

Wildlife Management

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Grade level 7 - 10

Time required

One or two 50 minute class periods

Materials/Technology

Dice
Graph paper
Calculators

Summary

Using a game, students investigate the affects of various management strategies on the size of wildlife populations.

Objectives

The student will:

- 1) Students learn why the Confederated Salish and Kootenai Tribes make wildlife management decisions on the Reservation.
- 2) find percentages of numbers.
- 3) graph results of a wildlife game.
- 4) evaluate hypothetical wildlife management decisions.
- 5) identify at least four factors that can affect the size of wildlife populations.

Montana Math standards addressed

- 1) Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections, and applications, and using appropriate technology.
- 2) Students use algebraic concepts, processes and language to model and solve a variety of real-world and mathematical problems.

Prerequisites

Students should know how to:

- 1) find a percentage of a number.
- 2) graph an ordered pair.

Assessment

Have students write a paragraph that describes the population of their animal herd over the past nine years. As part of the assignment, tell them they are retiring or moving to another district and they are to leave recommendations for the new wildlife manager as how to best mange the herd. They should refer to things that worked in their research as well as things that did not.

Procedure

- 1) Facilitate an opening discussion regarding wildlife on the reservation and current practices in wildlife management, using the opening questions on the attached sheet. The Confederated Salish and Kootenai Tribes have legal authority to manage wildlife on the Reservation. Ask

students how or why the Tribes have this right. Refer to Rights Reserved in the Hellgate Treaty.

NOTE: The following activity is taken directly from Project WILD (see references).

- 2) Each student is asked to be the manager of a moose (or other animal) population. The carrying capacity of the habitat is 100 animals. The point of the activity is to end up with a viable population after nine rounds (simulating nine years). If at any time the student's population reaches less than 10 or more than 200 individual animals, that student no longer has a viable "herd" and watches the other students until the conclusion of the activity.
- 3) Each student has a beginning population of 100 animals. The cards are separated into three decks of 36 total cards: a condition deck (18 cards), a reproduction deck (9 cards), and a management deck (9 cards). Shuffle the cards within each deck. Explain that cards will be drawn in the following sequence: a condition card, a reproduction card, a condition card, and a management card. This sequence will be repeated, with each repetition representing an annual cycle (the students may think of each draw as representing a different season, i.e., autumn, winter, spring, or summer). As each card is drawn, it is read aloud to the entire class. Each student then rolls his or her die and follows the instructions on the card to determine his or her herd population's new size. Some computations will result in fractions; numbers may be rounded to the nearest whole. The attached sheet has more details for running the activity.
- 4) After nine rounds, and the comparison of students' results, wrap up with a discussion, using the closing questions on the attached sheet.

Further information

For further information about this activity contact Polly Dupuis via electronic mail at polly@compuplus.net.

References

Western Association of Fish and Wildlife Agencies & the Western Regional Environmental Education Council. Checks and balances. In Project WILD (p.224). Boulder, CO: Johnson Publishing Company.

Personal communication. Lynn Kelly. Polson Middle School. Polson, MT.

Opening discussion questions:

- 1) What wildlife exists on the reservation?
- 2) How is the number of wildlife at any given time determined?
- 3) How is wildlife on the reservation managed?
- 4) What are the hunting laws for tribal and non tribal residents?
- 5) Name four factors that can affect the size of wildlife populations.
- 6) Some wildlife managers say that wildlife management involves more management of people than of wildlife. Explain what they might mean by this statement.

Activity procedure

- 1) Give each student a piece of graph paper, calculators and a die.
- 2) Students construct a set of axes on the graph paper. The x-axis represents years from the present year to ten years. Label the y-axis as the number of moose or elk in a herd.
- 3) Tell the students the following information: The herd is 100 head in 1998.
- 4) Each student rolls their die.
- 5) The teacher draws a card from the “condition” deck and reads it to the class.
- 6) Students calculate according to the card and their roll of the die, record the data points in a table, and plot the new herd number on the graph.
- 7) Students roll their die again.
- 8) The teacher draws a card from the “reproduction” deck and reads it to the class.
- 9) Students calculate according to the card and their roll of the die, and record the data points in a table, and plot their new herd number on the graph.
- 10) Repeat steps 7-9 for the next card from the condition deck.
- 11) Repeat steps 7-9 for the next card from the management deck.
- 12) Repeat the cycle for nine rounds, then have students compare their graphs and tables.

Closing questions

- 1) Compare the use of the die with what really happens in wildlife management. Do both involve some games of chance?
- 2) What appeared to be the impacts of the condition, reproduction, and management cards?
- 3) Compare your graphs and management styles with other in the class. Did populations managed under different strategies under different students show different trends?
- 4) What changes would you make in your management strategies in the future?
- 5) What factors would have limited the size of the herd to be greater than 10 and less than 200?