

Week #4

Mammal adaptations

Educational Goals:

- Learn about adaptations and why mammals need adaptations to survive.
- Learn about native Texas mammals and the specific adaptations that they use in order to survive in Texas.
- Learn about the difference between physical adaptations and behavioral adaptations.
- Learn how a species' "life strategy" affects its physical and behavioral traits (i.e. differences between carnivores, herbivores, and omnivores)

TEKs: 5.10a, 5.10b, 4.10a, 4.10b, 3.10a

Introduction

All mammals are different and unique in many ways because of their ability to adapt to their environment. Some great examples of mammal adaptations can be seen by examining the differences in their fur and teeth which have arisen due to the environments that they live in and their specific survival strategies. There are two main types of adaptations, physical adaptations (adaptations which have a structural component- things that an organism HAS like fur or claws) and behavioral adaptations (things an organism DOES like shiver to stay warm or play dead to confuse predators).

An example of a structural adaptation on mammals would be their fur and teeth. If you look at the colors and pattern on different mammals' furs, you can notice how it can help them blend into their environment or show other animals that they're dangerous and should stay away.

Real world examples

Mammal pelts are a great way to show how environment affects physical appearance. Most animals fur color helps them blend into their environment to help hide them from other animals. This adaptation can be super helpful for predators who are trying to sneak up on prey, or prey who are trying to hide from predators. Other mammals use distinctive fur patterns to warn potential predator away (i.e. skunks have a bright white stripe down their backs).

Examining animal skulls is another great way to see different animal adaptations. The visible structure (size and shape) of animal's skulls and teeth vary considerably depending on their diet.

For example, carnivores (animals who eat meat) like mountain lion or bobcats have sharp K9s to help bite and tear flesh, while herbivories (animals who only eat plants) like deer and hogs have flat molars to help grind grains and grasses (show examples with the skulls and skins trunk). Humans are omnivores (meaning we eat both plants and animals) so we have sharp K9s and molars which help us chew both meat and plant matter. You can even examine this with your own teeth. Siince we are omnivores we have both types of teeth. Run your tongue over your teeth and examine them in a mirror. Can you find your K9s and molars?

Along with these structural adaptations, animals also adapt through behavioral traits (things that animals do in order to help them survive). For example, coyotes howl to communicate with their packs/warn other packs away, opossums play dead, foxes climb trees to get away from predators, many animals sleep in the shade when it is hot to stay cool, etc. (show pictures/video clips of whatever behaviors you decide to talk about since kids love seeing animals). Animals adapt to their environment by learning from their surrounding environments and changing their behaviors to increase their chances of surviving.

Pre/post activity take away

Polar bears are magnificent creatures whose population is rapidly shrinking. Many zoos have the important task of providing good habitats for their captive polar bears. As you're making your polar bear habitat, be sure to include everything the bear would need to live a happy life. Remember a cold polar bear is a happy one!

On the topic of polar bears, one important structural adaptation that they have in order to survive in the arctic is blubber. Blubber helps insulate the bear's body and keep it warm. What about animals who live in really hot climates? How do these animals stay cool? Some animals in hot environments shed their fur coats in the summer while some only move around at night in order to avoid the heat of the day. To experience how effective blubber is and to model animal adaptations to heat, participate in the post activity.