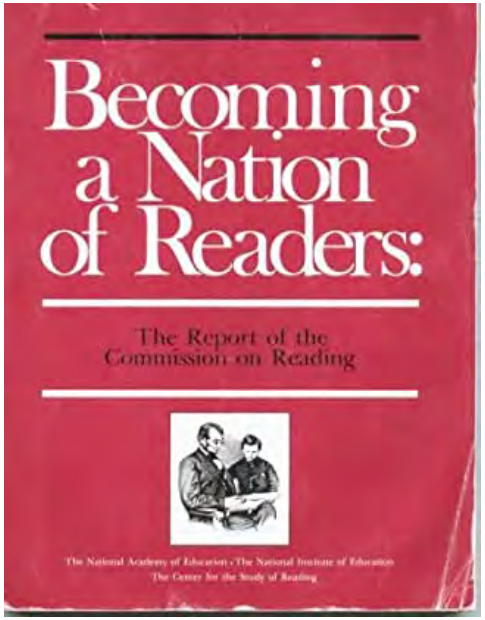
The Science of Reading Underlying *myView*: Vocabulary, Text Complexity, and Reading Volume

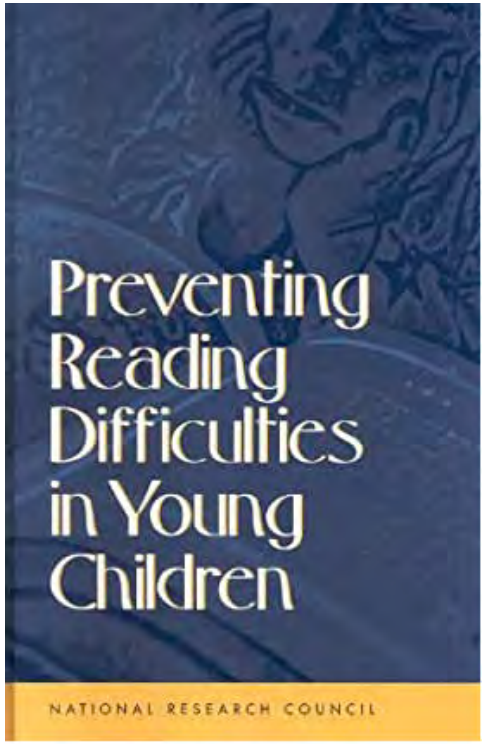
Elfrieda H. Hiebert

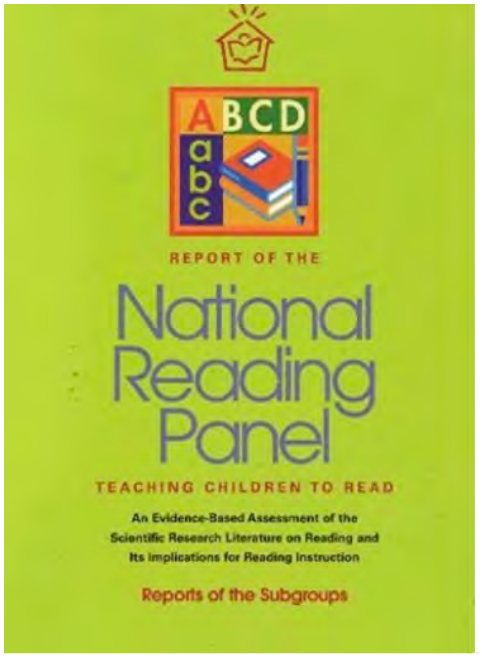
TextProject



1985
- Emerging Literacy
- Extending Literacy
- Classroom Practices
- Assessment
- Teacher Ed. & Prof. Deve.

1998
Primarily about Word-Level Information (although light on Morphology, especially Compounding & Inflected Endings





2000
Five Pillars:
- Phonemic Awareness
- Phonics
- Fluency
- Vocabulary
- Comprehension

ESSA emphasizes evidence-based interventions

STRONG	Experimental Study (i.e., a randomized controlled trial)
MODERATE	Quasi-experimental Study
PROMISING	Correlational Study with statistical controls for selection bias
DEMONSTRATES A RATIONALE	Well-specified logic model informed by research or evaluation

QuickReads meets ESSA's Strong Evidence criteria

Evidence Explained

ESSA emphasizes "evidence-based" approaches that have demonstrated statistically significant positive effect on student outcomes. ESSA identifies four levels of evidence: strong, moderate, promising, and evidence that demonstrates a rationale. The levels are defined by the research study design.

QuickReads meets ESSA's "Strong" evidence criteria

Strong Evidence Criteria	Alignment to Requirements	
Experimental study (e.g. a randomized control trial)	**Meets**	A randomized controlled trial design was used where classrooms were randomly assigned to either the treatment or control condition.
Show a statistically significant and positive effect on student outcomes	**Meets**	All grade levels significantly outperformed the comparison group on the *DIBELS Oral Reading Fluency* test and *Gates-MacGinitie Vocabulary and Comprehension* tests. Δ6 PERCENTILES • **DIBELS Oral Reading Fluency Test:** Grew by 6 more percentiles than the average comparison student. Δ9 PERCENTILES • **Gates-MacGinitie Vocabulary Test:** Grew by 9 more percentiles than the average comparison student. Δ8 PERCENTILES • **Gates-MacGinitie Vocabulary Test:** Grew by 8 more percentiles than the average comparison student.
Have a large sample and multi-site sample	**Meets**	*QuickReads* was studied in 9 schools within 1 school district in a midwestern city. The study sample was very large and diverse with 1,484 students.

