CLASSROOM GUIDE

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Books to Inspire Learning

Biodiversity: Explore the Diversity of Life on Earth with Environmental Science Activities for Kids

Nomad Press offers concise classroom guides to help educators explore content-related topics with students and encourage them to develop ideas in meaningful ways. Includes Essential Questions and Common Core Connections.
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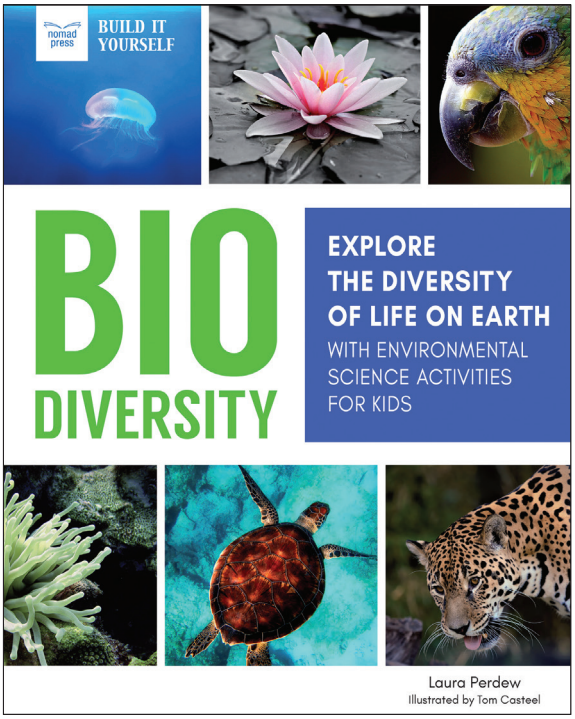


Age: 9–12
Grade: 4–6
Softcover: 9781619307513, $17.95
Hardcover: 9781619307483, $22.95
eBook: all formats available, $12.99
Specs: 8 x 10, 128 pages, color interior
Focus: Environmental Science
GRL: Z

From the tallest tree to the smallest microbe, Earth is home to more than 1.5 million known species of plants, animals, fungi, bacteria, and microorganisms. And scientists estimate there could be millions, if not billions, more that have not yet been identified!

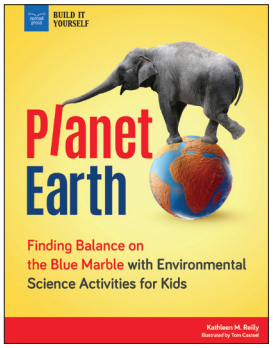
Biodiversity: Explore the Diversity of Life on Earth with Environmental Science Activities for Kids introduces middle schoolers to the evolution of life on Earth, beginning with the first single-celled organisms that emerged 3.8 billion years ago to the complex, multi-celled organisms that exist today and make up the tree of life.

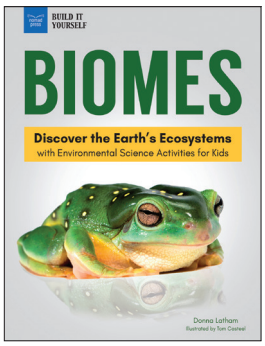
Biodiversity is part of a set of four Build It Environmental Science books that explore the history and science of the planet and all that live on it through hands-on STEM activities and real-life environmental connections. Other titles in this series are *Planet Earth*, *Garbage*, and *Biomes*.

Learn more about *Biodiversity* at nomadpress.net/nomadpress-books/biodiversity

Inspires Interest in STEM

ALSO IN THE ENVIRONMENTAL SCIENCE SET





PLANET EARTH
PB: 9781619307438, $17.95
HC: 9781619307407, $22.95

BIOMES
PB: 9781619307391, $17.95
HC: 9781619307360, $22.95

GARBAGE
PB: 9781619307476, $17.95
HC: 9781619307445, $22.95

ESSENTIAL QUESTIONS TO ASK

KEY VOCABULARY

food web, geologic time, mass extinction, renewable energy, sustainable, watershed, wetlands

BEFORE READING

1 Establish Background Knowledge

a How is everything on the planet related to everything else?

b What kind of biodiversity can you find where you live?

c What kinds of things do you already do to support a healthy environment?

2 Skill Introduction

a What do you do when you come to a word or phrase you do not know?

b How do photographs and videos help someone learn about a topic?

CCC: **CCSS.ELA-Literacy.L.6.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.

DURING READING

1 Check for Understanding

a Why does evolution take so long?

b How has life on Earth become so diverse?

c How does climate change affect levels of biodiversity around the world? Why are scientists so concerned about the future of biodiversity?

d Is there more biodiversity where you live than you were originally aware of? How do you know?

CCC: **CCSS.ELA-Literacy.L.6.5c** Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., stingy, scrimping, economical, unwasteful, thrifty).

Explore the deep history of life on Earth in this interactive timeline from Biointeractive. What do you notice about the evolution of life on Earth?
https://www.hhmi.org/biointeractive/deep-history-life-earth

ESSENTIAL QUESTIONS TO ASK

AFTER READING

1 **Summary and Expansion**

a Where is biodiversity found?

b Where can you find evidence of genetics?

c Why is biodiversity so important? How is biodiversity important to humans?

d What are the threats to biodiversity today? What can we do to protect biodiversity on Earth?

e What role does the rainforest play in the health of the planet? How are rainforests currently in danger?

f Where do humans fall on the food web?

g What can we learn from extremophiles?

h What are some of the things governments around the world are doing to combat climate change?

i How do invasive species get from one place to another? Why is this important to know?

CCC: **CCSS.ELA-Literacy.SL.6.4** Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
CCC: **CCSS.ELA-Literacy.WHST.6-8.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
CCC: **CCSS.ELA-Literacy.RI.6.8** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.

