

Students will discover animal adaptations as they travel around the Aquarium.

OBJECTIVES

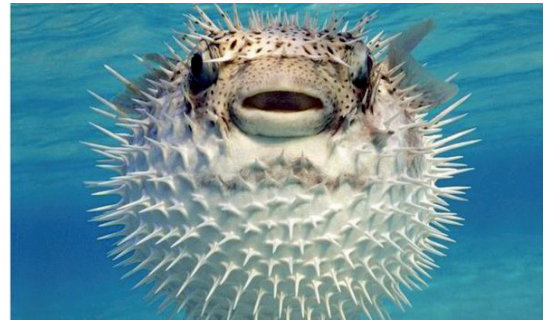
- Students will be able to define the term adaptation.
- Students will be able to identify animal adaptations (physical and behavioral).
- Students will be able to label an animal as a vertebrate or invertebrate.

SOUTH CAROLINA SCIENCE STANDARDS

1-LS1-1, 3-LS3-1, 3-LS4-2, 3-LS4-3, 4-LS1-1

MATERIALS IN BIN

- Copy of “Animal Adaptations” activity
- Aquarium map (with activity exhibits marked)
- Five “Animal Adaptations” worksheets
- Five dry-erase markers
- Eraser
- “Animal Adaptations” worksheet answer key (for teachers only)
- Coat
- Metal straw
- Shovel
- Spiked bracelet
- Stress ball
- Suction cup



VOCABULARY TERMS

Review terms with students before coming to the Aquarium to ensure they have a basic understanding of the terms that will be used in the activity! Choose which terms are relevant/need to be reviewed based on your students’ ages.

- **Adaptations** – Physical or behavioral traits that help an organism survive in their ecosystem
- **Behavioral Adaptation** – Actions or behaviors of an organism that help them survive in their ecosystem
- **Physical Adaptation** – Body parts or traits of an organism that help them survive in their ecosystem
- **Predator** – An animal that naturally preys on (eats) other animals
- **Prey** – An animal that is caught and killed by another animal for food
- **Organism** – A living thing
- **Vertebrate** – An animal with a spine
- **Invertebrate** – An animal without a spine

BACKGROUND

Adaptations are physical or behavioral traits that help an organism survive in their ecosystem. Body parts are physical adaptations and actions are behavioral adaptations. Plants and animals must avoid predators as well as find food (prey) in order to survive, and these adaptations help them to do so. Some adaptations are unique to one type of organism, like the blue blood of horseshoe crabs, while others are seen in many organisms, like the webbed feet of ducks, turtles and frogs. Some adaptations are learned, like the strand feeding of

Charleston's bottlenose dolphins, while others are inherited, like size or coloration.

AQUARIUM ANIMAL ADAPTATIONS

River Otter (located in the Mountain Forest gallery)

River otters have very thick fur. They have over 300,000 hairs per square inch, which is more hair in one small area than we humans have on our entire bodies. Their thick fur keeps them warm in any of the cold waters they may be found in across North America.

Robust Redhorse (located in the Piedmont gallery)

The robust redhorse is a part of the family of freshwater fish commonly known as "suckers" since their mouth is located on the underside, or ventral side, of their body. This mouth allows them to create suction to remove algae from rocks and feed on crustaceans, mollusks, insects and more.

Gopher Tortoise (located in the Coastal Plain gallery)

Gopher tortoises are known for the large burrows that they dig in the sandy soil of longleaf pine forests. Not only do these burrows serve as a shelter for the gopher tortoises themselves, but they also serve as shelter for countless other animals in the area, including eastern indigo snakes, burrowing owls and even alligators! Their large, shovel-like feet help them to dig these burrows.

Striped Burrfish (located in the Coast gallery)

Striped burrfish are pufferfish that look similar to porcupinefish or blowfish, however they have a distinct difference. They have rigid dermal spines that are always erect, whereas the other species' spines only stiffen when they are threatened or defensive. Burrfish are not strong swimmers, so appearing "spiky" can help to protect them from potential predators.

Common Octopus (located in the Coast gallery)

The common Atlantic octopus has specialized cells, called chromatophores, located just below the surface of their skin. These cells contain an elastic pigment-filled sac that contracts and expands to give the appearance that this invertebrate's skin is changing color. The further the sac expands, the more visible the color.

Cownose Rays (located in the Great Ocean Tank and in The Shallows)

Cownose rays have modified pectoral fins, called cephalic lobes, located near the front of their body that give them a 'cow-like' appearance and their namesake. These modified fins allow them to shove through sediment along the ocean floor and search for food.

PROCEDURES

Pick up the Exhibit Activity and supplies from the Information Desk. As you tour the Aquarium, stop at each of the marked exhibits to fill out worksheet answers.

- 1) Review the following with your students at your first stop.
 - a. What is an adaptation?
 - b. What is the difference between a physical adaptation and a behavioral adaptation?
- 2) Give each pair of students an "Animal Adaptations" worksheet and a dry-erase marker.
- 3) Pick an item from the bin that matches the exhibit you are in.

- a. Ask, "What could this item represent on an animal? How could it help them survive?"
- 4) Have the students look around the exhibit to locate an animal that has this represented adaptation.
- 5) When they think they have correctly found the animal, they should fill out the worksheet by listing the animal and describing the adaptation (how it helps the animal survive).
- 6) Have the students share their thoughts. Ask them, "Is that a physical adaptation or a behavioral adaptation?" Hint: The body part is the physical adaptation and how they use the body part (the action word) is the behavioral adaptation.
- 7) Repeat steps 3–6 for each stop on your Aquarium tour.
- 8) At the end of the tour, ask students what adaptation they wish they had and why.
- 9) When you're done, wipe off all answers with an eraser and return the Exhibit Activity to the Information Desk.