



Animal Kingdom- L7



ANTHE

AAKASH NATIONAL TALENT HUNT EXAM

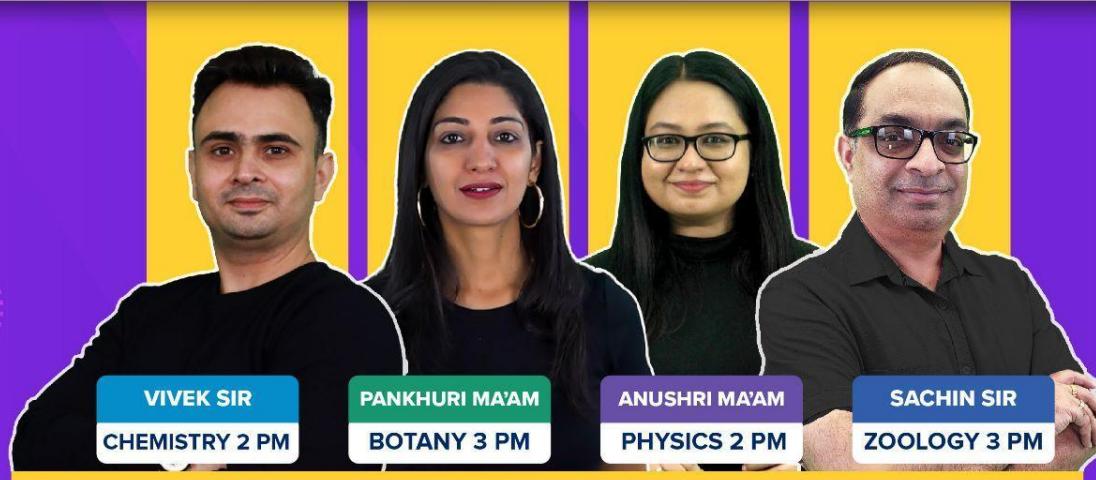
Your Gateway To Success

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



Aakash
+ BYJU'S

DROPPERS
BATCH

FROM
1st AUGUST

ENQUIRE FOR DROPPERS BATCH

(LINK IN DESCRIPTION)



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!





Animal Kingdom



Recall:

Kingdom Animalia

Porifera

Ctenophora

Aschelminthes

Arthropoda

Echinodermata

Chordata

Coelenterata

Platyhelminthes

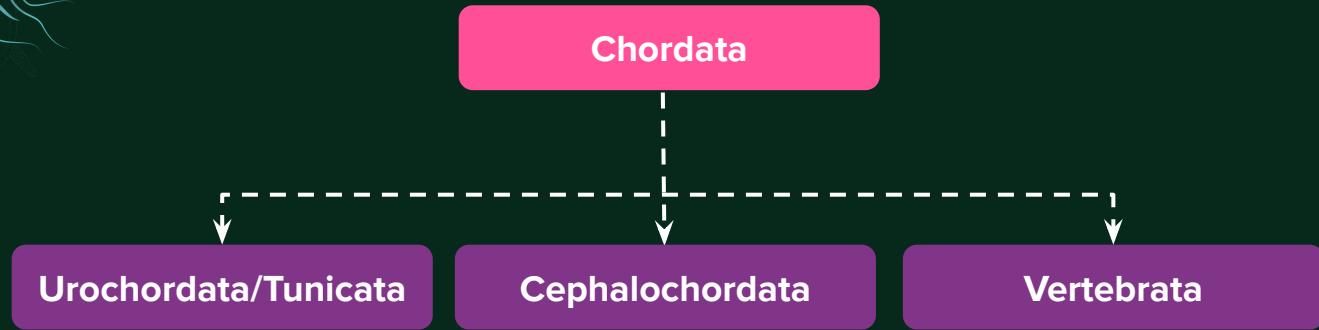
Annelida

Mollusca

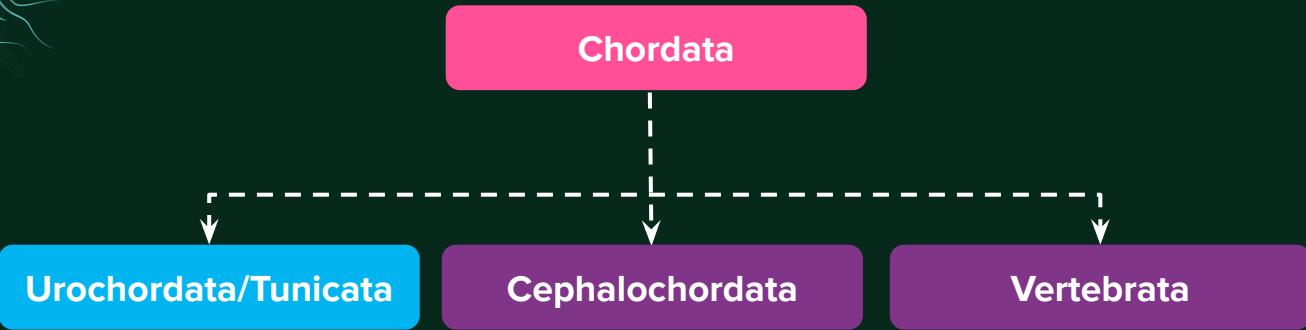
Hemichordata

Classification of Chordates

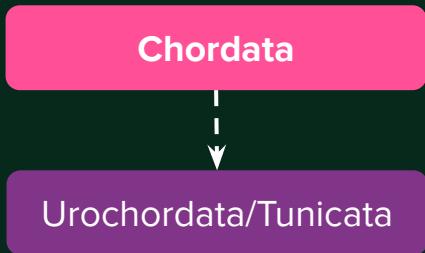
Classification of Chordates



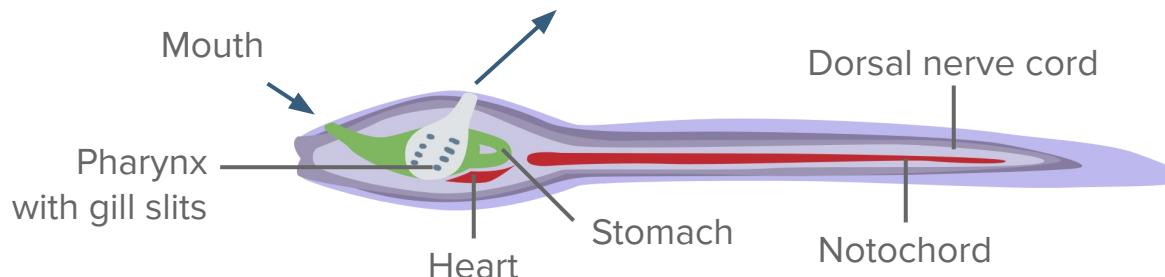
Classification of Chordates



Subphylum Urochordata



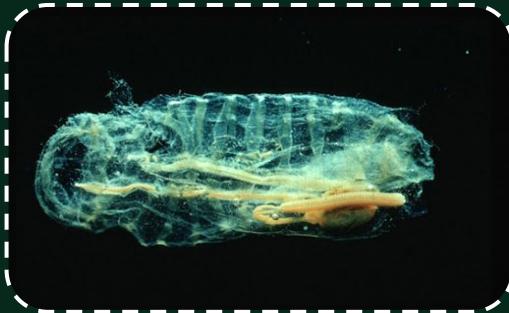
Larval Tunicate



Subphylum Urochordata



Ascidia



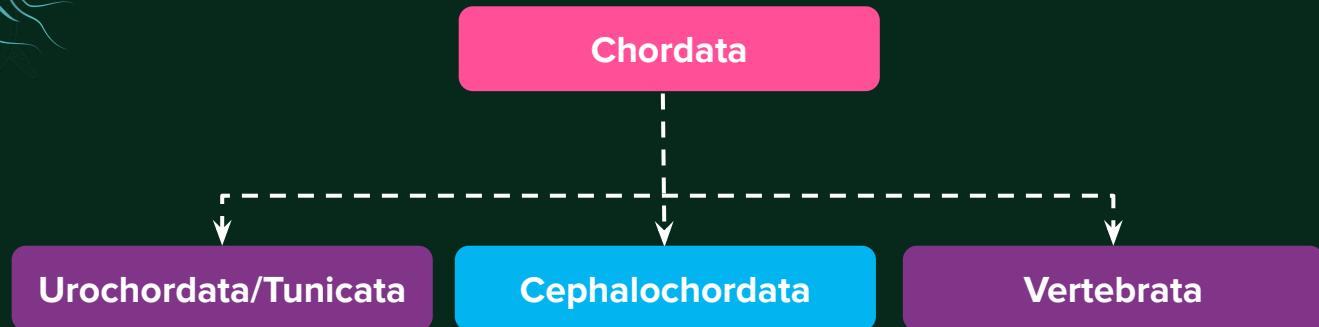
Salpa



Doliolum



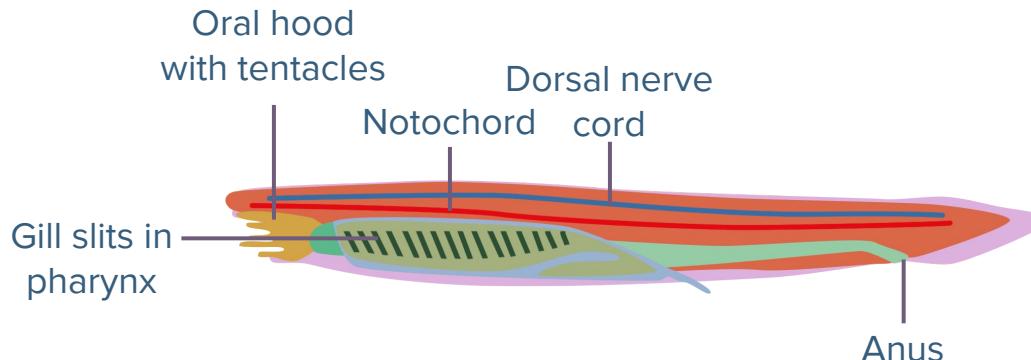
Classification of Chordates



Subphylum Cephalochordata

Chordata

Cephalochordata



Branchiostoma (Amphioxus or Lancelet)

