

Endangered Species Curriculum – Upper Elementary School

Stage 1 – Desired Outcome

Established GOALS:

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- Students will understand that ecosystems are made up of living and nonliving parts. Plants and animals need clean air, sufficient water, nutrients, and space.
- Students will understand how changes in living and nonliving parts of their ecosystem can cause harm to species living there.
- Students will choose one of 10 endangered species to read about and research the role it plays in the ecosystem where it currently lives.
- Students will describe the species, how it fits in the ecosystem, the cause of its endangered status, and what must be done to save this species.
- Students will create a “missing species” report, which is like a “missing persons” report and/or a “missing species” poster, which is like a “missing person/pet” poster.

Common Core Standards by grade:

[Grade 3](#)

[Grade 4](#)

[Grade 5](#)

[Next Gen Standards](#)

National Arts Standards

UNDERSTANDINGS

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Big Idea: Students will explore how plants and animals need special places to live. Species can become extinct if they cannot find the things they need to live.

Understandings: Students will learn about one or more endangered species. They will understand what it needs to survive and how we might be able to change our behavior to help this species.

Misunderstandings: Many people think that losing species relates to the idea of survival of the fittest- a 19th century concept that says those species which are eliminated in the struggle for existence are unfit- and that if species can't adapt to the changing environment humans don't have an obligation to do what we can to save them.

Sometimes ecosystem problems are caused by businesses that want to make more money quickly for people who have invested in the business. In these cases, we can help corporations make better

ESSENTIAL QUESTIONS:

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Questions that foster inquiry:

- What does it mean for a species to be extinct?
- Should people change their behaviors to save an endangered species? Why? Why not?
- What changes are you willing to make in order to save a species? (Examples: Would you be willing to buy fewer toys, games or things? Are you willing to wear shoes until you've outgrown them or worn them out? Will you consider donating still-usable items so they don't end up in a landfill prematurely? Will you shop at environmentally conscious businesses? Make greater efforts to recycle at home and at school?)

<p>decisions about the long term effects of these practices by collecting information to educate ourselves and make sure our voices are heard. We can also choose to spend money in stores that share our values.</p>	
<p>Knowledge: K Students will know that many species of plants and animals are going extinct. We can save many of these species, but it will require changes in our own behaviors. We will need to educate ourselves and make sure our voices are heard.</p>	<p>Skills: S</p> <ul style="list-style-type: none"> • Students will be able to describe an ecosystem’s living parts and nonliving such as sunlight, air, water, and soil. • Students will be able to describe a species and what it needs to survive. • Students will be able to argue for saving or not saving a specific endangered species using words and/or images.

Stage 2 – Assessment Evidence

<p>Performance Tasks: T</p> <p>Students complete the Endangered Species Worksheet as they learn.</p> <p>Students demonstrate their understanding of the problem of endangered species by creating a “missing species” report. The reports may be used in a number of ways to draw attention to the problem and its possible solutions. For suggestions on follow –up activities and ways of using these reports please see the OE section.</p> <p>Students demonstrate their understanding of the problem of endangered species by creating “missing species” poster. The posters may be displayed in a number of ways to draw attention to the problem and its possible solutions. For suggestions on follow–up activities and ways of using these posters please see the OE section.</p>	<p>Other Evidence: OE</p> <p>Students can present their reports and/or posters to the class.</p> <p>Students can display their Missing Species Reports and/or posters in their school as an art installation.</p> <p>Students and teachers can organize a display of the reports and posters at their local library or a community center.</p> <p>Students and teachers can email their Missing Species Reports to their Congressional Representatives and Senators and also to the Endangered Species Coalition to support advocacy for endangered species.</p> <p>Students may hang their posters around their neighborhood as if they were looking for a lost pet.</p> <p>Students and teachers can organize with other classes in their community to select one day of action where they hang their posters around town as a guerrilla art installation.</p> <p>Teachers can schedule a class trip to their local US Fish and Wildlife Service office and also file the reports with them.</p>
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Stage 3 – Learning Plan

Learning Activities:

- **Engage** – Ask students to go home the evening before you begin the unit and ask someone in their family to describe a special outdoor place they liked to visit. If possible, ask them to bring in a written description written by the family member or the student. If they cannot do this, ask them to write about a special outdoor place they like or would like to visit. The next morning, ask students to read a portion of their descriptions aloud. After each student reads, ask the class to think of the things in the description that referred to living parts of the place and nonliving parts of the place. Write the words in two columns on the board, living / nonliving. Environments or ecosystems are made up of both living and nonliving parts.