See what EvidenceforESSA.org says about *QuickReads*.

EvidenceforESSA.org has rated *QuickReads* as having Strong Evidence for both struggling readers and whole class. See their review of *QuickReads* here.

For more information, visit:
pearsonschool.com/evidencebased

Pearson

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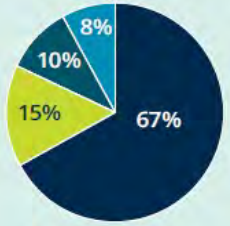
QUICKREADS

Study completed by:
Guy Trainin, H. Emily Hayden, Kathleen Wilson, and Joan Erickson.
Available here.

Published: Journal of Research on Educational Effectiveness, 2016

Study description: This study focused on improving second, third, fourth, and fifth grade reading skills in a classroom setting. Students used either the print program or a combination of the print and technology program for an average of 41 minutes, three times a week, over the course of 19 weeks. Results were analyzed for 1,484 students, taught by 76 teachers across 9 schools in 1 state, with matched pretest/posttest scores.

The final sample included:



Additionally:

qualified for free/ reduced lunch

were English learners

Flexible Workshop Resources for the Way You Teach

myView LITERACY

ENGLISH RESOURCES

Student Interactives

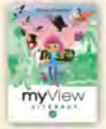
Grade K *(5 Volumes)*

Grade 1 *(5 Volumes)*

Grade 2 *(2 Volumes)*

Grade 3 *(2 Volumes)*

Grade 4 *(2 Volumes)*



Grade 5 *(2 Volumes)*

Print and Digital Resources

Teacher's Edition
(5 Volumes)

Small Group Guide

Leveled Reader
Teacher's Guide

Leveled Readers

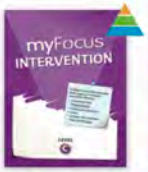
Foundational Skills Kit
(Grades K-2)

Includes:
- Alphabet Cards
- Decodable Reader
- High-Frequency Word Cards
- Letter Tiles
- Picture Word Cards
- Sound Spelling Cards *(Grades 1-2)*

Trade Books

Literature Big Books
(Grades K)

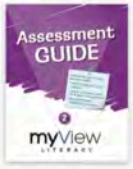
Intervention



myFocus
Intervention
Teacher's Guide

myFocus
Reader
(Grades 1-5)

Assessment Resources



Assessment
Guide

Progress Check-ups
Teacher's Manual
with Student Reproducibles

Summative
Assessments
Teacher's Manual
with Student Reproducibles

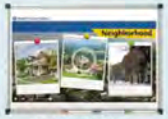
Cold Reads for Fluency
and Comprehension
Teacher's Manual
with Student Reproducibles
(Grades 1-5)

Digital Resources

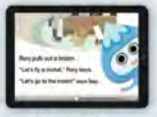
Student and teacher print resources are available digitally on **Realize**.
Additional digital resources include:

ExamView®

EssayScorer
(Grades 3-5)



Unit Launch Videos



ELL Access Videos

Realize Scout

Practice Games

Author Professional Development Videos

ELL Support
- Language Awareness Handbook

Intervention Support
- myFocus Reader Online Teacher Support

Foundational Skills
- Phonics/Word Study Online Student Resources
- High-Frequency Word Cards

Reading Spot App

Handwriting Support
- Handwriting Practice Online Student Resources
- Handwriting Models

Writing Support
- Writing Workshop Minilessons
- Writing Workshop Minilessons Student Practice
- Writing Workshop Conference Notes Template Online Student Resources
- Writing Workshop Student Feedback Template Online Student Resources
- Writing Assessments
- Writing Assessment Rubrics

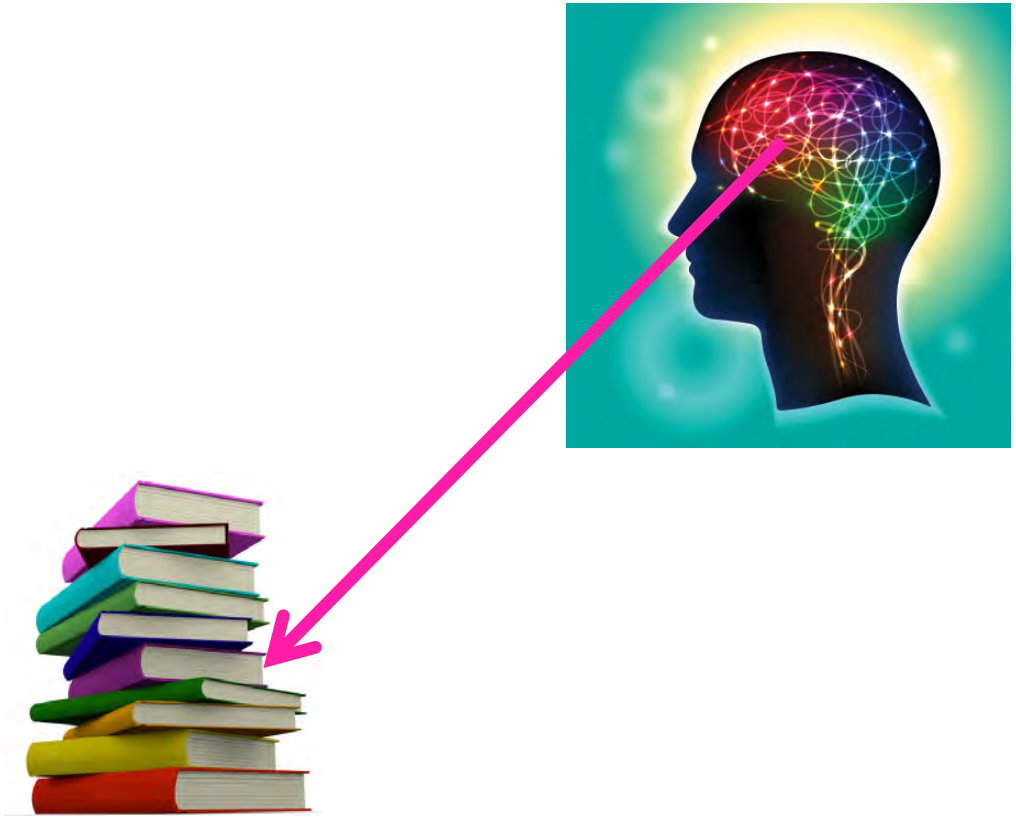
Additional Digital Resources
- Extension Activities Online Student Resources
- Language and Conventions Online Student Resources
- Spelling Online Student Resources
- Project-Based Inquiry Rubrics
- Leveled Research Articles *(Grades 1-5)*
- Weekly Standards Practice PowerPoints® *(Grades 2-5)*
- OpenEd
- Dual Language Educators' Implementation Guide
- Student Interactives *(Grades 3-5)*
- Think About It Interactives *(Grades 3-5)*

