

Activity 1

Exploring Animal Diets and Sizes

Objective & Overview:

Using measurement and books, students will gain a better understanding of animal size, diversity, and diet through the fun study of wildlife.

Teacher Background Information:

How large is an adult giant panda?

On all four legs, giant pandas stand two to three feet tall at the shoulder. They reach up to six feet long. Males are usually larger than females, weighing up to 250 pounds in the wild; females rarely reach 220 pounds. Overall, giant pandas are about the same size as American black bears.

What do giant pandas eat and how are they adapted to eat it?

With few exceptions, giant pandas eat the stems, shoots, and leaves of grasses called bamboo. Scientists are trying to learn which types of bamboo they prefer to eat and the nutritional values of these types. Nutritionists believe that giant pandas must select varied parts and species of bamboo for proper *nutrition*. By learning more about giant panda nutrition, scientists will be able to help provide the best nourishment for the world's zoo giant pandas.

Each day, an adult giant panda eats from 20 to 40 pounds of bamboo. Compare that with the five pounds of food eaten daily by the average person. High in fiber, bamboo quickly passes through a giant panda's digestive system. Also, giant pandas' digestive systems are inefficient at processing bamboo. Much of what they eat passes as waste. Giant pandas get much, although not all, of the water they need from munching bamboo. The rest they drink from streams or pools.

Giant pandas usually feed while sitting upright in a pose that resembles a person sitting on the floor. This posture leaves giant pandas' front paws free to hold bamboo stems while they crush and chew them using their strong jaw muscles and large molar teeth. Giant pandas grasp the stems with the help of a thumb-like, skin-covered extension of their wrist bones. If you observe the Zoo's pandas while they feed, you can see these "thumbs" in action.

Plant-eaters and Meat-eaters, and in between

The term carnivore describes an organism that eats animals. The polar bear is the most carnivorous bear, primarily hunting seals. Most other bear species are omnivores, eating both animal and plant matter. Giant pandas, however, are primarily herbivores, eating the grasses called bamboo.

Many other large animals are almost exclusively plant eaters. Some of them might surprise you and your students. Some rank among the largest in the world. Here's a partial list:

- giant panda
- green iguana
- gorilla
- ostrich (world's largest bird)
- African savanna elephant (world's largest land animal)
- giraffe (world's tallest land animal)
- American bison (North America's largest land animal)

In contrast, here is a list of a few meat-eaters, or carnivores:

- Komodo dragon (world's largest lizard)
- polar bear
- tiger, lion, jaguar and other cats
- wolves and many other dog family members
- eagles and falcons
- sharks

Animals that regularly eat both plants and animals (omnivores) include:

- northern mockingbird
- blue jay
- Virginia opossum
- northern raccoon
- red fox
- gray fox
- American black bear

Materials:

- reference books
- pens or pencils
- masking tape
- tape measure
- paper
- crayons/markers

Directions:

1. Describe to your students the differences between herbivores, carnivores, and omnivores. Use the giant panda as an example of a plant-eater or herbivore, the polar bear as an example of a meat-eater or carnivore, and the American black bear as an omnivore, an animal that eats both plants and animals. Going down the list provided, assign each student an animal to research.
2. Using the references available in library or classroom, students should research their animals, finding the information requested on the Plant-eater/Meat-eater Sheet. When finished, students should make a color drawing of their animal with a few of its favored food items nearby.
3. Once their research is complete, have students sit in a large circle. Ask each student to stand up in turn to present her or his animal, reading off its name, where it lives (part of world and type of habitat), some food items, and then showing the picture he or she drew. Finally, have students announce how long their animals grow.

4. For each animal, measure out the length with the tape measure, sticking a length of masking tape the same length to the floor, then labeling it in pen with the animal name and "herbivore," "carnivore," or "omnivore." Put **herbivores** next to each other and label in **green** and **carnivores** side by side labeled in **red**. **Omnivores** can be labeled **blue**. For comparison, you might want to have one student lay down and have a measurement taken. Start from the same point so that students can contrast shorter and longer animals. For very long animals, such as elephants, you can start with a short piece of tape, draw an onward arrow, then put the end piece of tape at the end of the length. Continue doing this for each animal so that students can compare. You may want to keep the tape on the floor for a day or two if you will be studying animals some more, so students can continue to digest the relative lengths of the animals that they researched.

Plant-eater/Meat-eater Sheet

Your Name: _____

Your Animal: _____

Where does it live? _____

What does it eat? _____

How long can it grow? _____

On the back of this sheet, draw a picture of your animal and some of the things that it eats.

Herbivore/Carnivore List

Herbivores (plant-eaters):

green iguana
ostrich
gorilla
giant panda
African savanna elephant
giraffe
American bison
white-tailed deer
cottontail rabbit
manatee
moose
groundhog

Carnivores (meat-eaters):

great white shark
Komodo dragon
boa constrictor
snapping turtle
bald eagle
peregrine falcon
polar bear
tiger
lion
gray wolf
orca or killer whale
river otter

Omnivores (both meat and plant matter):

northern mockingbird
blue jay
Virginia opossum
northern raccoon
red fox
gray fox
American black bear