vertebral column



Cartilaginous Vs Bony skeleton



Cartilage is rubbery and flexible

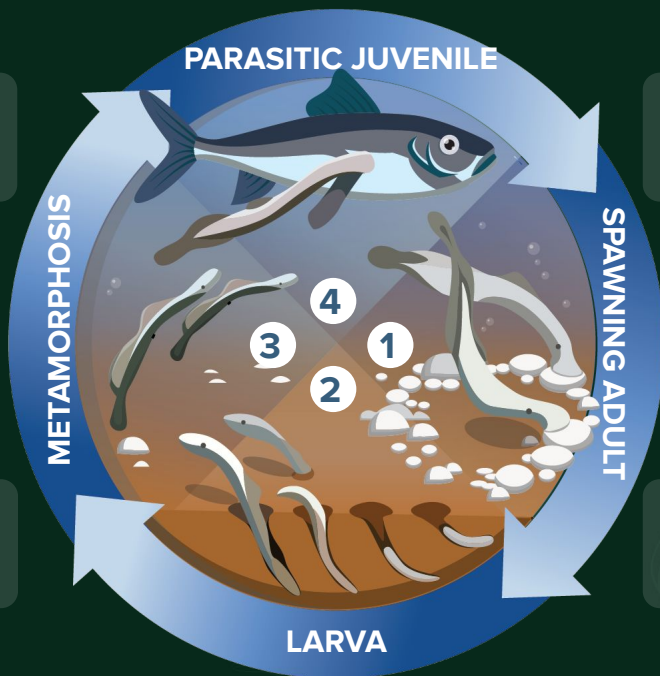


Bone is hard and rigid



Class Cyclostomata

Reproduction



Downstream migration to ocean

Migration of adults into streams

Emergence from stream bed

Death of adults after spawning

Spawning activity of Lamprey



Classification of Vertebrata

Vertebrata

Division

Agnatha (lack jaws)

Gnathostomata (bear jaws)

Class

1. Cyclostomata

Super Class

Pisces (bear fins)

Tetrapoda (bear limbs)