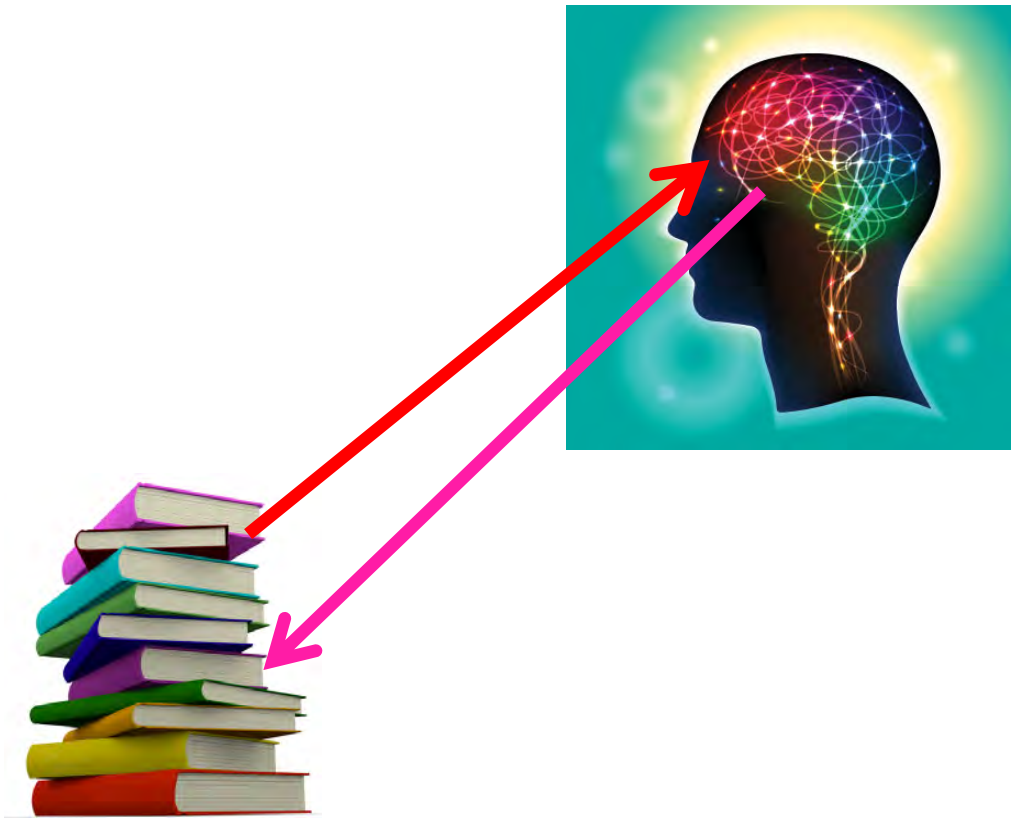
Also Available
- Words Their Way Classroom
- SuccessMaker

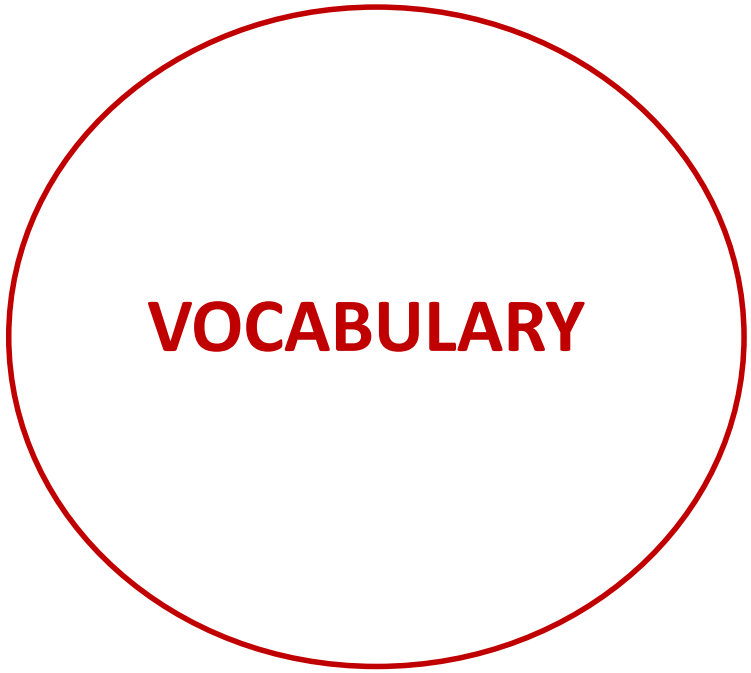
Knowledge at the Center:

