

A Common Core State Standards &
Next Generation Science Aligned
Discussion/Activity Guide
for Grades 2– 5

Rare & Blue: Finding Nature's Treasures

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Written by Constance Van Hoven

Illustrated by Alan Marks

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Travel across Earth to discover eight species that are blue in color and are either naturally rare, threatened, or endangered. Panoramic illustrations and a playful main text prompt a search for the blue species at hand, while the page-turn and informative sidebars zoom in to reveal a closer look at the species.

There's a lot to uncover about the Karner blue butterfly, blue black bear, blue whale, Quitobacquito pupfish, Cerulean warbler, blue lobster, Eastern Indigo snake, and big bluestem grass. A surprise ending celebrates that planet Earth is the rarest and bluest and must be protected for the sake of all.

Guide created by
Debbie Gonzales, MFA



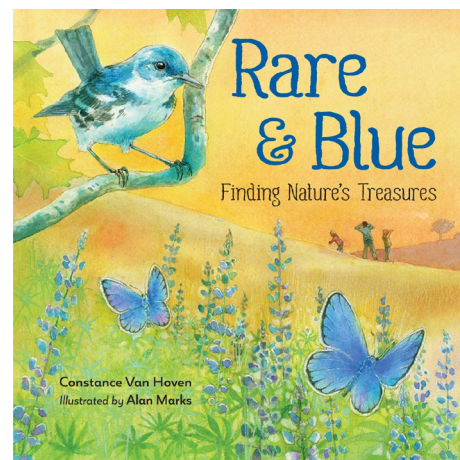
Table of Contents

Pre-Reading Discussion	3
Post-Reading Discussion.....	4-5
The Rare & Blue Match Up Game	6
The Habitat Match-Up Game Board.....	7
The Habitat Match-Up Game Cards	8-9
The Habitat Match-Up Game Cards Answers	10-11
Possibilities Pinwheels: Accessing Human Interactions	12
The Possibilities Pinwheel: Negative Effects of Human Interactions template	13
The Possibilities Pinwheel: Positive Effects of Human Interactions template	14
Organism Research	15
The Organism Research template.....	16
The Where on Earth? template	17
The Habitat Home template	18
The Habitats & Humans template	19
Common Core State Standards Alignment:	
• English Language Arts Standards » Reading: Informational Text.....	20
• English Language Arts Standards » Writing	21
• English Language Arts Standards » Speaking & Listening.....	21-22
Next Generation Science Standards Alignment:	
• K-ESS3-1 Earth and Human Activity	23
• ESS3.A: Natural Resources	23
• 2-LS4-1 Biological Evolution: Unity and Diversity	23
• LS4.D: Biodiversity and Humans.....	23



Pre-Reading Discussion

- Study the illustrations on the front and back cover. Identify any creatures you are familiar with. Describe those that you are not.
- List things that you consider to be treasured. What treasures do you think nature would consider to be valuable and cherished as prize possessions?
- Examine the questions listed on inside the jacket flap. What does it mean to be rare, threatened, or endangered? What does being rare, threatened, or endangered have to do with illustrations featured in the front and back covers? Explain your answers.
- Consider your responses to the discussion questions to predict what this story is going to be about.



Meet the author – Constance Van Hoven:

- As a child, Constance thought her grandmother’s farm was the “most amazing place on earth.” On her website, she tells stories of big breakfasts, the freedom to roam and play for hours, and her delight in spending time in nature. Do you think that her childhood experiences may have helped to inspire Constance to write a books about nature’s treasures? Explain your answer.
- Constance says that, as a child, she spent days at her grandmother’s “letting her imagination wander.” How important is a wandering imagination to writers?
- Learn more about Constance and her fascinating work by accessing constancevanhoven.com.



Meet the illustrator – Alan Marks:

- Alan was born in London. He grew up in an area known as the Docklands, a crowded place with tall buildings and docks filled with smoggy boats. As years have gone by, he’s discovered that he prefers to live in country surrounded by nature. Do you find it interesting that both Constance and Alan share a deep appreciation for the natural world? How so?
- Alan knew as a child that he wanted to be an illustrator when he grew up. He says that “he loves the magic of a drawn line.” Interpret what he means by that statement. How can a simple line possess magic?
- Like Constance, do you think Alan shares the ability to let his imagination wander? How so?
- Access marksonpaper.co.uk to see samples of Alan’s illustrations, many of which are rare and blue.



