

## ***Lesson 1: Alligators***

Alligators are reptiles of the order Crocodylia. The order is more than 85 million years old. Alligator ancestors lived in the time of dinosaurs. Like all reptiles, alligators are *ectothermic*, regulating their body temperatures by basking in the sun to warm themselves and seeking shelter in water to cool down. Alligators have very hard bony plates embedded in the skin along their back called *osteoderms* (osteo – bone, derm – skin) that aid in thermo-regulation. These bony plates act as solar panels: the alligator basks in the sun, the bone absorbs heat and in turn heats the blood of the alligator. When alligators need to cool off, they simply submerge their backs, allowing the water to cool them down and shade them from the sun. At night, alligators go into the water to stay warm since the water will lose temperature slower than air. Osteoderms also serve to protect alligators from predators (especially in the dinosaur age) and other alligators now.

Alligators feed on a variety of creatures, including snails, crawfish, fish, wading birds, small mammals, and even other smaller alligators. Alligators use their eyes to spot prey both above and below the water. A third, clear, and side-closing eyelid called a *nictitating* (nic-ti-ta-ting) membrane protects the eye. This membrane allows an alligator to have excellent vision underwater. Once an alligator spots prey, it will swim stealthily and hit in a violent, extremely fast motion, latching down on the prey with its massive jaws lined with 80 teeth. Alligators have the strongest jaws in the reptile kingdom with mature alligators biting down with over 3000 pounds per square inch. The alligator then drowns its prey by holding it under water. An alligator can hold its breath well over an hour. Alligators swallow their prey whole, never chewing. Large prey may be cached underwater several days until it softens enough to break into pieces that can be swallowed whole.

Alligators are extremely good swimmers. They use their massive tails, which have 40% of their muscle mass, to propel them through the water. They use their feet as rudders to steer them through the water.

Alligators build nests to lay their eggs in. A female alligator uses her mouth to gather leaves, grasses, and branches. Then, with her back feet, she builds a mound of vegetation in which she lays her eggs. An alligator can lay up to 40 eggs in a nest. As the vegetation decays, heat is produced which incubates the eggs. The nest is built very close to the water and the mother protects the nest from predators like raccoons and pigs. The eggs are oval; about 3 1/2 inches long, and hard-shelled like a bird egg. It takes about 60 days for the babies to hatch. When hatched, the babies in the nest will make a grunting sound that signals the mother to uncover the nest and bring the babies to the water. The mother will then protect the babies for their first few years of life. No other reptiles care for their babies after hatching and most do not build nests. Alligators and crocodiles are very closely related to birds, and birds are descended from dinosaurs!

Alligators live in all types of wetland areas, including swamps, rivers and streams, lakes and ponds, marshes – basically, any place where there is water (in the Southern states), there can be an alligator. The number of alligators living in an area depends on the amount of resources available, mainly food (this is called “carrying capacity”). Alligators are not territorial except during breeding and nesting seasons.

Alligators are naturally afraid of humans, but when fed or interacted with, alligators quickly lose their fear and become dangerous to humans.