

Animal Studies

Habitat, Adaptations for Survival, Environmental Factors, and Human Impact— An Interdisciplinary Unit for Grade 4

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Description

This four-week unit is designed for 90-minute blocks of instruction in which students will engage in a high volume of deep reading in a subject area that allows them to access prior knowledge about the world around them as well as gain new understanding and perspective about that world and their role in it. In developing *Animal Studies: Habitat, Adaptations for Survival, Environmental Factors and Human Impact*, we leaned heavily on the work of Allen (2001). We then paired that research with Common Core English and Language Arts standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) as well as children's interest in the natural world. Although this unit is easily adaptable to Grade 3 and Grade 5, we focus on Grade 4 in our writing.

Through engaging mentor texts in a variety of genres, students will explore diverse habitats, the balance of nature, animal adaptations for survival, and the human impact on the environment. Each of these explorations will be paired with writing extensions that

will culminate in the creation of a multigenre research project. This interdisciplinary unit seeks to maximize the literacy benefits by incorporating science standards related to animal studies with the English language arts curriculum.

All projects are based on an “I do. We do. You do.” model that correlates with the Vygotskian theory of scaffolding (Vygotsky, 1978). The project will specifically relate to the coverage and use of the Common Core Standards for the English language arts. Finally, by exploring mentor texts, students will consider their role in the balance between humans and the Earth. For English learner supports, all students will participate in active involvement of vocabulary learning. This includes the use of visuals, videos, props, real-life objects, role-playing, labeling, charting, and group work, which are each presented throughout the unit. Completed posters and cumulative charts can be left hanging as visual supports and continual resources.

This design is implemented as a four-step process that culminates in a multigenre classroom project that combines the foundational elements of writers’ workshop and

reading poetry and multimodal, informational science texts. This final product may then serve as an instructional resource for future spiral review of this content.

Unit Overview

Week	Grouping	Central Ideas	Objectives	Teaching and Learning Activities	Common Core State Standards and Learning Goals Achieved	Texts Used
1	Pairs, whole group, small groups	Habitats are the natural environments in which different organisms live. Each habitat has unique and defining features.	Objectives for Week 1	Objectives will be addressed through immersion in a variety of texts and images about each habitat. The student will respond through reading logs, Venn diagramming, “roommate wanted” ads, research poster, and a swamp diagram.	RI.4.1 RI.4.4 RI.4.9 W.4.4 W.4.7 W.4.8 W.4.10 SL.4.1a RF.4.4	“Scat Happens” by Larry Lightner Blue Planet clip by BBC IMAX tropical rainforest movie clip by Rolinik <i>At This Very Moment</i> by Jim Arnosky <i>Deserts</i> by Gail Gibbons <i>Marshes & Swamps</i> by Gail Gibbons <i>Nicky the Swamp Dog</i> by Jacklyn Sonnier Hirshberg <i>The Tree That Time Built</i> by Mary Ann Hoberman and Linda Winston <i>About Habitats: Oceans</i> by Cathryn Sill <i>Earth Book for Kids</i> by Linda Schwartz <i>Tropical Rainforests</i> by Seymour Simon <i>Welcome to the Sea of Sand</i> by Jane Yolen
2	Whole group	Behavioral and physical adaptations help animals survive and thrive in their environments.	Objectives for Week 2	Objectives will be addressed through immersion in a variety of texts and images about each adaptation. The student will respond through reader’s response logs, an adaptation graphic organizer, creating a fantasy animal, writing about migration, and animal adaptation posters.	RI.4.1 RI.4.4 RI.4.9 W.4.4 W.4.7 W.4.8 SL.4.4 RF.4.4	“Structural and Behavioral Adaptations” by NatureWorks <i>Step Gently Out</i> by Helen Frost and Rick Lieder <i>The Tree That Time Built</i> by Mary Ann Hoberman and Linda Winston <i>What Do You Do With a Tail Like This?</i> by Steve Jenkins and Robin Page <i>What Are Camouflage and Mimicry?</i> by Bobbie Kalman & John Crossingham <i>Great Migrations</i> by Elizabeth Carney <i>Bird, Butterfly, Eel</i> by James Prosek <i>The Journey</i> by Cynthia Rylant <i>They Swim the Seas</i> by Seymour Simon <i>Adelina’s Whales</i> by Richard Sobol <i>Aesop’s Fables</i> by Russell Ash & Bernard Higon
3	Pairs, whole group, small groups	As human beings, we have a responsibility to protect and serve in our environment.	Objectives for Week 3	Objectives will be addressed through immersion in a variety of texts and images about the environment. The student will respond through reader’s response logs, a chart about human’s impact on the environment, letter writing, and creating a mobile.	L.4.1 SL.4.1 SL.4.4 RF.4.4 W.4.3 W.4.7 W.4.8 RL.4.9 RI.4.1 RI.4.4	<i>A River Ran Wild</i> by Lynne Cherry <i>The Tree That Time Built</i> by Mary Ann Hoberman and Linda Winston <i>Dear Children of the Earth</i> by Schim Schimmel <i>The Great Kapok Tree</i> by Lynne Cherry <i>The Great Squirrel Uprising</i> by Dan Elish

(continued)

Unit Overview (Continued)

Week	Grouping	Central Ideas	Objectives	Teaching and Learning Activities	Common Core State Standards and Learning Goals Achieved	Texts Used
4	Whole group, small groups	We can learn from people in the past who have worked hard to help our environment.	Objectives for Week 4	Objectives will be addressed through immersion in a variety of texts and images about important people who have helped our environment. The student will respond through reader's response logs and creating human timelines for people who have significantly impacted our environment.	RF4.4 RI4.1 RI4.4 RI4.5 SL4.2 SL4.4 W4.4	<i>Taking Root: The Vision of Wangari Maathai</i> by Lisa Merton <i>The Tree That Time Built</i> by Mary Ann Hoberman and Linda Winston <i>Seeds of Change</i> by Jen Cullerton Johnson <i>Rachel Carson and Her Book That Changed the World</i> by Laurie Lawlor <i>Mama Miti</i> by Donna Jo Napoli <i>The Camping Trip That Changed America</i> by Barb Rosenstock <i>Wangari's Trees of Peace</i> by Jeanette Winter <i>The Watcher</i> by Jeanette Winter

Texts

Week 1: Habitat/Ecosystems

Online Articles

Lightner, L. (2008). Scat happens. *Desert Exposure*. Retrieved from www.desertexposure.com/200805/200805_scat.php

Multimedia

BBC. (2013). *The blue planet*. Retrieved from www.bbc.co.uk/programmes/b008044n/clips

Rolinik. (Producer). (2009). *IMAX tropical rainforest*. Retrieved from www.youtube.com/watch?v=YUuA-C_I3DE

Nonfiction

Arnosky, J. (2011). *At this very moment*. New York, NY: Dutton Children's Books.

Gibbons, G. (1996). *Deserts*. New York, NY: Holiday House.

Gibbons, G. (1998). *Marshes & swamps*. New York, NY: Holiday House.

Hirshberg, J.S. (2001). *Nicky the swamp dog: A true story*. Lafayette, LA: Acadian House.

Hoberman, M.A., & Winston, L. (2009). *The tree that time built: A celebration of nature, science, and imagination*. Naperville, IL: Sourcebooks Jabberwocky.

Schwartz, L. (1990). *Earth book for kids: Activities to help heal the environment*. Santa Barbara, CA: Learning Works.

Sill, C. (2012). *About habitats: Oceans*. Atlanta, GA: Peachtree.

Simon, S. (2010). *Tropical rainforests*. New York, NY: HarperCollins.

Fiction

Yolen, J. (1996). *Welcome to the sea of sand*. New York, NY: Putnam's Sons.

Week 2: Adaptations

Online Articles

NatureWorks. (2013). *Structural and behavioral adaptations*. Retrieved from www.nhptv.org/natureworks/nwep1.htm

Nonfiction

Carney, E. (2010). *Great migrations*. Washington, DC: National Geographic.

Frost, H., & Lieder, R. (2012). *Step gently out*. Somerville, MA: Candlewick.

Hoberman, M.A., & Winston, L. (2009). *The tree that time built: A celebration of nature, science, and imagination*. Naperville, IL: Sourcebooks Jabberwocky.

Jenkins, S., & Page, R. (2008). *What do you do with a tail like this?* Norwalk, CT: Weston Woods Studios.

Kalman, B., & Crossingham, J. (2001). *What are camouflage and mimicry?* New York, NY: Crabtree.

- Prosek, J. (2009). *Bird, butterfly, eel*. New York, NY: Simon & Schuster Books for Young Readers.
- Rylant, C. (2006). *The journey: Stories of migration*. New York: Blue Sky.
- Simon, S. (1998). *They swim the seas: The mystery of animal migration*. San Diego, CA: Harcourt Brace.
- Sobol, R. (2003). *Adelina's whales*. New York, NY: Dutton Children's Books.

