Nature at School Pre-lesson Fast Food in the Natural World

See what your students know:

Use this fun Kahoot to help the DNR understand what your students know on this topic before the program.

Learning outcomes:

Join DNR educator Edward Shaw from the Carl T. Johnson Hunting and Fishing Center in Cadillac to learn about predator-prey relationships around Michigan. We will also discuss how wildlife populations are managed to increase numbers of some species while limiting the numbers of others. This 30-minute presentation will meet these learning outcomes:

- Learn how predator/prey relationships relate to the food chain.
- Discover how ecological limiting factors play a role in the number of animals that can live on the landscape.
- Explore how human interactions play a role in wildlife management.
- Understand wildlife resources belong to the people and who pays for their management and protection.

Background information:

Predator-prey relationships are dynamic and changing. They depend on interconnected food webs, population fluctuations and animal adaptations. For some wildlife species, biologists and stakeholders use sound science, habitat management and education to help maintain wildlife populations. The North American model of conservation funding is a user-funded system that benefits both game and non-game species.

Students will learn about our state's wildlife resources. They will explore the predator-prey model and understand wildlife management tools. Most importantly they will learn how conservation is funded and the role this plays in managing species and habitats while also providing recreational activities for all.

Resources:

- Conservation's Latest Problem?
- Yellowstone's How Wolves Change the Rivers
- Discovering - Michigan Predator Prey Study
- North American Model of Wildlife Conservation

Suggested pre-activity:

- Project WILD: Limiting Factors - Black Bear

Directions for your *DNR Nature at School* virtual program:

1. You will receive a reminder email from SignUp Genius three days prior to your scheduled *DNR Nature at School* program. Please read and follow the directions, so we all can have a successful program.
2. At least one day prior to your lesson, send your instructor the link to your Zoom/Google Meet/Skype/Teams for your lesson time. Starting 10 minutes early with just your instructor is encouraged.

Day of

3. Make sure students have their sound muted and their cameras on to participate (with thumbs up, number on fingers).
4. If you use the chat feature, we encourage the students to ask their questions there, and the teacher can ask them at the end of the program.
5. See further directions in your SignUp Genius confirmation.

Nature at School NGSS Correlation Fast Food in the Natural World

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Guiding question/phenomenon:

How are wildlife populations affected by limiting factors and why?
What can humans do to alter populations?

Science and Engineering Practice	Disciplinary Core Idea	Cross Cutting Concepts
Constructing Explanations and Designing Solutions Use evidence (e.g. observations, patterns) to support an explanation and/or to construct an explanation. • Students will be able to model and simulate predator-prey relationships and populations during "How do you compare to a bear." **Developing and Using Models** Develop and/or use a model (including mathematical and computational) to generate data to support explanations, predict phenomena, analyze systems, and/or solve problems. • Students will form carrying capacity hypotheses based on limiting factors for black bears.	**LS2.A: Interdependent Relationships in Ecosystems** In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. Growth of organisms and population increases are limited by access to resources. Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. • Students will understand examples of predator-prey relationships, habitat management tools, and limiting factors for a sample of Michigan wildlife species.	**Patterns** Patterns can be used to identify cause and effect relationships. • Students will recognize the patterns in Michigan wildlife predator and prey species populations. **Cause and Effect** Cause and effect relationships may be used to predict phenomena in natural or designed systems. • Students will compare predator and prey data in graphs

Recommended grade band(s): upper elementary and middle school
All Nature At School virtual programs have been created to introduce students at any grade level to life and/or earth science core ideas, when used with pre- and post-lesson suggestions.

Nature at School
Post-lesson
Fast Food in the Natural World

See what your students learned:

Use this fun Kahoot to help the DNR understand what your students know on this topic, after the program. This data helps the DNR create and update free programming for teachers across the state.

Activity wrap-up:

Predators play a crucial role in their ecosystems. They influence the abundance and health of their prey and impact unexpected components of a habitat such as vegetation and non-prey species.

Wildlife conservation protects habitats and animal species by actively restoring or managing components of an ecosystem. In the U.S., conservation is made possible largely through user-funded programs related to hunting and fishing. A stable funding source will become increasingly important as trends in recreation change and ecosystems are altered due to habitat loss, climate change and other human impacts.

Resources:

- Conservation Field Notes
- A Conservationist's Cry (high school)

Connect to home:

Spend time outdoors observing predator-prey interactions. It may be a fly in a spider web, a frog hunting in a pond, or another animal interaction you see. Draw or write a description of your observations.

Post-activities:

- Watch the video Conservation's Latest Problem?
  - This will help you understand how conservation is currently funded and the need to find a more stable funding source for managing wildlife around the world. Write a short essay on how you think conservation should be funded in the future.
- High school: watch the videos A Conservationist's Cry and North American Model of Wildlife Conservation. Write an essay about the following:
  - How the video made you feel.
  - If photo safaris did not generate the funds needed to sustain the ecological economy, what should they do?
  - If you do not hunt or support hunting, how do you think we should support conservation and manage wildlife in the future?

Connect with DNR content:

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Visit the DNR Nature at Home page for educational video series, resources, lessons, virtual tours and more.