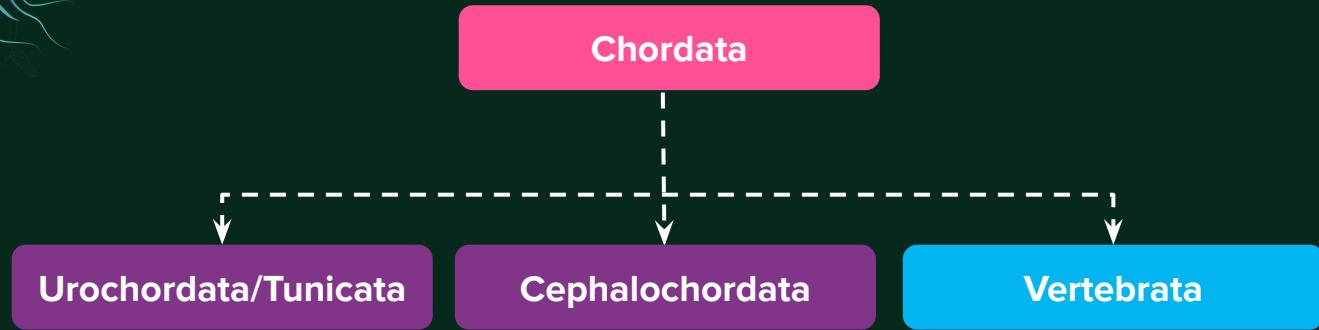
Subphylum Cephalochordata

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



Branchiostoma (Amphioxus or Lancelet)

