

# The Bigger, The Better

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**Grades:** 1-10

**Subject:** science

**Skills:** observation,

**Duration:** 60-90 minutes

**Vocabulary:** velvet, dominance, Cervidae, antler, rut, bull, cow

## Objectives:

Students will be able to: 1) explain the purpose of antlers on Moose  
2) explain the importance of large antlers for mate selection.

## Method:

Students create their own antlers and select a partner based on antler size.

## Background:

All male members of the deer family (Cervidae) grow a set of antlers starting in the spring of each year, and are shed in the late fall or early winter. These antlers are made of bone and take a tremendous amount of energy to grow. During the growing period they are covered with a thin layer of skin called “velvet”. This velvet is densely covered with short hairs and is abundantly supplied with blood vessels which feed the bone as it grows. When the antlers complete growing in the fall the velvet is shed to reveal the bone underneath. The antlers of many members of the deer family serve two purposes, to attract a mate, and to ward off any rival males from their territory during the fall rut (mating season).

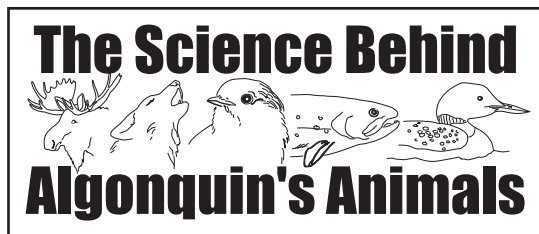
In Algonquin Park the largest member of the deer family is the Moose. Bull Moose are not overly vocal, and despite their size, they do not have very impressive calls. The most common one is a two-syllable ‘gawunk’, and while this does serve to attract cows (female Moose) into a bull’s territory, it does not factor as a courtship call or display. Once a bull has attracted a cow into his territory by vocalization he can then start to display his rack in hopes of having the cow select him as



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a possible mate. The healthier a bull is, the larger his antlers will be, and the more success he will have getting a mate (or two or three).

Because antlers are made of bone they take a tremendous amount of energy to grow. As a result, very healthy bulls in their prime (between four and eight years old) will have the largest antlers, which can weigh as much as 25 kg. The size of a bull's antlers does not indicate the age of the animal, only the health. Two bulls of the same age can have greatly varying antler size. As well, very young, and very old bulls can also have antlers of similar size, that tend to be small.

Besides being used for attracting a mate, antlers are also used for establishing dominance, and defending territories against other bulls. Again, it is size that matters. Bulls with larger antlers will easily ward off any intruders into their territory that have smaller antlers. The confrontation between rival bulls is largely non-physical. Upon coming face to face with one another, bulls will size each other up, present each other with their antlers, and the less dominant bull will leave the area without contesting the other bull's dominance. Only if two bulls are evenly matched, and neither is willing to back down, will the confrontation become physical. This match-up consists of both Moose sparring by pushing each other back and forth until the stronger of the two prevails. The loser vacates the area in defeat and to the victor goes the spoils.

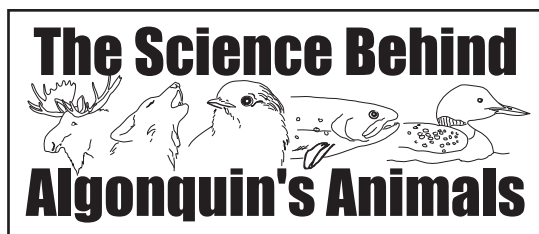
For many years it was unclear as to the purpose that antlers served. In Algonquin Provincial Park Dr. Tony Bubenik conducted research with Moose to determine the function of antlers. Building a large replica Moose head with interchangeable antler sizes, Dr. Bubenik headed out into the field to conduct his experiment. Results showed that even though not a Moose, the visualization of the fake antlers was enough to deter rival bulls from occupying Dr. Bubenik's territory.



