

Mathematical Antlers



Summary:

During this interactive program students will be able to differentiate the horns antlers. Students will also score elk antlers as well.

Grade Level: 5+

Est. Time: 30 minutes

Objectives:

- 1) Students will be able to differentiate horns and antlers.
- 2) Students will be able to recite how antlers can indicate elk health.
- 3) Students will use a measuring tape to accurately measure an antler, in which they must add fractions.

Key Terms:

Antler: a bony outgrowth on the head of members of the Cervidae (deer) family which shed and grow back every year.

Horn: a permanent outgrowth on the head of many members of the Bovine (cattle) family which is comprised of a bony core protected by a keratin sheath.

Rut: the term for elk mating season

Equipment Needed: Elk antler, tape measure, antler scoring worksheets

Resources: Wild About Elk Project Book

Lesson Outline:

1) Introduction

Hi my name is _____ and I am the/a _____ for the Keystone Elk Country Alliance. Today I am going to teach you how to score an antler and you will get the chance to participate in scoring one yourself.

2) Antlers Vs. Horns

Before we get started I think it is important first make sure everyone knows the differences between antlers and horns. Can you tell me any differences you know of? Horns are essentially a protective covering made of keratin (same thing your fingernails and your hair is made of) that surrounds a bony core. Horns are also permanent meaning they don't shed or fall off every year. In addition species that have horns both the male and the female sport horns. Do both male and female elk have antlers? No. Antlers are made out of bone, it is one of the fastest growing bone tissues in the world and can grow half an inch to an inch a day. Antlers also shed or fall off every year, for elk this means they drop their antlers in March. Once the antlers fall off they begin to grow a new set immediately. While growing antlers are covered in a layer of velvet which carries blood to that growing bone. Without this blood supply the antlers cannot grow. In August, this velvet will begin to dry up and fall off and at this time the antlers are fully grown.

There are a variety of things that can affect how large antlers can be. Age is a factor of antler growth. As elk get older their antlers typically get larger (Show spike, raghorn, and mature bull antler). However, please note that you cannot tell how old an elk is by counting the tines or points on his antlers. Some years he may grow only one extra tine from the previous year or he could grow two or three or none. Nutrition also plays a big role in how large antlers can be. Basically just like if you want to get big and strong you need to eat good nutritious foods so do the elk for their antlers. The last thing is genetics, meaning someone in the elk family in the past had to have a gene for big antlers for him to. It is important to note that for the genetics to take effect the bull must also have the right age and nutrition.

3) Why Score Antlers?

Scientists often take antler measurements to compare the health of a herd or population overtime. Antlers can provide clues to health, nutrition, genetics, age, and ability to attract females.

Health: Antlers are a luxury item. If a bull is injured or sick during antler-growing season, nutrients will first go to repairing damage. Often resulting in smaller antlers because the bull will have insufficient nutrients to produce large antlers.

Nutrition: Elk must be well fed, both as a calf and as an adult to grow large antlers. Therefore, antlers can also be a clue to the quality of habitat.

Genetics: Even given optimum habitat conditions, a bull must have the required genes to grow antlers that are larger than average.

Age: While you cannot age a bull by the number of points his antlers have, there is a correlation between age and size of antlers. Older bulls tend to have antlers that are thicker, heavier, and have more points than younger bulls.

Ability to Attract Females: Cows instinctively mate with bulls that are the strongest and most successful... the bulls with the biggest antlers.

4) Antler Scoring

Break students into groups. Have each group measure at least one antler.

DIRECTIONS FOR STUDENTS:

Antlers should be measured in inches (make it easier on yourself and measure in 1/8s).

Use the sheets provided to determine where to measure (follow dotted lines on worksheet).

Measure the main beam, each point, and circumference between points.

Total all of your measurements and check the answer. If not within 10 inches of correct answer measure again.