

Grades 4 – 5: Adaptations

An **ADAPTATION** is a physical feature an animal has or behavior that an animal uses to help it survive in its habitat. Examples of adaptations include migration (behavioral) or camouflage (physical). Many adaptations help an animal to find food, or prevent it from becoming food. Adaptations often take thousands of years to become evident within a population. Those that increase the animal's chance of survival are passed on to future generations, while those that do not eventually fade away.

Zone A – Shipwrecked and Ocean Realm

Horseplay – Seahorses are the slowest swimming fish in the ocean. While they have a different body arrangement than fish you might see in other exhibits, they are fish. Their special body plan helps them survive in their grassy ocean habitat. Because they are such slow swimmers, it is possible for them to get carried away by ocean currents. They have developed a prehensile tail (much like a monkey's) that they can use to wrap around the grasses and keep from drifting away.

- Look closely at the seahorse's skin. Does it have scales or does something else cover its skin?
- If it doesn't have scales, is it truly a fish?
- Although they are slow swimmers, seahorses do swim. Observe the animals in the exhibit for a few moments. How do they swim?

Zone B – Stingray Beach Club

Stingrays – Stingrays are a cartilaginous fish related to sharks. They have a flattened body design, with their gills and mouths located on the ventral (bottom) side of their bodies. They are mostly bottom feeders, preferring food like clams, mussels, and crabs and use flat, crushing teeth to crush the shells of these prey items. The most notable adaptation of the stingray is the barb located on the tail. It is used for protection against predators such as sharks. It is sharp, often serrated, and sometimes venomous.

- What is the purpose of the holes located behind the stingrays' eyes?
- What is an example of a behavioral adaptation that the stingray exhibits?



For the full "Adaptations" Exhibit Companion, visit Educator Inlet at AdventureAquarium.com

Zone C – KidZone

Flashlight Fish – Flashlight fish are a small, somewhat deep water fish that use bioluminescence as their adaptation for survival. The bioluminescence is created by bacteria that live under the eyes of the fish. It is used to attract food, confuse predators, and to communicate with other flashlight fish. The flashlight fish is nocturnal and active in dark waters. They have a dark body which makes their shape harder to see in the darkness. The light produced by the bacteria attracts small plankton, which quickly get eaten by the flashlight fish. The plankton also attracts smaller fish that also soon become prey to the flashlight fish.

- What benefits do you think the bacteria get from their relationship with the Flashlight fish?
- How do you think the Flashlight fish uses its bioluminescence to outsmart predators?



Zone D – West African River Experience/ Hippo Haven, Jules Verne Gallery and Shark Realm

African River Experience/ Hippo Haven – Porcupines are the third largest rodent (behind the capybara and beaver) and the African Crested Porcupine is the largest rodent in Africa. They are covered with spines, or quills, which are an adaptation that both protects and camouflages the animal. Because porcupines are nocturnal, our porcupine spends much of his day resting or sleeping in the corner of the exhibit.

- What are other animals that have quills as an adaptation?
- Why is it an advantage for the porcupine to be nocturnal?

Weedy Sea Dragon – Weedy Sea Dragons are another fish with an unusual body plan. Related to sea horses, these slow swimmers mimic the seaweed in their habitat with their leaf-like fins. They tend to drift in the water, camouflaging from predators by blending in with seaweed and other plant life.

- Why does the sea dragon have a horse-shaped head?
- What is the biggest noticeable difference between the sea dragon and sea horse?

Shark Realm – The Shark Realm exhibit will surround you with 30 sharks – Nurse sharks, Sand Tiger sharks, and Sandbar sharks. There are over 375 known species of sharks that range in size from the 6-inch Cigar shark to the 60-foot Whale shark. Sharks are some of the best-adapted animals on earth. They come in different shapes and patterns, and their teeth are continuously replaced throughout their lives.

- Look closely at the shark’s coloration. Why do you think the sharks have light bellies and dark backs?
- Sharks’ skeletons are made out of cartilage, the same thing that your ears are made of. Is this hard like a bone or flexible?
- Why do you think having a skeleton made out of cartilage would be an advantage?