Class

1. **Chondrichthyes**
2. Osteichthyes

Class

1. Amphibia
2. Reptilia
3. Aves
4. Mammalia

Class Chondrichthyes

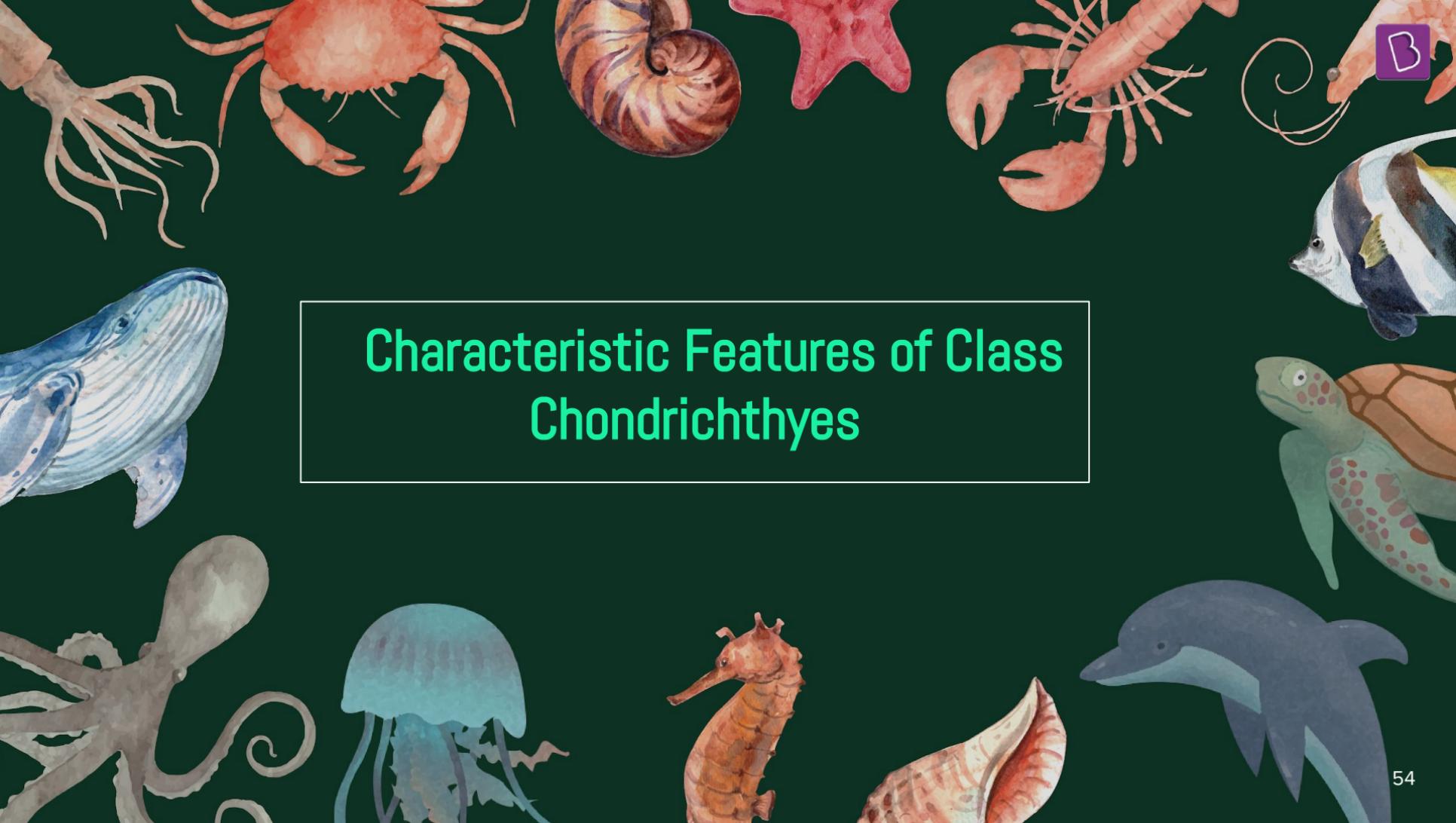


Pristis (Saw fish)



Scoliodon (Dogfish)





Characteristic Features of Class
Chondrichthyes

Class Chondrichthyes

Characteristic Features

- Habitat - **Marine**



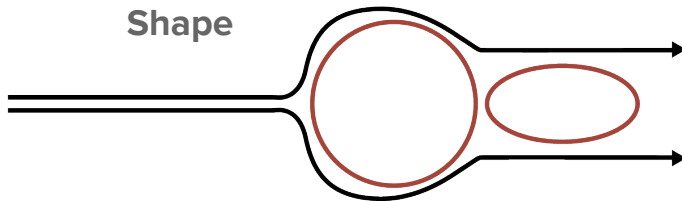
Class Chondrichthyes

Characteristic Features

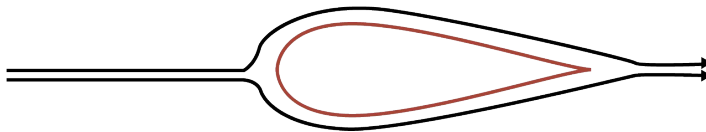
- Habitat - **Marine**
- **Streamlined** body



Non-Streamline Shape



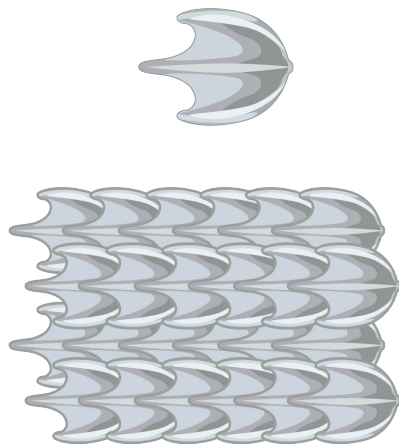
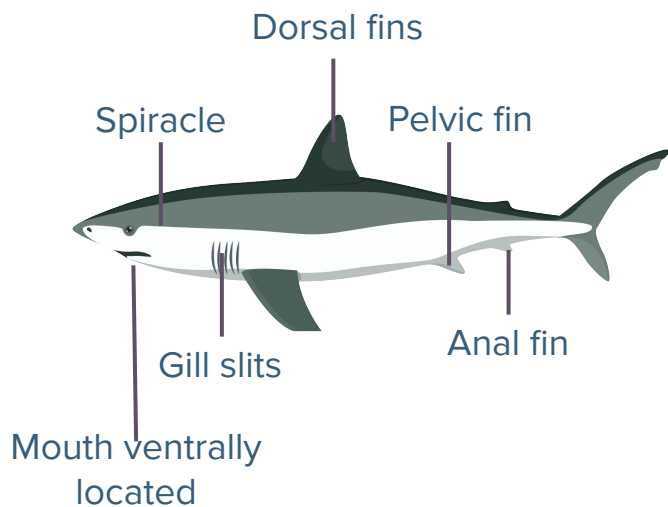
Streamline Shape



Class Chondrichthyes

Characteristic Features

- Tough skin - **placoid scales**



Placoid



Class Chondrichthyes

Characteristic Features

- **Teeth** are modified **placoid scales**



Upper jaw is like knife



Lower jaw is like fork



Class Chondrichthyes

Characteristic Features

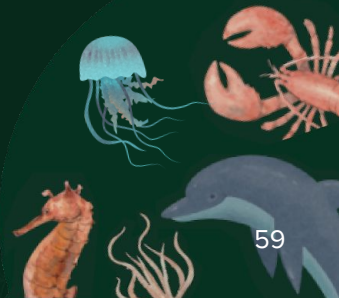
- **Teeth** are modified **placoid scales**
- Powerful jaws