Post-Reading Discussion

***How do you find nature's treasures,
both rare and blue? Set off on a hunt.***

- Define the word *treasure*. List treasures that are found in nature. Tell what makes the treasures listed so valuable.
- How should treasures be cared for? Explain your answer.
- The word *rare* means excellent and exceptional, as well as limited and scarce. Consider both interpretations of the same word. Discuss how a treasure can be both excellent, yet limited.
- How can something in nature be exceptional, yet scarce? Explain your answer.

***To find iridescent blue,
rumble into the desert into an oasis pond.
Peer beneath algae clumps...***

- An ecosystem is a biological community of animals, plants, or other organisms that exists together to form a natural home called a *habitat*. A pond ecosystem is made of four habitats – the shore, surface film, open water, and bottom water. Tell how each aspect of the pond ecosystem depends on the other.
- Considering the interconnectedness of the pond habitats, explore reasons why the Quitobaquito fish has become endangered.

***To find steely blue,
go to where bison roam.
Cast your eyes across an endless field . . .***

- For an ecosystem to thrive, all elements of its habitat must be equally balanced and cared for. Examine the importance of one aspect of an ecosystem, such as the big bluestem prairie grass. What might happen to the entire biological community should this grass become extinct?
- Determine reasons why big bluestem prairie grass has become threatened. Do you think there might have been a way to save it as a species? If so, how?

***Finally, to find a breathtaking brilliant blue,
BLAST into space.***

- Earth is home to all ecosystems and habitats, each being created by different climate patterns, types of soil and the sorts of plants and animals that exist there. Being that the survival for every habitat is carefully balanced to assure the survival of its species, do you think the Earth, as a whole, might require the same careful balance? Explain your answer.
- Think about how the Earth is considered to be *rare and blue*. List ways that the Earth is excellent and exceptional, as well as being limited and scarce.



*Behold the jewel of the universe:
planet Earth, our home and home to
nature's treasures rare and blue.*

- Homes for nature's living creatures (known as *organisms*) are located in particular *biomes* that suit their needs. Biomes are established by particular climate patterns, soil types, and plants and animals that live in the region. Every inch of the Earth's surface is part of a specific biome. Determine the differences between biomes that are underwater and those that are on land.
- Within biomes are communities of living organisms and nonliving components called *ecosystems*. Within these ecosystems are smaller *habitats* that are natural homes for animals, plants, or other organisms. Consider how habitats are the hiding places for nature's treasures – rare and blue.



The Rare & Blue Match Up Game

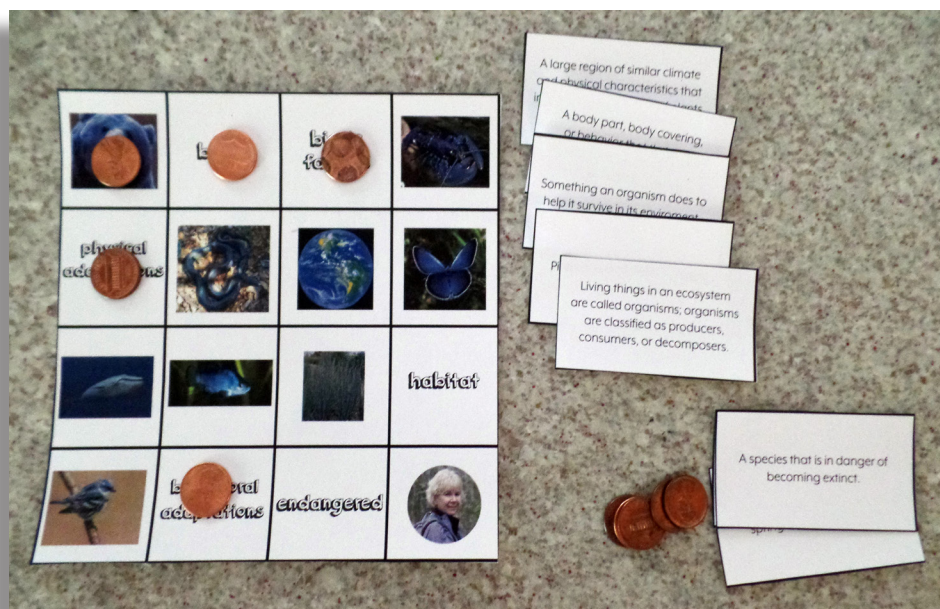
Objective: To define the relationship between scientific ideas and vocabulary terminology.