Fiction

- Ash, R., & Higton, B. (1990). *Aesop's fables* (Classic illustrated ed.). San Francisco, CA: Chronicle.

Week 3: Negative Changes in Our Environment

Nonfiction

- Cherry, L. (1992). *A river ran wild: An environmental history*. San Diego, CA: Harcourt Brace Jovanovich.
- Hoberman, M.A., & Winston, L. (2009). *The tree that time built: A celebration of nature, science, and imagination*. Naperville, IL: Sourcebooks Jabberwocky.
- Schimmel, S. (1994). *Dear children of the Earth: A letter from home*. Minocqua, WI: NorthWord.

Fiction

- Cherry, L. (1990). *The great kapok tree: A tale of the Amazon rain forest*. San Diego, CA: Harcourt Brace Jovanovich.

- Elish, D. (1992). *The great squirrel uprising*. New York, NY: Orchard.

Week 4: The Environment and Our Future

Film

- Merton, L. (Director). (2008). *Taking root: The vision of Wangari Maathai* [Documentary]. Harriman, NY: New Day Films.

Nonfiction

- Hoberman, M.A., & Winston, L. (2009). *The tree that time built: A celebration of nature, science, and imagination*. Naperville, IL: Sourcebooks Jabberwocky.
- Johnson, J.C. (2010). *Seeds of change: Planting a path to peace*. New York, NY: Lee & Low.
- Lawlor, L. (2012). *Rachel Carson and her book that changed the world*. New York, NY: Holiday House.
- Napoli, D.J. (2010). *Mama Miti: Wangari Maathai and the trees of Kenya*. New York, NY: Simon & Schuster Books for Young Readers.
- Rosenstock, B. (2012). *The camping trip that changed America: Theodore Roosevelt, John Muir, and our national parks*. New York, NY: Dial Books for Young Readers.
- Winter, J. (2008). *Wangari's trees of peace: A true story from Africa*. Orlando, FL: Harcourt.
- Winter, J. (2011). *The watcher: Jane Goodall's life with the chimps*. New York, NY: Schwartz & Wade.

Teaching and Learning Activities

Week 1: Habitat/Ecosystems

Group Description

These lessons are designed for pairs, small groups, and whole-group instruction.

Materials

- Online Articles
 - "Scat Happens" by Larry Lightner
- Multimedia
 - Blue Planet clip by BBC
 - IMAX tropical rainforest movie clip by Rolinik
- Nonfiction
 - *At This Very Moment* by Jim Arnosky
 - *Deserts* by Gail Gibbons
 - *Marshes & Swamps* by Gail Gibbons
 - *Nicky the Swamp Dog* by Jacklyn Sonnier Hirshberg
 - *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston
 - *Earth Book for Kids* by Linda Schwartz
 - *About Habitats: Oceans* by Cathryn Sill
 - *Tropical Rainforests* by Seymour Simon
- Fiction
 - *Welcome to the Sea of Sand* by Jane Yolen
- Encyclopedias or dictionaries (if available)
- Computer with Internet connection
- Sand samples
- Scats and Tracks iPad app
- Seashells
- Construction paper

- Markers
- Glue

Objectives

- The student will be able to compare and contrast animal habitats.
- The student will be able to identify features of habitats such as deserts, swamps, rainforests, and oceans.
- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
- Integrate information from two texts on the same topic to write or speak about the subject knowledgeably.
- Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- 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.
- Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- Read with sufficient accuracy and fluency to support comprehension.

Common Core State Standards and Learning Goals Achieved

[Reading: Foundational Skills, Grade 4, Standard 4](#)

[Reading: Informational Text, Grade 4, Standard 1](#)

[Reading: Informational Text, Grade 4, Standard 4](#)

[Reading: Informational Text, Grade 4, Standard 9](#)

[Speaking and Listening, Grade 4, Standard 1a](#)

[Writing, Grade 4, Standard 4](#)

[Writing, Grade 4, Standard 7](#)

[Writing, Grade 4, Standard 8](#)

[Writing, Grade 4, Standard 10](#)

Texts/Center Activities to Be Used During Week 1

- Texts from the student literature list may be gathered for shared and partner reading throughout the room while the teacher conducts guided reading.
- Teacher may gather a variety of magazines from which students may collect examples from a tropical rainforest to label and add to a habitat collage for a center activity. This could result in successful reproduction of every habitat taught during this Week 1 lessons.
- Teacher may gather a variety of folk tales readily available in most libraries that feature common desert animals for partner/shared reading while the teacher conducts guided reading.

Procedures

Lesson 1

Access students' prior knowledge by asking, "Have you have been to a zoo? What did you notice about the different areas for each animal? Was the lions' area the same as the polar bears' or anacondas' area? What were the differences? Why?"

Teacher will set a purpose for reading, saying, "I will read two texts. I want you to consider how the animals in each book are different." Teacher will conduct a read-aloud of "Don't Make a Pet Out of Me" (p. 124 in *Earth Book for Kids* by Linda Schwartz) followed by a read-aloud of *At This Very Moment* by Jim Arnosky.

Then, as a whole group, the class will construct a Venn diagram to compare and contrast the animals featured in the two books. Once the diagram is completed, the teacher will explain that the class will be studying the type of living spaces featured in Arnosky's book. Teacher will model the Comparing Habitats Chart (see Figure 1) that will be used for remainder of this week's lessons.

Teacher will introduce new vocabulary: *habitat, biotic, abiotic, desert, rainforest, tropical, marsh, tide pool* (see Table 1 for a list of this week's vocabulary words). Teacher will model completion of one Illustrated Vocabulary (see Figure 2) including new word, definition, example sentence with the word used in the text, and a sentence using the word in the children's own words. Student pairs will be asked to create illustrated vocabulary posters and then share the remaining words in a collaborative discussion to close out the lesson.

To close the lesson, teacher says, "Today we referred to the text details in Mr. Arnosky's book to see habitats

FIGURE 1. Comparing Habitats Chart

Type of Habitat	Tropical Rainforest	Desert	Ocean/Tide Pool	Swamp/Marsh
Climate				
Ground type				
Vegetation				
Animal Species				
Location				
Natural Resources				

TABLE 1. Week 1: Vocabulary

English learner supports for vocabulary included hands-on experience with real objects (sand and sea shells), visual supports (charts, graphic organizers), technology experiences (videos, apps, photographs), group work, shared writing, literature supports, physical models (rainforest example)

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
habitat, desert, rainforest, tropical, marsh, tide pool, climate, biotic, abiotic	tropical, humid, rainforest, rainfall, climate, canopy, understory, forest, floor, emergent layer	desert, inhabitant, dweller, succulent	ocean, tide pool	swamp, marsh

FIGURE 2. Illustrated Vocabulary

New Word: _____

Definition: _____

Sentence from text using this word: _____

_____ (p. ____)

An illustration demonstrating understanding of the word:

My own sentence using this word: _____

all around the globe. We will continue to explore these habitats throughout the coming week and month. We’ve also learned a lot of new vocabulary words that we will be using to help us name exactly what we are seeing.”

Lesson 2

Access students’ prior knowledge by saying, “Recall yesterday how we studied where animals live naturally. What was our new word for that? Today, we are going to look at one specific habitat—the rainforests. What do you already know about rainforests? What animals live there? What countries have rainforests? What is the climate? Please define *habitat*.” Teacher will show IMAX tropical rainforest clip by Rolinik (www.youtube.com/watch?v=YUuA-C_I3DE).

Teacher will set a purpose for reading by saying, “I will read a poem and an expository text about the rainforests. I would like you to use your reading response log to record at least five things that really catch your attention while I read these texts aloud.” Teacher will conduct a read-aloud of the poem “Rain Forest” (p. 85 in *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston) and *Tropical Rainforests* by Seymour Simon.

Students or student pairs will use classroom resources—encyclopedias, expository books, dictionaries, computers, or Internet devices—to conduct a short research assignment on one or two of the topics they

listed as particularly interesting. Students will return to the whole group and share their findings.

Teacher will create a four-tiered example of a rainforest to represent the emergent layer, canopy, understory, and forest floor. This will be created by taking a large piece of construction paper and folding it into four equal sections. Holding up the paper “portrait” style each section will represent a layer of the rainforest from the ground to the sky. In each section, use markers to draw in parts of that rainforest layer. Teacher will ask students to contribute species and details to label each part. This representation will remain in the classroom for the four-week unit.