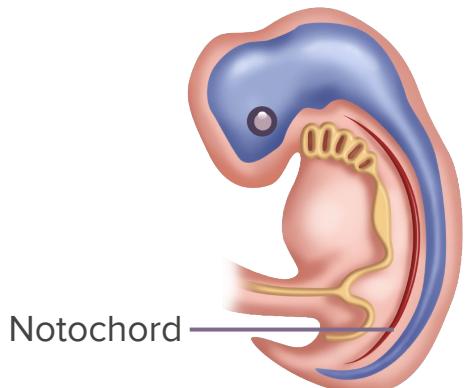
Classification of Chordates



Subphylum Vertebrata

Chordata

Vertebrata



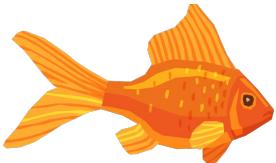
Notochord

Subphylum Vertebrata

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



Reptiles



Fishes



Rat



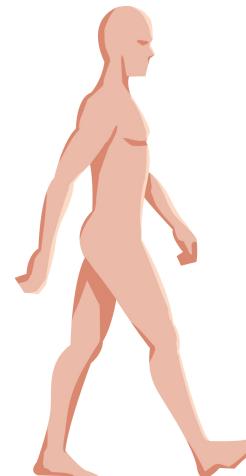
Amphibians



Mammals

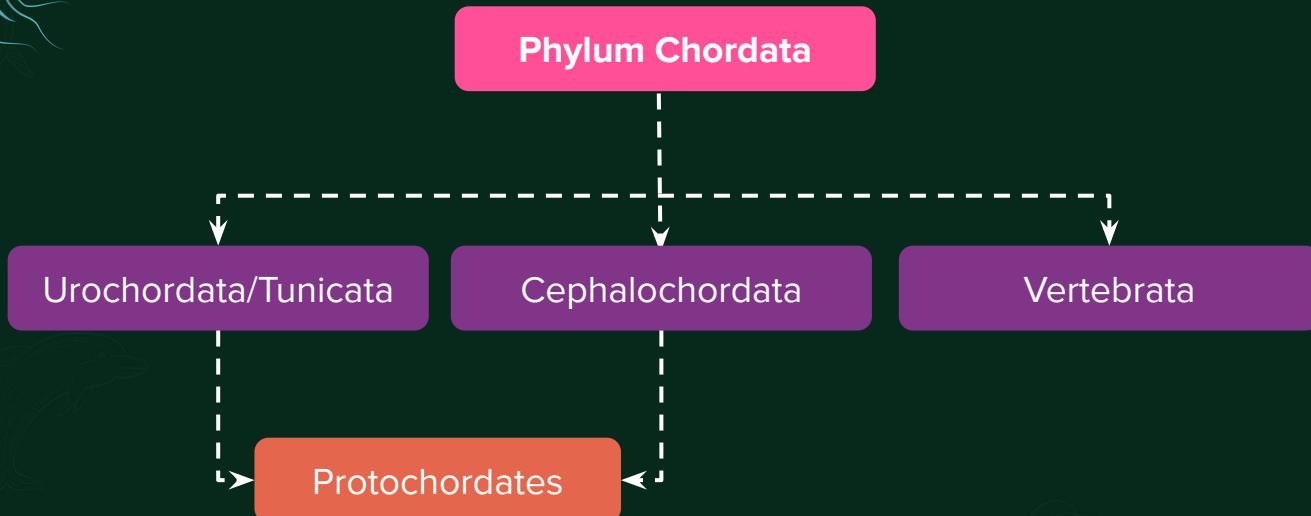


Birds



Human

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

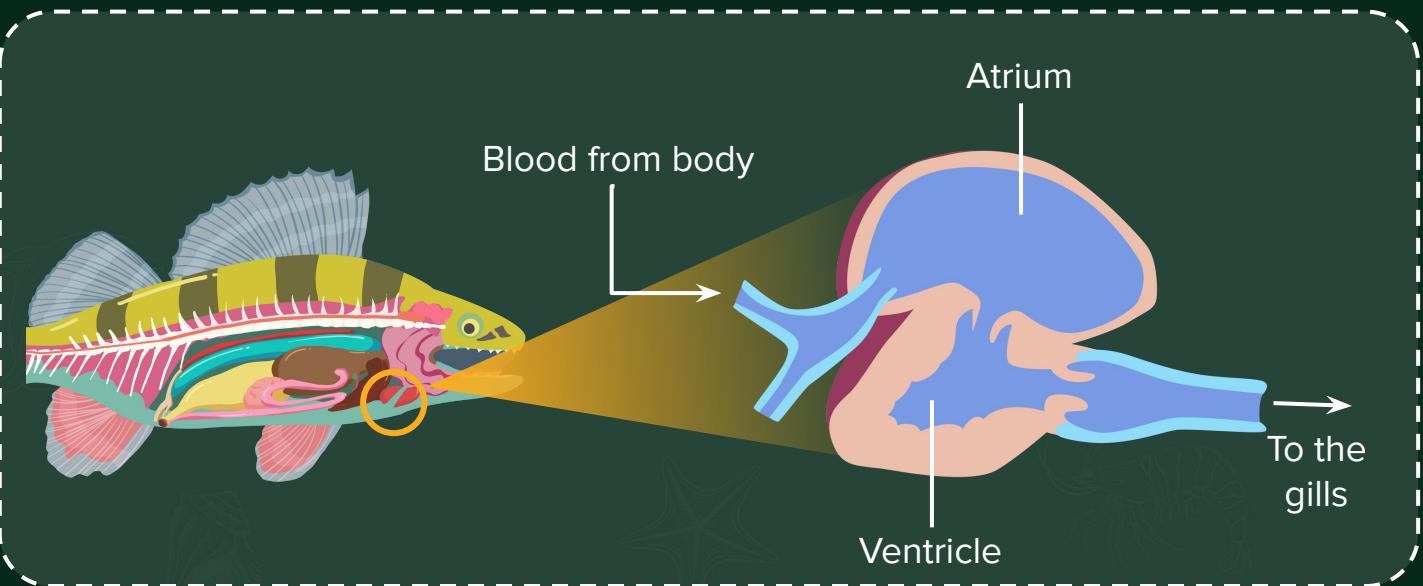
Characteristic Features

- 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

Right auricle

Left auricle

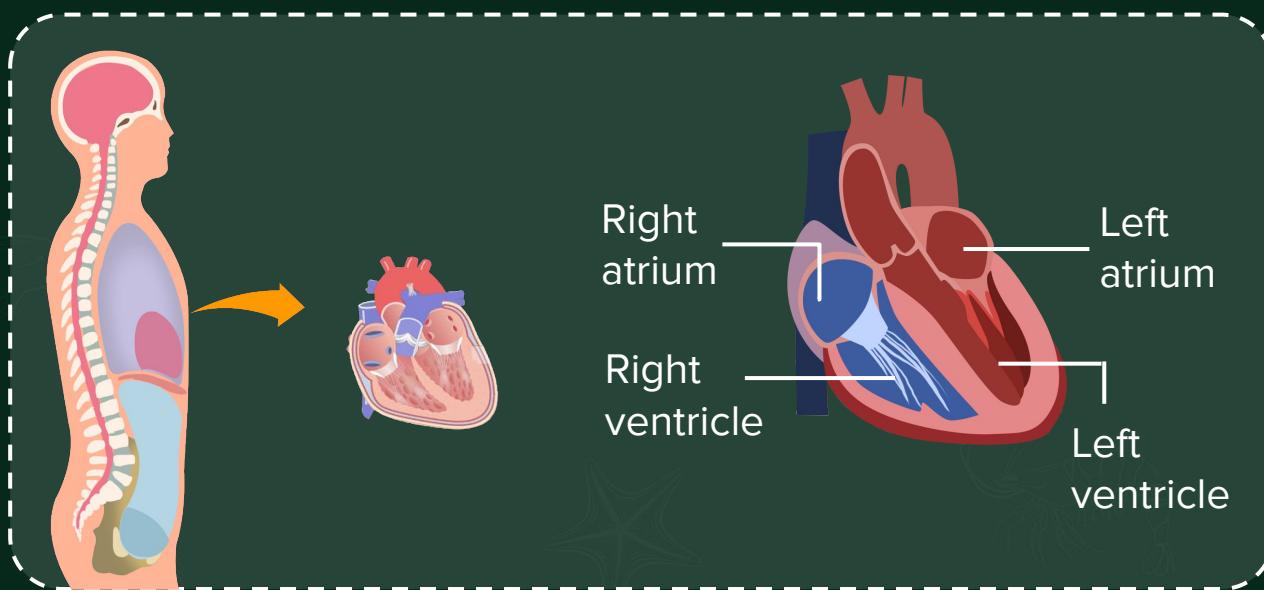
Ventricle

Heart of a frog

Subphylum Vertebrata

Birds and mammals have

- Ventral muscular heart with **four chambers**

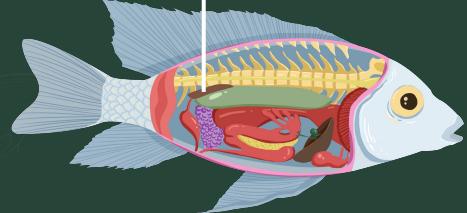


Subphylum Vertebrata

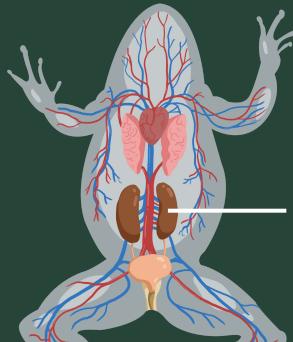
Vertebrates have

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

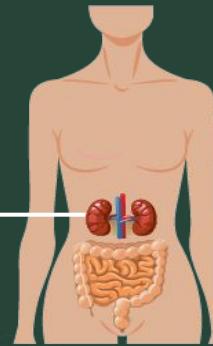
Kidney



Fish



Frog



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



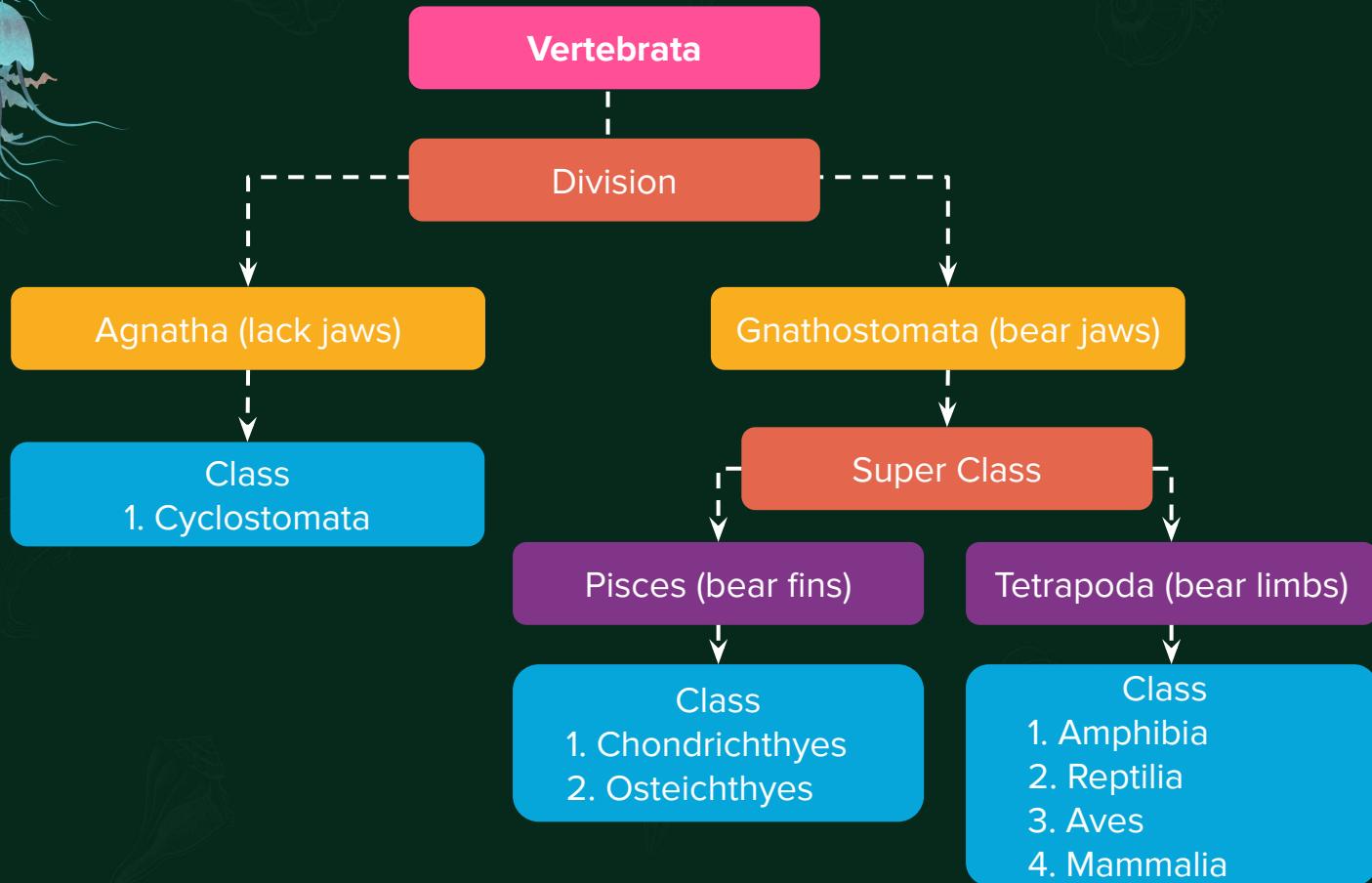
Fishing trip



Parasitic Lampreys



Classification of Vertebrata

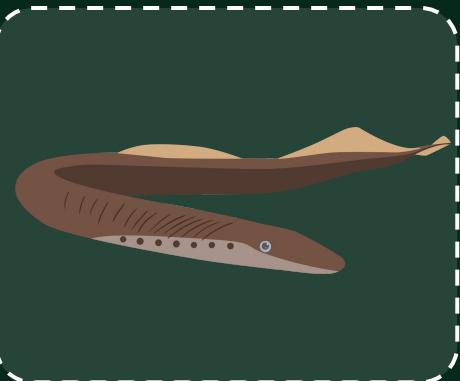


Class Cyclostomata

Class Cyclostomata

Characteristic Features

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



Petromyzon (Lamprey)

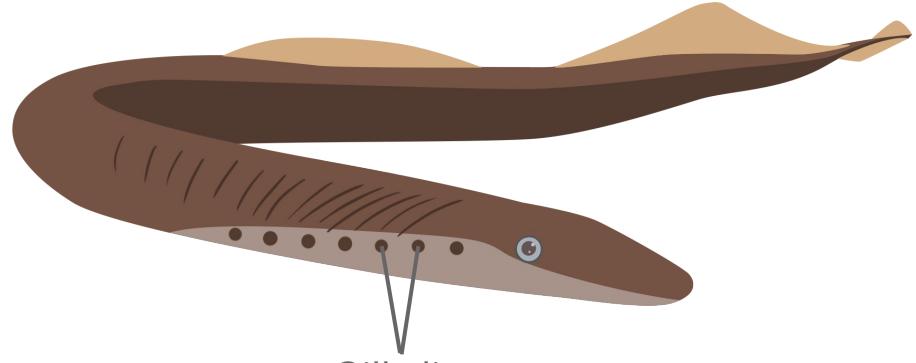


Myxine (Hagfish)