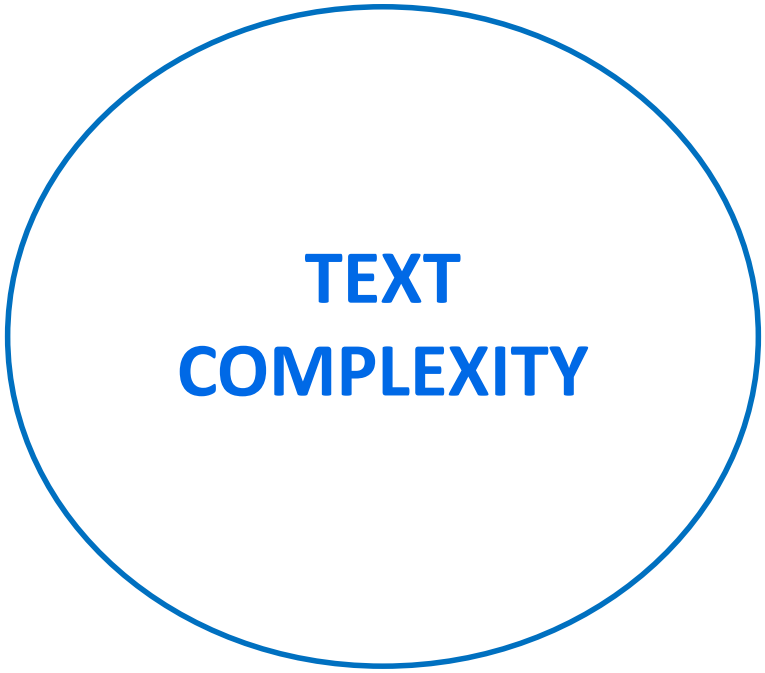
Topic knowledge strongly predicts comprehension of a passage(Ahmed, Francis, York, Fletcher, Barnes, & Kulesz, 2016).

Vocabulary is an indicator of topic knowledge and even a handful of key words predict comprehension (O'Reilly, Wang, & Sabatini, 2019)

