

Evolution antarctic
continent completely
surrounded by an
ocean.



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Evolution of penguins For this evolution project, I choose to research Penguins. The classification for this animal is as follows: K Neornithes, P Palaeognathae, C Neognathae, O Pelecaniformes, F Procellariiformes, G Graviidae, S Spheniscidae.

The first fossil penguin that was found, is today being held in the British Museum of Natural History. It was reportedly found by an anonymous Maori in New Zealand in 1859 and was named *Palaeudyptes Antarcticus* despite the fact that the species was located far away from Antarctica. Since that discovery many more fossils were found and were dated back to the Miocene era and three others from the Pliocene era. Several fossils were dated to the Late Pliocene era and others from the Recent era. The earliest avian fossil found in the southern hemisphere is said to have existed in the Eocene age about 38-54 million years ago. There is evidence that at least three of the modern penguins (*Aptenodytes*, *Spheniscus* and *Pygoscelis*) went extinct within the last 4-5 million years.

The remainder of the penguins are from 5-40 million years ago, dating back to the time currently recorded, when penguins evolved from other modern birds. Research suggests that the tallest of these penguins were about 6 feet tall. Penguins did originate from an ancestor that flew some 40 million years ago.

The common ancestor is assumed to have been somewhat similar to a modern-day diving petrel or auk in appearance and behavior. The main evolutionary advantage of giving up aerial flight is the improved swimming ability; in particular being able to swim quickly helps in catching fish and

being able to dive to great depths (studies show that some modern penguins can dive up to 300meters) which greatly increases the range of food which is available to hunt. Another major influence in the evolution of penguins is likely to have been the availability of vast amounts of food in the ocean. The break up of the Proto-continent, Gondwanaland, was completed around 200, 000, 000 years ago and left the Antarctic continent completely surrounded by an ocean.

The resulting cold currents established in the southern ocean (once the polar ice cap had formed) made them rich in nutrients and then led to the huge amounts of fish and crustaceans in the area. An additional bonus was that the early penguins could reach and breed on remote islands where no land predators had evolved. The penguins most likely ruled the southern oceans as a top predator for several millions of years. The black and white suit of a penguin helps them to hide from their predators when they're swimming in the ocean. When a penguin is swimming near the surface it's very hard for the sea lions, leopard seals and other predators to see it's white underside.