To conclude the lesson, teacher will use student input to fill in the Comparing Habitats Chart (see Figure 1) created yesterday. Under the category of “Tropical Rainforest,” the teacher will enter the information about climate (hot, humid), ground type (soil covered in short vegetation), vegetation (four-tiered, tall trees, vines, ferns, mosses), animal species (piranhas, cobras, bats, monkeys), and location (Central and South America, Africa, Asia).

To close the lesson, teacher says, “Today you used a variety of reference materials to find information that intrigued you about the tropical rainforest and helped me to create our own two-dimensional model of the rainforest. We used text resources to determine vegetation, species, location, and so forth. When you learn more details about one topic, it helps you to compare and contrast that topic with others. Tomorrow, when we learn about deserts, you will be able to compare the desert habitat with that of the tropical rainforest.”

Lesson 3

Access students’ prior knowledge by saying, “Turn to your share partner and discuss some important details about the habitat we studied at length yesterday—rainforests.

Today, we are going to look at another specific habitat. In this habitat there is a lot of this.” Show the children real sand and ask, “Can you guess what habitat we are learning about? Yes, deserts. What do you already know about deserts? What animals live there? What countries have deserts? What is the climate? Please define *habitat*.” Allow the children to feel the sand while introducing them to the app for iPad, Scats and Tracks Desert Southwest. If iPads are not available, students can review Larry Lightner’s article “Scat Happens” (www.desertexposure.com/200805/200805_scat.php) for desert scat pictures. Let the children explore the kinds of animal tracks found in the desert. “Can we add to what we know about deserts after looking at these tracks?”

Teacher will set a purpose for reading, saying, “As I read this text, I would like you to jot down a note in your Reader’s Response Log if you hear or see something that we can add to our Comparing Habitat Chart.” See Figure 3 for a Reader’s Response Log and Figure 1 for the chart. Teacher will conduct a read-aloud of *Deserts* by Gail Gibbons and lead collaborative discussion while completing the Comparing Habitats Chart with student responses. Class should determine which things added to the chart are biotic and which are abiotic.

Teacher will introduce the concept of want ads for living spaces by referring to page 117 of *Earth Book for Kids* by Linda Schwartz. Teacher will explain that sometimes people with a space available advertise for others to come live there. Teacher will read aloud a detailed “Roommate Wanted Ad” (see Figure 4). Teacher will ask students to work in small groups to consider the “amenities” of desert living. Students will then write copy for a “Dweller Wanted” or “Inhabitant Wanted” ad to entice animals or people to the desert, and include an illustration of his or her desert animal in the ad. For example, the child might choose a snake and write a poster pretending to be that snake seeking a roommate.

FIGURE 3. Reader’s Response Log

Reader’s Response Log
Name: _____
Date: _____

Note. For more ideas on reader’s response logs and example entries and rubrics, please see www.busyteacherscave.com/literacy/readers_response.html

FIGURE 4. Roommate Wanted Ad

**ROOMMATE WANTED
IN TROPICAL PARADISE HOME!**

Are you tired of living in freezing temperatures? Are you tired of all of the noise and traffic of the city? Come to a land of paradise: The Amazon rainforest... where there are warm temperatures year round, and the only noise you will hear is the chirping of birds and the calming pitter-patter of rain hitting the 15-story-high canopy of trees above you. Take a swim with an alligator, swing across trees with monkeys, gaze at the scarlet macaws flying high above, or just take a nap with a sloth. Scared of the jaguars that might be hanging around? No problem. With a sign of a two-year lease, I will guarantee protection from ALL rainforest animals. Human applicants are prohibited. If you are interested please call below! Rent is help with 4 hunting expeditions per month.

[Student creates animal illustration here]

What would that snake desire in a roommate? Use your knowledge of the desert and that animal to create the poster. The students will use a large piece of construction paper or half a poster board and markers to complete this activity. The Scats and Tracks app can be used to help pick animals. Class will share in collaborative discussion.

To close the lesson, teacher says, “Consider the details you have learned about the desert habitat by using the reference materials and text resources we had available. By creating these want ads, you can see how some animals would be drawn to the amenities the desert has to offer.” To conclude the lesson, the teacher will read Jane Yolen’s *Welcome to the Sea of Sand*. Set the purpose of the reading to be enjoyment and celebration of how she uses words to create a visual and auditory picture of the habitat studied today—deserts.

Lesson 4

Access students’ prior knowledge by saying, “Turn to your share partner and discuss some important details about the habitat we studied at length yesterday—deserts.” Choose one ocean video from the Blue Planet clips found at www.bbc.co.uk/programmes/b008044n/clips and instruct students, “Watch this clip to see if you can tell me what habitat we are learning about today—Yes,

oceans. What do you already know about oceans? What animals live there? Please define *habitat*.”

Teacher will set a purpose for reading, saying, “As I read this text, I would like you to jot down a note in your Reading Response Log if you hear or see something that we can add to our Comparing Habitat Chart for oceans.” (see Figure 1). Teacher will conduct a read-aloud of *About Habitats: Oceans* by Cathryn Sill and lead collaborative discussion while completing the Comparing Habitats Chart with student responses. Be sure to discuss which things added to the chart are biotic and which are abiotic.

Students working alone or in small groups will choose one animal. They will use classroom resources—encyclopedias, expository books, dictionaries, computers, or Internet devices—to conduct a short research assignment on their chosen animal to determine which part of what oceans this animal lives in. They may also include any other important things they learned. All of this will be shared in a collaborative discussion.

To close the lesson, teacher says, “Consider your learning from the texts and reference materials. You have been able to determine information and demonstrate your learning in a new format with our Comparing Habitats Chart. We often use charts and diagrams to give information in a quick visual format.” To conclude the lesson, the teacher will read “The Sea is Our Mother” (p. 20 in *The Tree That Time Built*). The teacher will set the purpose of the reading to be enjoyment and celebration of how the author uses words to create a visual and auditory picture of the habitat studied today—oceans. As they are reading, allow children to hold real seashells in their hands or to their ear.

Lesson 5

Access students’ prior knowledge by saying, “Turn to your partner and share some important details about the habitat we studied at length yesterday—oceans. Today, we are going to look at two other specific habitats—swamps and marshes. What do you already know about swamps and marshes? What animals live there? What countries have swamps and marshes? What is the climate?”

Teacher will set a purpose for reading, saying, “As I read this text, I would like you to jot down a note in your Reading Response Log if you hear or see something that we can add to our Comparing Habitat Chart for swamps and marshes” (see Figure 1). Teacher will conduct a read-aloud of *Marshes & Swamps* by Gail Gibbons. Class will participate in a collaborative discussion to follow while completing the Comparing Habitats Chart with student responses.

Students will work in groups of 2–3 to create a two-dimensional representation of a swamp including labels and a title. This can be done on a regular sheet of white printer paper or construction paper. The students will draw a swamp representation using markers and pencils. They will label significant parts and title their page. Students may use two colors of labels to demonstrate knowledge of biotic and abiotic factors in a habitat. Students will present their illustrations to the entire class.

To close the lesson, teacher says, “In creating these two-dimensional representations, you have referred to text details and then created a labeled, visual representation of your learning. We have learned that marshes and swamps are wetlands teeming with life and full of natural resources.” To conclude the lesson, read *Nicky the Swamp Dog* by Jacklyn Sonnier Hirshberg. The teacher will set the purpose of the reading to be enjoyment and attention to how the author tells the story to make it come alive. Students should also be on the lookout for text-to-text connections.

Daily Content Writing

This will begin with a teacher whole-group model. After two days of quality, in-depth instruction on summarizing the nonfiction learning, students could do this successfully in small groups or pairs. Students will summarize their learning orally with a partner or small group and then write for a short period of time, 7–10 minutes, to conceptualize their own learning for the day. Encourage them to use the vocabulary that is now available throughout the room. This activity will be part of each day’s lessons for the remainder of the unit.

Phonics

Teacher may choose to gear differentiated word sorts and spelling lists to vocabulary that relates to animals and habitats (see Table 2 for a list of word sort activity

ideas). These activities will be used daily and the eight-day cycle will be repeated twice throughout the unit.

Week 2: Adaptations

Group Description

These lessons are designed for whole-group instruction.