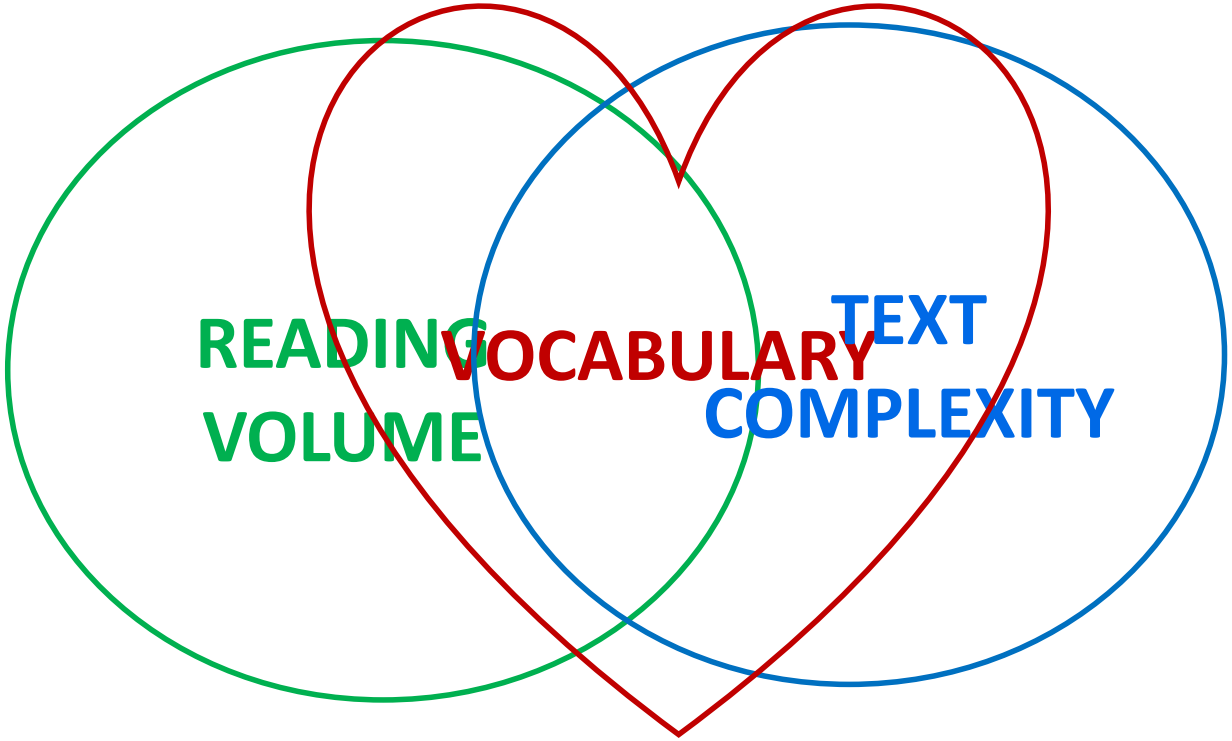


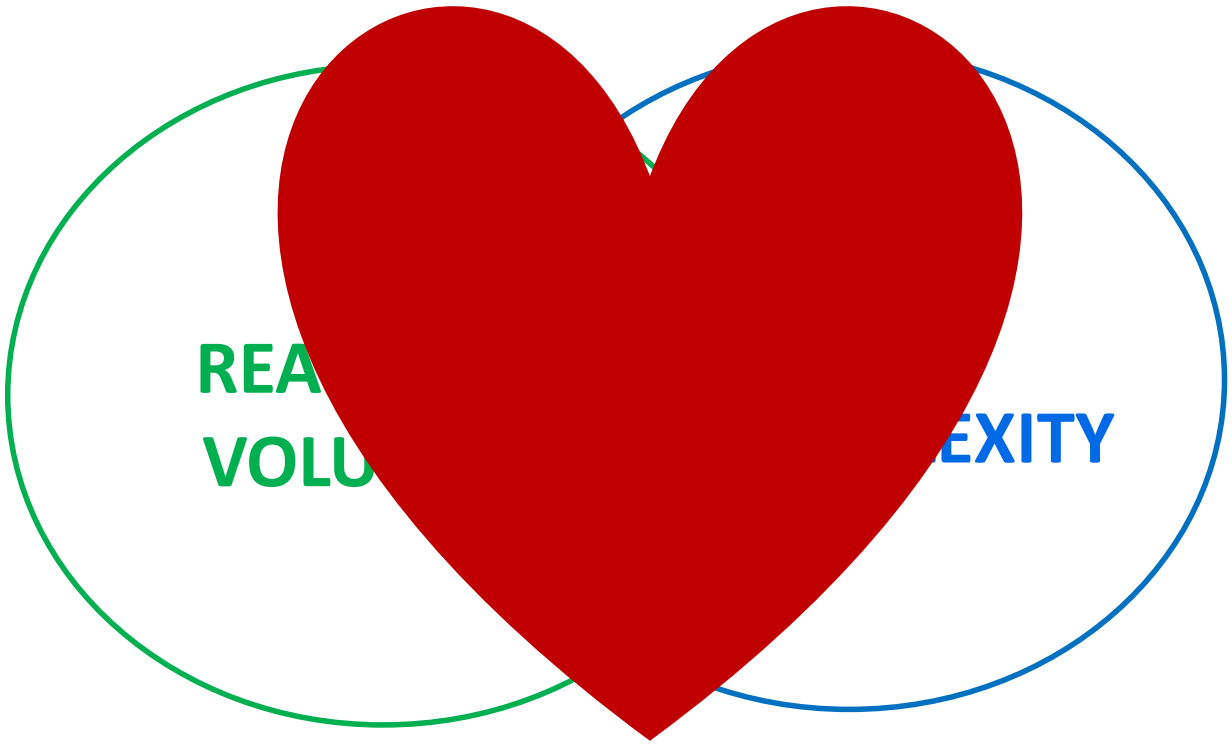



VOCABULARY


TEXT
COMPLEXITY

READING
VOLUME


READING
VOLUME
VOCABULARY
TEXT
COMPLEXITY


REA
VOLU
EXITY

The Science of Reading informs us about:

- **The "What" of Vocabulary**
- **The "How" of Vocabulary**

Focus Vocabulary from a Competitor's Program: Grade 3.3.3

- examined
- peak
- fondly
- steep
- rugged
- mist
- pausing
- pleaded

LESSON 13

TARGET VOCABULARY

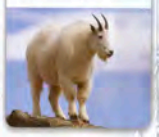
examined
peak
fondly
steep
rugged
mist
pausing
pleaded

Vocabulary in Context

- Study each Context Card.
- Make up a new context sentence that uses two Vocabulary words.

1 examined
The hiker examined the tree and saw claw marks left by bears.

2 peak
This goat lives near the peak, or top, of a mountain. It likes high, rocky cliffs.



5 rugged
Riders on rugged trails go slowly to avoid bumps, rocks, and holes.

6 mist
Most animals enjoy a gentle mist but look for shelter in pouring rain.

3 fondly
Wolf mothers treat their pups fondly. They are always kind and gentle.

4 steep
This mountain is steep. It reaches straight up into the sky!

7 pausing
The buffalo in this stream is pausing, or stopping briefly, to drink.

8 pleaded
This hungry eaglet pleaded with, or begged, its mother for food.

Daily Vocabulary Boost

- Use the **Vocabulary in Context Cards** to briefly review the new Target Vocabulary and sentences with students.
- **Turn and Talk** Distribute each **Vocabulary in Context Card** to a small group, and have them discuss the *Talk It Over* activity on the back of the card. L.3.6

Target Vocabulary

examined
peak
fondly
steep
rugged
mist
pausing
pleaded

TARGET VOCABULARY >> Review

Review with students the **Vocabulary in Context Cards** on **Student Book pp. 466–467.** Call on students to read the context sentences and explain how the photograph demonstrates the meaning of the word.

MAKE CONNECTIONS Discuss all of the words using the items below to help students make connections between vocabulary words and their use. L.3.5b, L.3.6

- What would you do if someone **pleaded** for help?
- How would you describe a **mist** in the morning?
- Name some things that are **radiant**.
- What are some **traits** that you like in a friend?
- What things from second grade do you remember **fondly**?
- Name three things you are **capable** of doing.
- Have you ever climbed a **steep** hill? What was it like?
- What was the toughest test you have ever **endured**?
- When have you **examined** something closely?
- What does a **rugged** mountain **peak** look like?
- What are some reasons for **pausing** before walking across a bus street?