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**Materials:**

✓	Items Required	Quantity
	bull Moose antler templates	one of each
	cow Moose template	one
	bristol board (preferably brown but any colour will suffice)	one per student
	scissors	one per student
	tape	one roll
	overhead projectors	four
	straws, sticks, pipe cleaners or some other long, rigid object	two per mask
	glue	class set
	string or elastic	enough for each mask

**Procedure:**

- 1) Conduct the exercise in an open area such as a gym, outdoors, or by moving the desks to one side of the room. The first part of the exercise will need to be conducted indoors in an area with sufficient wall space for projection of the Moose mask templates.
- 2) Hand out to each student a piece of bristol board and marker. Divide the class into four groups. One group should have as many students as there are females in the class, i.e., if there are 12 females in the class there should be 12 students in the one group. The rest of the class can then be divided evenly into the three remaining groups. Make sure each group knows what number they are, i.e. 1, 2, 3 or 4.
- 3) On each projector place an overhead of one of the Moose antler templates and the cow Moose template and project onto a flat surface. Have each student trace the projected image onto their bristol board. The imaged traced will depend on their group number, i.e. students in group one will trace Class 1 Bull, etc., with students in the group representing the number of females in the class tracing the cow Moose image.
- 4) When the students have traced out their antler have them cut it out along with the eye holes. Once the antlers have been cut out have the students glue enough straws, sticks or whatever you are using, vertically on the back of the antlers. This will help to make the antlers rigid




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# The Science Behind Algonquin's Animals



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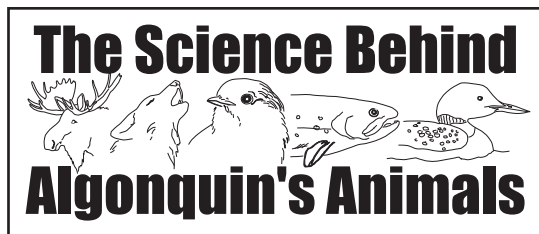
- and not flop over when worn. Attached string or an elastic to the Moose mask so they can be worn on the face.
- 5) When all antlers are completed have the students place them in piles according to their group, so there should be four piles.
  - 6) Divide the class into male and females. Do not worry if the numbers are not even, that is alright.
  - 7) Instruct the females that they will be choosing one of the males as their partner (mate). It is alright if more than one female chooses the same male. This may mean that there are some males that do not end up with a partner (mate).
  - 8) Once all the females have chosen their partner have them remain with them for the next part of the exercise.
  - 9) Go around the class to each female and ask them why they chose that male over the other males. Write these answers on the blackboard or overhead. These answers should reflect the typical social morays such as clothing, looks, “coolness” etc.
  - 10) Again divide the group into males and females.
  - 11) For the males assign each a number from 1 to 3 or have them randomly draw one out of a hat.
  - 12) Once all the males have their numbers explain that their number corresponds to which antler they will wear. Hand out the antlers to the males according to their number and have them put on the antlers.
  - 13) While the males are getting their antlers on hand out the cow Moose masks to the females. Instruct the females that they will again be choosing a partner (mate), and like last time more than one female can choose a single male. Explain to the females though, that this time their selection of the males can only be done by the size of their antlers. So only the males with the largest antlers get to be chosen. Instruct them that all the males with large antlers must be chosen and none excluded (maybe limit the number of females to one male so all they all do not flock to one or two males) Only the males with the two smaller antler sizes are to be excluded. While explaining this to the females make sure the males do not overhear you.
  - 14) Once the females have selected their partner ask each one why they chose that particular male. All the answers should be the same, large or big antlers, compared to the other males.
  - 15) Explain to the students that in Algonquin Provincial Park, and other areas that have Moose, cows select bulls during the mating season based on the size of their antlers, or rack.



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16) Ask the students why cow Moose would choose bull Moose with large antlers? What would large antlers represent? Have the students brainstorm different possibilities.

**Variations:**

The same exercise can be done for White-tailed Deer.

**Extensions:**

- Have students research and report on the use of antlers for determining dominance amongst bull Moose.
- Have students research and find out what other animals use antlers to attract a mate

**Evaluation:**

Ask students to:

- 1) Explain the purpose of antlers on Moose.
- 2) Explain why female Moose choose big males.



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