Materials:











- *Rare & Blue: Finding Nature's Treasures*, the book
- The Habitat Match-Up Game Board (Guide, pg. 7)
- The Habitat Match-Up Game Cards (Guide, pgs. 8-9)
- The Habitat Match-Up Game Cards Answers (Guide, pgs. 10-11)
- Cardstock
- Scissors
- 16 game pieces (buttons, beans, pencils, etc.)

Procedure:

- Print a copy of the Habitat Match-Up Game Board and Game Cards on cardstock for each student.
- Use scissors to trim around the borders of the Game Cards.
- To play game, instruct students to stack game cards face down.
- Turn over the card on the top of the pile.
- Match the description on the card with the image or phrase on the game board. Place a game piece on the match.
- Continue until all images or phrases on the game board have been covered by game pieces.
- Students may use the Habitat Match-Up Game Cards – Answers as a guide, if needed.
- Special note: If students are early readers, permit them to use the Habitat Match-Up Game Cards – Answers as actual game cards.



The Habitat Match Up Game Board

	biome	biotic factors	
physical adaptations			
			habitat
	behavioral adaptations	endangered	



The Habitat Match Up Game Cards

A large region of similar climate and physical characteristics that includes the community of plants and animals that live there.

Living things in an ecosystem are called organisms; organisms are classified as producers, consumers, or decomposers.

A body part, body covering, or behavior that helps an organism be better suited for survival in its environment.

The place where an organism lives.

Something an organism does to help it survive in its environment.

A species that is in danger of becoming extinct.

Pine barrens of North America

Desert ponds, marshes, and springs of North America



Mature forests with high canopy,
North America and South
America

On the Atlantic Ocean floor from
Canada to North Carolina

Pine flatwoods, forested sand
hills, swamps, and canals in
Georgia and Florida

Dominant grass of the tallgrass
prairie that once covered Central
North America from Canada to
Mexico

Forests of Alaska

Deep ocean water, worldwide
except the Arctic

The fifth largest planet in the
solar system, with an equatorial
diameter of 7,917.5 miles

Author of RARE AND BLUE:
FINDING NATURE'S TREASURES



The Habitat Match Up Game Answers



Cerulean Warbler

Mature forests with high canopy,
North America and South
America



North American Lobster

On the Atlantic Ocean floor from
Canada to North Carolina



Eastern Indigo Snake

Pine flatwoods, forested sand
hills, swamps, and canals in
Georgia and Florida



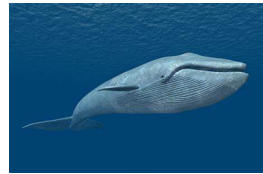
Big Bluestem Grass:

Dominant grass
of the tallgrass prairie that once
covered Central North America
from Canada to Mexico



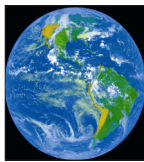
Black Bear

Forests of Alaska



Blue Whale

Deep ocean water, worldwide
except the Arctic



Planet Earth

The fifth largest planet in the
solar system, with an equatorial
diameter of 7,917.5 miles



Constance Von Hoven

Author of RARE AND BLUE:
FINDING NATURE'S TREASURES



biome

A large region of similar climate and physical characteristics that includes the community of plants and animals that live there.

biotic factors

Living things in an ecosystem are called organisms; organisms are classified as producers, consumers, or decomposers.

physical adaptations

A body part, body covering, or behavior that helps an organism be better suited for survival in its environment.

habitat

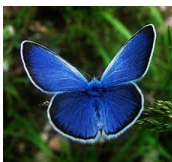
The place where an organism lives.

behavioral adaptations

Something an organism does to help it survive in its environment.

endangered

A species that is in danger of becoming extinct.