The Best Worst Day

Dr. Mary Fernandez would often think back **fondly** on the eventful day that set her on the path to becoming a doctor.

When Mary was a young girl, she and her friends had gone hiking. They left early, while a **mist** still covered the **peak** of the hill they hoped to climb. The trail was **rugged**, with many loose rocks and tree roots, but the girls were having a wonderful time.

After staying with the group for a long time, Mary and her friend Jamie started falling behind. They kept **pausing** to look at the amazing view that would unexpectedly open up between the dense pine trees. Jamie couldn't help but stop to snap pictures of the interesting things growing near the trail. After stopping to look at an enormous mushroom growing on a rotten log, they looked up and saw that the res of their friends were far ahead. The girls took off running, bu the trail was very **steep**. Suddenly, Jamie slipped and fell hard. She yelled in pain.

Mary **examined** Jamie's leg. Her foot was twisted at a funny angle, and Jamie **pleaded** with Mary not to move it. Luckily, their friends had missed them and came back to look for them. Since Jamie could not walk, they decided Mary would stay with her while the others went for help.

Daily Vocabulary Boost

- Ask students the following questions and discuss their answers. L.3.6

  What would it be like to run on a rugged *trail?*

  If you examined *a painting, would you be likely to miss important details? Why or why not?*

  Describe an event that you remember fondly.

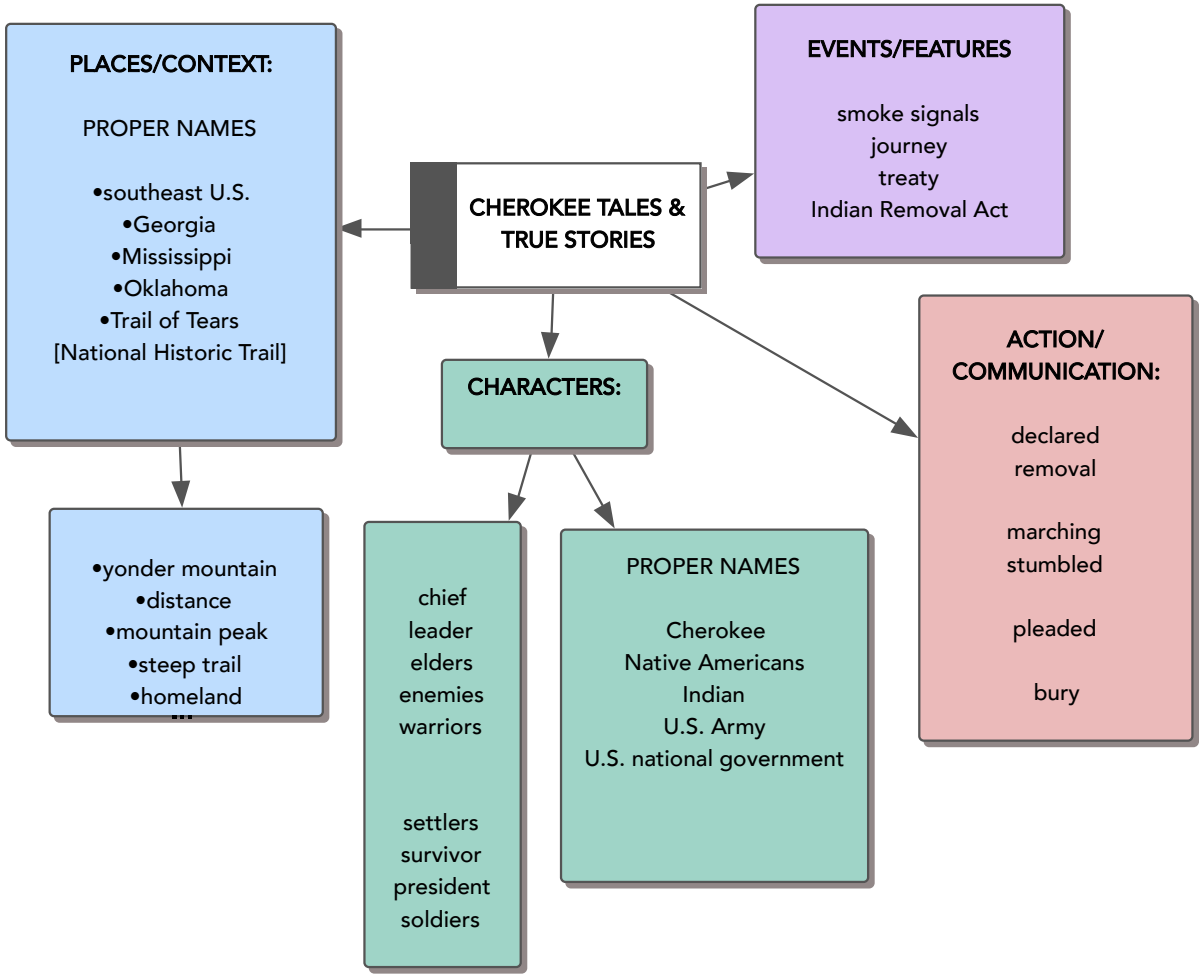
- Ask students to explain in their own words the meanings of *examined* and *fondly*.