Tell students they are going to be learning about endangered species. Before talking about endangered species, your students have to understand how one species is connected to an ecosystem. Show your students one, two or all of the following short videos.

Endangered Species:

<http://www.pbslearningmedia.org/resource/idptv11.sci.life.eco.d4kend/endangered-species/>

TED Talk by Louie Schwartzberg: The Hidden Beauty of Pollination:

https://www.youtube.com/watch?v=eqsXc_aefKI

How Whales Change the Climate

<https://www.youtube.com/watch?v=M18HxXve3CM>

After students have viewed the video(s), ask them, "What could happen if we don't do what we can to save all the different pollinators from extinction?"

What would it mean for the whale populations to go extinct. If the whales are gone, who suffers?

We just learned about how pollinators affect our food supplies and the environment and how whales affect climate. Do you think we understand everything about the species that have already gone extinct recently? Do you think we understand everything about the species that are currently endangered?

Read the following quote or write it on the board for the students.

"The only way to save a rhinoceros is to save the environment in which it lives. . ."

David Attenborough

Ask students what they think the quote might mean.

Tell students they are going to learn about endangered species and how they fit into their ecosystem. As a whole group, fill out the [Endangered Species Framework Worksheet](#). When you get to the part about living and nonliving parts of an ecosystem, ask students why changes to these parts might make it difficult for a plant or animal to survive. For example, when you fill out the water section, ask

students what might happen if more or less water comes to the place, or what would happen if the water became polluted. This will help them understand what an ecosystem is, and why it is necessary to save the ecosystem to save a species.

(Optional) This might be a good time to read one or more of the ecosystem books in the [Reading List](#).

- **Explore** – Show students the Endangered Species Coalition web site for this project at <http://www.endangered.org/campaigns/vanishing-wildlife/> Tell students that these are endangered species they will choose to study as a group or individually, whatever you prefer. If you would like to see if any of the species live in your state, you can visit <http://www.fws.gov/endangered/>

Ask individuals or groups to fill in the Explore sections of the [Endangered Species Worksheet](#). They should use the information provided by the Endangered Species web site as a starting point.

- **Explain** – Gather students together after they have started researching their endangered plant or animal and ask them what is happening to the ecosystem it lives in. What have you learned about changing ecosystems?
- **Elaborate** – Students fill out a missing species report. They can fill in the missing species report form using what they have learned from class discussion and additional in/out of class research (online, talking to parents, books or videos). They can draw a picture of the species on the form, cut out a picture from a magazine or print a picture from an online source and use a glue stick to attach it to the form.

Students and teachers can scan and email the report forms to their Congressional Representative (find the contact information here: <http://www.house.gov/representatives/find/> or <http://www.senate.gov/senators/contact/> You can also email the reports to the Endangered Species Coalition: <mailto:missingspeciesreports@endangered.org>

Students can make a missing species poster. Students illustrate the poster using what they learned about ecosystems and their selected species. Students with special needs may use the posters with line drawings and fill in the drawings based on images from the gallery provided on The Endangered Species Coalition website, other internet sites or the pre-designed missing species posters. In general, students will use the poster template with a blank space to create their own drawing of the species they selected. Be sure they are using the correct template for their species. Ask students to make a sketch of their animal using pencil first. Suggest they think about the animal in terms of shapes: is the head round or oval? Is the body long and skinny or long and wide? After the initial sketch, ask students to use colored pencils, oil pastels or other colored media to fill in the sketch. Ask them to think about what makes a species special. Is it particular colors? Be sure to represent that.

Students can share their work with other classes in their school or in a library or community center by creating an art installation of their posters and /or reports. Signage can encourage visitors to tear off the contact information for Congressional Representatives on the bottom of each flier and call to voice their thoughts.