**Karner Blue
Butterfly**

Pine barrens of North America



**Quitobaquito or
Rio Sonoyta
Pupfish**

Desert ponds, marshes, and
springs of North America



Possibilities Pinwheels: Assessing Human Interaction

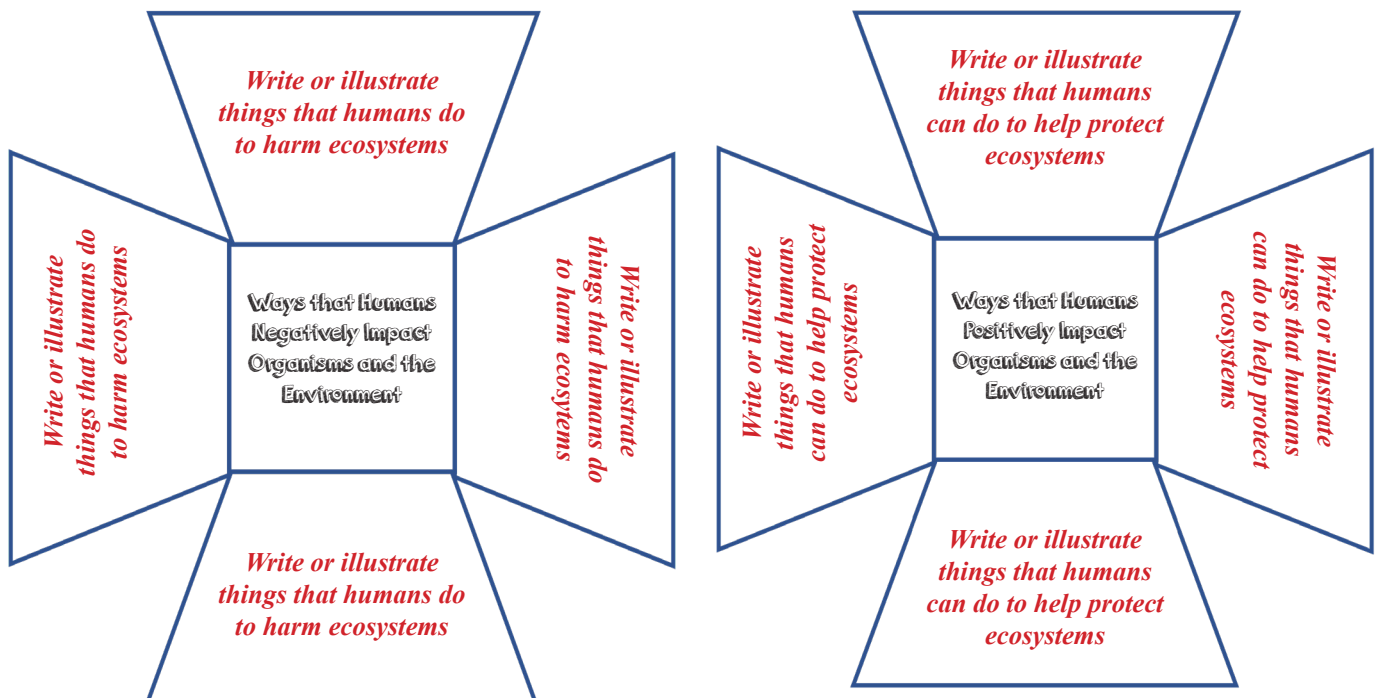
Objective: To explore the impact humans have on organisms and their ecosystems.

Materials:

