Lesson Three: Wyoming Wildlife Management

Grade Level: 3rd Grade

Time: 45-60 minutes

Essential Question: How can we be stewards of Wyoming's lands to benefit current and future generations?

Objective: Students will discuss the human impact on wildlife populations in Wyoming.

Purpose: Students learn that people who use and care for Wyoming's lands must be good stewards in order to help manage wildlife populations.

Required Materials/Resources:

- Poker chips or counters (3 per student)
- Chart paper
- Wildlife Population Simulation Game recording sheet (one copy for the teacher)
- Clipboard
- Elk Population of Wyoming graph (Source 1)
- Student journals
- "Yellowstone – Wildlife," https://www.nps.gov/yell/learn/nature/wildlife.htm (Source 2)

Suggested Teacher Preparation:

- Using the "Yellowstone – Wildlife" website become familiar with the types of wildlife that are in Wyoming. Click on the different categories for examples of different species.
- Determine a space to play the game starting in step 3. Students will need a lot of room to move.

- Create anchor t-chart titled: Wyoming Wildlife and Challenges for Wyoming Wildlife.
- Decide which students will be which roles for each round of the game. Decide how many rounds you will play.
- Be able to display the Elk Population of Wyoming graph and the data you record on the Wildlife Population Simulation Game recording sheet for the class to see.
- Post statement starters from the Assessment step.

Standards:
Science: 3-LS4-3 (CCC), 3-LS4-4 (CCC,DCI) - (Practiced/Encountered)

Social Studies: SS5.4.1 (Explicit), SS5.5.4 (Practiced/Encountered)

ELA: 3.SL.1 (Practiced/Encountered)

Vocabulary:
- **Game Warden** - a person who cares for wildlife and makes sure that hunting and fishing laws are obeyed
- **Permit** - official permission to access land or use resources for a period of time

TEACHER NOTE: Chips In: Students are given a predetermined number of chips. When a student wants to participate, he/she puts in a chip on the table. When the student is out of chips, he/she is out of turns, unless the teacher gives a chip back. The strategy is meant to encourage equal participation among learners.

Instructional Procedure/Steps:

1. Have students play the game "Chips In" to see what Wyoming wildlife students already know. Give each student three chips. Say: **"In our previous lesson, we read about bighorn sheep and wildlife viewing in Wyoming. Using your chips, you will now brainstorm other examples of Wyoming wildlife. When you think of an example, place your chip in front of you, and I will call on you to share. When you are out of chips, you cannot share anymore unless I pass chips back. Questions?"** Allow students to share until all chips are gone. If students are only thinking of big game, remind students of other animals that are wildlife such as fish, birds, reptiles, etc. use examples from the Yellowstone Wildlife pages. As students share, record their ideas on the Wyoming Wildlife side of the anchor t-chart. Some possible examples include: *grizzly bear, black bear, wolf,*

coyote, red fox, weasel, skunk, mountain goat, pronghorn, beaver, rabbit, gopher, bat, prairie dog, porcupine, chipmunk, squirrel, vole, eagle, red-tailed hawk, turkey vulture, owl, turtle, lizard, snake, horned lizard, toad, frog, etc.

2. Say: **"Remember, Wyoming is special because of how diverse our wildlife is here. Because of this diversity, tourists come from all over the world to look at or be involved with wildlife. People in Wyoming also enjoy doing outdoor activities where they can encounter or see wildlife like hunting, fishing, hiking, skiing, snowmobiling, camping, etc. These recreational activities are fun, but it is important to remember to be good stewards while participating in those activities."**

3. This next activity is similar to Sharks and Minnows (a simple game of tag). The activity will focus on hunting and wildlife population management. The overarching goal is that students will come to understand that there is a relationship between humans and wildlife populations. This relationship can cause either a positive impact or a negative impact depending on whether it is handled responsibly. As good stewards, we want to make sure that we are managing wildlife responsibly on our public and private lands. Say: **"We will be playing a game that will represent one type of interaction between humans and wildlife. The object of the game is to get from one end of the area to the other end of the area without getting tagged by the person who is 'it.'"** Remind students to be aware of their surroundings, and, depending on the space available, running may not be an option. In addition, tagging other students needs to be gentle. Make your guidelines clear of how students can be safe while playing. Any players who cannot abide by these guidelines will have to sit out of the activity.

TEACHER NOTE: Consequences can be positive or negative. For instance, if a large elk population is reduced, the remaining elk may have more forage left for winter. This means they will be healthier than if the population was too large and did not have enough food. On the other hand, if there are too few elk, there will be less wildlife for everyone to enjoy.

4. How to play: Assign all students a role (elk, hunter, etc.). This will change for each round. The hunter students will start in the middle of the space available. The wildlife students will all begin on one end of the space. When the teacher says **"Go,"** wildlife students walk or run, depending on your space, to the other end of the area. Their goal is to not get tagged by the hunter student(s) in the middle. The hunter student(s) in the middle are trying to tag as many wildlife as they can before the wildlife get to the other side of the area. The teacher will be acting as a Game Warden to introduce the idea that there are jobs where people are stewards of Wyoming's resources every day. At the end of each round, record the numbers of each group on the Wildlife Population Simulation Game recording sheet to show a direct relationship between population numbers and human impact. For the first three rounds, follow the instructions as written. Then as the rounds progress, alter the game as you see fit. Remember, the goal of the activity is to help students see the relationship between hunters and wildlife populations.