The class can post their original artwork posters and also copies of the pre-designed posters around their neighborhoods as if they were missing pet posters. The Endangered Species Coalition website has a link to a grant application to cover the costs of color copies.

Teachers and students can coordinate with other classes and schools to schedule a Day of Action (we recommend coordinating around Endangered Species Day-May 20, 2016) and create a guerilla art installation of the posters around their neighborhood, town or city.

Teachers can schedule a field trip to their local US Fish and Wildlife Service office to file the reports with them as well. (this is a good PR opportunity- see Media Advisory and Event Advisory templates). Find your local office here: <http://www.fws.gov/offices/index.html>

- **Evaluate** – Students fill in the [Evaluation](#) worksheet. Discuss their answers in whole group.

Grade 3 Common Core Standards and National Arts Standards

Reading Informational Text Standards

Key Ideas and Details:

[CCSS.ELA-Literacy.RI.3.1](#)

Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

[CCSS.ELA-Literacy.RI.3.3](#)

Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

Craft and Structure:

[CCSS.ELA-Literacy.RI.3.4](#)

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.

Integration of Knowledge and Ideas:

[CCSS.ELA-Literacy.RI.3.7](#)

Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Writing Standards

Text Types and Purposes:

[CCSS.ELA-Literacy.W.3.1](#)

Write opinion pieces on topics or texts, supporting a point of view with reasons.

[CCSS.ELA-Literacy.W.3.1.a](#)

Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.

[CCSS.ELA-Literacy.W.3.1.b](#)

Provide reasons that support the opinion.

[CCSS.ELA-Literacy.W.3.2](#)

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

[CCSS.ELA-Literacy.W.3.2.a](#)

Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.

[CCSS.ELA-Literacy.W.3.2.b](#)

Develop the topic with facts, definitions, and details.

Research to Build and Present Knowledge:

[CCSS.ELA-Literacy.W.3.7](#)

Conduct short research projects that build knowledge about a topic.

[CCSS.ELA-Literacy.W.3.8](#)

Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

National Arts Standards: Visual Arts

Visual Arts / Creating:

Anchor Standard: Refine and complete artistic work.

VA:Cr3.1.3

Elaborate visual information by adding details in an artwork to enhance emerging meaning.

Grade 4 Common Core Standards

Reading Informational Text Standards

Key Ideas and Details:

[CCSS.ELA-Literacy.RI.4.1](#)

Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

[CCSS.ELA-Literacy.RI.4.2](#)

Determine the main idea of a text and explain how it is supported by key details; summarize the text.

[CCSS.ELA-Literacy.RI.4.3](#)

Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Craft and Structure:

[CCSS.ELA-Literacy.RI.4.4](#)

Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.

Integration of Knowledge and Ideas:

[CCSS.ELA-Literacy.RI.4.7](#)

Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

Writing Standards

Text Types and Purposes:

[CCSS.ELA-Literacy.W.4.1](#)

Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

[CCSS.ELA-Literacy.W.4.1.a](#)

Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.

[CCSS.ELA-Literacy.W.4.1.b](#)

Provide reasons that are supported by facts and details.

[CCSS.ELA-Literacy.W.4.2](#)

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

[CCSS.ELA-Literacy.W.4.2.a](#)

Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.

[CCSS.ELA-Literacy.W.4.2.b](#)

Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.

[CCSS.ELA-Literacy.W.4.2.d](#)

Use precise language and domain-specific vocabulary to inform about or explain the topic.

Research to Build and Present Knowledge:

[CCSS.ELA-Literacy.W.4.7](#)

Conduct short research projects that build knowledge through investigation of different aspects of a topic.

[CCSS.ELA-Literacy.W.4.8](#)

Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

National Arts Standards: Visual Arts

Visual Arts / Creating:

Anchor Standard: Refine and complete artistic work.

VA:Cr3.1.4

Revise artwork in progress on the basis of insights gained through peer discussion.

Grade 5 Common Core Standards

Reading Informational Text Standards

Key Ideas and Details:

[CCSS.ELA-Literacy.RI.5.1](#)

Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

[CCSS.ELA-Literacy.RI.5.2](#)

Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

Craft and Structure:

[CCSS.ELA-Literacy.RI.5.4](#)

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.