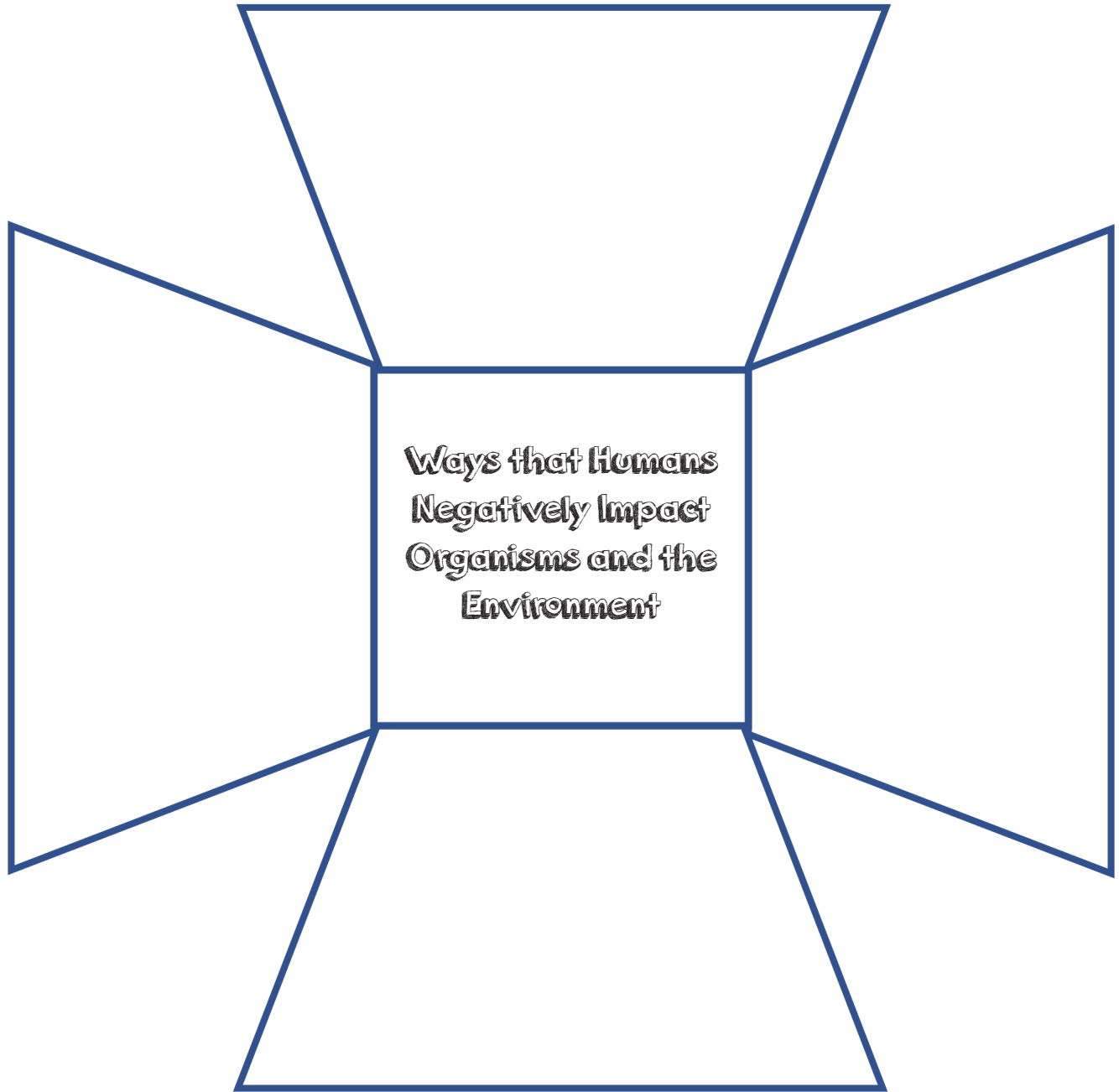
- *Rare & Blue: Finding Nature's Treasures*, the book
- The Possibilities Pinwheel: Negative Impact of Human Interactions template (Guide, pg. 13)
- The Possibilities Pinwheel: Positive Impact of Human Interactions template (Guide, pg. 14)
- Research materials
- Pencil
- Markers
- Writing Materials

Procedure:

