

PHYLUM CHORDATA

- ◆ Vertebrate
- ◆ Internal skeleton of either cartilage or bone (Endoskeleton)
- ◆ Dorsal nerve cord
- ◆ Complex nervous, digestive, circulatory skeletal, muscular and excretory systems

Before commencing to study from these notes, refer to Overview of Kingdom Animalia.

For each of the groups below, refer to your textbook for diagrams to identify the main characteristics.

Please be aware that taxonomists may change the names of some groups.



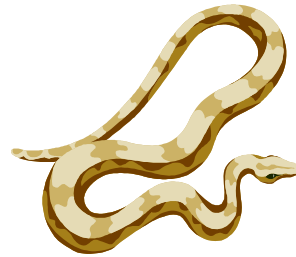
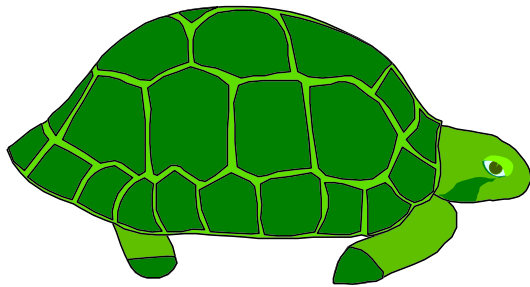
FISH

- ◆ Examples: Cartilaginous fish(shark, ray, lungfish) and Bony fish (barramundi, trout)
- ◆ Vertebrate, dorsal nerve cord
- ◆ Bilateral symmetry
- ◆ Marine or freshwater
- ◆ Changing body temperature (ectothermic)
- ◆ Stream-lined shape
- ◆ Skin covering is scales
- ◆ Fins
- ◆ Buoyancy control by means of a gas bladder
- ◆ Respiratory system - Breathe by gills
- ◆ Nervous system – Brain and spinal cord
- ◆ Digestive system – Mouth, pharynx, oesophagus, stomach, intestine, anus
- ◆ Circulatory system – 2 chambered heart and blood vessels
- ◆ Sexual reproduction – Some fish are hermaphroditic. Fertilisation (joining of sperm and egg) is mostly external.



CLASS AMPHIBIA

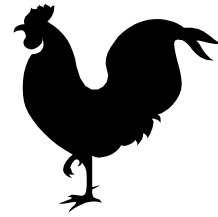
- ◆ Examples: frog, toad, salamander, newt
- ◆ Vertebrate, dorsal nerve cord
- ◆ Bilateral symmetry
- ◆ Metamorphosis – Egg → Larva (Tadpole) → Adult
- ◆ Habitat is freshwater during egg and larval stages, and moist terrestrial areas during adult stage
- ◆ Changing body temperature (ectothermic)
- ◆ Moist smooth skin covering
- ◆ Respiratory system – Breathe through gills and moist skin during larval stage, and through lungs and moist skin during adult stage
- ◆ Nervous system – Brain and spinal cord
- ◆ Digestive system – similar to more complex chordates
- ◆ Circulatory system – similar to more complex chordates, but with a 3 chambered heart
- ◆ Sexual reproduction – Fertilisation is external. Jelly-like eggs are laid in water.



CLASS REPTILIA

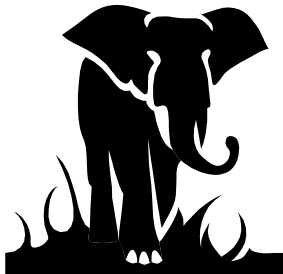
- ◆ Examples : snake, lizard, tortoise, turtle, crocodile
- ◆ Vertebrate, dorsal nerve cord
- ◆ Bilateral symmetry
- ◆ Changing body temperature (ectothermic)
- ◆ Skin covering is scales that may be joined into plates
- ◆ Breathe with lungs
- ◆ Nervous system – Brain and spinal cord
- ◆ Digestive system – similar to higher chordates
- ◆ Circulatory system – similar to higher chordates, but with a 3 chambered heart
- ◆ Excretory system – Urinary bladder present only in turtles, tortoises and lizards
- ◆ Sexual reproduction, most lay eggs

Did You Know That...? A turtle lives much of its life in water and has flippers, but a tortoise lives on land and has feet.



CLASS AVES (BIRDS)

- ◆ Examples: [kookaburra, eagle, pelican, cormorant, emu, penguin](#)
- ◆ Vertebrate, dorsal nerve cord
- ◆ Bilateral symmetry
- ◆ Constant body temperature (endothermic)
- ◆ Skin covering is feathers, but the feet are covered by scales
- ◆ Breathe with lungs
- ◆ The nervous, digestive (toothless), circulatory (with 4 chambered heart), skeletal (light strong bones), muscular and excretory (no sweat glands) systems are similar to higher chordates.
- ◆ Sexual reproduction – Lay hard-shelled eggs
- ◆ Most can fly.
- ◆ Many species are migratory.



CLASS MAMMALIA

- ◆ Examples: [Egg-laying Monotremes \(platypus, echidna\), Pouched Marsupials \(bandicoot, koala, kangaroo, wombat\), and Placentals with umbilical cord \(human, dog, horse, whale\)](#)
- ◆ Vertebrate, dorsal nerve cord
- ◆ Bilateral symmetry
- ◆ Most are terrestrial
- ◆ Constant body temperature (homoiothermic, endothermic)
- ◆ Skin covering is hair or fur
- ◆ The young are nourished with milk from mammary glands of the mother.
- ◆ Complex nervous, digestive, circulatory, respiratory (lungs and muscular diaphragm) and excretory systems
- ◆ Aquatic mammals have no sweat glands.
- ◆ Most have 2 pairs of appendages, usually legs, although some have modified appendages for swimming (e.g. seal) or flying (e.g. bat).
- ◆ Sexual reproduction, internal fertilisation

- ◆ Monotremes – produce leathery-shelled eggs
- ◆ Marsupials – have a gestation period of about 10 to 15 days; the young crawls into the mother's pouch after birth, where most of its early development continues
- ◆ Placentals – have a long gestation period; the young receives its nourishment through blood vessels inside an umbilical cord between the mother's placenta on the wall of the womb and the baby

Did You Know That...?

- ◆ Bulls cannot see red. They are colour-blind. In bullfights, they chase the matadors' capes because they are moving and not because of the colour.
- ◆ A platypus' bill can detect the weak electrical fields given out from the muscles and nerves of a shrimp which is its prey.