Integration of Knowledge and Ideas:

[CCSS.ELA-Literacy.RI.5.7](#)

Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

[CCSS.ELA-Literacy.RI.5.9](#)

Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Writing Standards

Text Types and Purposes:

[CCSS.ELA-Literacy.W.5.1](#)

Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

[CCSS.ELA-Literacy.W.5.1.a](#)

Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.

[CCSS.ELA-Literacy.W.5.1.b](#)

Provide logically ordered reasons that are supported by facts and details.

[CCSS.ELA-Literacy.W.3.2](#)

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

[CCSS.ELA-Literacy.W.3.2.a](#)

Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.

[CCSS.ELA-Literacy.W.3.2.b](#)

Develop the topic with facts, definitions, and details.

Research to Build and Present Knowledge:

[CCSS.ELA-Literacy.W.3.7](#)

Conduct short research projects that build knowledge about a topic.

[CCSS.ELA-Literacy.W.3.8](#)

Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

National Arts Standards: Visual Arts

Visual Arts / Creating:

Anchor Standard: Organize and develop artistic ideas and work

VA:Cr2.1.5

Experiment and develop skills in multiple art-making techniques and approaches through practice.

NextGen Standards

These NextGen Standards are not specifically addressed in this project, but the activity can be the basis for studying these concepts.

Grade 3 Disciplinary Core Ideas

LS2.D: Social Interactions and Group Behavior

- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (*Note: Moved from K–2*). (3-LS2-1)

Grade 4 Disciplinary Core Ideas

ESS3.A: Natural Resources

- Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)

LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

Grade 5 Disciplinary Core Ideas

LS2.A: Interdependent Relationships in Ecosystems

- The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

Endangered Species Framework

What do we already know about endangered species? What is a species? What does “endangered” mean?

What does it mean for a species to be extinct?

What do we know about these Living Parts of an ecosystem?

Plants

Animals

Decomposers

What do we know about these Nonliving Parts of an ecosystem?

Sunlight

Air

Water

Soil

What do we already know about what we can do to help plants and animals survive?

What do we want to learn more about?

Name(s) _____

Endangered

Name of animal or plant

Worksheet

What does my plant or animal look like?

What does my plant or animal need to survive? What kind of shelter? What kind of food?

Where does my plant or animal live?

When does it need help?

Why is my plant or animal in trouble?

How can we help?

Who (other plants and animals) might need my plant or animal? Who will miss it if it's gone?

Evaluation

1. What did I learn about Endangered Species?

2. What would we have to do to save the plant or animal that I studied?

3. What am I willing to do to help save the animal or plant that I studied?

READING LIST

Ocean Sunlight: How Tiny Plants Feed the Seas by Molly Bang (A must read!)

Review

Praise for LIVING SUNLIGHT: HOW PLANTS BRING THE EARTH TO LIFE:

* "If a good picture book does what it sets out to do, a great one sets out to do something huge and succeeds. . . . An outstanding book to read and absorb."--BOOKLIST, starred review

- "Chisholm, a professor of ecology, expands on the theme [photosynthesis], while the intense greens of Bang's gouaches bring it vibrantly to life."--THE NEW YORK TIMES BOOK REVIEW

- "LIVING SUNLIGHT is less a tutorial on photosynthesis than a magnificent celebration of life."--NATURAL HISTORY

Come Back, Salmon: How a Group of Dedicated Kids Adopted Pigeon Creek and Brought it Back to Life by Molly Cone

From School Library Journal

Grade 4-6-- The story of how an elementary school in Washington state ``adopted" a polluted stream that had once been a spawning ground for salmon. The children launched a major community effort to clean it up and, with the aid of grants, stocked an aquarium with salmon eggs from a state hatchery. The entire school was involved in caring for the eggs as they hatched, grew, and were eventually released into the now clean stream. It would be hard not to get caught up in the excitement and anxiety of the students as they wait for the fish to return to Pigeon Creek to spawn. Cone includes facts on the life cycle of the salmon in her clear, lively text, while Wheelwright's excellent illustrations and full-color photographs add to the overall quality of the presentation.