COMMON CORE CONNECTIONS

Grade: 6 Language CCSS.ELA-Literacy.L.6.3,4,4a,4b,4c,4d,5,5b,5c,6

Grade: 6 Reading: Informational Text CCSS.ELA-Literacy.RI.6.1,2,3,4,5,6,7,8,9,10

Grade: 6 Speaking & Listening CCSS.ELA-Literacy.SL.6.1,1c,1d,2,3,4,5,6

Grade: 6-8 Writing HST CCSS.ELA-Literacy.WHST.6-8.1,2,4,6,7,8,9,10

COMMON CORE CONNECTIONS

Grade: 7 Language
CCSS.ELA-Literacy.L.7.3,3a,4,4a,4b,4c,4d,5,6

3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.
3a Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.
4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.
4a Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
4b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).
4c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
4d Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Grade: 6-8 Science & Technical Subjects
CCSS.ELA-Literacy.RST.6-8.1,2,3,4,5,6,7,8,9,10

1 Cite specific textual evidence to support analysis of science and technical texts.
2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades
6–8 texts and topics.
5 Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model,
graph, or table).
8 Distinguish among facts, reasoned judgment based on research findings, and
speculation in a text.
9 Compare and contrast the information gained from experiments, simulations, video, or
multimedia sources with that gained from reading a text on the same topic.
10 By the end of grade 8, read and comprehend science/technical texts in the grades 6–8
text complexity band independently and proficiently.

COMMON CORE CONNECTIONS

Grade: 7 Speaking & Listening
CCSS.ELA-Literacy.SL.7.1,1a,1c,1d,1d,2,3,4,5,6

1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
1a Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
1c Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
1d Acknowledge new information expressed by others and, when warranted, modify their own views.
1d Acknowledge new information expressed by others and, when warranted, modify their own views.
2 Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
3 Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.
4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 7 Language standards 1 and 3 here for specific expectations.)

Grade: 6-8 Writing HST
CCSS.ELA-Literacy.WHST.6-8.2,2a,2b,2b,2d,2f,7,8,9,10

2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
2a Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
2b Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
2b Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
2f Provide a concluding statement or section that follows from and supports the information or explanation presented.
7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
9 Draw evidence from informational texts to support analysis reflection, and research.
10 Write routinely over extended time frames (time for 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.

Activity

GROCERY STORE BIODIVERSITY

We live in a time when a wide variety of food is available to many people in grocery stores. But much of the food in stores travels long distances to get there. Let's take a look!

› **Take a trip to the grocery store.** Bring along your science journal and a pencil.

› **At the store, observe the biodiversity in the produce section.** Right away you should notice the species diversity—apples, oranges, carrots, lettuce, broccoli, and lots more.

› **Now, look more closely.** Is there a species that has more than one type? Perhaps the store is selling Gala, Honeycrisp, and Fuji apples. That is genetic diversity. Take note of the biodiversity you find.

› **Make a chart like the one below to record your findings.**

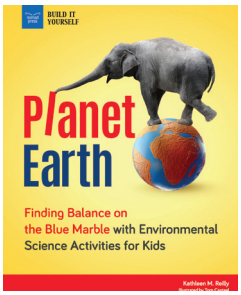
Species Diversity	Genetic Diversity			
Apples	Gala	Honeycrisp	Fuji	Granny Smith
Oranges				
Carrots				
Lettuce				
Broccoli				

Consider This

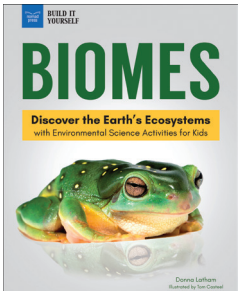
In the store, some species will have great genetic diversity—apples, for example. Why do you think that is? Which species had the greatest genetic diversity? Which had the least? Research how far some of that produce traveled to get to the grocery store so that customers had a wide array of biodiversity to choose from. You may want to take your investigation to other parts of the store. Try the dairy section or even the meat section.

More Books About Environmental Science!

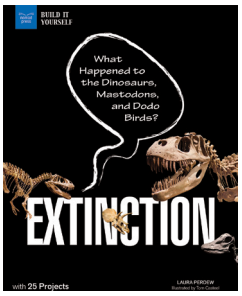
Author: Donna Latham



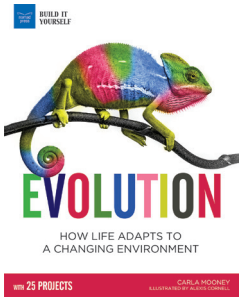
Author: Kathleen M. Reilly



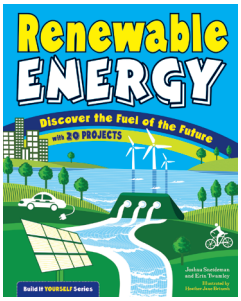
Author: Donna Latham



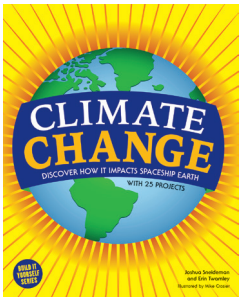
Author: Laura Perdew



Author: Carla Mooney



Author: Erin Twamley and Joshua Sneideman



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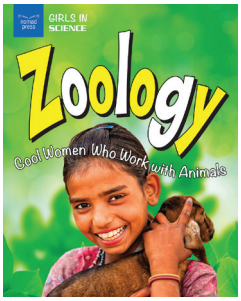
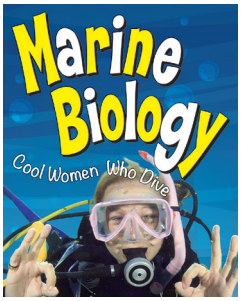


Author: Jennifer Swanson



Author: Karen Bush Gibson

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