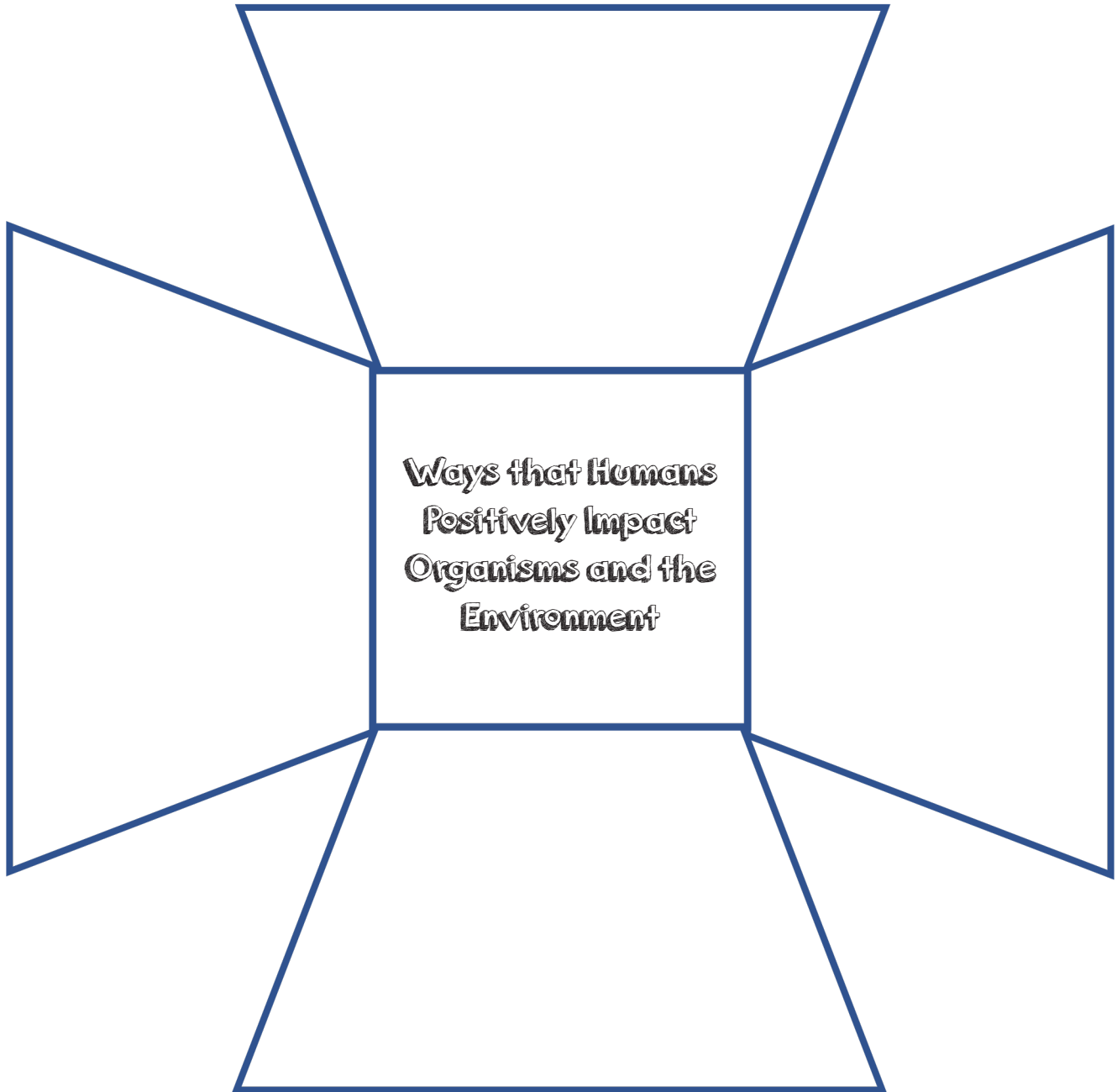
- Lead the students in a discussion about the role humans play in caring for habitats within ecosystems. Use additional reference materials to illustrate points.
- Instruct students to the Possibilities Pinwheel: Negative Impact of Human Interactions and the Possibilities Pinwheel: Positive Affects of Human Impact templates as guides for their own research. Encourage them to discover at least for examples four each pinwheel. Student may either list or illustrate their findings.
- Instruct students to write an informative essay based on their findings.
- Encourage students to share their work with the class.



Possibilities Pinwheels: Negative Impact of Human Interactions



Possibilities Pinwheels: Positive Impact of Human Interactions



Organism Research

Objective: To research a system by describing it in terms of its components and their interactions with humans and the environment.

Materials:

- *Rare & Blue: Finding Nature's Treasures*, the book
- The Organism Research template (Guide, pg. 16)
- The Where on Earth? template (Guide, pg. 17)
- The Habitat Home template (Guide, pg. 18)
- The Habitats & Humans template (Guide, pg. 19)
- Research materials
- Pencil
- Markers
- Writing Materials

Procedure:

- Part 1: Organism Research
 - ~ Distribute copies of the Organism Research template to the students.
 - ~ Instruct students to choose an organism from *Rare & Blue: Finding Nature's Treasures* as a research subject.
 - ~ Guide student research as they discover facts about their organism's Lifestyle, Diet, and Characteristics.
- Part 2: Where on Earth?
 - ~ Distribute copies of the Where on Earth? map to the students.
 - ~ Instruct students to locate the biome in which their organism lives. Have them color the location with a color to represent the biome's attributes and all of the oceans and seas blue.
- Part 3: Habitat Home
 - ~ Distribute copies of the Habitat Home template to the students.
 - ~ Instruct students to illustrate aspects of the ideal habitat for their organism. Feature aspects of their lifestyle, diet, and physical characteristics.
 - ~ In the lower section, have students make a specific list of aspects featured in their illustrations and explain why each is important.
- Part 4: Habitats & Humans
 - ~ Distribute copies of the Habitats & Humans template to the students.
 - ~ Instruct students to illustrate ways their organism benefits humans and the environment and how humans can assist in caring for the their organism and the environment.
 - ~ Students are instructed use all of their research to write, illustrate, and present a report about their organism.



