Bald Eagles In the Classroom

Duke Farms Lesson Plan

Middle School
Grades 6-8

Standards

Next Generation Science Standards

MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

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Bald Eagles
In the Classroom

Guiding Questions

- How do bald eagles interact with their ecosystem, and what conservation efforts are necessary to protect them?

Learning Goals

Objectives

Students will be able to

- Describe the role of bald eagles in food webs and ecosystems.
- Analyze threats to bald eagle populations and their habitats.
- Develop a conservation plan to protect bald eagles.

Materials

- Lesson plan
- Duke Farms Eagle Cam
- Conserve Wildlife Foundation of NJ Bald Eagle Project
- Murphy Administration Removes Bald Eagle And Osprey From New Jersey's Endangered Species List

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Background Information

Bald Eagles in the U.S.

The bald eagle (*Haliaeetus leucocephalus*) is a bird of prey native to North America and serves as the national symbol of the United States. Once endangered due to habitat destruction and pesticide use, conservation efforts have helped their populations recover.

Bald Eagles in New Jersey

New Jersey has played a critical role in eagle conservation. The state had only one nesting pair of bald eagles in 1973. Thanks to conservation efforts, the population has increased significantly, with over 200 active nesting pairs today. In 2025, the bald eagle was removed from New Jersey's Endangered Species List.

Bald Eagles at Duke Farms

Duke Farms, located in New Jersey, is home to a nesting pair of bald eagles. Through the Duke Farms Eagle Cam, students can observe eagles in real time as they build nests, lay eggs, and raise their young. A pair of bald eagles have been nesting at Duke Farms since 2004 and have stayed as a result of the habitat restoration work. Some of this work includes removing dams from the Raritan River to increase fish populations, planting native trees and, reforesting habitats.

Teaching This Activity

Engage in the Classroom

Introduction to Bald Eagles

- Introduce the Duke Farms Eagle Cam and have students observe eagle behavior.
- Discuss the role of bald eagles as apex predators and scavengers.
- Identify key ecosystem components that support bald eagle populations.

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Researching Threats

Bald eagles were once on the brink of extinction due to habitat destruction, pollution, and hunting. While conservation efforts have helped their population recover, new threats continue to emerge. **Your task is to research these threats and analyze their impact on bald eagle populations.**

Instructions

1. **Group Research**: Work in small groups to investigate one of the following threats to bald eagles:
   - Habitat destruction and deforestation
   - Pollution (including pesticides, plastics, and lead poisoning)
   - Climate change and its impact on food sources
2. **Data Collection**: Use reliable sources such as scientific articles, wildlife organization websites, and government reports. Be sure to include:
   - How the threat affects bald eagles and their habitats
   - Examples of real-world cases where this threat has impacted populations
   - Possible solutions or conservation efforts addressing this issue
3. **Cause-and-Effect Diagram**: Create a visual representation showing how your assigned threat impacts bald eagles and the larger ecosystem. Include:
   - The source of the threat
   - How it affects the food chain, nesting sites, or eagle reproduction
   - The ripple effects on other species in the ecosystem
4. **Presentation**: Your group will present findings to the class, discussing:
   - The severity of the threat
   - Possible actions that can be taken to mitigate its effects
   - Whether bald eagles still need conservation efforts despite their removal from the endangered species list

Modeling Ecosystem Interactions

Bald eagles play an important role in maintaining a balanced ecosystem. In this assignment, you will create a model of their ecosystem to better understand how different factors influence their survival.

Instructions

1. **Ecosystem Mapping**: Create a diagram that includes:
   - Bald eagles and their food sources (fish, small mammals, scavenged remains)
   - Other species in the food web (prey, competitors, and scavengers)
   - Abiotic factors (water sources, climate, human impact)
2. **Identify Interdependencies**: Label how each component interacts with the others. Consider:
   - What happens if a key food source declines?
   - How does pollution or habitat loss affect the eagle population?
   - How do eagles help control populations of other species?
3. **Potential Disruptions**: Add at least two potential threats (from your research in the previous activity) and explain how they might disrupt the ecosystem. Include possible conservation actions that could help restore balance.
4. **Written Summary**: Along with your model, write a short explanation (1-2 paragraphs) discussing:
   - Why bald eagles are important in their ecosystem
   - How human actions can both harm and help their survival
   - Any policies or conservation actions that could protect them
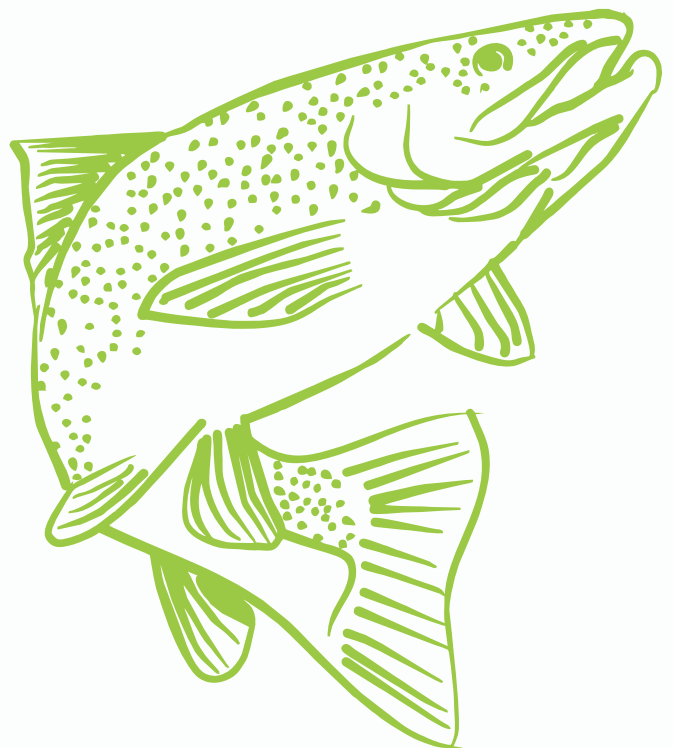
Elaborate and Extend

Conservation Planning

- Students use research findings to propose conservation strategies.
- Encourage students to consider legal protections, habitat restoration, and pollution reduction.
- Have students develop a conservation action plan for their local community.