- *Tina Smith Entwistle, Oakley Park Elem . School, Walled Lake, MI*

Frogs by Gail Gibbons

From School Library Journal

PreSchool-Grade 2--This book once again demonstrates Gibbons's ability to present factual information in an appealing format for very young audiences. Here, she takes readers through the life cycle of frogs, beginning with the eggs or spawn and describing the stages from tadpole to adulthood. Clear, full-color illustrations present their anatomy, daily activities, and the different types. Scientific terms are presented phonetically. A double-page spread explains the difference between a frog and a toad, and the last page provides a few odd and interesting facts about these amphibians, such as "An African bullfrog can be as large as a football." An attractive offering.

Helen Rosenberg, Chicago Public Library, IL

Monarch Butterfly by Gail Gibbons

From School Library Journal

Grade 2-4-- Young naturalists will be captivated by this succinctly written, well-organized, brightly illustrated introduction to monarch butterflies. Focusing on a single monarch, the text describes each stage of its metamorphosis, basic physical and behavioral characteristics, diet, and migratory instincts. It then discusses the migration patterns of the species in general, mentions the celebrations held in their honor along the migration route, and ends with simple instructions for raising a butterfly in a jar...The last page consists of additional miscellaneous facts. --Karey Wehner, San Francisco Public Library

Near One Cattail: Turtles, Logs And Leaping Frogs by Anthony Fredericks

Review

. . . Tony has done it again: he's delivered the perfect book for every classroom library. --*Patricia Broderick, Editorial Director, Teaching K-8 Magazine, October 2004*

One Small Place in a Tree (Outstanding Science Trade Books for Students K-12) by Barbara Brenner

From [Booklist](#)

Reviewed with Barbara Brenner's *One Small Place by the Sea*.

Gr. 2-4. These companion books offer a glimpse of nature in action by zeroing in on "one small place" teeming with living things. *By the Sea* takes an up-close look at a tide pool, briefly describing the timing of the tides and how the changes affect tide pool inhabitants, while giving a more in-depth explanation of the complex interdependence of the plants and animals in their unique environment. In *One Small Place*, a bear uses a tree as a scratching post, thus beginning the chain of events that leads to a large hole that becomes home to a variety of forest animals. Brenner makes the science enjoyable and understandable, and Leonard's highly detailed, realistic illustrations provide great visual aid. These attractive volumes will nicely complement a science unit on ecology. *Lauren Peterson*

Over in the Ocean: In a Coral Reef

Review

Eye-popping artwork is the star of the show in Berkes's lively, oceanic counting book... --Kirkus Reviews, Sept 1, 2004

Berkes adapts the classic song "Over in the Meadow" to bring both a counting element and a musical element to the coral reef habitat. She has produced a book guaranteed to engage children while it educates them about marine life. The coral reef is teeming with pufferfish that "puff," gruntfish that "grunt" and seahorses that "flutter." The babies follow the behavior of their mothers - except in a true-to-life twist at the end. Includes plenty of age-appropriate background information about each of the animals. The book's illustrations are composed of photographs of reliefs shaped and sculpted from polymer clay - a wonderful, friendly, pliable and colorful medium. --*Arizona Networking News*

A River Ran Wild by Lynne Cherry

From School Library Journal

Grade 1-4-- In the 15th century, when native people first settled on the banks of the river now called the Nashua, it was a fertile and beautiful place. By the 1960s, the river valley had been ravaged by many years of serious pollution, and fish, birds, and other animals were no longer seen in the area. Through the efforts of Marion Stoddart and the Nashua River Watershed Association, laws were passed that resulted in the restoration of this river and the protection of all rivers. The current concern over the environment will make this a sought-after title, since it is brief enough to read aloud to groups of children. With assistance from informed adult readers, it makes an important contribution to literature on water pollution. --Ellen Fader, Westport Public Library, CT

What If There Were No Bees?: A Book About the Grassland Ecosystem (Food Chain Reactions) by Suzanne Slade

Review

This bug's eye view of life as a grasslands honeybee illustrates the paramount role they play in an ecosystem, as pollinators of wildflowers and crops and sources of food for creatures higher up in the food chain. Radiant illustrations are paired with simple, perceptive sentences to underscore the impact of the loss of keystone species. Each book includes a clearly labeled, well-illustrated food chain that shows the relationships between different plant and animal --Series Made Simple; School Library Journal --