Organism Research Template

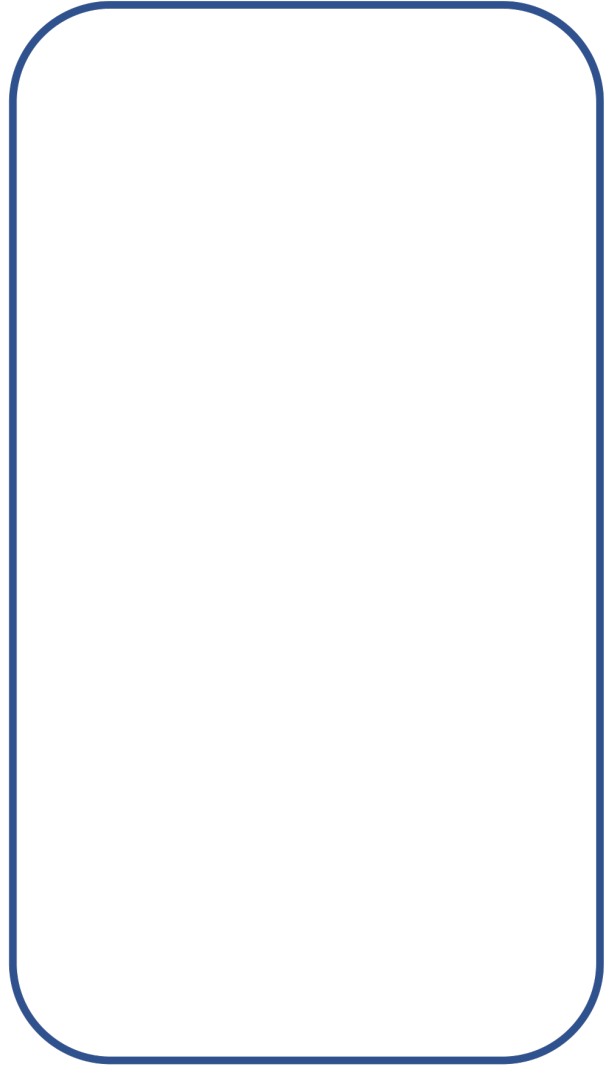
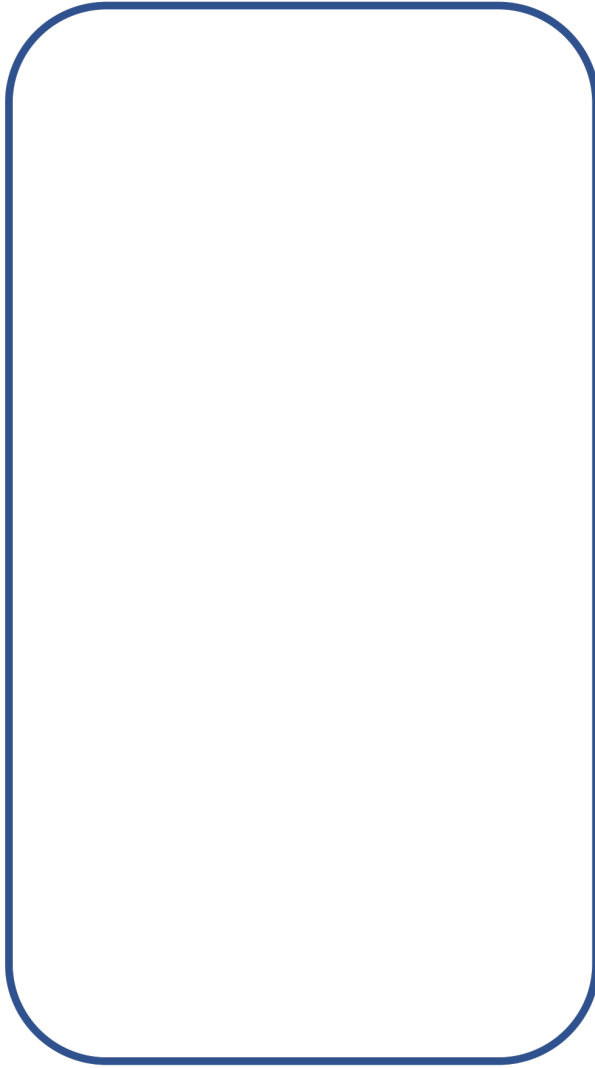
My Organism:	
Lifestyle	Characteristics
<p>My organism lives in the _____ (ecosystem)</p> <p>Environmental conditions that my organism needs in order to survive:</p>	<p>My organism's predators:</p>
<p>My organism's habitat is usually:</p>	<p>How my organism moves:</p>
	<p>Characteristics and abilities that make my organism special:</p>
Diet	
<p>My organism eats:</p>	<p>It is a(n):</p> <p>_____ carnivore</p> <p>_____ herbivore</p> <p>_____ omnivore</p>



Where on Earth?