Upper jaw is like knife



Lower jaw is like fork



Class Chondrichthyes

Characteristic Features

- **Predaceous** animals



Class Chondrichthyes

Characteristic Features

- Gill slits separate **without operculum**



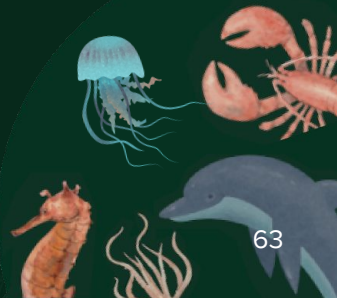
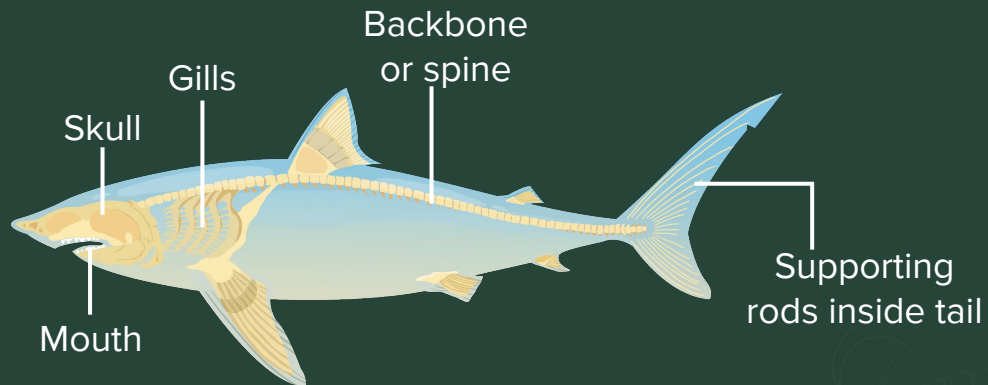
What is Operculum?



Class Chondrichthyes

Characteristic Features

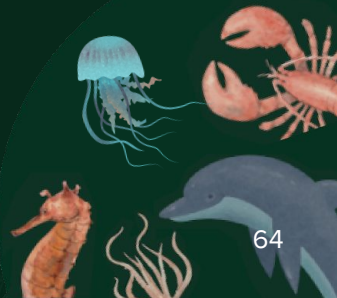
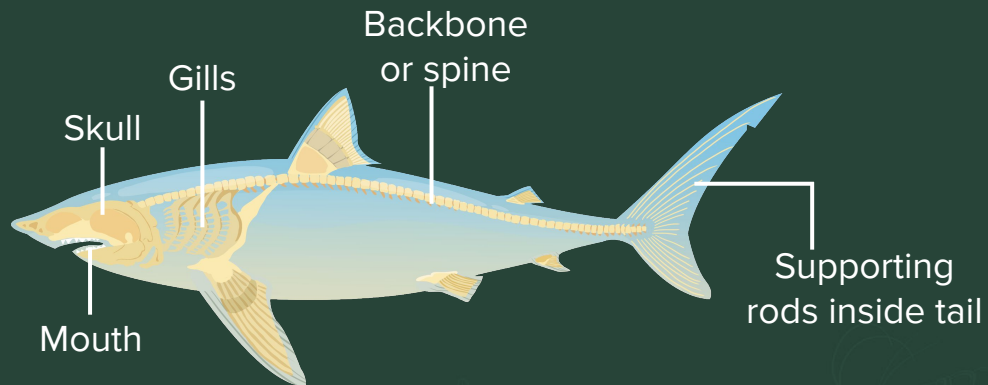
- **Cartilaginous** endoskeleton



Class Chondrichthyes

Characteristic Features

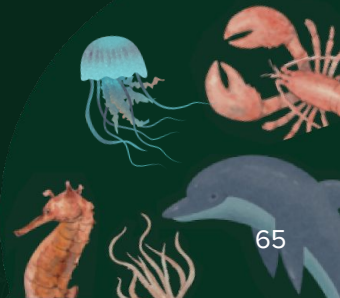
- **Cartilaginous** endoskeleton
- **Ventral** mouth



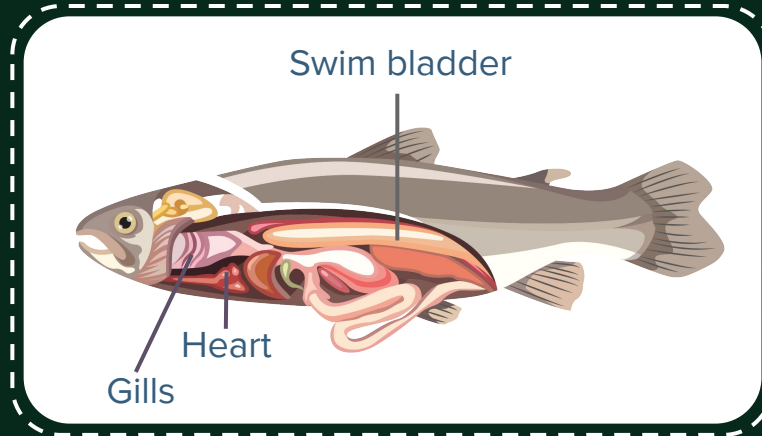
Class Chondrichthyes

Characteristic Features

- Sharks have to **swim constantly** to avoid sinking
- **Air bladder** is absent



