THINK LIKE A WOLF - LESSON PLAN

Please visit www.conservationnation.org/lessons for complete lesson materials including the lesson video, worksheets, and vocabulary list.

GRADES

5-8

TIME REQUIRED

One 45-minute class period. Lesson can be expanded to two class periods with increased discussion time and utilization of the optional activities.

SUMMARY

In this lesson, students explore the critical role wolves play in ecosystems as a keystone species. Through interactive discussion, a hands-on ecosystem web activity, and reflection, students learn how the removal or reintroduction of wolves in Yellowstone triggered a **trophic cascade** that reshaped the entire environment.

Students will model species interactions, predict the ripple effects of removing predators, and connect these ecological dynamics to real-world conservation challenges. The lesson also integrates social-emotional learning by examining wolf pack behavior — leadership, trust, and teamwork — and encourages students to reflect on how these traits apply to their own communities and possibly their future careers.

OBJECTIVES

Students will be able to:

- Explain how wolves, as a keystone species, influence ecosystems through trophic cascades, using Yellowstone as a case study.
- Apply their understanding of predator-prey dynamics and resource availability to predict how the removal or reintroduction of species can impact ecosystems, including examples from their own environments.
- Reflect on the story of Wolf 8 to understand how traits like empathy, trust, and character can shape leadership, even in unexpected individuals.
- Analyze how wolf pack behaviors — such as cooperation, communication, and leadership — increase survival and compare these strategies to human teamwork.

- Draw connections between wolf pack dynamics and their own experiences in groups (family, class, teams), identifying lessons about decision-making, trust, and leadership that can be applied to human communities.

MATERIALS

Available at www.conservationnation.org/lessons

- Pre-read article: Role of Keystone Species in an Ecosystem (available at the link or to print in the lesson materials)
- Pre-read excerpt from "The Unlikely Hero" by Rick McIntyre to provide context for the video stories on Wolf 8 and Wolf 21
- Think Like a Wolf video
- Vocabulary list
- Student worksheet
    - Dream Big Career Reflection
- Optional: How Wolves Change Rivers video (4.30 mins) Depicts a simplified version of the wolf trophic cascade in Yellowstone. Note that wolves were only one of the factors in how rivers changed course in Yellowstone.

NEXT GENERATION SCIENCE STANDARDS

- **MS-LS2-2:** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- **MS-LS1-4:** Use argument based on empirical evidence to support an explanation of how characteristic animal behaviors affect the probability of successful reproduction.
- **MS-LS2-1:** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- **MS-LS2-4.** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- **MS-LS4-4.** Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

INSTRUCTIONS

1. **Introduction – 1 minute**

a. Briefly explain that the lesson will provide students with a glimpse into the lives of the wolves of Yellowstone National Park. Students will learn what it means to 'Think Like a Wolf" but also to understand how the removal or reintroduction of a single species — such as the wolf — can impact an entire ecosystem through a trophic cascade.

2. Watch the video – 16 minutes (including discussion and reflection)

a. Play the *Think Like a Wolf* video. Stop at the time codes listed below to conduct brief class discussions and answer questions on screen.
b. 02.25: Group discussion question – What are the advantages of living in a pack?
c. 03.03: Pair or small group activity – Do you ever communicate without using your voice? Sit with a partner and try 'wolf communication." Use your face and body to show feelings without words like, Vamanos! (let's go), Danger, Fear, or Anger. See if your partner can guess what you are expressing. Switch partners and let them try it.
d. 07.45: Group discussion – What traits helped Wolf 8 become a leader?
e. 10.47: Group discussion – Why do you think empathy is a good trait for a leader?
f. 11.56: Group discussion – How can adding or removing one species from an ecosystem, like wolves, change the environment?
g. *14.37: Additional footage: More information about Rosie Sanchez*

3. Class Discussion – 5 minutes

a. **Ask**: What is a keystone species?
b. Review what students remember from the video about what happened when wolves were removed from Yellowstone.
c. Introduce the term **trophic cascade** and write the definition on the board: *"A trophic cascade is an ecological chain reaction. It occurs in an ecosystem where the removal or addition of a species—often a top predator—causes significant changes in the populations of organisms at other levels of the food chain, even those they don't directly interact with."*

4. Trophic Cascade Activity – 12 minutes

a. Write these words on the board: **wolf, elk, willow tree, beaver, riverbank, songbird, insect**.
b. Form a circle with students. Assign each student with one of the species/objects.
c. As a class connect the roles, moving students to represent the 'web' between species.
   - Wolves → eat elk

- Elk → eat willow
- Willow → needed by beavers for dams
- Beavers → build dams that shape riverbanks
- Healthy rivers → support insects and birds

d. Have a volunteer draw the web on the board as connections are made.
e. Ask the "wolf" students to step out of the circle (symbolizing wolves are removed).
f. Prompt predictions from students: What might happen next?
g. Trace the effects through the web: each impacted student raises their hand and describes the impact on the species or object they represent.
h. If time allows, try to repeat this activity with another species. Help students choose something that lives in their own environment, such as raptor—snake — squirrel—plant; or coyote—rabbit—plant; or alligator—water bird—fish—algae

5. Reflection and Discussion – 10 minutes

In pairs or small groups have students answer the following:

a. What surprised you about how many species were affected by removing just one?
b. Why is it important to protect top predators like wolves?