Creative Extension

- Students create a Public Awareness Campaign (poster, video, or infographic) advocating for bald eagle conservation.
- Conduct a Class Debate, where students argue the most effective conservation strategies.

After This Activity

Measurement

- Student handouts, share outs, and participation in discussions.

Feedback for Duke Farms

- Scan student handouts and/or take a photo of your classroom display wall to share with Duke Farms
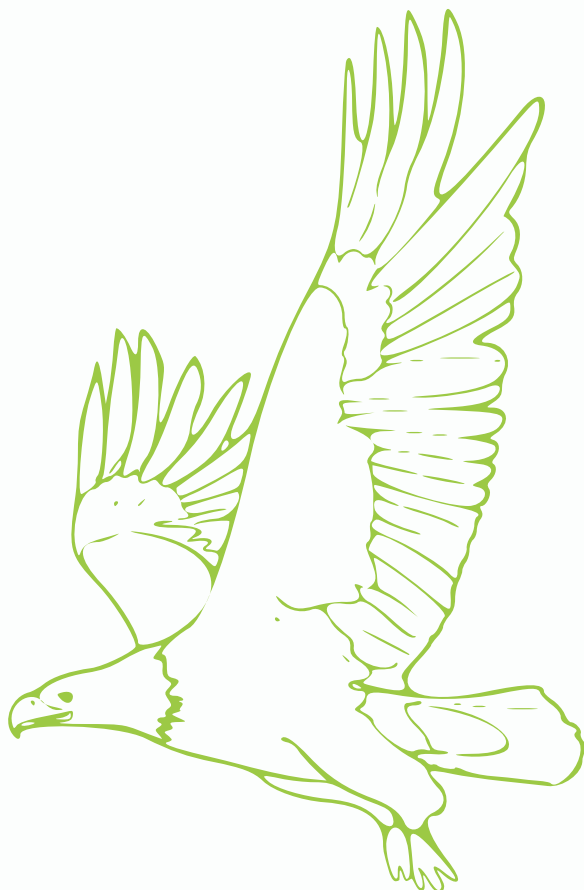
Our Favorite Eagle Tools and Resources

Videos

- Duke Farms Eagle Cam
- Eagle Banding

Artifacts

- Eagle puppet
- Traceable skull
- Egg replica
- Skull replica
- Talon replica
- Track mold

Books

"My Little Book of Bald Eagles"
Hope Irvin Marston
0893170682

"Esther the Eaglet: A True Story of Rescue and Rehabilitation (Wildlife Rescue Stories)"
Christie Gove-Berg
1591935423

"The Eagles are Back!"
Jean Craighead George
0803737718

"Inside a Bald Eagle's Nest"
Teena Ruark Gorrow
0764344641

"Is a Bald Eagle Really Bald?"
Martha E. H. Rustad
1467744662

"The Bald Eagle"
Norman Pearl
1404826459

"The Ultimate Coloring Book Collection: #8 Eagles"
Adrian Nantchev
1540847217

"Eagle in the Sky"
Ryan Jacobson
194064708

Duke Farms Eagle Nest
Prey Item Datasheet A

Observer's Name:

Date	Time AM / PM	Weather E.g. temp, precipitation, cloud cover	Which eagle hunted? Male / Female / Unknown	Prey item description If species is unknown, use a general term (e.g. fish, turtle, mammal)

Date	Time AM / PM	Weather E.g. temp, precipitation, cloud cover	Prey item Fish, bird, turtle, mammal, or other

Date	Time AM / PM	Weather E.g. temp, precipitation, cloud cover	Prey item Fish, bird, turtle, mammal, or other

Type of prey	Total seen in nest
Fish	
Bird	
Turtle	
Mammal	
Other	
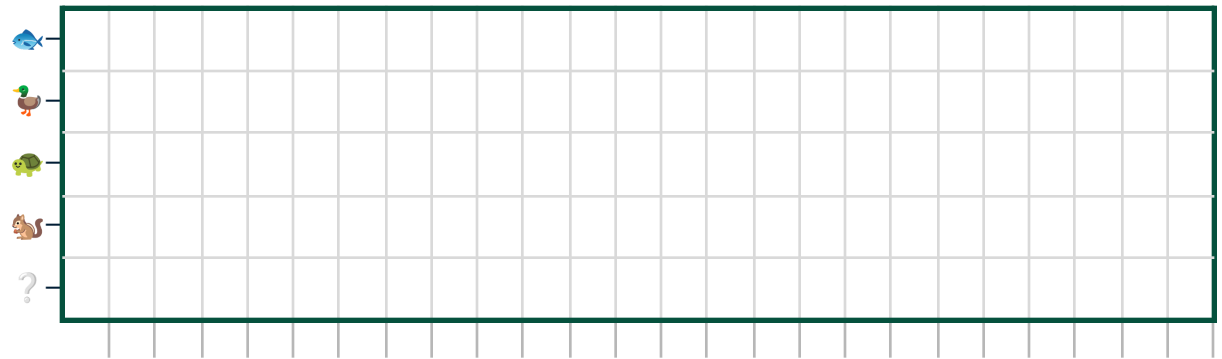
What do you **notice** about your data?	What do you **think** is going on?	What do you **wonder** about your data?