



Nuts and Bolts

Objective: Students will be able to identify similar survival needs of both black bears and human babies. Students will illustrate, compute and graph differences between people and black bears at various stages of maturity.

Grade Level: 4-7

Time: Approximately 45 minutes- 1 hour

Group Size: Any

Setting: Indoors

Materials

- Graph paper
- Colored pencils

Background Information

This activity is designed for students to recognize similarities between bear cubs and human babies, as well as to develop mathematics skills. The following basic information about bear cubs and adults may be useful:

A baby bear is called a cub, an adult female is a sow and an adult male is called a boar. A sow is usually impregnated by a boar in May or June. The fertile egg does not implant in the uterus and begin development until October. The mother gives birth while she is hibernating in January. Contrasted with human fetal development of nine months, the mother bear is pregnant for about seven months, with the fetus actively developing only for about three months.

The sow has her cub(s) in the den that she spends the winter months. A mother black bear can have up to 5 cubs, although they usually only have 2-3. Cubs will stay with their mother until they are yearlings. From the time from the cubs' birth, the mother's milk is the first food source for the young animals. At birth, a

young cub has hair and weights about eight ounces. The bear cubs stay in the den with their mother until they are able to be more actively. The bear cubs and their mother usually stay in the den until late April or early May. Boars and sows without cubs usually leave their dens a month earlier. At the time the cubs leave the den with their mother, they are extremely dependent upon her. They still nurse until the middle of summer. Once out of the den, they quickly learn about additional food sources. Black bears are omnivores. They tend to eat grass, nuts, berries, insects grubs, and fish and rodents.

Introduction (5 minutes)

Begin a discussion the students about black bears. Ask them to guess how much a cub might weigh when it's born. Students can write down their guesses. Ask for their ideas about how long mother bears are pregnant, what baby bears eat, when they are born, how much they might weigh, how many brothers and sisters they may have, how much they weigh when they are full grown.

Body (35-45 minutes)

1. Provide a handout with average height and weight for female and male bears and people. (Included on worksheet 1)
2. Have the students graph data (line or bar graph) comparing human and bear average weights at birth, 4 months, 1 year, 4 years, and 20 years. (graph paper on included on worksheet 2)
3. Ask the students to calculate the following and include their results with their graph: (Included on worksheet 3)
 - a. How much did the black bear gain at each interval; from birth to four months, four months to one year, etc?
 - b. How much weight did the human gain during the same intervals?
 - c. How many times more weight did the bear gain during each interval?

Conclusion (5-10 minutes)

In discussion, ask the students to comment on similarities and differences between bears and people.