Materials

- Online Articles
 - *Structural and Behavioral Adaptations* by NatureWorks
- Nonfiction
 - *Great Migrations* by Elizabeth Carney
 - *Step Gently Out* by Helen Frost and Rick Lieder
 - *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston
 - *What Do You Do With a Tail Like This?* by Steve Jenkins and Robin Page
 - *What Are Camouflage and Mimicry?* by Bobbie Kalman & John Crossingham
 - *Bird, Butterfly, Eel* by James Prosek
 - *The Journey* by Cynthia Rylant
 - *They Swim the Seas* by Seymour Simon
 - *Adelina’s Whales* by Richard Sobol
- Fiction
 - *Aesop’s Fables* by Russell Ash & Bernard Higon
- Winter clothing and materials (winter jacket, camouflage hat, skis, etc.)
- Digital or disposable cameras
- Construction paper
- Markers
- Glue

TABLE 2. Word Sort Activity Ideas

Day	Word Sort Activity
1	Sort by spelling pattern; write in Reader’s Response Log.
2	Sort by spelling pattern; alphabetize each column; copy into Reader’s Response Log.
3	Find seven additional words from our reading that feature your spelling pattern.
4	Word’s Worth: Use money chart to determine the value of your word sort words. Add up the entire sum and record it in your Reader’s Response Log next to where you’ve recorded them (see Figure 3).
5	Create a word find or crossword puzzle using at least eight of your new words. Challenge: Use them all.
6	Write a poem or song about an animal or habitat using at least seven of your word sort words.
7	Write one strong sentence for half of your words in your current word sort related to recent learning.
8	Sort, alphabetize, and glue your word sorts into your Reader’s Response Log for future reference.
	Assess students’ spelling based on their present spelling pattern.

Objectives

- Analyze physical and behavioral adaptations that enable organisms to survive in their environment.
- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
- Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
- Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- 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.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- Read with sufficient accuracy and fluency to support comprehension.

Common Core State Standards and Learning Goals Achieved

[Reading: Foundational Skills, Grade 4, Standard 4](#)

[Reading: Informational Text, Grade 4, Standard 1](#)

[Reading: Informational Text, Grade 4, Standard 4](#)

[Reading: Informational Text, Grade 4, Standard 9](#)

[Writing, Grade 4, Standard 4](#)

[Writing, Grade 4, Standard 7](#)

[Writing, Grade 4, Standard 8](#)

[Speaking and Listening, Grade 4, Standard 4](#)

Texts/Center Activities to Be Used During Week 2

- Teacher may gather a variety of magazines from which students may collect examples of physical adaptations to add to an illustrated body parts/uses chart for a center activity.

- Students may use texts and a map at a center to chart the path of different species' migration patterns.
- As a center, students may find pictures and scientific names of species that use camouflage or mimicry.
- Students may read poems on page 124 "Something Told the Wild Geese" and page 111 "The Walking Stick" in *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston to develop expression and fluency.
- Teacher may mark pages in a collection of Aesop's Fables that outline how different animals came to have different adaptations. Then the students may create including the fable's title, the animal's adaptation, a response summary of how Aesop claims the animal came to have that adaptation and what they believe the true story to be. Students may read short expository pieces and make text-to-text connections with regarding adaptations.

Procedures

Lesson 1

Show the students a variety of clothing/tools (winter jacket, hiking boots, camouflage hat, skis). Teacher asks, "If a person was wearing or using these, what might they be doing? Why does a person need a winter jacket? Why do people need camouflage? We need different adaptations for different climates and to do different things. Can animals put on a winter jacket? Last week, we studied various habitats from all around the globe. This week, we will look at how some animals' bodies are made just right to survive and thrive in those habitats. I bet you already know something about that. Can anyone tell me how a fish is made just right to live in a river?"

Teacher will set purpose for reading for *What Do You Do With a Tail Like This?* by Steve Jenkins and Robin Page, saying, "As I read, I want you to consider the illustrations and draw conclusions about how each animal uses the featured body part for survival." Teacher will conduct a read-aloud, stopping after each page to ask students to determine what the different animal body parts are perfectly adapted to do. Then as a whole group, the class will construct a large chart outlining the different body parts and the many things they are created to do.

Teacher will model completion of one section of the chart: noses (see Figure 5). Teacher will work with students to model the second section: ears. Teacher will add other body parts that were addressed in the text, and students will complete chart in their own Reader's Response Log with or without a partner (see Figure 3). They may, and should, refer to the text as needed.

FIGURE 5. Animal Body Parts and Functions Chart

Body Part	Functions
noses	dig, bathe, breathe, hunt
ears	

Teacher will review the steps introduced last week for completion of one Illustrated Vocabulary (see Figure 2) including new word, definition, example sentence with the word used in the text, and a sentence using the word in the children’s own words (see Table 3 for a list of this week’s vocabulary words). Student pairs will be asked to create illustrated vocabulary posters and then share the remaining words in a collaborative discussion to close out the lesson.

Lesson will conclude with teacher introducing a take-home assignment about observation. Teacher will read aloud *Step Gently Out* by Helen Frost and Rock Lieder and discuss really noticing the animals around us. Students will be issued digital cameras if available. Otherwise, teacher will procure disposable cameras for student use, or students may be asked to sketch based on close observation. Students are asked to use this camera to observe and safely photograph animals they find in their day to day routine. All cameras must be turned in by Thursday.

To close the lesson, teacher says, “We have learned that animals’ bodies and habits are perfectly created

to help them survive in their habitat and this is called adaptation. Now, you need to be on the lookout for the animals in your neighborhood.”

Lesson 2

Access students’ prior knowledge by asking, “Did anyone get started photographing or sketching species in your neighborhood? Yesterday, we learned how animals use the different parts of their body to survive. What was that called? Today, we will learn about two special types of adaptation—*camouflage* and *mimicry*. Do you know anything about the words *camouflage* or *mimicry*?” Have one child put on a camouflage shirt and two other children come up and “mimic” each other’s moves and actions, asking them, “What is the difference between these?” Play “where is the critter?” by showing the children pictures of camouflaged animals and see if they can find it.

Teacher will set purpose for reading, saying, “I want you to be able to write a short definition of camouflage and mimicry and list some animals that use each by the time we are finished reading these two texts.” The teacher will read aloud “The Walking Stick” (p. 111 in *The Tree That Time Built*) and *What Are Camouflage and Mimicry?* by Bobbie Kalman and John Crossingham. A new Adaptations Chart will be posted (see Figure 6).

Teacher will model completion of one section of the chart: camouflage—“What Is It?” (a color or pattern on an animal’s body that allows it to blend in with a certain background), and “Who Uses It?” (white-tailed deer, leaf-tailed gecko, katydid, arctic fox, polar bear).

TABLE 3. Week 2: Vocabulary

English Learner supports include total physical response acting out vocabulary, using pictures from their home to relate vocabulary, using real-life objects to represent adaptations			
Lesson 1	Lessons 2 and 3	Lesson 4	Lesson 5
adaptation, camouflage, behavioral adaptation, mimicry, physical adaptation, migration, predator, transparent, prey, paralyze, bioluminescence, mate	mimicry, camouflage	migration	adaptation, camouflage, behavioral adaptation, mimicry, physical adaptation, migration, predator, transparent, prey, paralyze, mate

FIGURE 6. Adaptation Chart

Adaptation: Is It Physical or Behavioral?	What Is It?	Who Uses It?
Camouflage—physical	A color or pattern on an animal’s body that allows it to blend in with local background	white-tailed deer, leaf-tailed gecko, katydid, Arctic fox, polar bear
Mimicry—physical and behavioral		

Students will help teacher fill in second section while recreating this chart for their own use in their Reader's Response Logs (see Figure 3).

To close the lesson, teacher says, "Camouflage and mimicry are just two types of physical adaptations that animals use to help them survive. This week, we will be looking at other types of physical and behavioral adaptations that help animals survive in their habitat."

Lesson 3

Teacher will set purpose for reading by saying, "Listen for the physical adaptation that this animal uses." The teacher will read aloud "The Chameleon" on p. 72 in *The Tree That Time Built*.

The teacher will present the class with his or her own fantasy animal featuring a variety of adaptations specifically suited for survival in the animal's habitat. Teacher will point out the title, labeled adaptations, and explanation of how that adaptation helps the animal to meet its needs to survive.

Teacher will set a purpose for learning, saying, "Today we will create animals that use physical adaptations to survive in their habitat." Teacher will display a copy of the instructions. Students' task is to follow the instructions to create a fantasy animal that has a variety of adaptations. The students can be creative by using markers, construction paper, and glue to create a pretend animal that has relatable adaptations. They will then label each adaptation using a fold-over format and explain how that animal uses its adaptation to survive in its habitat. Referring to the Animal Body Part and Functions Chart in Figure 5, the students may use any of those adaptations or use others of their own liking. Students may also use any chart or text resources in the room to complete the assignment. At the end, they will present their animal to the group. Audience members will be asked to guess the adaptation and potential use. The presenter will then open the folded label and reveal what he or she had in mind. Discussion may follow about how a particular adaptation is suited to a variety of purposes.

To close the lesson, teacher says, "As you can see from our many animals, it is sometimes very easy to determine where an animal lives or how it eats just by looking at its body parts. This is often how scientists determine the habits of animals that no longer exist. They use existing fossils to conclude the habits the animal must have had based on the shape of body parts."