Habitat Home



**In the spaces above, illustrate aspects of the ideal habitat for your organism to exist in.
Make a list of the aspects featured in your illustrations in this rectangular space.**



Habitats & Humans

**Ways that my Organism benefits
Humans and the Environment:**

**Ways that Humans can assist in
caring for my Organism and the
Environment:**



Common Core State Standards Alignment

		Discussion	Match-Up Game	Possibility Pinwheels	Organism Research
English Language Arts Standards » Reading: Informational Text					
CCSS.ELA-LITERACY.RI.2.1	Ask and answer such questions as <i>who, what, where, when, why</i> , and <i>how</i> to demonstrate understanding of key details in a text.	•	•	•	•
CCSS.ELA-LITERACY.RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.	•	•	•	•
CCSS.ELA-LITERACY.RI.2.4	Determine the meaning of words and phrases in a text relevant to a <i>grade 2 topic or subject area</i> .	•	•	•	•
CCSS.ELA-LITERACY.RI.2.6	Identify the main purpose of a text, including what the author wants to answer, explain, or describe.	•	•	•	•
CCSS.ELA-LITERACY.RI.2.7	Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.	•	•	•	•
CCSS.ELA-LITERACY.RI.2.8	Describe how reasons support specific points the author makes in a text.	•	•	•	•
CCSS.ELA-LITERACY.RI.2.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.	•	•	•	•
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.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.	•	•	•	•
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	•	•	•	•
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).	•	•	•	•
CCSS.ELA-LITERACY.RI.3.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2-3 text complexity band independently and proficiently.	•	•	•	•
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.	•	•	•	•
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.	•	•	•	•
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.	•	•	•	•
CCSS.ELA-LITERACY.RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	•	•	•	•
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.	•	•	•	•

		Discussion	Match-Up Game	Possibility Pinwheels	Organism Research
English Language Arts Standards » Writing					
CCSS.ELA-LITERACY.W.2.2	Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.			•	•
CCSS.ELA-LITERACY.W.2.7	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).			•	•
CCSS.ELA-LITERACY.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.			•	•
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.			•	•
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.			•	•
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.4.7	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.			•	•
CCSS.ELA-LITERACY.W.5.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.			•	•
CCSS.ELA-LITERACY.W.5.2.B	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.			•	•
CCSS.ELA-LITERACY.W.5.7	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.			•	•
CCSS.ELA-LITERACY.W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.			•	•
English Language Arts Standards » Speaking & Listening					
CCSS.ELA-LITERACY.SL.2.1	Participate in collaborative conversations with diverse partners about <i>grade 2 topics and texts</i> with peers and adults in small and larger groups.	•	•	•	•
CCSS.ELA-LITERACY.SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	•	•	•	•
CCSS.ELA-LITERACY.SL.2.4	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.	•	•	•	•

English Language Arts Standards » Speaking & Listening (cont.)		Discussion	Match-Up Game	Possibility Pinwheels	Organism Research
CCSS.ELA-LITERACY.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 3 topics and texts</i> , building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.3.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	•	•	•	•
CCSS.ELA-LITERACY.SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	•	•	•	•
CCSS.ELA-LITERACY.SL.3.6	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 here for specific expectations.)	•	•	•	•
CCSS.ELA-LITERACY.SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i> , building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	•	•	•	•
CCSS.ELA-LITERACY.SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i> , building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.5.4	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	•	•	•	•



Next Generation Science Standards Alignment

		Discussion	Match-Up Game	Possibility Pinwheels	Organism Research
K-ESS3-1 Earth and Human Activity					
	Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.			•	•
	Developing and Using Models: Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.			•	•
ESS3.A: Natural Resources					
	Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.			•	•
	Systems and System Models: Systems in the natural and designed world have parts that work together.			•	•
2-LS4-1 Biological Evolution: Unity and Diversity					
	Make observations of plants and animals to compare the diversity of life in different habitats.			•	•
	Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.			•	•
LS4.D: Biodiversity and Humans					
	There are many different kinds of living things in any area, and they exist in different places on land and in water.			•	•