Class Cyclostomata

Characteristic Features

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



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

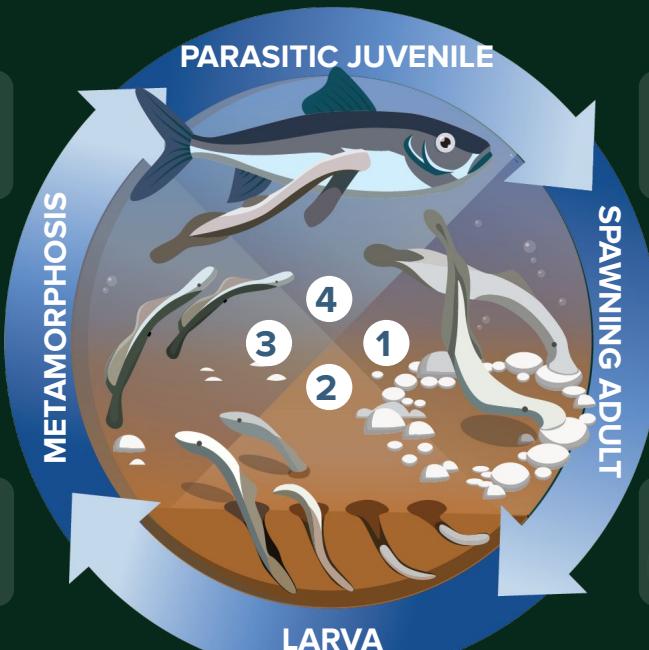


Bone is hard and rigid

Class Cyclostomata

Reproduction

Downstream
migration to ocean



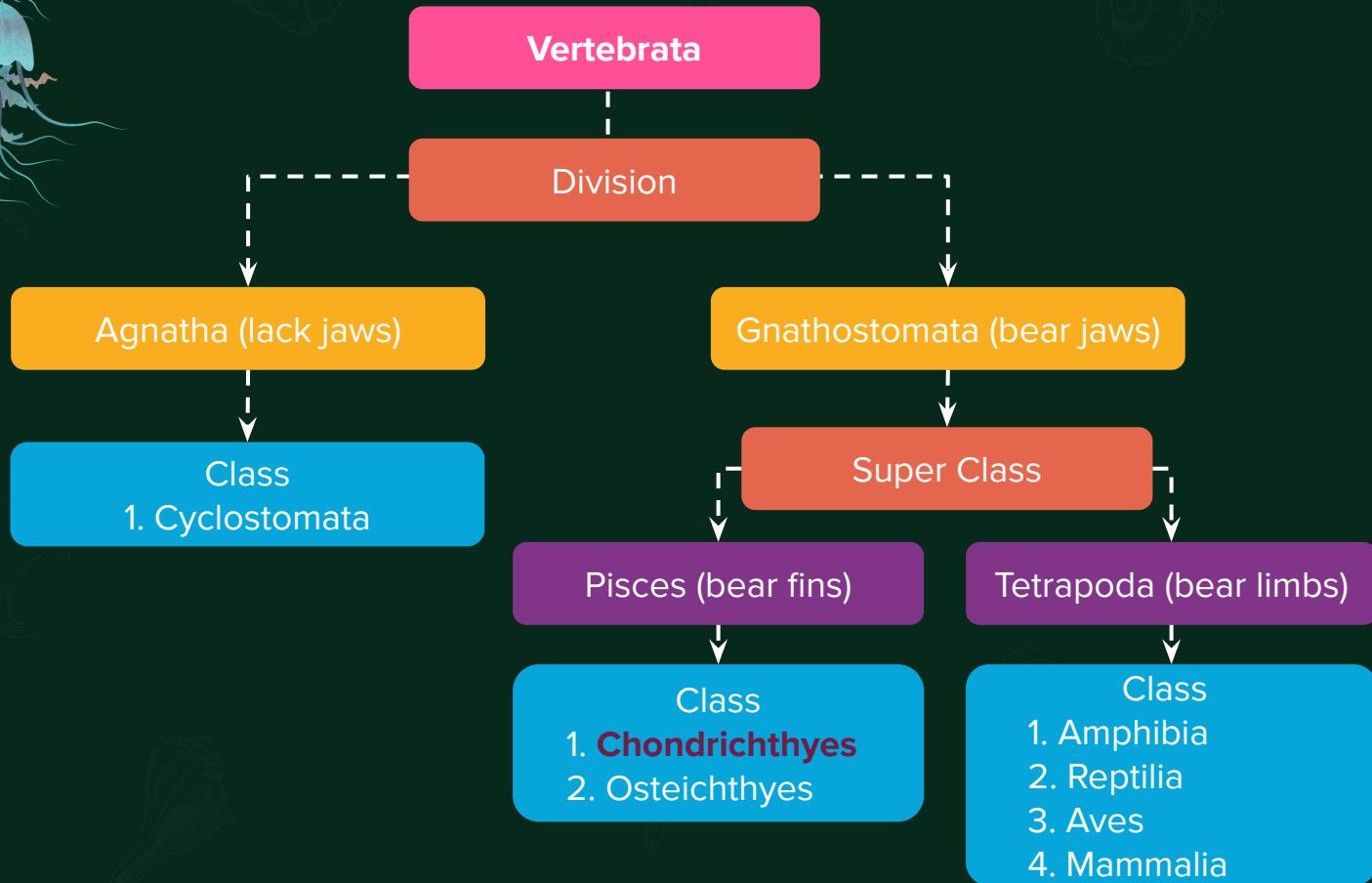
Migration of adults
into streams

Emergence from
stream bed

Death of adults
after spawning

Spawning activity of Lamprey

Classification of Vertebrata



Class Chondrichthyes



Pristis (Saw fish)



Scoliodon (Dogfish)

Characteristic Features of Class Chondrichthyes

Class Chondrichthyes

Characteristic Features

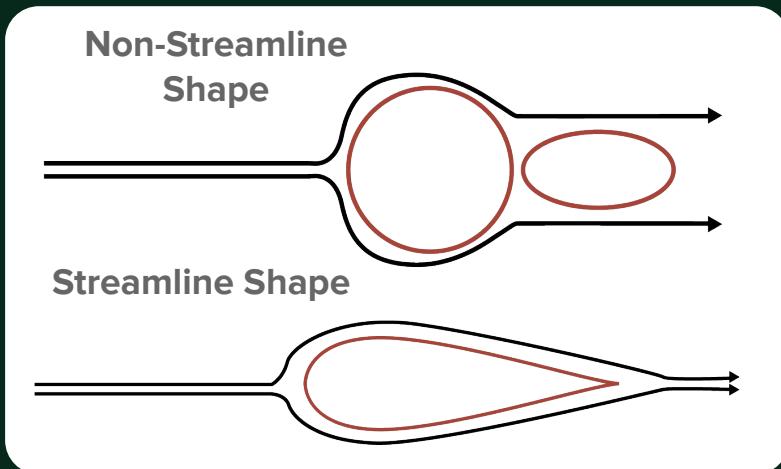
- Habitat - **Marine**



Class Chondrichthyes

Characteristic Features

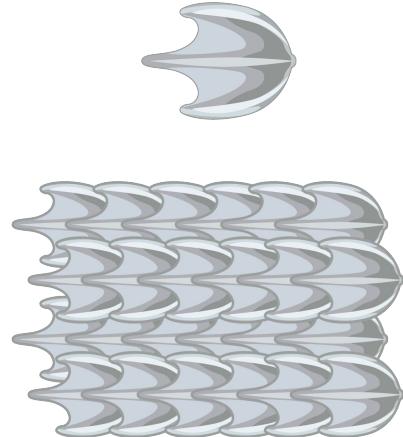
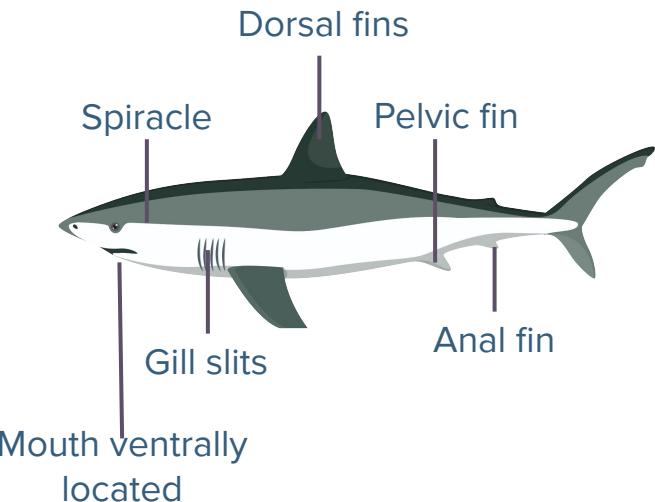
- Habitat - **Marine**
- **Streamlined body**