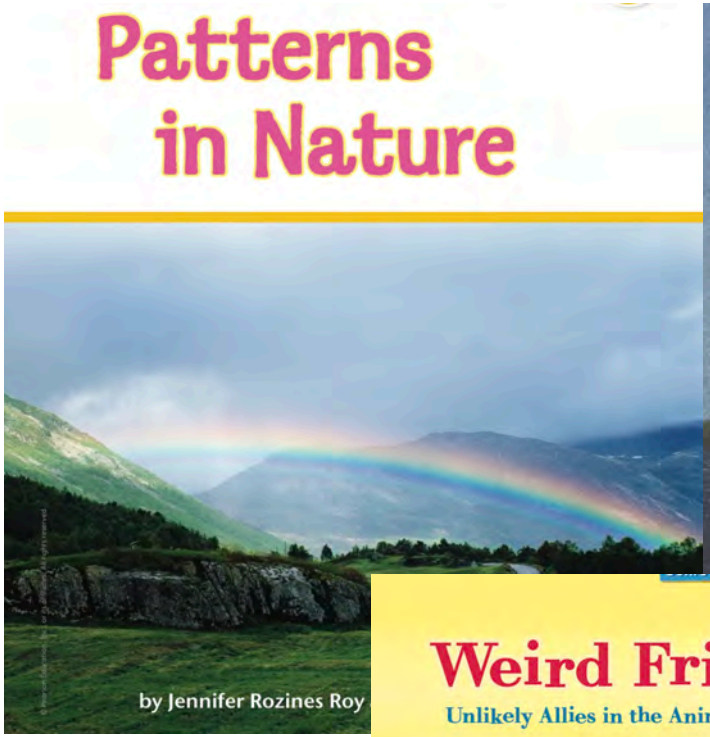
Target Vocabulary

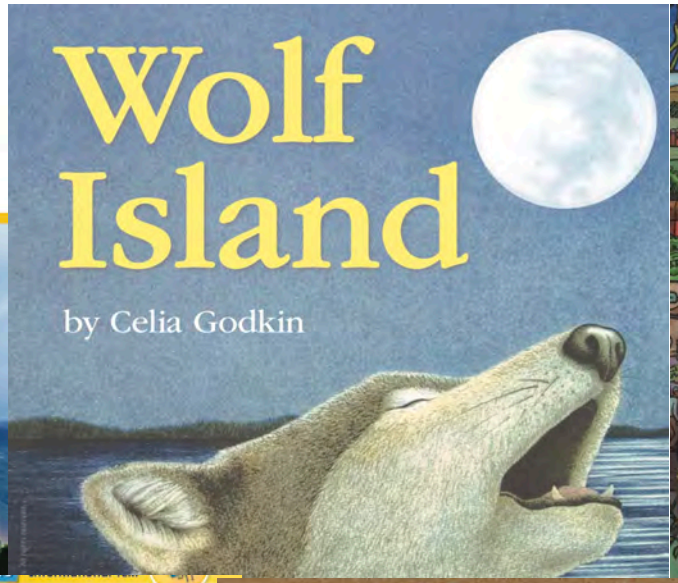
examined	rugged
peak	mist
fondly	pausing
steep	pleaded

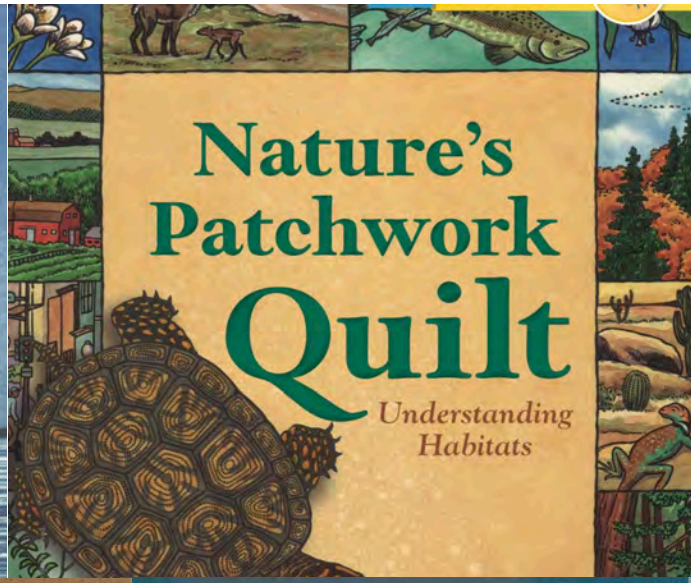
- Theme: Why are stories from different cultures important?

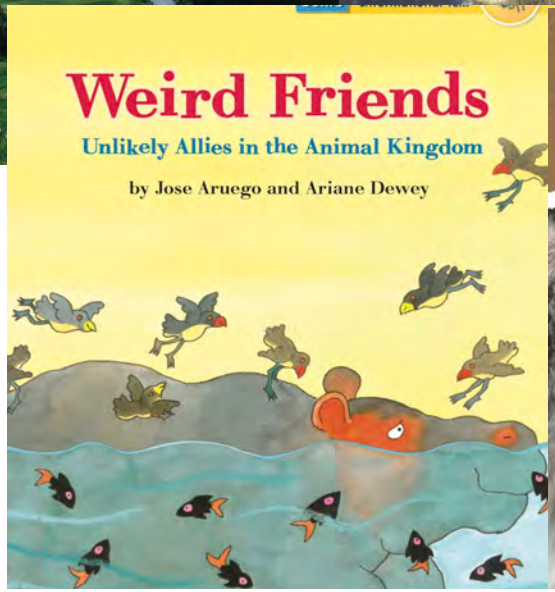
- Target texts:
  - *Yonder Mountain: A Cherokee legend*
  - *The Trail of Tears*