Lesson 4

Teacher will set a purpose, saying, "While we read this passage chorally, I would like you to think about your

fluency practice and also recall yesterday's learning about animals' adaptations." The class will chorally read "Structural and Behavioral Adaptations," a short expository text from New Hampshire Public Television.

The teacher will introduce behavioral adaptations, specifically migration. Teacher will set a purpose for reading, referring to the chart: "As I read, I want you to consider what migration means and why animals and some plants would have to do it." The teacher will conduct a read-aloud of *They Swim the Seas* by Seymour Simon. The teacher will then add migration to the Adaptation Chart in Figure 6, noting that it is a behavioral adaptation. A variety of books about migration exist including *Adelina's Whales* by Richard Sobol, *The Journey* by Cynthia Rylant, *Great Migrations* by Elizabeth Carney, and *Bird, Butterfly, Eel* by James Prosek. Have the children physically act out the word *migration* by standing and moving from "north to south" according to predefined spaces in the room.

Students may pair off or get in small groups for partner/group choral reading of selected texts. They may then create a summary of the animal, where it migrated to and from, why it migrates, and any additional details that are important to know. The groups may set up their learning at each table.

Then the teacher can conclude the lesson with a gallery walk, where the students, as a class, walk to each presentation noting the thing they believe to be most important about each different animal's migration.

Lesson 5

Access students' prior knowledge by asking, "Can anyone tell me about their favorite picture they took? Did you get a good shot? I chose some of my favorites and placed them around the room. Let's do a gallery walk and see if we notice anything. Discuss. Did anyone see any adaptations?"

Teacher will use student photos to create close-up shots and supplement with clip art as necessary. Different groups will use the created charts and classroom texts to determine the different adaptations animals have in their own community. Students will create posters for display about the animals, including a title, labels, and definitions of the physical and behavioral adaptations that the animal exhibits. They may also link that animal's adaptation to other adaptations they have learned and cite the reference for their learning.

To close the lesson, teacher says, "In these two weeks, we have discussed different habitats that exist all over the world and how animals' bodies and habits have changed to help them survive in these different habitats. Behavioral and physical adaptations help animals

survive. Next week, we will discuss some of the ways humans are making it more difficult for animals and plants to survive on our planet.”

Week 3: Negative Changes in Our Environment

Group Description

These lessons are designed for pairs, small groups, and whole-group instruction.

Materials

- Nonfiction
 - *A River Ran Wild* by Lynne Cherry
 - *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston
 - *Dear Children of the Earth* by Schim Schimmel
- Fiction
 - *The Great Kapok Tree* by Lynne Cherry
 - *The Great Squirrel Uprising* by Dan Elish
- Photos, texts, or articles about pollution and human impact on the environment
- String, hangers, and cardstock to create mobiles

Objectives

- Infer a possible reason a species became endangered or extinct.
- Analyze the effects of changes in the environment on the stability of an ecosystem.
- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
- Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
- Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- 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.

- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- Read with sufficient accuracy and fluency to support comprehension.

Common Core State Standards and Learning Goals Achieved

[Language, Grade 4, Standard 1](#)

[Reading: Foundational Skills, Grade 4, Standard 4](#)

[Reading: Literature, Grade 4, Standard 9](#)

[Reading: Informational Text, Grade 4, Standard 1](#)

[Reading: Informational Text, Grade 4, Standard 4](#)

[Speaking and Listening, Grade 4, Standard 1](#)

[Speaking and Listening, Grade 4, Standard 4](#)

[Writing, Grade 4, Standard 3](#)

[Writing, Grade 4, Standard 7](#)

[Writing, Grade 4, Standard 8](#)

Texts/Center Activities to Be Used During Week 3

- Teacher may gather a variety of magazines and poems that allow students opportunities to read about endangered and extinct animals and the scientists who study them.
- Students may use a map at a center to chart the location of endangered species.
- Teacher may gather a variety of magazines from which students may collect examples of scientists, writers, philanthropists, and so forth whose actions have positively impacted the environment. Create a T-chart with People labeling one column and Contributions labeling the other. Allow students to add to the chart during center time as they continue their reading and learning.

Procedures

Lesson 1

Access students’ prior knowledge by saying, “In the last two weeks, we’ve studied a variety of habitats and ways animals have changed their body structure and behavior to survive in those habitats. This week, we will look at how humans have changed the animals’ and plants’ habitats.” Show students the recent news story about global

warming from the Environmental Protection Agency’s website, www.epa.gov/climatestudents. Teacher will set purpose for reading, saying, “Please listen for the common theme running through these two texts.” Teacher will read aloud “Goodbye, Goldeneye” (p. 155), “Landscape” (p. 163), and “Buffalo Dusk” (p. 161) in *The Tree That Time Built*. Class will discuss theme.

Teacher will set a purpose for student reading, saying, “While reading this selection, you are looking for things that humans did that negatively impacted the river habitat.” Students will chorally read in groups *A River Ran Wild: An Environmental History* by Lynne Cherry. Class discussion will follow. Teacher will model the Human Action and Impact Chart (see Figure 7) referring to text details. Students will re-create the chart in Reader’s Response Log (see Figure 3).

Teacher will introduce new vocabulary words—*pollution, smog, litter, landfill, global warming, ozone, endangered, extinct* (see Table 4 for a complete list of this week’s vocabulary words). Teacher will review steps for completion of one Illustrated Vocabulary (see Figure 2) including new word, definition, example sentence with the word used in the text, and a sentence using the word in the children’s own words. Student pairs will be asked to create Illustrated Vocabulary posters.

To close the lesson, class will share remaining words in a collaborative discussion to close out the lesson.

Lesson 2

Access students’ prior knowledge by saying, “Yesterday, we discussed some of the negative ways humans impacted the river habitat. Today, we are looking at another selection that deals with the rainforests. Remember the tropical rainforest that we created.” Teacher will refer to four-tiered display of the rainforest.

Teacher will set purpose for reading, saying, “I want you to listen today to see how deforestation is negatively impacting these habitats.” Teacher will read aloud *The Great Kapok Tree* by Lynne Cherry. Class discussion will follow while referring to text for details to add to the Human Action and Impact Chart (see Figure 7).

Teacher announces, “Today we are going to research some of the causes of the problems that are happening in the environment.” Teacher will divide students into teams and distribute articles, texts, or real photographs that address the issues of litter, pollution, global warming, deforestation, oil spills, ozone degradation, and so forth. Also, students may use other text or online resources to determine what causes are contributing to these environmental plagues.

To close the lesson, students will gather to share the different human activities that are contributing to these problems in our environment and add their research to the Human Action and Impact Chart.

Lesson 3

Access prior knowledge and set purpose for reading by saying, “This is a short book about the human impact on the environment of Central Park. I want you to listen for how the animals felt about the situation.” Read aloud *The Great Squirrel Uprising* by Dan Elish. Review the latest version of the Human Action and Impact Chart (see Figure 7) and discuss.

Teacher will present *Dear Children of the Earth* by Schim Schimmel on an overhead screen for students to chorally read. Then students will make lists in pairs of the words or ideas that affected them most.

Students will then draft a letter to their own grandchildren apologizing for the things that may happen to the Earth while they are alive. They will explain how

FIGURE 7. Human Action and Impact Chart

Cause/Human Action	Problem/Effect	Impacted Habitat	Impacted Species

TABLE 4. Week 3 Vocabulary

English learner supports for vocabulary included hands-on experience with real objects (litter, recycling), visual supports (charts, graphic organizers), technology experiences (videos, apps, photographs), group work, shared writing, literature supports, physical models (rainforest example)				
Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
pollution, smog, litter, landfill, global warming, ozone	pollution, smog, litter, landfill, global warming, ozone	pollution, smog, litter, landfill, global warming, ozone	endangered, extinct	endangered

things were when they came to live on Earth and how they tried to fix things. How will their grandchildren's lives be different because of how humans have impacted the environment? In closing they should offer their heartfelt advice.

To close the lesson, student pairs will share their letters with the whole class as a read-aloud or as a gallery walk with discussion to follow. Teacher may consider adding copies of these letters to a class time capsule to be buried on site.

Lesson 4

Access students' prior knowledge by saying, "We have been discussing the negative impact of human activities on animal and plant life. We have talked about endangered and extinct species. What can you tell me about endangered animals?"

Teacher will create a list of endangered animals and collect associated texts. Students will divide into research teams to investigate the animals. Teacher will help students create a chart to organize their findings. Groups will gather research to create an endangered species poster including illustration, location, special needs, diet, why it's endangered, how humans could have prevented this situation, what humans can do to remedy the situation.

