WEEKDAY WONDERS

Content developed by the Tennessee Aquarium Education Department

TENNESSEE AQUARIUM

Adaptations: Day 4

This week, Weekday Wonders will help young scientists go deeper into exploring and understanding different characteristics seen in animals. This week will help young scientists learn about adaptations and how they allow an animal to obtain food, protect themselves, and help them survive. We will discuss how and why different animals have different types of adaptations, as well as touch on the differences between physical and behavioral adaptations. Young scientists will also have a chance to consider why animals have similar or different adaptations in certain habitats.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the Introduction to Weekday Wonders.

Question of the Day

Why do different animals have different adaptations for the same environment?

Daily Nature Journal

Have your young scientist go outside and make some observations. Then have him or her complete a daily nature journal entry. If you need more information on what to include in the nature journal entries, see the Guide to Nature Journaling.

Brrr…It's Hot in Here?

Today's Weekday Wonder activities will focus on how animals adapt to cold environments.

First, ask your young scientist to look around the house and identify different items that help him or her stay warm during the winter. Some examples might include the house itself (shelters from wind and rain/snow), heater or thermostat, blankets, a fireplace, and winter clothing.

Ask your scientist if s/he thinks animals in the wild would use any of the same tools to stay warm. S/he should realize that even if pets might use some of the same tools, animals in the wild would not.

Print the Crossword on page 4 or show it to your young scientist to complete. It will help him or her learn about many of the ways different animals have adapted to live in the cold. Although your young scientist will likely not know all of the answers, encourage him or her to use all the hints possible, such as filling in the word with 3 letters first.

Discuss what your scientist learned about the adaptations and the animals that use each one. You may also wish to show him or her pictures of the animals they did not know before or have your scientist research some of the animals to learn more.

Penguin Blubber Mitt

The previous activity had a clue about blubber. Many animals that live year-round in very cold environments have a layer of fat under their skin called blubber. This fatty blubber helps keep animals warm, especially when they are swimming in cold water. Penguins, polar bears, seals, and whales all have blubber to help regulate their temperatures.

In this activity, your young scientist will test how well blubber helps keep an animal warm in cold water. For this activity, you will need the following household items.

- 3 sandwich-sized zipper top plastic bags
- Shortening
- Large bowl or container
- Ice water

Help your scientist scoop about 2 cups of shortening into one bag. Then turn a second bag inside out and place it in the first bag. This will give you a layer of shortening between the two bags. Seal the two bags together. This is a blubber mitt.

Fill the bowl or container with ice water. Place both the blubber mitt and the remaining empty bag into the ice water bowl with the openings above the level of the water. Have your young scientist place one hand in the empty mitt (bag) and one hand in the blubber mitt. Make sure to hold the tops of the mitts out of the water so water does not get in them.

Ask your scientist to share the observations he or she is making. S/he should find that the hand in the blubber mitt stays warm longer. Explain to him or her that the blubber mitt keeps the hand inside warm because the fat acts as an excellent insulator, just as it does for penguins, seals, and whales.

For older scientists, try using a timer to measure the length of time in each mitt before your scientist starts to feel cold. Ask if s/he can think of other materials that could be good insulators. Encourage your scientist to test any other ideas against the blubber mitt if the materials are available.

Time to Migrate

In the crossword, your young scientist found that elk are one kind of animal that migrate to warmer places with more food during the winter. This activity will help him or her learn about some other animals that migrate.

Designate one side of a large play space as the "winter" habitat and the opposite side as the "summer" habitat. Use the following prompts to have your young scientist migrate between the two habitats. Feel free to shorten the names for younger scientists to understand or to call out the full name of the animals to intrigue older scientists.

- Walk on all fours to migrate like a Caribou
- Migrate by flying like a Hummingbird
- Swim like a Gray Whale as you migrate
- Fly like a Monarch Butterfly to migrate
- Swim like a Chinook Salmon to migrate
- Fly like a Dragonfly to migrate
- Waddle like a Adélie Penguin to migrate
- Migrate by walking like a Red Crab

If you have more than one scientist, you could have them race each other. Another option is that many animals migrate in large groups, following a lead animal. Each round, one of your young scientists could be the leader, and the other(s) must follow him or her to the new habitat.

