

NGSS STANDARDS / K-2 / 100+ DAYS of
Life Science and Engineering, Technology, and Applications of Science
Lesson Plans to use with the read aloud textbook/field guide **Life in the Everglades**

Science Standards Overview: [Next Generation Science Standards at a Glance](#)

Kindergarten Standards: [Kindergarten](#)

First Grade Standards:
[First Grade](#)

Second Grade Standards:
[Second Grade](#)

PRINT this page (K-2 100+ days), your grade-level standards (see link above), and the lesson planning notes page to highlight and date what's covered. Ex: standards, questions, books read, and vocabulary.

ENGAGE

1. Read a book. Before reading, ask questions and discuss prior knowledge to make the book more meaningful.
 - "Let's read about...since we see this right here at our school."
 - "This book is about...I bet we can learn something new."
2. Ask questions about phenomena
 - "I wonder why..."
3. While reading, continue to ask questions:
 - "The book said...Let's read to figure out what that means."
 - "I heard the word...What do you think that means?"
 - "There is a new word in this book. It's called...which means..."

READ-ALOUD SCIENCE BOOKS – Children develop the language skills needed to become readers through meaningful conversations with teachers, oral stories, and having books read to them. Vocabulary development occurs through listening, intentional modeling and practice.

Read Aloud Textbook/Field Guide

Life in the Everglades: A Young Naturalist's Manual and Field Guide by Mindy Dickman

EXPLORE

For additional books and complete lesson plans, please refer to the [book list](#) located on the teacher resources page.

Take a nature walk as an observer/naturalist.

Bloom's Critical Thinking Questions

<https://www.linnbenton.edu/student-services/library-tutoring-testing/learning-center/academic-coaching/documents/20-Bloom-Question-Cues-Chart.pdf>

Use “big idea” questions. Find elaborate answers in the NGSS Framework, Chapters 6 and 8 linked here:

<https://nap.nationalacademies.org/catalog/13165/a-framework-for-k-12-science-education-practices-crosscutting-concepts>

Life Science

- How do organisms live, grow, respond to their environment, and reproduce?
- How do the structures of organisms enable life's functions?
- How do organisms grow and change?
- How do organisms obtain and use the matter and energy they need to live and grow?
- How do organisms detect, process, and use information about the environment?
- How and why do organisms interact with their environment and what are the effects of these interactions?
- How do organisms interact with the living and nonliving environments to obtain matter and energy?
- How do matter and energy move through an ecosystem?
- What happens to ecosystems when the environment changes?
- How do organisms interact in groups so as to benefit individuals?
- How are characteristics of one generation passed to the next?
- How can individuals of the same species and even siblings have different characteristics?
- How are the characteristics of one generation related to the previous generation?
- Why do individuals of the same species vary in how they look, function, and behave?
- How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?
- How does biodiversity affect humans?
- What evidence shows that different species are related?
- How does the environment influence populations of organisms over multiple generations?
- What is biodiversity, how do humans affect it, and how does it affect humans?

Engineering, Technology, and applications of science:

- How do engineers solve problems?

- What is a design for?
- What solutions can we come up with by brainstorming ideas using models?
- What makes one solution better than another?
- How can different designs be compared and improved?
- How are engineering, technology, science, and society interconnected?
- How do science, engineering, and the technologies that result from them affect the ways in which people live? How do they affect the natural world?

SAMPLE MATERIALS

Science journal

Ruler

Magnifying glass

Digital infrared thermometer for habitat research

Seeds/soil/water/sunlight for plant research

Caterpillars and larval host plant for animal life cycle research

Outdoor area to observe nature

EXPLAIN

1. Increase word use and knowledge by using complete sentences that include descriptive words and phrases on a nature walk.
 - “Look at that arachnid. It has eight legs. Spiders are in the arachnid family.”
 - “Those flowers are Spanish needles. Let’s look for milkweed.”
 - “I saw a cardinal. A cardinal is a type of bird. I wonder if we can see a peacock, white ibis, or other bird.”
2. Higher-order thinking questions to solicit student explanations and help them justify their explanations. Try to keep the lesson as student-centered as possible.
3. Use non-fiction texts to explain concepts.

ELABORATE

1. Connect vocabulary to students’ observations.
2. How is this knowledge applied to our daily lives?

EVALUATE

1. Student descriptions include written, oral, pictorial, and kinesthetic.
2. Claims/Evidence/Reasoning Rubric
<https://static.nsta.org/connections/elementaryschool/201908CERRubric.pdf>

VOCABULARY – LIFE SCIENCE

scientist	feather	offspring	pollution
organize	breathe	organism	environment
data	jaw	grow	resource

identify	lungs	parent	reduce
describe	sense	trait	reuse
evidence	skin	life form	water cycle
observe	ecosystem	species	weather
pattern	pond	inherit	rain
graph	lake	living things	cloud
experiment	sunlight	nonliving things	climate
gills	nutrients	basic needs	wind
paw	endangered	oxygen	alive
flipper	conservation	water	reproduce
fur	shelter	metamorphosis	air
claw	habitat	pupa	microscope
tail	sustainable	chrysalis	nectar
fin	river	larva	pollen
scale	ocean	caterpillar	react
zoology	wetland	butterfly	mate
fish	forest	plant	cells
mammal	population	flower	dead
bird	community	seed	proboscis
insect	sand	leaves	carbon dioxide
amphibian	soil	fruit	waste
animal	predator	root	
reptile	energy	stem	
invertebrate	producer	sun	
fly	food chain	seedling	
beak	consumer	sprout	
wing	herbivore	tree	
talon	carnivore	shrub	
hatch	prey	grass	
egg	life cycle	recycle	

VOCABULARY - SCIENTIFIC INQUIRY

explore	test	teamwork	characteristics
naturalist	record data	produce	liquid

observe	relationship	create	solid
predict	scientific method	luster	gas
scientist	graph	shape	composition
organize	chart	texture	rust
data	sequence	color	heat
identify	compare	rough	temperature
describe	tally chart	smooth	made up of
evidence	bar graph	size	location
experiment	analyze	appearance	science
pattern	control	shiny	property
graph	hypothesize	surface	mass
five senses	trials	soft	takes up space
record	make conclusions	circular	volume
thermometer	communicate	straight	substance
measure	investigate	rectangle	material
decrease	problem	triangle	mixture
increase	solution	circle	change
classify	imagine	dull	phenomena
technology	engineering		

At this stage, much of the oral language and vocabulary development occurs through: shared readings, oral stories, listening, balancing fiction and nonfiction texts, direct and explicit instruction in the meanings of specific words, and having more sophisticated oral language interactions.

[Guidance for Educators Using a Balanced Literacy Program | Reading Rockets](#)

The link above is a good article that answers the question: What is the Science of Reading? The term Science of Reading is in reference to a report written by the National Reading Panel in 2000. It was a meta-analysis of the reading research done from 1966-2000, including research on phonemic awareness, phonics instruction, fluency, reading comprehension, and vocabulary instruction.

Some children may struggle to read due to a combination of factors including inadequate early literacy experiences (not being read to regularly), poor reading instruction methods, lack of phonemic awareness/phonics instruction, limited vocabulary exposure, learning disabilities like dyslexia, socio-economic disadvantages, and sometimes, a lack of motivation to read.