To close the lesson, students will display their Endangered Species Animal Poster. Then students will take a gallery walk making notes of similarities and differences.

Lesson 5

Access students' prior knowledge by saying, "Yesterday we worked in teams to create endangered animal posters. We learned a lot about why some animals became endangered. Tell your partner what stuck out most to you. After they have had time to share, have partner groups share their findings."

Then announce, "Today, we are going to use those posters and our other texts to create mobiles that we can display around the school to educate others about the endangered animals. Each student will be able to choose his or her own animal from this list. You will be given 10 squares that are different in size. You will use the largest squares for the most important information. This way, you will be telling your audience what information you feel they need to know the most. We call that prioritizing."

In addition to creating the mobile, students will write the name of the text or chart where they got the information on the bottom of each square and this will act as a collective bibliography. Students may vary size for

priority. They should include illustrations, and attach to a hanger for display.

To close the lesson, students will share their mobiles with the class or small group and explain why they prioritized the information the way that they did. "This week we have looked at how human actions have negatively impacted the habitats of other living things. Next week, we are going to look at powerful examples of how humans have positively impacted the environment and consider what we can do to help."

Week 4: The Environment and Our Future

Group Description

These lessons are designed for small-group and whole-group instruction.

Materials

- Film
 - *Taking Root* by Lisa Merton
- Nonfiction
 - *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston
 - *Seeds of Change* by Jen Cullerton Johnson
 - *Rachel Carson and Her Book That Changed the World* by Laurie Lawlor
 - *Mama Miti* by Donna Jo Napoli
 - *The Camping Trip That Changed America* by Barb Rosenstock
 - *Wangari's Trees of Peace* by Jeanette Winter
 - *The Watcher* by Jeanette Winter

Objectives

- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
- Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
- Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- Conduct short research projects that build knowledge through investigation of different aspects of a topic.

- 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.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- Read with sufficient accuracy and fluency to support comprehension.

Common Core State Standards and Learning Goals Achieved

[Reading: Foundational Skills, Grade 4, Standard 4](#)

[Reading: Informational Text, Grade 4, Standard 1](#)

[Reading: Informational Text, Grade 4, Standard 4](#)

[Reading: Informational Text, Grade 4, Standard 5](#)

[Speaking and Listening, Grade 4, Standard 2](#)

[Speaking and Listening, Grade 4, Standard 4](#)

[Writing, Grade 4, Standard 4](#)

Texts/Center Activities to Be Used During Week 4

- Students may read short expository pieces and make text-to-text connections with other people’s contributions. There are many articles related to children’s efforts in changing local ecosystems.
- Students may read poems on p. 167 “Who Am I?” in *The Tree That Time Built* by Mary Ann Hoberman and Linda Winston to develop expression and fluency.

Procedures

Lesson 1

Access students’ prior knowledge by asking, “What do you know about chimpanzees? Today we are going to learn about a woman who taught so many of us all the

things we know about chimps. Along the way, we are going to work on sequencing the story so it makes more sense to us.” Teacher will introduce new vocabulary for the week (see Table 5).

Today’s lesson will be heavy on the “I do” part. The students will be learning a new way to demonstrate their learning. The teacher will introduce the human body sequencing chart (see Human Timeline in Figure 8) and create a human shape by adding legs, arms, and a head to a rectangle. The teacher will fold the rectangle into an accordion shape for the number of entries to add to the timeline. Then, the timeline should be folded in such a way that only the section closest to the legs shows making the chart as short as it can be. Then the teacher will add the first entry, and continue to unfold and add entries as necessary until the sequence of events of an entire life is complete. This is a fun way for students to visualize the passage of time as it relates to a lifespan. Students may begin to decorate their human form in the way that best represents the person they are studying.

Read aloud *The Watcher* by Jeanette Winter and add details to the Human Timeline to demonstrate Jane Goodall’s growth toward becoming an advocate for the chimpanzees.

To close the lesson, the teacher will use the Human Timeline by unfolding the body piece by piece as the students chorally read each of Goodall’s steps along the path toward advocacy for the animals and the environment. Then the teacher should recap learning about habitats, adaptations, and human impact on the environment, and point out how Goodall used herself to be a positive impact for living things and their habitats.

Lesson 2

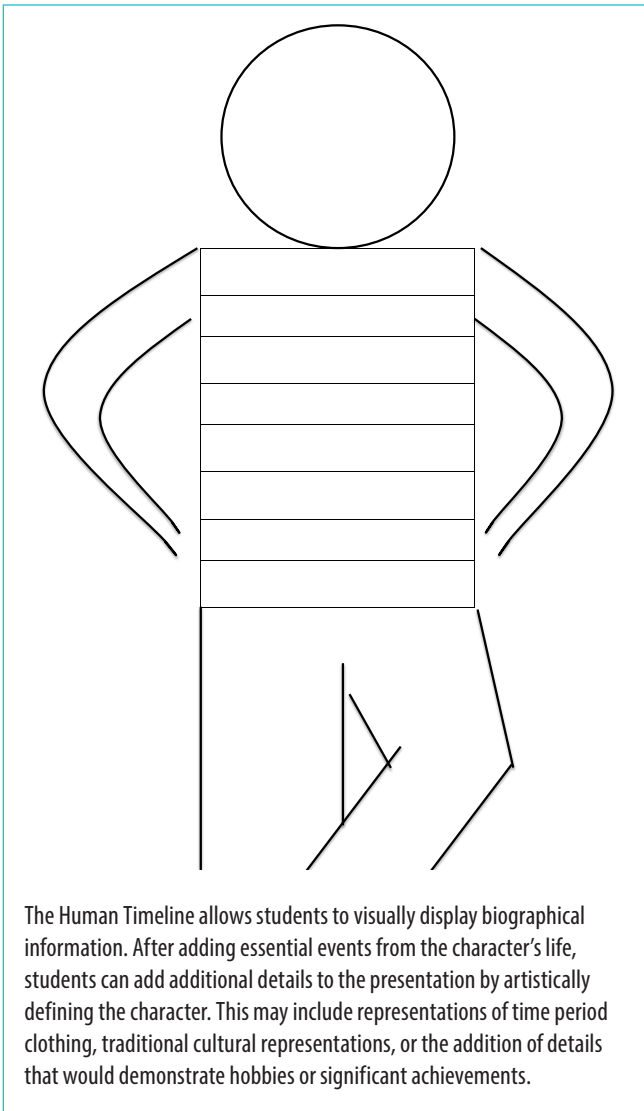
Access students’ prior knowledge by asking, “Have you ever come home and before you even talked to someone, you were upset about something? Today we are going to learn about a girl who came home to a city that was different from how she left it, so she was inspired to action.”

The teacher will set a purpose for reading, saying, “We will be listening for sequencing and creating a

TABLE 5. Week 4 Vocabulary

English learner supports for vocabulary included scaffolded instruction, collaborative group work, and visual supports for a person’s accomplishments/life across time.				
Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
advocacy, conservation, protection, activism, save, recycle, responsibility, protect	advocacy, conservation, protection, activism, save, recycle, responsibility, protect	advocacy, conservation, protection, activism, save, recycle, responsibility, protect	advocacy, conservation, protection, activism, save, recycle, responsibility, protect	advocacy, conservation, protection, activism, save, recycle, responsibility, protect

FIGURE 8. Human Timeline



Human Timeline together.” Another blank Human Timeline (see Figure 8) should be prepared. In advance, the teacher should mark sections of the book to be highlighted as entries to the timeline. The teacher will read aloud *Rachel Carson and Her Book That Changed the World* by Laurie Lawlor. The teacher will guide the students through the process of selecting important information and organizing it appropriately to tell the sequence of events of Carson's life.

To close the lesson, the teacher will use the Human Timeline by unfolding the body piece by piece as the students chorally read each of Carson's steps along the path toward advocacy for the environment. Then the teacher may point out how Carson used herself and her writing to be a positive impact for living things and their habitats, saying, “Tomorrow we will work in teams to create a timeline of two other men who positively impacted

the environment—one with his strong writing and the other with the power of his position.”

Lesson 3

Access students' prior knowledge by asking, “What do you know about persuasive writing? Today we are going to learn about a man, John Muir, who wrote something so powerful that the President of the United States, Theodore Roosevelt, changed our nation's environmental policy.”

Students will read copies of *The Camping Trip That Changed America* by Barb Rosenstock. Then in working groups, students may choose to represent John Muir or Theodore Roosevelt using the Human Timeline.

When all students have finished, the class will review the representations of both men and discuss the most important steps in each of their lives toward their achievements for the environment.

Lesson 4

Access students' prior knowledge by asking, “Have you felt like the world has problems that are so big that you can't really make a difference so why bother? Today we will learn about a woman who found one of those big problems, but she decided to change things rather than accept them.”