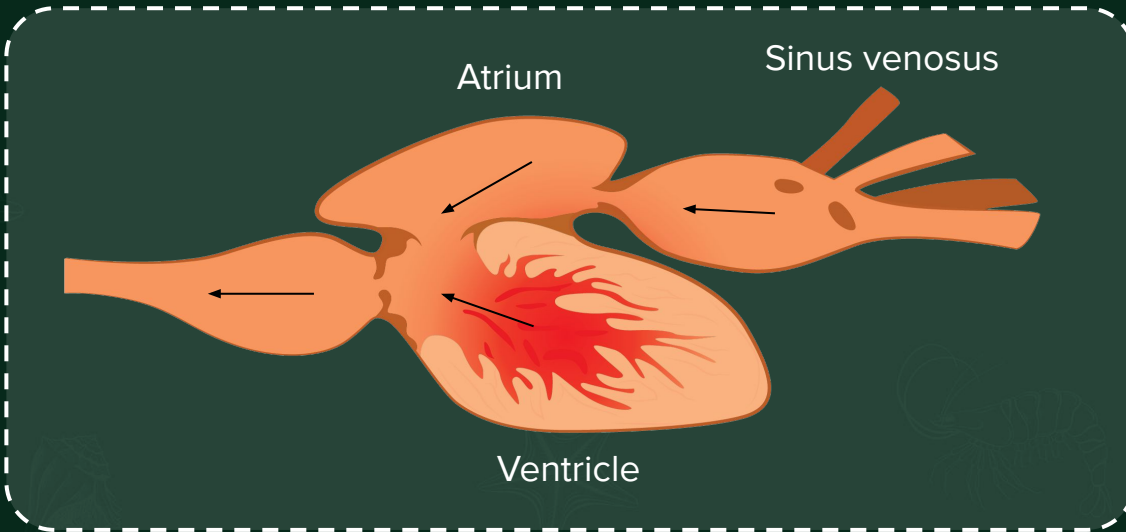
With and Without Swim Bladder



Class Chondrichthyes

Characteristic Features

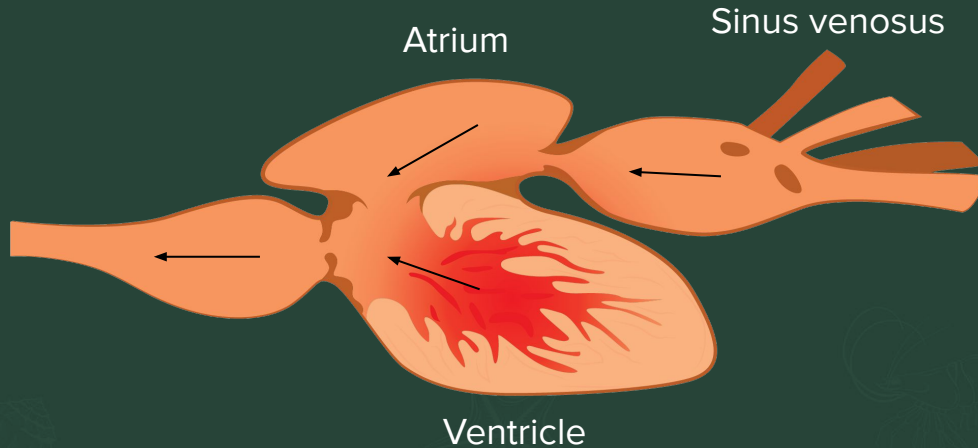
- Heart - **two chambered** (one auricle and one ventricle)



Class Chondrichthyes

Characteristic Features

- Heart - **two chambered** (one auricle and one ventricle)
- **Cold-blooded** (poikilothermic) animals



Class Chondrichthyes

Reproductive Features

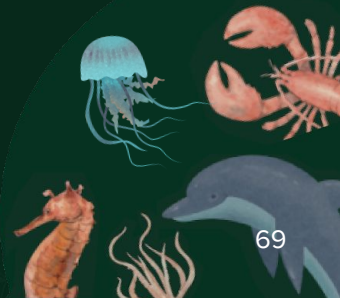
- Sexes **separate**



Male and female chondrichthyes



Male chondrichthyes



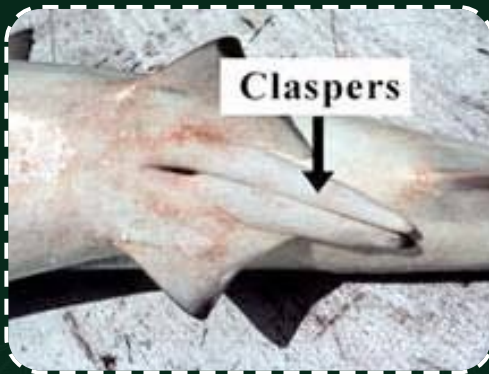
Class Chondrichthyes

Reproductive Features

- Sexes **separate**
- Male - pelvic fins bear **claspers**



Male and female chondrichthyes



Male chondrichthyes



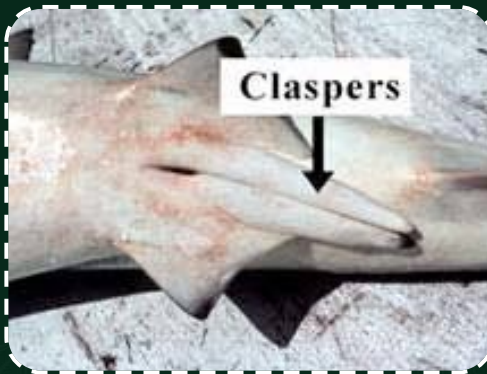
Class Chondrichthyes

Reproductive Features

- Sexes **separate**
- Male - pelvic fins bear **claspers**
- **Internal** fertilization



Male and female
chondrichthyes



Male chondrichthyes



Class Chondrichthyes

Reproductive Features

- Sexes **separate**
- Male - pelvic fins bear **claspers**
- **Internal** fertilization
- Many are **viviparous**



Male and female chondrichthyes



Male chondrichthyes





Class Chondrichthyes
Some special characteristics.....