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**



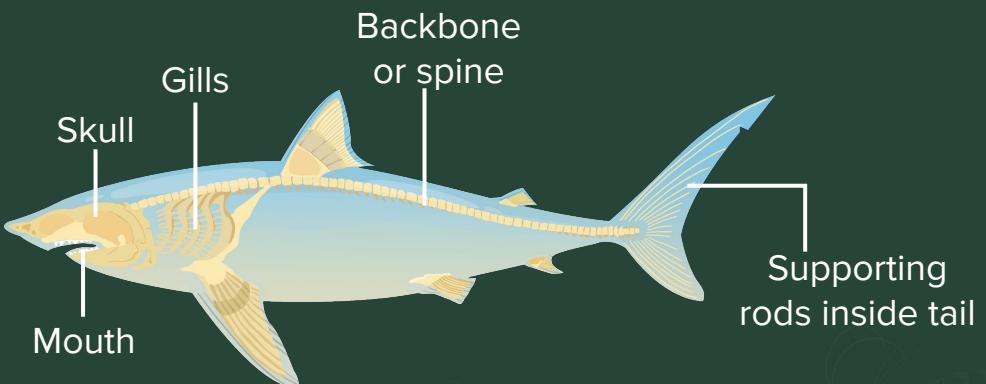
What is Operculum?



Class Chondrichthyes

Characteristic Features

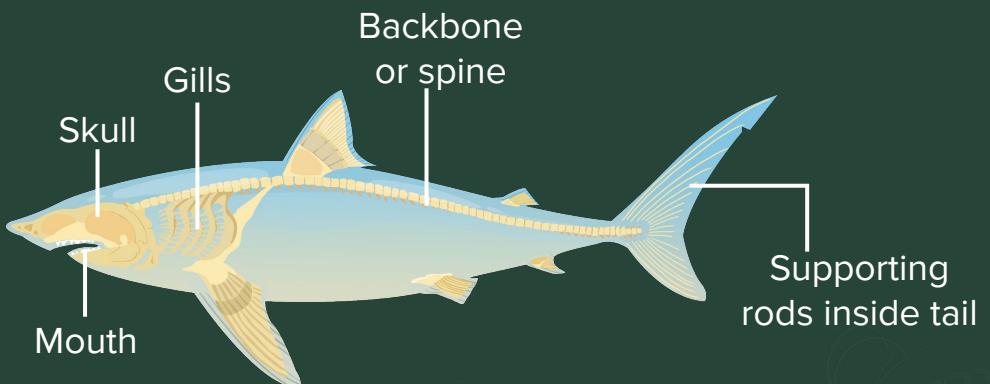
- **Cartilaginous** endoskeleton



Class Chondrichthyes

Characteristic Features

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



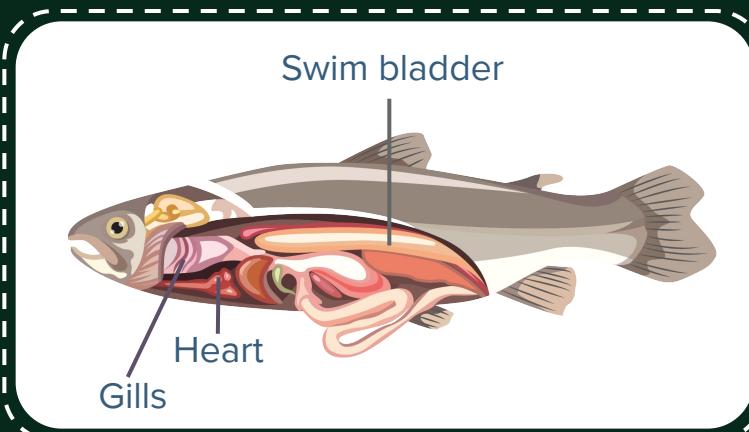
Class Chondrichthyes

Characteristic Features

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



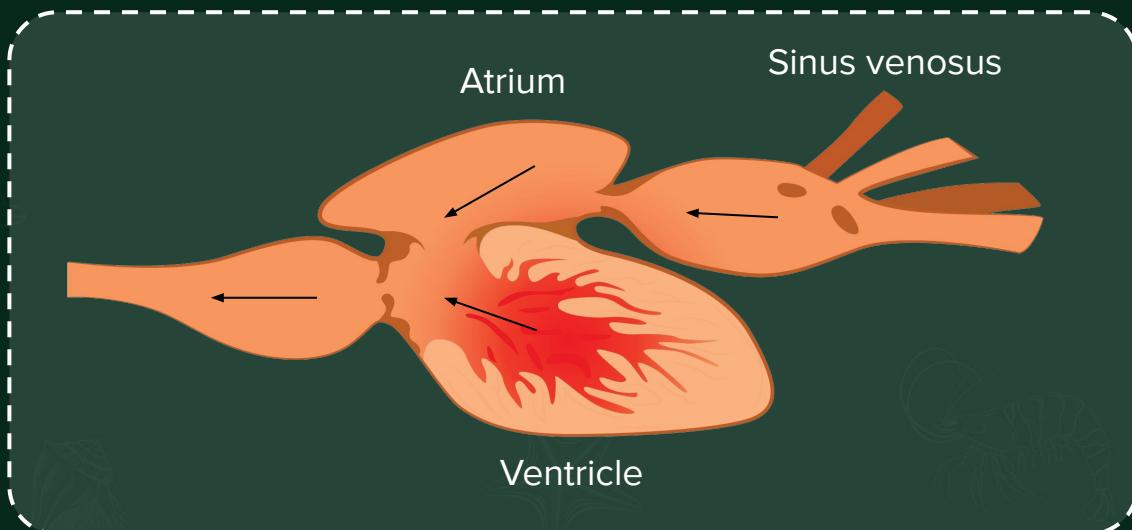
With and Without Swim Bladder



Class Chondrichthyes

Characteristic Features

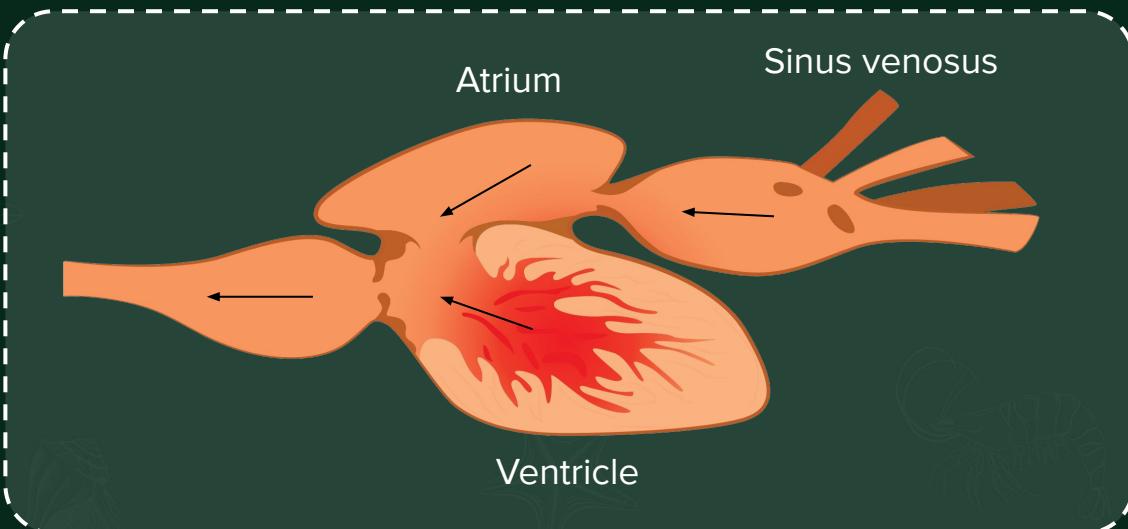
- Heart - **two chambered** (one auricle and one ventricle)