The teacher will divide students into groups. Students will read any of the books about Wangari Maathai's contribution to the vegetation of Africa. A few are *Seeds of Change* by Jen Cullerton Johnson, *Wangari's Trees of Peace* by Jeanette Winter, and *Mama Miti* by Donna Jo Napoli. There is also a powerful film outlining the progress called *Taking Root: The Vision of Wangari Maathai* by Lisa Merton. Students will then demonstrate their learning by sequencing the events that led Maathai to change her country in the way that she did.

To close the lesson, students will recap learning about habitats, adaptations, and negative human impact. The teacher will point out how Maathai used herself and her knowledge to be a positive impact for living things and their habitats. Teacher says, “Tomorrow we will use all of our learning up to this point to create your own human timeline to outline the actions you hope to take throughout their life to positively impact the habitat we all share—Earth.”

Lesson 5

Teacher should demonstrate his or her very own Human Timeline (see Figure 8) with any actions taken throughout his or her life that contribute to the future. One should definitely be teaching children about the importance of caring for the Earth and her inhabitants.

Teacher says, “Remember how some of the people that we have studied used their eyes, their voice, their writing, their position, their influence, their knowledge.” Students should consider their gifts and interests to create a Human Timeline telling their story of impact in the world. Students should create a rough draft and discuss their entries with a partner or teacher prior to creating the full timeline.

To close the lesson, let each student present his or her Human Timeline of ways he or she plans to impact the world. Cheer the students on in their hopes.

Culminating Project

Teacher will collect samples of all student work to create a multigenre bulletin board. It may feature habitat want ads, student productions and explanations of adaptations, endangered animal mobiles, endangered animal posters, Human Timelines, learning charts, and daily content writing.

Assessment

Many opportunities for assessment have been included in this lesson. The goal for quality teaching should be mastery rather than grading, so a variety of checks for understanding are included alongside pieces that can be assessed for grades. Additionally, all assessment pieces designated for grading purposes include a rubric that can be used as is or differentiated to meet the standards and differentiated learning objectives of any classroom (see Figures 9–15).

Week 1 Assessment Opportunities

For Understanding

- Contribution to collaborative discussion in developing Venn diagram
- Contribution to description of multitiered rainforest
- Recording of five areas of interest

For Grading

- Illustrated Vocabulary
- Roommate/Inhabitant Wanted ad
- Two-dimensional swamp/marsh habitat

Week 2 Assessment Opportunities

For Understanding

- Contribution to collaborative discussion: What parts are used for

- Contribution to camouflage and mimicry chart
- Determining other students’ intended adaptations
- Migration summary of chosen animal
- Main Ideas list from each student presentation

For Grading

- Illustrated Vocabulary
- Adaptations: Fantasy animal
- Poster: Local animals’ adaptations

Week 3 Assessment Opportunities

For Understanding

- Contribution to collaborative discussion: Human impact

For Grading

- Illustrated Vocabulary
- Letter to Grandchildren
- Mobile: Endangered Species

Week 4 Assessment Opportunities

For Understanding

- Contribution to collaborative discussion: Human Timeline
- Small-group discussion and writing to create Human Timeline

For Grading

- Illustrated Vocabulary
- Human Timeline of Muir, Roosevelt, and Maathai
- Personal Human Timelines

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FIGURE 9. Weeks 1–4: Daily Content Writing Evaluation Rubric

This rubric can be used with students’ daily writing in their science journals or logs. It evaluates consistency of the writing, incorporation of new vocabulary, demonstration of understanding as well as general conventions. Specific objectives desired in any classroom can be added to properly differentiate for any student population.

	1	2	3	4	5
Completed	Student completed Daily Content Area Writing 0 or 1 days this week.	Student completed Daily Content Area Writing 2 days this week.	Student completed Daily Content Area Writing 3 days this week.	Student completed Daily Content Area Writing 4 days this week.	Student completed Daily Content Area Writing 5 days this week.
Use of New Vocabulary	Student fails to use new vocabulary.	Student uses one or two new words, but without transfer of meaning.	Student uses at least one new word per entry and may be stuck on one or two certain words. Meaning is mostly intact.	Student uses several new words and maintains meaning.	Student is comfortable using most new vocabulary and demonstrates full knowledge of meaning by extending thoughts beyond classroom examples.
Understanding	Student fails to demonstrate understanding.	Student’s explanation of learning is vague and lacks any details.	Student’s explanation of learning is clear and reflects what was taught.	Student’s explanation of learning demonstrates folding information into prior knowledge.	Student’s explanation of learning demonstrates folding information into prior knowledge and extending into additional learning areas.
Editing for Grammar, Usage, Mechanics	Grammatical and usage mistakes greatly hinder readers’ ability to understand.	Grammatical and usage mistakes compromise meaning in a few areas.	Student has some grammatical and usage mistakes, but meaning is mostly intact.	Grammatical and usage mistakes do not significantly take away from meaning.	Grammatical and usage mistakes are very rare. Meaning is clear.

FIGURE 10. Weeks 1–3: Illustrated Vocabulary Evaluation Rubric

This rubric can be used with students’ illustrated vocabulary. It evaluates definition, reference, demonstration of transference both in words and illustration, as well as general conventions. Specific objectives desired in any classroom can be added to properly differentiate for any student population.

	1	2	3	4	5
Definition	Response is in no way aligned with the word meaning.	Student relies solely on own prior knowledge for meaning.	Student relies on prior knowledge, discussion or text for meaning.	Student uses appropriate reference material to determine word meaning.	Student uses appropriate reference material to determine word meaning, but uses his or her own words to make the definition personally meaningful.
Refer to Text Details	Student fails to cite how word was used in text.	Student uses similar subject matter as text, but does not cite.			Student uses an appropriate text citation including the new word.
Personal Use of Vocabulary	Student fails to use word or uses it in such a way as to demonstrate no understanding.	Student uses word but fails to maintain full meaning.	Student adequately uses word in personal sentence maintaining meaning.	Students grasps meaning of word and may relate it to personal life.	Student fully grasps meaning of word, uses it effectively and relates it to other knowledge.
Illustration Demonstrating Meaning	No illustration or illustration is not related to new vocabulary.	Illustration seems related, but the connection to the new word is unclear.	Clear connection between meaning and illustration.	Obvious connection with illustration and meaning. Some design flair to enhance understanding.	Obvious connection with illustration and meaning. Design flair to enhance understanding. May include word bubbles or environmental print that reinforces meaning.
Editing for Grammar, Usage, Mechanics	Grammatical and usage mistakes greatly hinder readers’ ability to understand.	Grammatical and usage mistakes compromise meaning in a few areas.	Student has some grammatical and usage mistakes, but meaning is mostly intact.	Grammatical and usage mistakes do not significantly take away from meaning.	Grammatical and usage mistakes are very rare. Meaning is clear.

FIGURE 11. Week 1: Desert Want Ad Rubric

This rubric can be used with students' Desert Want Ad. It evaluates reference to text details, details of genre, organization and presentation.

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Text Details from <i>Deserts</i> by Gail Gibbons	Student refers to the text for details and information on desert amenities. Student includes 1 desert amenity from the text.	Student refers to the text for details and information on desert amenities. Student includes 2 desert amenities from the text.	Student refers to the text for details and information on desert amenities. Student includes 3 desert amenities from the text.	Student refers to the text for details and information on desert amenities. Student includes 4 or more desert amenities from the text.	
Details of Want Ad	Includes one 1 of the following: name, contact information, location, and picture	Includes only 2 of the following: name, contact information, location, and picture	Includes only 3 of the following: name, contact information, location, and picture	Includes all of the following: name, contact information, location, and picture	
Persuasive Writing	Student writing is unclear and confusing and gives irrelevant reasons to live in the desert. Supporting details are irrelevant and inaccurate. Word choice is repeated and conventions are misused.	Limited student writing is clear and focused and gives limited relevant reasons to live in the desert. Limited precise and relevant supporting evidence is presented. Limited correct and varied word choice and limited strong conventions.	Some student writing is clear and focused and gives some relevant reasons to live in the desert. Some precise and relevant supporting evidence is presented. Some correct and varied word choice and some strong conventions.	Student writing is clear and focused and gives relevant reasons to live in the desert. Precise and relevant supporting evidence is presented. Correct and varied word choice and strong conventions.	
Organization and Readability	Student's pictures and labels are confusing and placed in illogical sequences. Student's handwriting is illegible.	Student organizes only half of pictures and labels clearly. Student uses neat and legible handwriting on half of the representation.	Student organizes most pictures and labels clearly. Student mostly uses neat and legible handwriting.	Student organizes pictures and labels clearly. Student uses neat and legible handwriting.	
Presentation	Student cannot be heard and does not look at audience. Student does not understand topic, and presentation is confusing and hard to understand.	Student has to repeat himself or herself to be heard and looks at the ground most of the time. Student demonstrates only partial knowledge of subject and order of presentation is confusing.	Student speaks clearly and makes eye contact with audience for most of the presentation. Student mostly demonstrates knowledge of subject and presents it in a logical order.	Student speaks clearly and makes eye contact with audience the whole presentation. Student demonstrates full knowledge of subject and presents it in a logical order.	