Class Chondrichthyes

Special Features

- Presence of **poison sting**



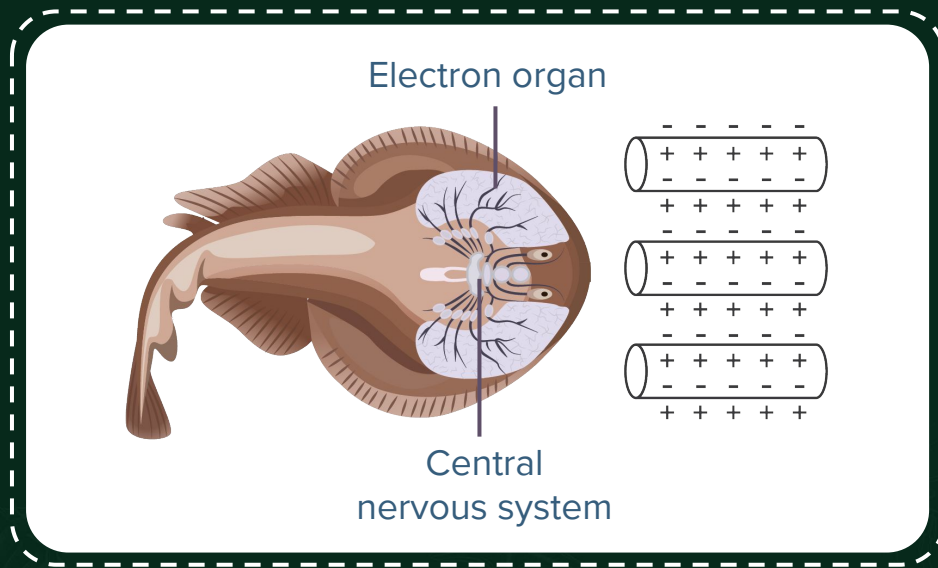
Trygon (Sting Ray)



Class Chondrichthyes

Special Features

- Presence of **electric organ** in some of them



Torpedo



Classification of Vertebrata

Vertebrata

Division

Agnatha (lack jaws)

Gnathostomata (bear jaws)

Class

1. Cyclostomata

Super Class

Pisces (bear fins)

Tetrapoda (bear limbs)

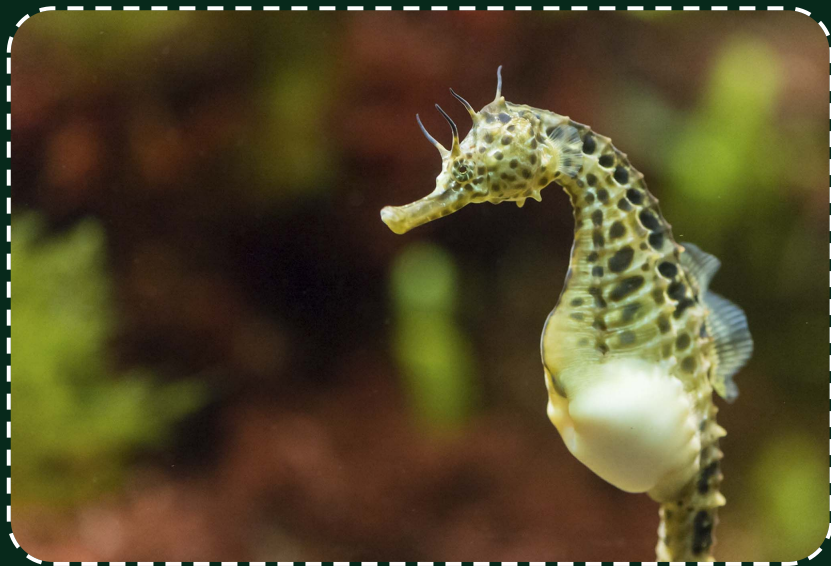
Class

1. Chondrichthyes
2. Osteichthyes

Class

1. Amphibia
2. Reptilia
3. Aves
4. Mammalia

Pregnant Seahorse



Sea horse



Classification of Vertebrata

Vertebrata

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Agnatha (lacks jaw)

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Class

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2. Reptilia
3. Aves
4. Mammals

Class Osteichthyes



Catla (Katla)



Exocoetis (Flying Fish)

Class Osteichthyes



Labeo (Rohu)



Clarias (Magur)



Characteristics of Class Osteichthyes

Class Osteichthyes

Characteristic Features

Habitat

Freshwater



Marine

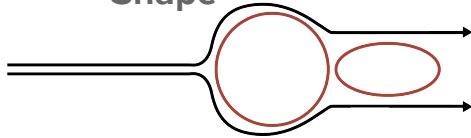


Class Osteichthyes

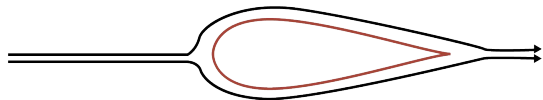
Characteristic Features

- Streamlined body

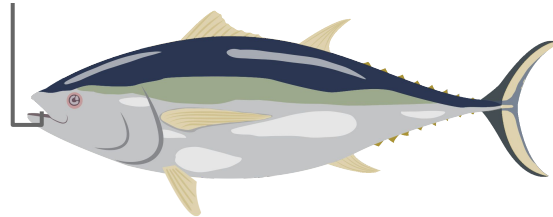
Non-Streamline
Shape



Streamline Shape



Mouth (terminal)