Class Chondrichthyes

Characteristic Features

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



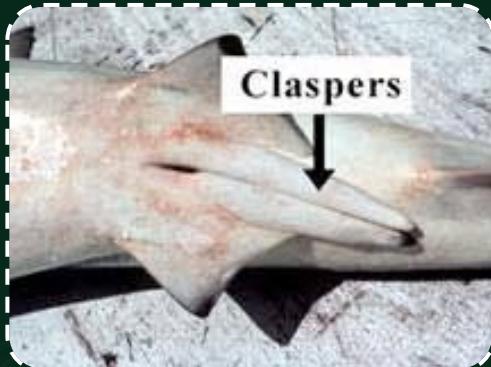
Class Chondrichthyes

Reproductive Features

- Sexes **separate**



Male and female chondrichthyes



Male chondrichthyes

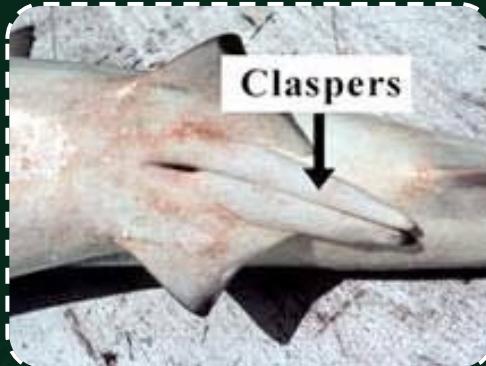
Class Chondrichthyes

Reproductive Features

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



Male and female
chondrichthyes



Male chondrichthyes

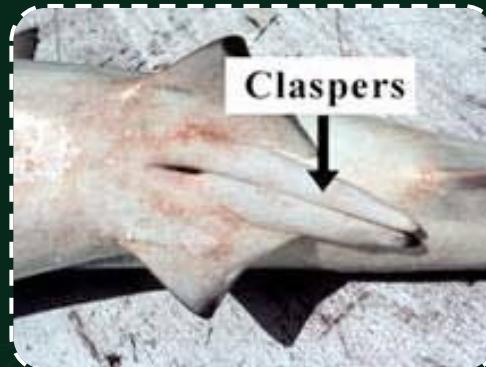
Class Chondrichthyes

Reproductive Features

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



Male and female
chondrichthyes



Male chondrichthyes

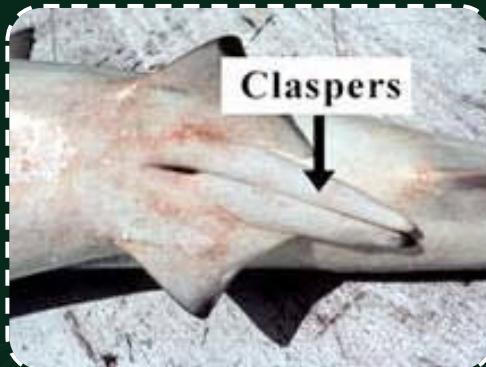
Class Chondrichthyes

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**

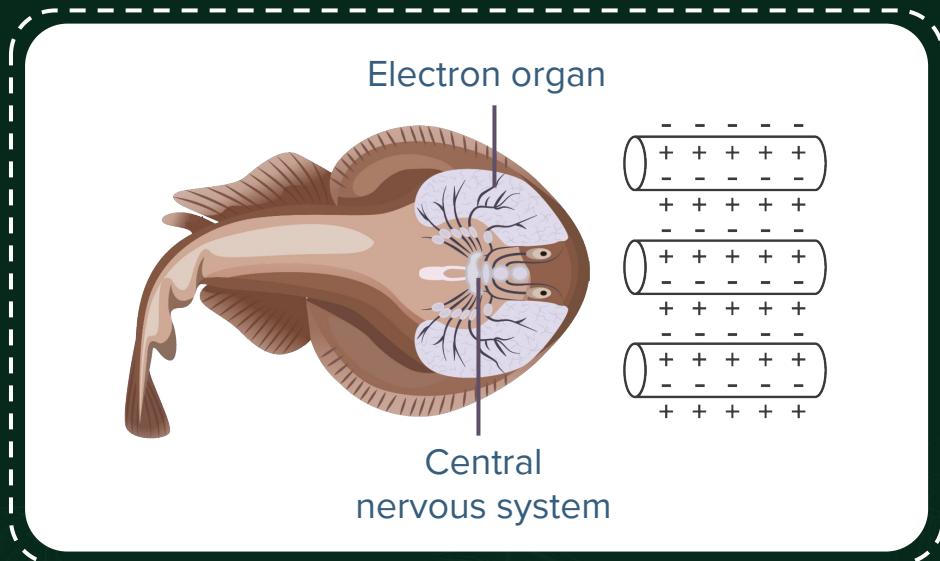


Trygon (Sting Ray)

