

# Simulated Wolf Population Studies

An Educator's Reference Desk Lesson Plan

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**Endorsed by:** These lesson plans are the result of the work of the teachers who have attended the Columbia Education Center's Summer Workshop. CEC is a consortium of teacher from 14 western states dedicated to improving the quality of education in the rural, western, United States, and particularly the quality of math and science Education. CEC uses Big Sky Telegraph as the hub of their telecommunications network that allows the participating teachers to stay in contact with their trainers and peers that they have met at the Workshops.

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**Grade Level(s):** 4, 5, 6

**Subject(s):**

- Science/Animals
- Science/Ecology

**OVERVIEW:** Students become wolves and components of a habitat in a highly-involving physical activity.

**PURPOSE:** The purpose of this exercise is to increase students' awareness of the conditions which affect the size on individual wolf packs in the wild.

**OBJECTIVE(s):**

1. Students will be able to identify and describe food, water, and shelter as three essential components of a habitat.
2. Students will be able to describe the importance of a good habitat for animals.
3. Students will define "limiting" factors and give examples.
4. Students will recognize that some fluctuations in a given wolf population are natural as ecological systems undergo a constant change.
5. Students will recognize that some fluctuations in a given wolf population are caused by the intervention of man.

**RESOURCES/MATERIALS:** This activity requires board and/or paper on which to record population counts and habitat conditions. Graph paper is needed for making a pictorial study of the population changes. Optional "man intervention" cards may be used as noted in Additional Activities.

## ACTIVITIES AND PROCEDURES:

1. Review the essential components of a wolf habitat with students discussing particular examples of food for a wolf population, etc.
2. Number students off in four's. Mark two parallel lines twenty yards apart on the ground having one's line up behind one line and the two's, three's, and four's behind the opposite line.
3. The one's are wolves and are looking for food (hands clamped over stomach), water (hands over mouth), and shelter (hands held over head). During a single round each wolf is looking for one of these components and may not change that component during that particular round.
4. The two's, three's, and four's are the components of the habitat and use the same hand signals as noted above. Each student gets to choose at the beginning of each round which component he or she will be during that round.
5. Each round starts with all players lined up on their respective lines and with their backs to the students behind the other line.
6. The teacher notes the beginning of each round. Wolves and habitat components make their individually determined signals. When students are ready, the teacher counts to three at which time everyone turns around. Wolves are allowed to run and capture one person exhibiting the sign (habitat component) that the wolf is looking for.
7. Successfully captured habitat components return to the wolf line and then become wolves increasing the wolf population. Wolves that do not find what they need, die and become part of the habitat for the next round.
8. The teacher and/or students keep track of the wolf population for each round. (It is also useful to note habitat conditions for each round. for example: drought, scarcity of food, etc.) Continue until you have done about fifteen rounds.
9. Data can then be graphed.

**TYING IT ALL TOGETHER:** After graphing the data, ask the students to summarize some of the things they have learned from this activity. Discuss what wolves need to survive; what are some of the natural limiting factors that affect their survival; whether wildlife populations in general are static; whether nature is ever really in balance; etc.

## ADDITIONAL ACTIVITIES:

1. Sometimes "man" can become a factor allowing the teacher to impose such interventions as: hunters, trappers, destruction of the natural habitat by man, etc., during a

round. "Man intervention" cards may be made up previous to this activity and used to show the various affects of man on the wolf population and the habitat.

2. This activity can also be compared to the research done on the Hudson Bay trappers in early American history. These trappers kept counts of snowshoe hare and lynx populations over a time span of over a hundred years. (The snowshoe hare population seemed to peak and then crash about every seven to nine years, repeating the process over each comparable time period. The lynx population did the same thing - except that they did it one year after the hare population.) This data can be graphed and several questions addressed: Which animal is the predator? The prey? Are predators controlling the prey, or are prey controlling the predators? Is this like the wolf habitat game we just played? Who