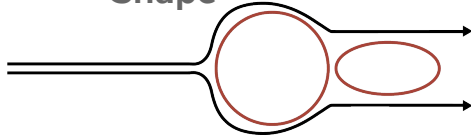


Class Osteichthyes

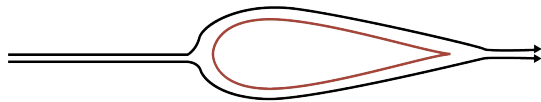
Characteristic Features

- Streamlined body
- Terminal mouth

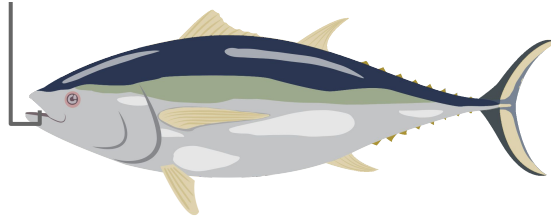
Non-Streamline
Shape



Streamline Shape



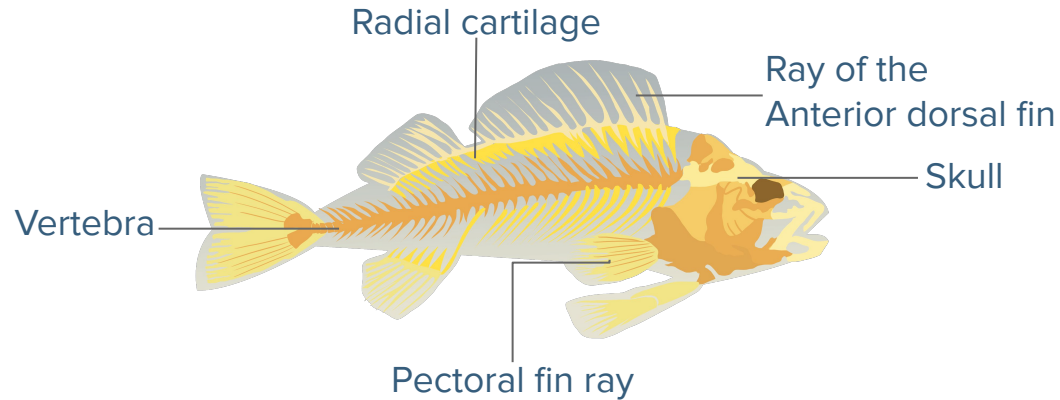
Mouth (terminal)