ADDITIONAL ACTIVITIES

Select one or more activities below to conduct in a separate class period to explore the social, emotional learning around "Think Like a Wolf."

6. Think Like a Wolf Reflection – 20 minutes

a. What surprised you most about wolf behavior in the video or book?
b. How do wolves work as a team? Give at least two examples.
c. How do wolves communicate silently?
d. Why is trust important in a wolf pack?
e. Why do you think Rick McIntyre called Wolf 8 "an unlikely hero"?
f. What human traits do wolves sometimes show? Explain.
g. What lessons can people learn from wolves?

7. Wolf Wisdom – 15 minutes

Think about a group you are part of (family, team, club, or class). Record your answers in a notebook or journal and be prepared to share with the class.

a. What is your role in the group?
b. How does your group make decisions?
c. Have you ever had to lead your group? What did you do?
d. What can you learn from wolves about leadership and teamwork? How might you apply this to your group?

8. **The Unlikely Hero in You – 10 minutes**
   In Rick's retelling in the video and in "The Unlikely Hero," Wolf 8 was not the strongest or biggest. Yet, he made choices that defined his character, making him an effective leader. Ask students to pair up to answer the questions below.
   a. Describe a time when you showed bravery, empathy, or leadership in an unexpected way?
   b. How did you feel and what did you learn?

9. **Dream Big – Exploring Your Future – 15 minutes**
   In the "Think Like a Wolf" video, students met several people who found their passion working in nature. This worksheet helps students connect what they learned in the video to real conservation careers. By reflecting on the work of Taylor, Rosie, Rick, and the videographer, students identify the skills conservationists use, imagine themselves in similar roles, and explore their own future career possibilities. Complete the worksheet (or use a notebook to record answers to worksheet questions) to explore self-reflection, creativity, and goal setting while showing how passion for wildlife can grow into meaningful work.

LEARN MORE

If you would like to dive deeper into the world of wolves, keystone species, and trophic cascades, check out some of the following resources:

- BioInteractive: Some Animals are More Equal Than Others: Keystone Species and Trophic Cascades (19 mins). Covers the experiments that helped identify trophic cascades, showing that removing starfish from tidal pools had a big impact on the population sizes of other species.
- Water Rocks: Food Chains and Trophic Cascades. Graphic and text that covers levels of a trophic cascade

- 60 Minutes: The Wolves of Yellowstone (13 mins). Covers the reintroduction of wolves, current monitoring, and wolf tourism
- This American Life: Raised by Wolf (21 mins). This podcast features Rick McIntyre telling the story of Wolf 8 and his adopted son, Wolf 21.

MEET YOUR HOSTS

Taylor Rabe is a former fellow and now Education and Engagement Facilitator with the Washington DC-based non-profit, Conservation Nation. She is also a wildlife technician with the Yellowstone Wolf Project. She spends her days radio tracking and observing radio-collared wolves, while also sharing her knowledge, spotting scope, and sightings with the millions of visitors to Yellow National Park. Her main priority is education and helping inspire the next generation of conservationists.

Rick McIntyre is a retired National Park ranger who spent more than 40 years watching wolves in America's national parks, twenty-five of those years in Yellowstone, where accumulated more than 100,000 wolf sightings, worked on the Yellowstone Wolf Reintroduction Project, and educated the public about the park's wolves. Rick is the author of the award-winning "Alpha Wolves of Yellowstone" book series for adults and the "Chronicles of the Yellowstone Wolves" book series for children (with co-author David A. Poulsen). He is internationally recognized as one of the world's foremost experts on wild wolf behavior.

Alma "Rosie" Sanchez is a former fellow with Conservation Nation and the current Carnivore Biologist for the Nez Perce Tribe. She is a Ph.D. student at the University of Colorado Boulder, where her work lives at the intersection of Indigenous political ecology and carnivore conservation.
As the Nez Perce Tribe's full-time Carnivore Biologist, Rosie leads work on wolves, grizzly bears, and other species of cultural and ecological significance. She designs and implements population monitoring methods using non-invasive techniques like camera trapping, howl surveys, and acoustic monitoring.

We hope you enjoyed this lesson!
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