



Vertebrates

Heather Brennan21.8K reads

Vertebrates only represent 2-3% of the species on Earth but they are the species that people are most familiar with. Vertebrates are animals with a backbone or bony skeleton. They also have an endoskeleton and neural crest cells.

All vertebrates are bilaterally symmetrical with paired appendages. They have a closed circulatory system, a central and peripheral nervous system. They are considered relatively complex creatures. They inhabit all corners of the Earth.

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Vertebrate Classes

Amphibians – This class includes frogs, salamanders, and newts. They have a moist skin which aids in respiration and are ectothermic. They lay eggs in the water which hatch into a larval form which is different from the adult form. They are the only vertebrate that is not born as a miniature version of the adult. The study of amphibians and reptiles is known as herpetology.

Fishes ^[1] – The fishes are exclusively aquatic ectotherms. They breathe through gills. Limbs have been modified into fins to use in swimming and their skin is covered in scales. Most fish lay eggs although some give birth to live young. The study of fish is known as ichthyology.

Reptiles – This class includes lizards, snakes, and crocodiles. They have a hard, scaly skin

and are also ectothermic. Unlike amphibians and fishes, reptiles can lay eggs on land. Most are oviparous but there are some that give birth to live young.

Birds [2] – Avians are endothermic, unlike reptiles, fish, and amphibians. They lay eggs in all cases and must breathe air although some species spend a great deal of their time in an aquatic environment. Their forelimbs are modified into wings although some species are flightless. The bones of birds are hollow, making them lighter. The study of birds is known as ornithology.

Mammals [3] – All mammals breathe air, although some live in aquatic environments. They have hair, mammary glands, and fat secreting glands. Most species also have sweat glands. Mammals are endothermic and most give birth to live young although there are 5 species of Monotreme that lay eggs – the duck-billed platypus and four species of echidna, all 5 of which are located in Australia and New Guinea. The study of mammals is known as mammalogy.

The study of vertebrates covers many fields. One of the more interesting ones is developmental biology which looks at the development of embryos and the similarities and differences in species at the embryonic stages. It is a useful way to make evolutionary links between species.

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Links

[1] <http://fisheries.org/>

[2] <http://www.ornithology.com/>

[3] <http://www.mammalsociety.org/>