Class Osteichthyes

Characteristic Features

- **Bony** endoskeleton



Class Osteichthyes

Characteristic Features

- **4 pairs** of gills covered by **operculum**



Class Osteichthyes

Characteristic Features

- Skin covered with **cycloid/ctenoid** scales



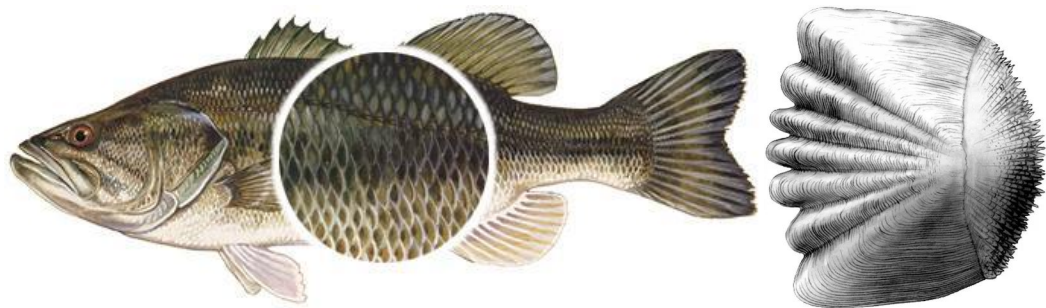
Cycloid scales



Class Osteichthyes

Characteristic Features

- Skin covered with **cycloid/ctenoid scales**

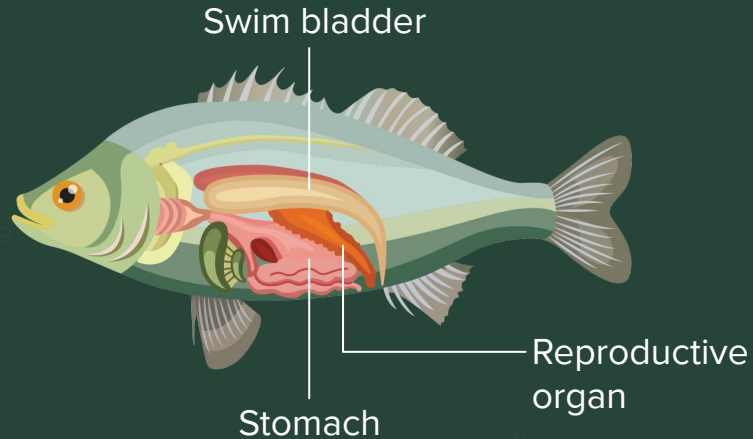


Ctenoid scale

Class Osteichthyes

Characteristic Features

- **Presence of air bladder** - buoyancy regulation



Fish Anatomy

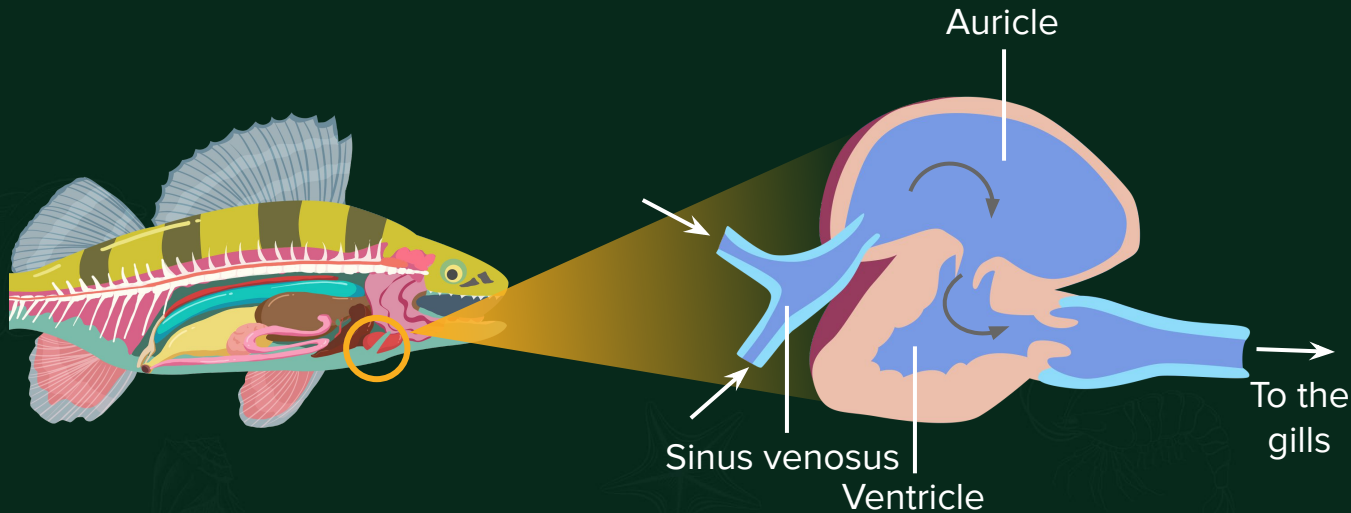


Swim bladder

Class Osteichthyes

Characteristic Features

- **Two chambered heart** - one auricle and one ventricle



Class Osteichthyes

Have you seen fish eggs?



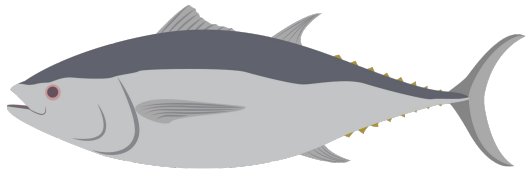
Cluster of fish eggs



Class Osteichthyes

Reproductive Features

- Oviparous



Female fish lays eggs

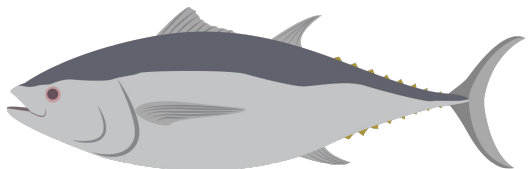


Class Osteichthyes

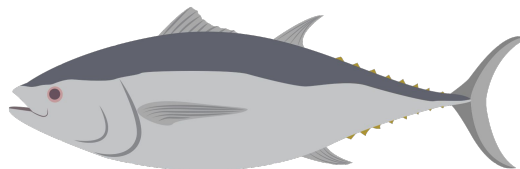
Reproductive Features

- **Oviparous**
- Fertilization usually **external**

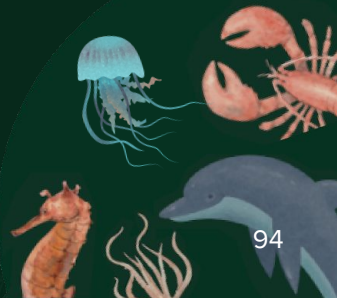
External fertilization



Female fish lays eggs



Male fish spreads sperm over eggs

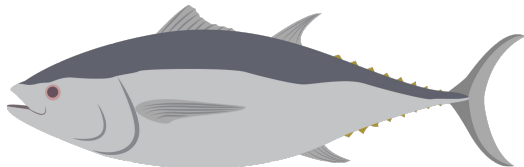


Class Osteichthyes

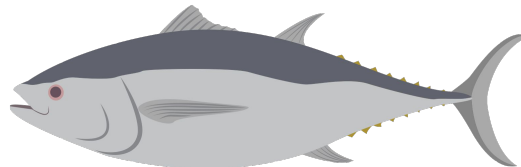
Reproductive Features

- **Oviparous**
- Fertilization usually **external**
- Sexes **separate**

External fertilization



Female fish lays eggs



Male fish spreads sperm over eggs

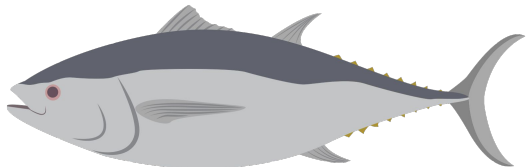


Class Osteichthyes

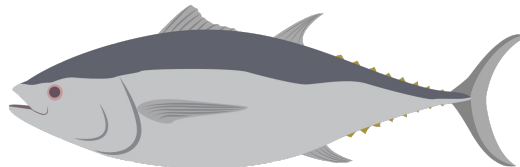
Reproductive Features

- **Oviparous**
- Fertilization usually **external**
- Sexes **separate**
- Development is **direct**

