Fishes

- Aquatic vertebrates with scales, fins and pharyngeal gills.
- Most primitive living vertebrates (first to evolve).
- Further divided into the jawless fishes, the sharks and the bony fishes.

Jawless Fishes

- No bones, but a notochord (a cellular rod supporting the organism) is present.
- Include the lampreys and hagfish.

Lampreys

 Attach to fish or whales and suck up blood and tissues.

Hagfish

- Most primitive vertebrates.
- Tentacles around the mouth.
- Lack eyes.
- Feed on dead or dying fish.
- Secrete slime

Sharks and Relatives

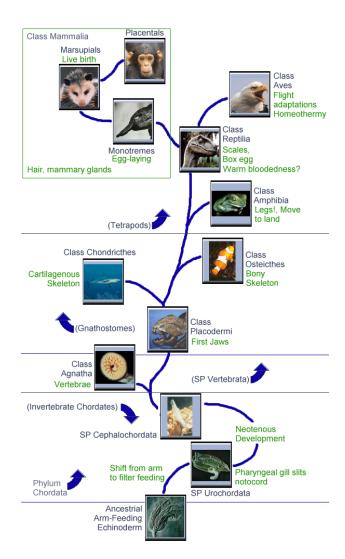
- Sharks, rays and skates.
- Skeleton is composed of cartilage.
- Sharks have large numbers of teeth arranged in rows.

Bony Fishes

- Make up 40% of all vertebrates.
- Mostly ray finned fishes.
- Lungfishes (six species) which gulp air into a lung like sac. Evolution!
- Coelocanth (thought to be extinct) has bones similar to limb bones of land dwelling vertebrates. Evolution!

Amphibians

- Smallest group of vertebrates.
- Descendants of organisms that evolved some, but not all of the adaptations necessary for life on land.
- Larvae are aquatic and breathe through gills.
- Adults are mostly terrestrial and breathe through their skin or lungs.
- Lack scales and claws.



Reptiles

- Vertebrates with lungs, scales and amniotic eggs.
- Better adapted to land than amphibians.
- Skin must be shed as they grow.
- Amniotic eggs can survive on land.
- Include the lizards, snakes, turtles and crocodiles/alligators.

Birds

- Endothermic (warm blooded).
- Covered in feathers.
- 2 legs for walking.
- 2 forelimbs modified into wings.
- Evolved from reptiles.

Archaeopteryx

- Fossil of a feathered, flying dinosaur.
- Showed close relationship between birds and reptiles.

Mammals

- Endothermic.
- Hairy.
- Mammary glands.
- Split into three groups:
- 1. Monotremes egg laying mammals (platypus).
- 2. Marsupials young live in pouch (kangaroos).
- 3. Placentals young develops in mother (humans).