FIGURE 12. Week 1: Two-Dimensional Swamp Representation

This rubric can be used with the students' Swamp Representation. It provides evaluation criteria for reference to text details, labeling, accuracy, organization and presentation.

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Text Details from <i>Marshes & Swamps</i> by Gail Gibbons	Student refers to the text for details and information. Student includes at least 1 detail from the book in the swamp representation.	Student refers to the text for details and information. Student includes at least 2 details from the book in the swamp representation.	Student refers to the text for details and information. Student includes 3 details from the book in the swamp representation.	Student refers to the text for details and information. Student includes 4 or more details from the book in the swamp representation.	
Label Parts of a Swamp	Student accurately labels 1 part of a swamp.	Student accurately labels 2 parts of a swamp.	Student accurately labels 3 parts of a swamp.	Student accurately labels 4 or more parts of a swamp.	
Accurate Representation of Species	Student accurately includes 1 animal that lives in the swamp.	Student accurately includes 2 animals that live in the swamp.	Student accurately includes 3 animals that live in the swamp.	Student accurately includes 4 or more animals that live in the swamp.	
Organization and Readability	Student's pictures and labels are confusing and placed in illogical sequences. Student's handwriting is illegible.	Student organizes only half of pictures and labels clearly. Student uses neat and legible handwriting on half of the representation.	Student organizes most pictures and labels clearly. Student mostly uses neat and legible handwriting.	Student organizes pictures and labels clearly. Student uses neat and legible handwriting.	
Presentation	Student cannot be heard and does not look at audience. Student does not understand topic, and presentation is confusing and hard to understand.	Student has to repeat himself or herself to be heard and looks at the ground most of the time. Student demonstrates only partial knowledge of subject and order of presentation is confusing.	Student speaks clearly and makes eye contact with audience for most of the presentation. Student mostly demonstrates knowledge of subject and presents it in a logical order.	Student speaks clearly and makes eye contact with audience the whole presentation. Student demonstrates full knowledge of subject and presents it in a logical order.	

FIGURE 13. Week 2: Adaptations Poster for Fantasy Creature Evaluation Rubric

This rubric can be used with the students' Adaptations Poster. It provides evaluation criteria for incorporation of new vocabulary, presentation, comprehension, representation of adaptations, as well as editing and contribution to discussion.

	1	2	3	4	5
Presentation— Title and Labels	Difficult to determine the subject based on student's representation. No title or labeling.	Presentation fails to adequately demonstrate an animal with physical adaptations. May have few or no labels.	Presentation adequately represents an animal with at least 2 physical adaptations including a title and labels for each adaptation.	Presentation successfully represents an animal with at least 3 physical adaptations including a prominent title and labels for each adaptation. Neat.	Presentation successfully represents an animal more than 3 physical adaptations including a prominent title and labels for each adaptation. Visually appealing.
Use of New Vocabulary	Student fails to use new vocabulary.	Student fails to use new vocabulary correctly.	Student uses at least two new words. Meaning is mostly intact.	Student uses several new words and maintains meaning.	Student is comfortable using most new vocabulary and demonstrates full knowledge of meaning by extending thoughts beyond classroom examples.
Understanding	Student fails demonstrate understanding.	Student's explanation of learning is vague and lacks any details.	Student's explanation of learning is clear and reflects what was taught.	Student's explanation of learning demonstrates deep understanding.	Student's explanation of learning demonstrates deep understanding and extension into additional learning areas.
Adaptations	Student fails to illustrate and correctly label any physical adaptations.	Student illustrates but fails to correctly label any physical adaptations.	Student illustrates and effectively labels at least 2 physical adaptations.	Student identifies and labels at least 3 physical adaptations with meaningful labels and explanations.	Student identifies and labels more than 3 physical adaptations with meaningful labels and explanations.
Editing for Grammar, Usage, Mechanics	Grammatical and usage mistakes greatly hinder readers' ability to understand.	Grammatical and usage mistakes compromise meaning in a few areas.	Student has some grammatical and usage mistakes, but meaning is mostly intact.	Grammatical and usage mistakes do not significantly take away from meaning.	Grammatical and usage mistakes are very rare. Meaning is clear.
Discussion	Student did not contribute or show signs of interest in discussion.	Student was an attentive listener during discussion but failed to contribute.	Student made one contribution during collaborative discussion.	Student offered up to three ideas during the collaborative discussion.	Student was an active player in the collaborative discussion.

FIGURE 14. Week 2: Animal Adaptations Rubric

This rubric can be used with the students' Animal Adaptations presentation. It provides evaluation criteria for reference to text details, organization, presentation, and understanding.

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Text and Chart References	Student refers to the text and charts for details and information. Student shows evidence of drawing conclusions by including 1 detail from these examples.	Student refers to the text and charts for details and information. Student shows evidence of drawing conclusions by including 2 details from these examples.	Student refers to the text and charts for details and information. Student shows evidence of drawing conclusions by including 3 details from these examples.	Student refers to the text and charts for details and information. Student shows evidence of drawing conclusions by including 4 or more details from these examples.	
Animal Title	Student does not include a title.	Student includes an accurate title of the animal but is both misspelled and not written in dark marker.	Student includes an accurate title but it is either misspelled or not written in dark marker.	Student includes an accurate title of the animal that is spelled correctly and written in a dark marker.	
Accurately Defines Adaptations	Student accurately defines 1 physical and behavioral adaptation that the animal exhibits.	Student accurately defines 2 physical and behavioral adaptations that the animal exhibits.	Student accurately defines 3 physical and behavioral adaptations that the animal exhibits.	Student accurately defines 4 or more physical and behavioral adaptations that the animal exhibits.	
Organization and Readability	Student's pictures and labels are confusing and placed in illogical sequences. Student's handwriting is illegible.	Student organizes only half of pictures and labels clearly. Student uses neat and legible handwriting on half of the representation.	Student organizes most pictures and labels clearly. Student mostly uses neat and legible handwriting.	Student organizes pictures and labels clearly. Student uses neat and legible handwriting.	
Presentation	Student cannot be heard and does not look at audience. Student does not understand topic, and presentation is confusing and hard to understand.	Student has to repeat himself or herself to be heard and looks at the ground most of the time. Student demonstrates only partial knowledge of subject and order of presentation is confusing.	Student speaks clearly and makes eye contact with audience for most of the presentation. Student mostly demonstrates knowledge of their subject and presents it in a logical order.	Student speaks clearly and makes eye contact with audience the whole presentation. Student demonstrates full knowledge of their subject and presents it in a logical order.	

FIGURE 15. Week 4: Human Timeline Evaluation Rubric

This rubric can be used with the students' Human Timelines created in Lessons 3 and 5. It provides evaluation criteria for reference to text, demonstration of understanding, selection of essential information, presentation as well as general conventions.

	1	2	3	4	5
Refer to Text Details	Response is in no way aligned with the text.	There is no indication the student referred to the text, but the response makes sense.	Student adequately refers to text and text details.	Student uses details and specific text references on important facts.	Student cites page numbers and quotations heavily to demonstrate how text was used.
Clarity of Thought	Student ineffectively conveys meaning.	Some meaning is lost.	Student adequately understands and is able to convey meaning.	Student's work clearly conveys meaning.	Student's work demonstrates and conveys deep understanding.
Prioritization	Student is unable to prioritize details based on significance.	Student sometimes chose most meaningful events.	Student mostly chose most meaningful events.	Students chose most meaningful events.	Student chose most meaningful events and defended those choices.
Presentation	Difficult to determine the subject based on student's representation.	Presentation fails to adequately represent the subject.	Presentation adequately represents the subject. Includes title.	Presentation is neat and representative of the subject. Includes title and mined text.	Presentation is exceptionally neat, clear and representative of the subject. Includes title and mined text.
Editing for Grammar, Usage, Mechanics	Grammatical and usage mistakes greatly hinder readers' ability to understand.	Grammatical and usage mistakes compromise meaning in a few areas.	Student has some grammatical and usage mistakes, but meaning is mostly intact.	Grammatical and usage mistakes do not significantly take away from meaning.	Grammatical and usage mistakes are very rare. Meaning is clear.

Note: To be used with product of Lesson 3 and 5

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