External fertilization



Female fish lays eggs



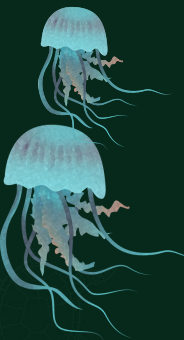
Male fish spreads sperm over eggs



Have You Seen These?



Aquarium Fishes



Betta fish (fighting fish)



Aquarium Fishes



(Pterophyllum - Angelfish)



Question Time





Vertebrates without jaws are included in the class

(a) Agnatha

(b) Cyclostomata

(c) Hemichordata

(d) Chondrichthyes





Vertebrates without jaws are included in the class

(a) Agnatha

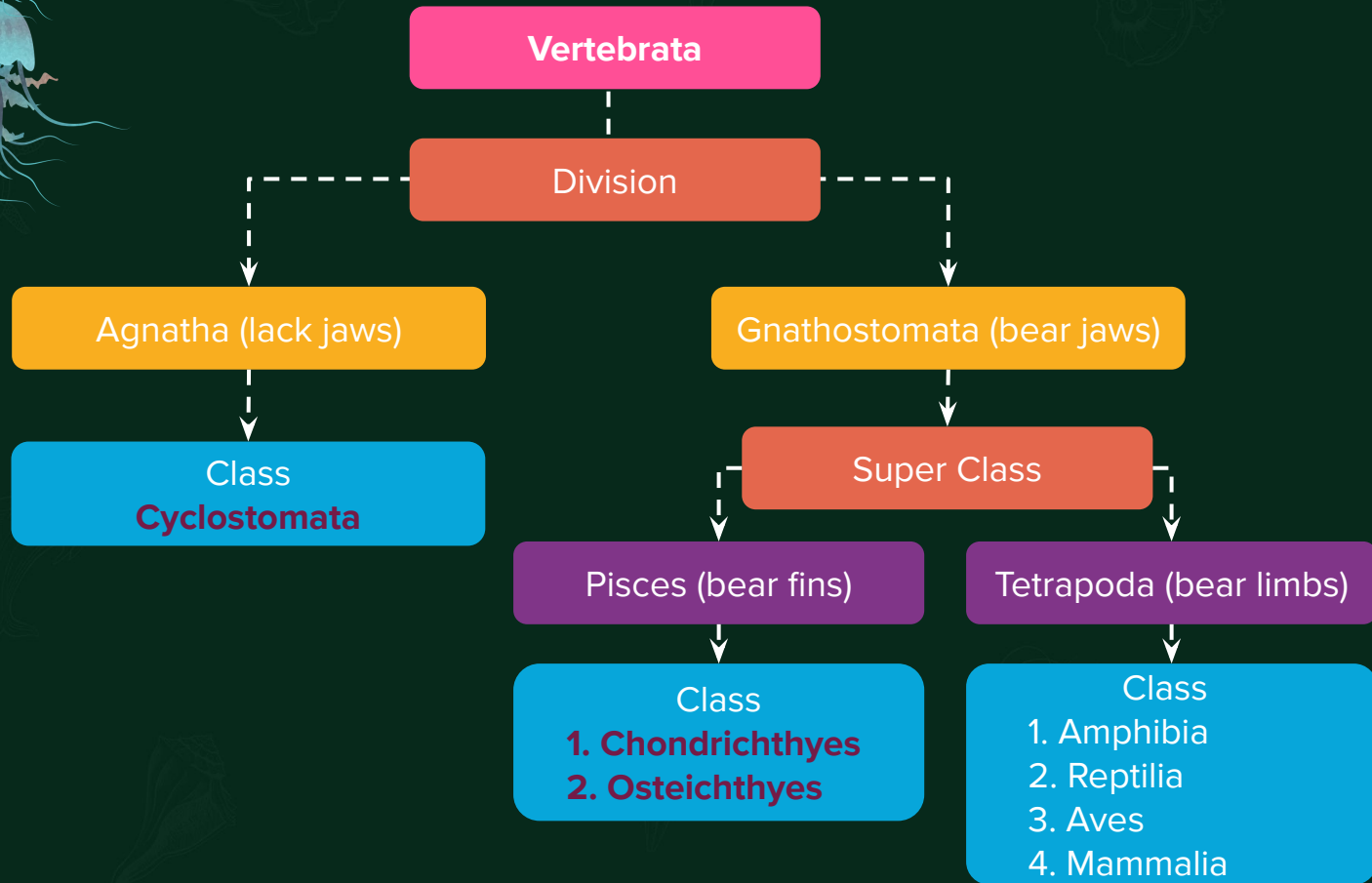
(b) Cyclostomata

(c) Hemichordata

(d) Chondrichthyes



Classification of Vertebrata





**KEEP
LEARNING**