Class Chondrichthyes

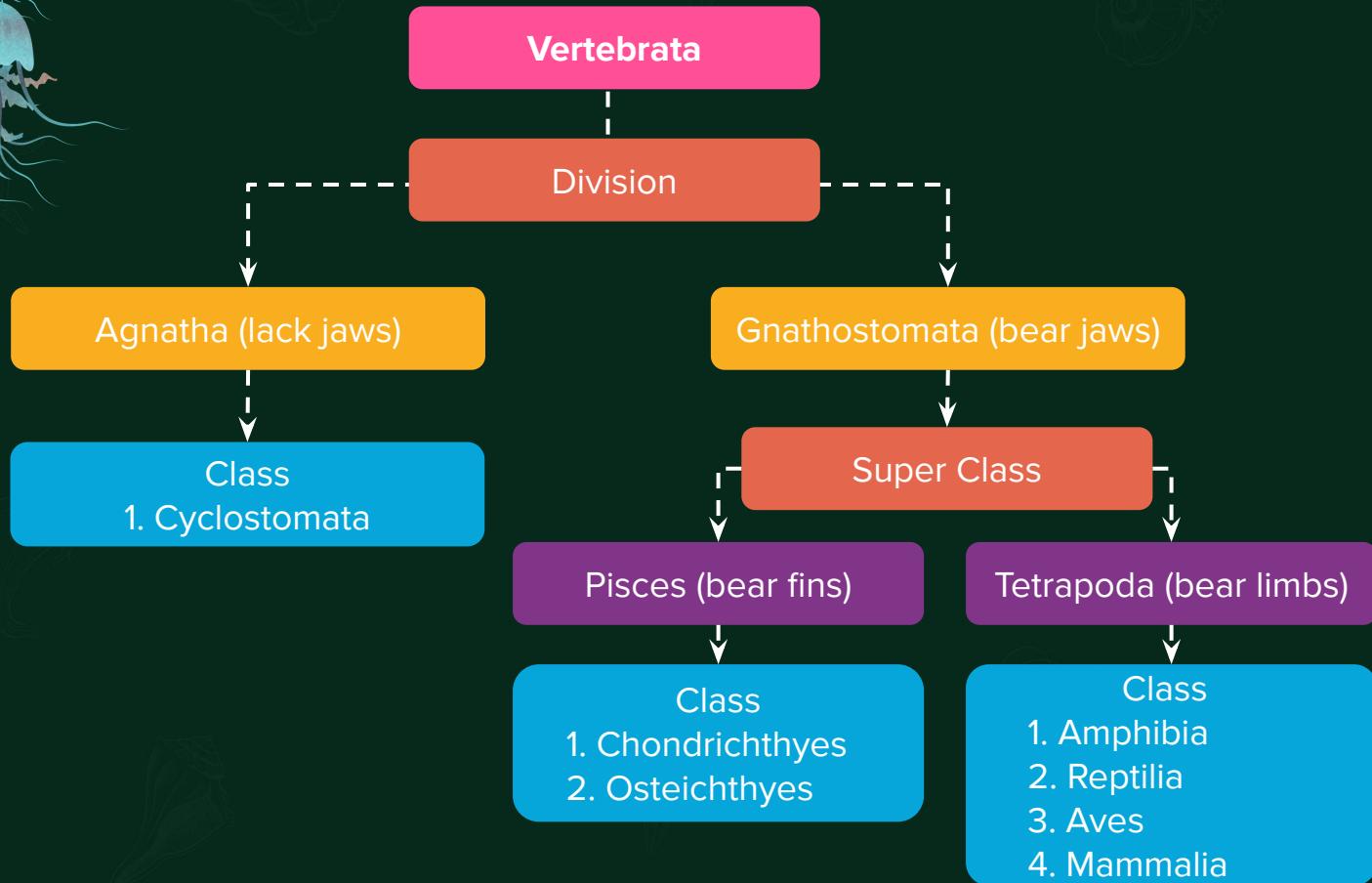
Special Features

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



Torpedo

Classification of Vertebrata



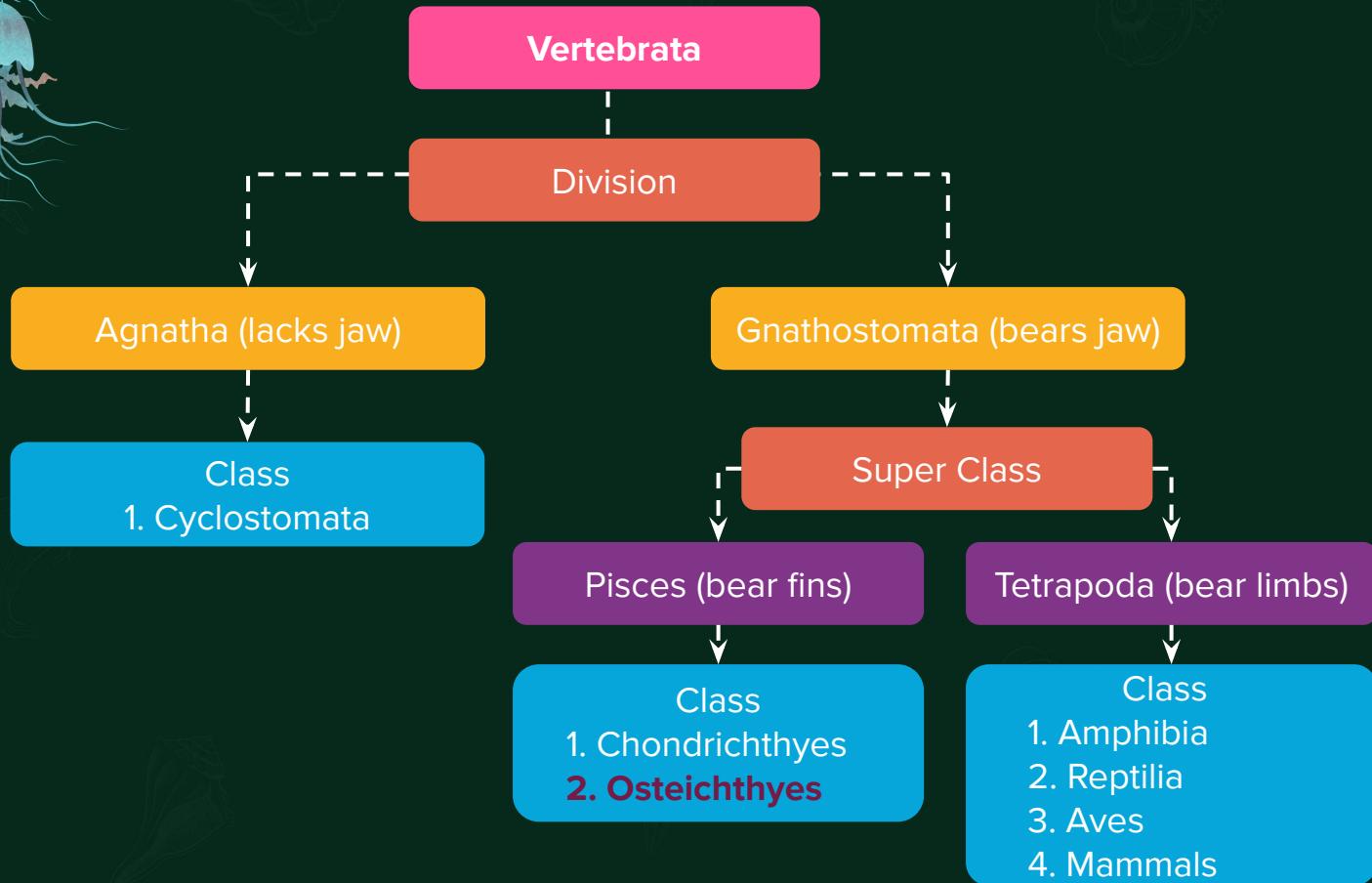
Pregnant Seahorse



Sea horse



Classification of Vertebrata



Class Osteichthyes



Catla (Katla)



Exocoetus (Flying Fish)

Class Osteichthyes



Labeo (Rohu)



Clarias (Magur)

Characteristics of Class Osteichthyes

Class Osteichthyes

Characteristic Features

Habitat

Freshwater

Marine



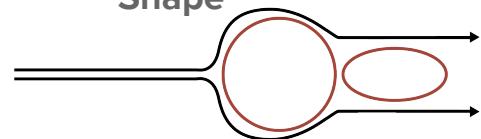
Class Osteichthyes

Characteristic Features

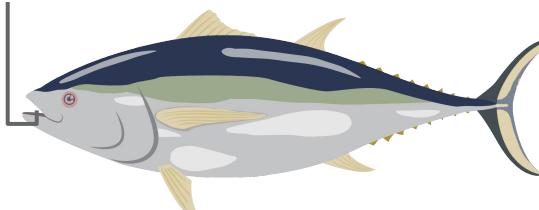
- Streamlined body

Non-Streamline

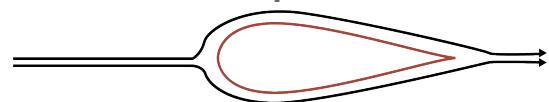
Shape



Mouth (terminal)



Streamline Shape



Class Osteichthyes

Characteristic Features

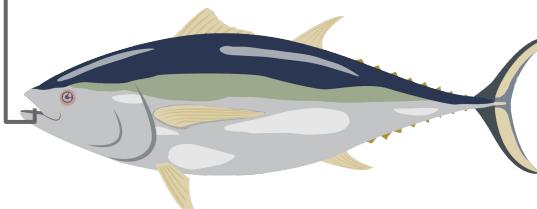
- Streamlined body
- Terminal mouth

Non-Streamline

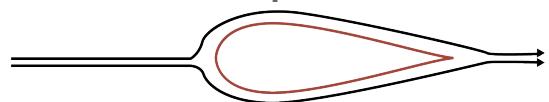
Shape



Mouth (terminal)



