VERTEBRATES

Characteristics:

* They have an internal skeleton that includes a backbone.
* They have bilateral symmetry.
* The body of most vertebrates is divided into three segments: head, trunk and tail.
* In general, they have four limbs that originate from the trunk. Limbs can be in the form of legs, wings, arms or fins.
* The nervous system consists of the brain, found inside the cranium, the spinal cord, located in the backbone, and the nerves.
* Their sense organs are mainly located in the head.

Fish: Masters of the aquatic environment…

Fish are aquatic vertebrates.

Characteristics:

* Their body is smooth and fusiform, they are covered with small plates made of bone, which are arranged like tiles on a roof, called scales.
* Their limbs are fins.
* They have strong muscles arranged in blocks.
* They are cold-blooded, which means their body temperature changes according to the temperature of their environment.
* They breathe using laminar structures called gills located on bothe sides of the head and protected by the operculum. Water goes in through the mouth and goes out through the gills.
* They are oviparous.
* Most fish are carnivores, other are herbivores or eat organic remains.

Amphibians: vertebrates with a double life…

Amphibians spend part of their lives underwater and part on land. They need water and moderate temperatures.

Characteristics:

* They have thin, moist skin. Their glands produce a sticky mucus.
* They have four limbs in the shape of legs. (Tetrapods)
* They are cold-blooded, their temperature changes according to the temperature of their environment.
* They breathe mainly through the skin and also through lungs.
* They lay eggs in water. Eggs hatch into aquatic larvae, called tadpoles, and undergo significant changes to transform into adult, terrestrial amphibians. (Metamorphosis).
* Most amphibians are carnivores, tadpoles are herbivores.
* Tadpoles have gills and fins, then legs are formed and at the end they lose the tail and gills.

Reptiles: crawling, terrestrial vertebrates

Reptiles are terrestrial vertebrates. They inhabit every continent except for Antarctica.

Characteristics:

* They have dry, thick skin with scales that protect their body from dehydration and injury.
* They are tetrapods. Limbs are adapted for running, climbing or swimming.
* Most reptiles are carnivores and hunt their prey.
* They are cold-blooded.
* They breathe through lungs.
* Reptiles are mostly oviparous.
* Their shelled eggs include several sacs, one is the amnion, and is filled with liquid.

Birds: vertebrates of the skies…

Birds are vertebrates with wings.

Characteristics:

* Their body is fusiform and they generally have a long neck.
* They have a strong beak instead of theeth.
* They are bipeds. The front limbs are powerful wings that enable them to fly.
* Their body is covered with feathers.
* Their bones are light, they have cavities.
* They are warm-blooded. This means they generate their own heat in order to keep a constant temperature.
* They breathe through lungs.
* They lay amniotic eggs with hard shells that require incubation.
* Their eating habitats are varied and related to the shape of the beaks.

Mammals: vertebrates with hair…

Most mammals are terrestrial vertebrates. However, there are marine and flying mammals.

Characteristics:

* Their body is covered with hair or fur, which provides thermal insulation.
* They have different types of glands (sweat, hormones, etc). The most characteristic are the mammary glands, responsible for producing milk to feed their offspring.
* They are tetrapods: legs, fins and wings.
* They are warm-blooded.
* They breathe through lungs.
* They are viviparous; they give birth to live young, which are formed inside the mother. The growing foetus is supplied with nutrients and oxygen by the placenta.
* They can be herbivores, carnivores and omnivores.
* They have a very developed nervous system. Their behavior is complex. They use a kind of language to communicate.

Vertebrates In aquatic environments: Their body is adapted to move through water. The body is oval shaped and becomes pointy towards their muscular tail. The limbs are short and next to the trunk.

Vertebrates in terrestrial environments: A few vertebrates lack limbs and slither along the ground. Mostly of them have four limbs. According to the characteristics of their limbs, vertebrates can be:

* Runners: long and slim limbs, developed muscles.
* Jumpers: Back legs are long and strong, long tail for balance.
* Climbers: hands adapted to grab, light body, long tail.
* Flyers: front limbs are wings, while flapping, they move the air.