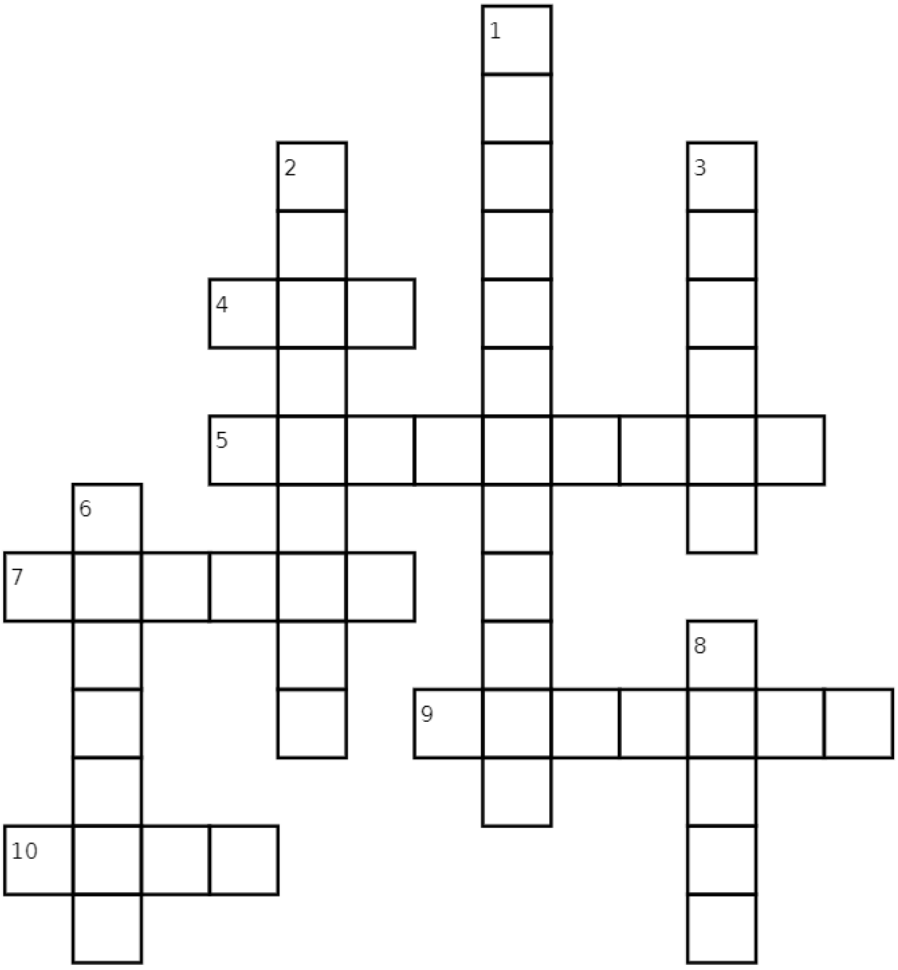
Nature Journal

Ask your scientist to observe animals that live in the environment near you. Then have your scientist list or draw the animals that s/he saw or can remember seeing before.

Ask your scientist to draw a circle around the animals that they see all year and draw a square around the animals they don't see in the winter. Remind your young scientist to think about different types of animals like insects, mammals, birds, reptiles, and amphibians.

Have your scientist label each animal that s/he does not see in winter with a description of what might happen to those animals when it is cooler outside. You may wish to have older scientists research the animals to find out more information.

Brrr…It's Hot in Here? Crossword



Animal List

Arctic Fox
Beaver
Elk
Marmot
Moose
Mountain Goat
Penguin
Pika
Polar Bear
Raccoon

Down

1. A _____ grows a thick coat under the fur it has year round.
2. A _____ develops a thick layer of fat called blubber that keeps it warm.
3. A _____ enters an inactive state called hibernation where body temperature drops and breathing rate slows.
6. A _____ fluffs out its feathers to create a thick layer of air and feathers to stay warm
8. A _____ grows a coat with hollow hairs to keep it warm.

Across

4. An _____ moves to a new location, which is called migration.
5. An _____ grows an extra thick coat that is a different color so it stays warm and blends in with snow.
7. A _____ collects extra food when there is a lot of it and stores the food for winter.
9. A _____ sleeps when the temperatures are extremely cold.
10. A _____ has tiny ears and a small tail, which lose less heat than big ears and tails and resist frostbite.