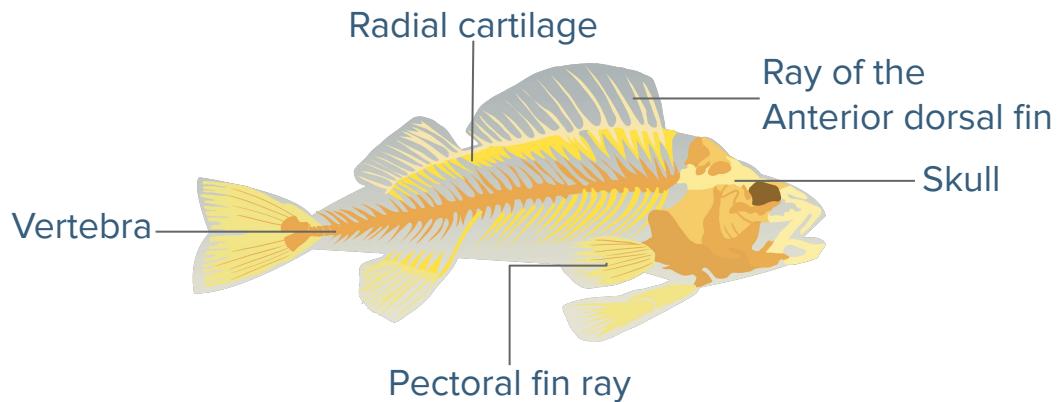
Streamline Shape



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

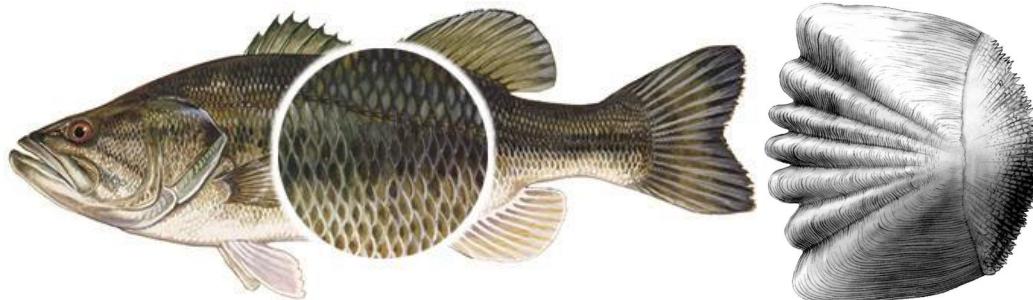


Cycloid scales

Class Osteichthyes

Characteristic Features

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

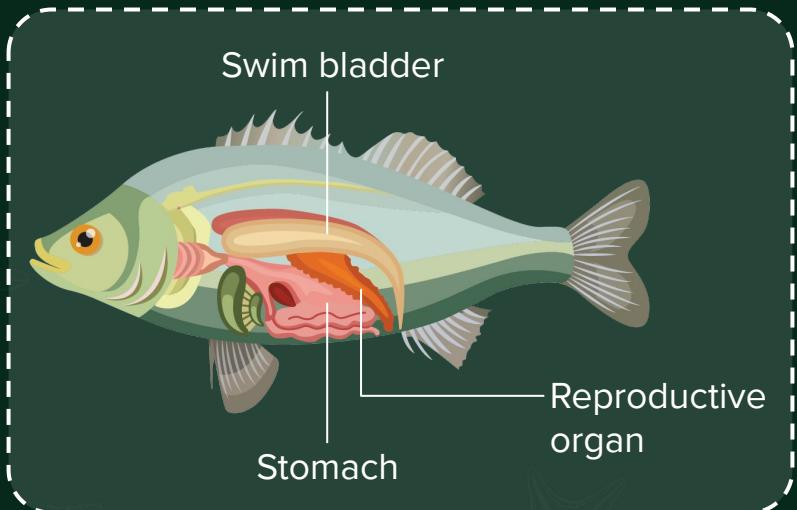


Ctenoid scale

Class Osteichthyes

Characteristic Features

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



Fish Anatomy

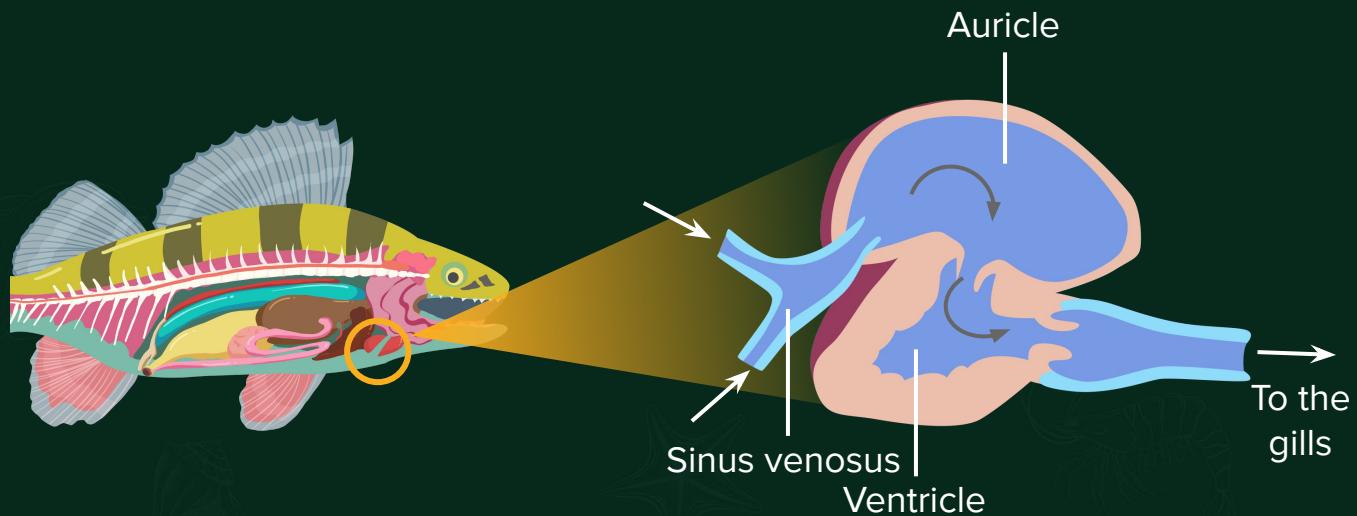


Swim bladder

Class Osteichthyes

Characteristic Features

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



Class Osteichthyes

Have you seen fish eggs?

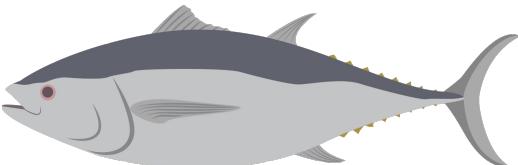


Cluster of fish eggs

Class Osteichthyes

Reproductive Features

- Oviparous



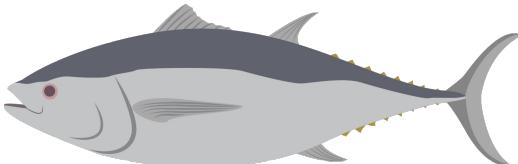
Female fish lays eggs

Class Osteichthyes

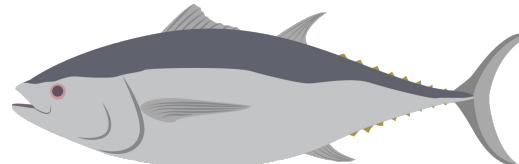
Reproductive Features

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

External fertilization



Female fish lays eggs



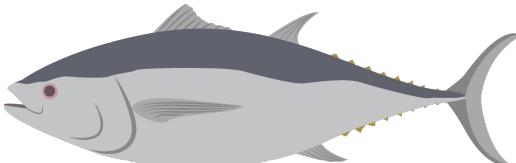
Male fish spreads sperm over eggs

Class Osteichthyes

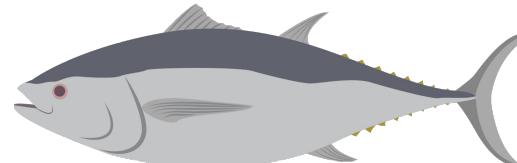
Reproductive Features

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

External fertilization



Female fish lays eggs



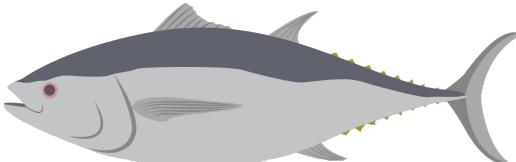
Male fish spreads sperm over eggs

Class Osteichthyes

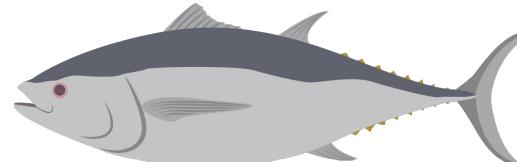
Reproductive Features

- **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
- (c) Hemichordata

- (b) Cyclostomata
- (d) Chondrichthyes



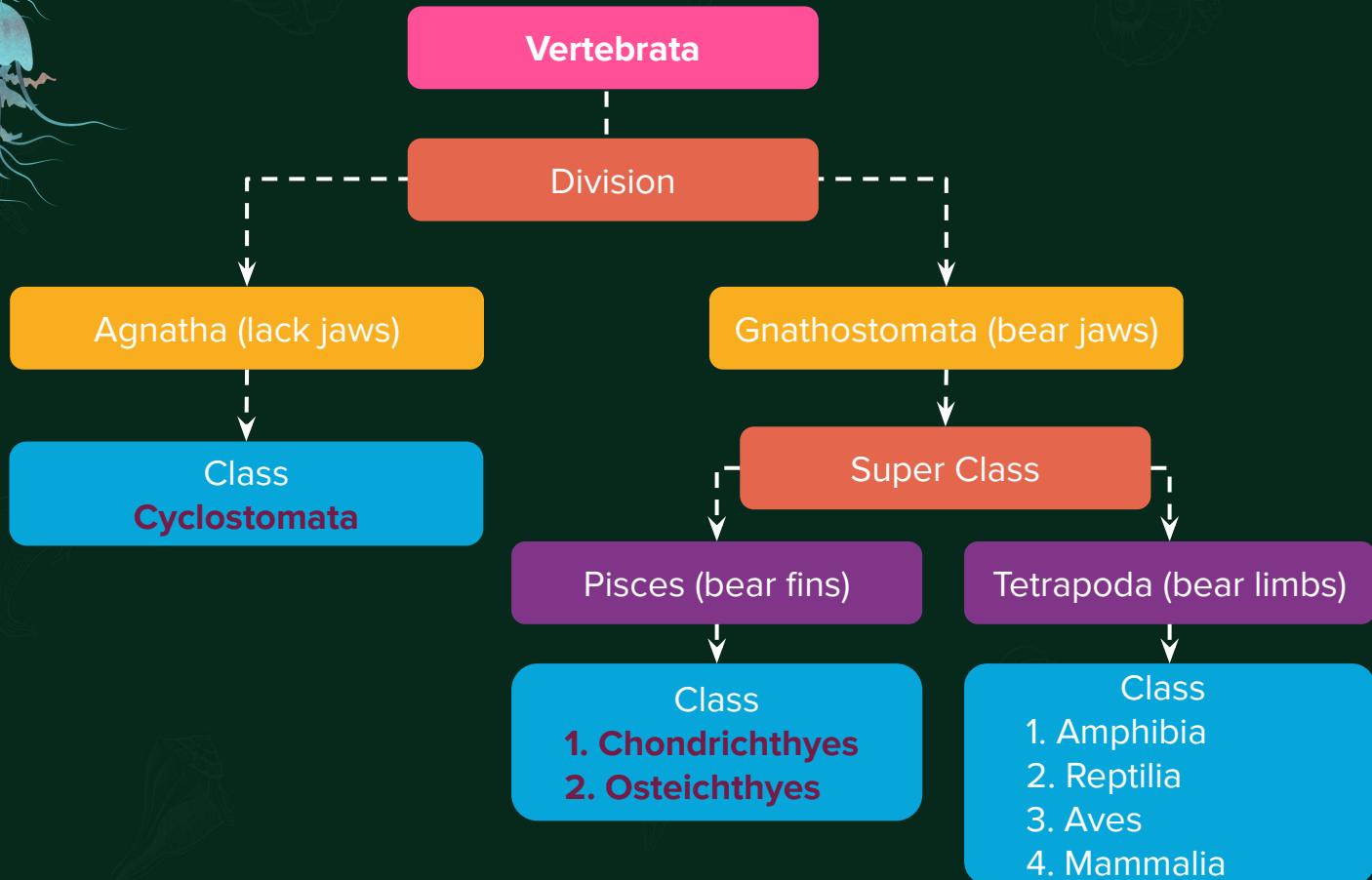
Vertebrates without jaws are included in the class



- (a) Agnatha
- (c) Hemichordata

- (b) Cyclostomata
- (d) Chondrichthyes

Classification of Vertebrata





KEEP LEARNING