5. Round 1: Pick what kind of wildlife students will be. For instructional purposes, they will be called elk. Begin by assigning $^1/_4$ of your students to be wildlife. The rest of the students will not participate in this round. Have the elk line up on one side of the room. Before starting the round, say: **"I am the Game Warden. Game Wardens are stewards because one part of their job is to issue permits or tags to hunters to tell them how many elk they can hunt each year. For this round, we do not have any hunters. When I say 'Go,' all of the elk will try to get to the other side. Questions?"** Teacher says **"Go,"** and the elk move from one end of the space to the other. On the recording sheet, record the number of adult wildlife who made it to the other side ($^1/_4$ of the class), number of young wildlife (0), and number of hunter(s)(0).

6. Round 2: Before starting the second round, say**: "All of the elk from the first round had young _____ this spring. (calves for elk, fawns for deer or antelope) Choose one friend to join you as wildlife. As the Game Warden, I am not issuing any tags for hunters again this round."** Teacher says **"Go,"** and the elk move from one end of the space to the other. On the recording sheet, record the number of adult wildlife who made it to the other side ($^1/_4$ of the class), number of young wildlife ($^1/_4$ of the class), and number of hunter(s)(0).

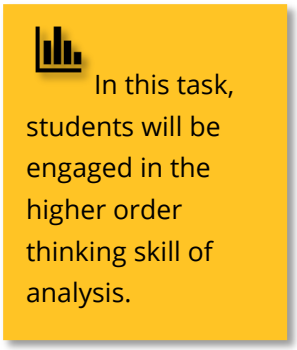
7. Round 3: Before starting the third round, say: **"As you can see, the wildlife population grows each year when young are born. If the wildlife population grows too much, there will not be enough space or food for all of them. When there is not enough food, wildlife and the plants in their habitat will not be healthy. To help maintain healthy wildlife and plant populations, Game Wardens issue hunting permit tags for a certain number of animals every year. For this round, we will use the same wildlife population as in Round 2."** Have the wildlife from the previous round line up again. Assign two hunters with two "tags" each to stand in the middle. Say: **"For this round, we will have two hunters that each have two permit tags. When I say 'Go', all of the elk will try to get to the other side. The hunters can try and tag two adult elk each."** Teacher says **"Go,"** and the elk move from one end of the space to the other. On the recording sheet, record the number of adult wildlife who made it to the other side ($^1/_4$ of the class minus up to 4), number of young wildlife ($^1/_4$ of the class), and number of hunter(s)(2).

8. Rounds 4 - ___: The set up for these rounds will be teacher's choice: Repeat previous directions, allow each elk that makes it across to bring a young elk in to the next round, and alter the number of hunters and/or permit

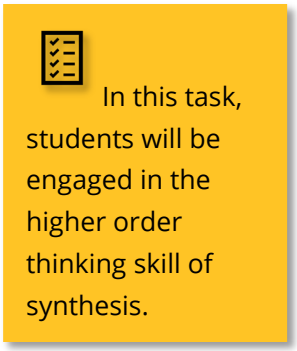
TEACHER NOTE: A way to add complexity to the game in step 8 would be to add in other factors that contribute to changing wildlife populations. Wildlife could be given two babies, or before moving, the wildlife number could be adjusted by having them succumb to a disease. These changes would communicate the idea that there are other factors influencing wildlife populations.

tags the hunter(s) is/are given. Make sure to record numbers after each round on the recording sheet. Play until there is enough information on the recording sheet to show how hunters can help manage wildlife populations.

9. When the game is over, debrief with students using the recording sheet data. Display the recording sheet. Have students discuss what they notice about the data in regard to how people affect the wildlife populations. Some questions to ask during this time are:



-  **"What did you notice about the elk population when we had no hunters?"** *The elk population was very high and grew quickly.*
- **"What consequences might that have?"** *See teacher note discussing consequences and take any logical responses.*
-  **"What happened when we had more hunters?"** *The elk population diminished or stayed the same because of the young elk added each round.*
- "**What might be the consequences of that?"** *See teacher note discussing consequences and take any logical responses.*



-  **"How was the game warden important to the process of managing the population?"** *The game warden helps ensure that there are not too many or too few wildlife.*

10. Say: **"Now we are going to take a look at a graph that shows the elk population over the course of several years."** Display the bar graph on a document camera or smartboard, so it is visible to all students. Give students time to view the graph and have them share with a partner what they notice about the graph. After students

have shared, ask the following discussion questions:

- **"What do you notice about the population from 2012 to 2013? Why do you think the population decreased? What may have caused the population to decrease?"**
- **"From 2010 to 2011 there was a population increase, what may have caused the population increase?"**
- **"How might these changes in population have impacted the way that the game wardens managed the number of hunting licenses issued each year?"**

11. Say: **"Although our focus today was discussing how hunting can impact wildlife populations, there are other factors that impact wildlife populations as well. What do you think are some challenges that could impact wildlife populations on Wyoming's lands?"** Have students share their ideas and record them on the Challenges for Wyoming Wildlife side of the anchor t-chart. Some possible ideas include: *competition with other wildlife, disease, lack of food in winter, tourists' lack of education and interference, weather (drought, extreme cold, extreme snowfall), predators, etc*.

Assessment: Pass out student journals. In their journals, have students complete the posted sentence starters below. Collect journals when all students are finished, and review responses to check students' understanding of the lesson's concepts.

- **One thing I learned about human and wildlife relationships is…**
- **Humans can have a negative impact on wildlife when…**
- **Humans can have a positive impact on wildlife when…**

Credits/Sources:

1. Wyoming Game and Fish. (2010-2016). *Wyoming Game and Fish Annual Reports*: *Elk Populations*
2. National Park Service. (2019, September 10). *Yellowstone – Wildlife.* Retrieved October 12, 2020, from https://www.nps.gov/yell/learn/nature/wildlife.htm