CHEROKEE TALES & TRUE STORIES
PLACES/CONTEXT:
PROPER NAMES
•southeast U.S.
•Georgia
•Mississippi
•Oklahoma
•Trail of Tears
[National Historic Trail]
•yonder mountain
•distance
•mountain peak
•steep trail
•homeland
...
EVENTS/FEATURES
smoke signals
journey
treaty
Indian Removal Act
CHARACTERS:
chief
leader
elders
enemies
warriors
settlers
survivor
president
soldiers
PROPER NAMES
Cherokee
Native Americans
Indian
U.S. Army
U.S. national government
ACTION/ COMMUNICATION:
declared
removal
marching
stumbled
pleaded
bury

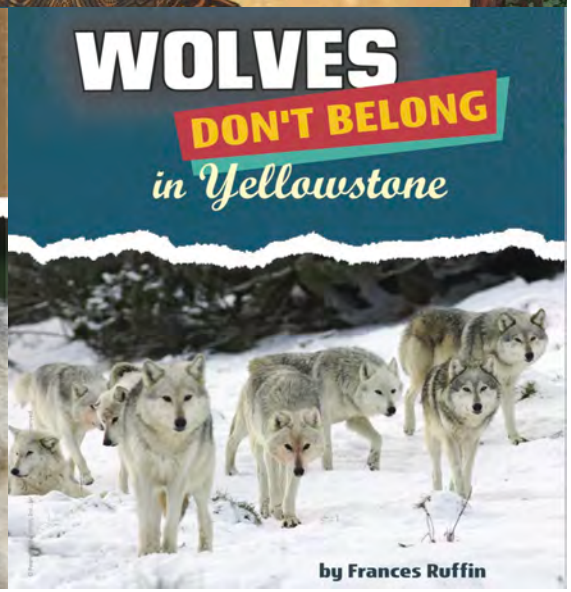

Patterns
in Nature
by Jennifer Rozines Roy


Wolf
Island
by Celia Godkin


Nature's
Patchwork
Quilt
Understanding
Habitats


Weird Friends
Unlikely Allies in the Animal Kingdom
by Jose Aruego and Ariane Dewey

Welcome Back,
WOLVES!
by Pooja Makhijani


WOLVES
DON'T BELONG
in Yellowstone
by Frances Ruffin

man
top
mackerel

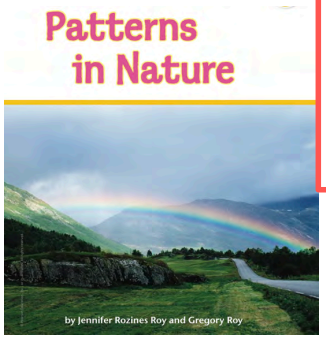
What words to teach

Some of the science behind "What Words to Teach" in *myView*

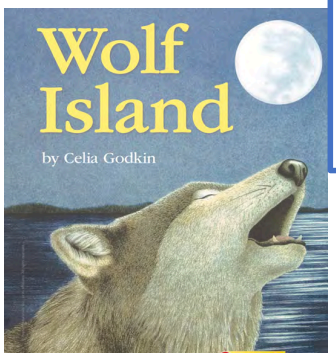
Word	Frequency	Word Length	UFunction	Supercluster	Age of Acquisition	Complex Morphological Family U	Mean Concreteness Rating
ruined	1	6	13	33a.3	7.16	34.6445	2.96
feast	1	5	13	6a.2	7.81	15.8756	4.3

domesticated
generations
announce
complicated
eliminated
emerges
remained
biodiversity
benefits
threatened
ferocious
interdependence
sequence
multiplied
species
realized
niche
survival
design
pupate
reduce
detect
depends
suffered
paralyzing
decades
venomous
debate
preserving
scavenge
pursued
solitary
infest
immune
instance
arranged
ancestors
magnifying
fortunately
reintroduced
extinct
approaches
hibernate
affected
decreased
deforestation

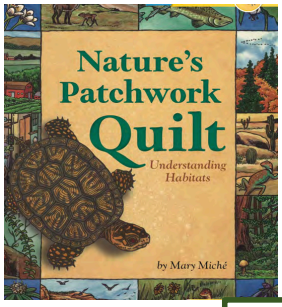
How do plants & animals live together?



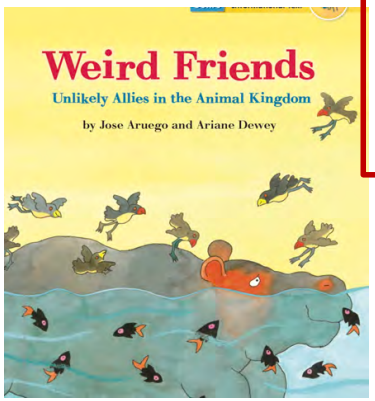
nature
patterns
repeat
sequence
symmetry



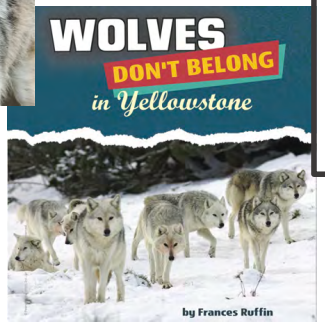
population
balance
depended
available
well-being



biodiversity
interdependence
food chain
adaptations
camouflage



species
predators
protection
immune
emerges



habitat
solitary
multiplied

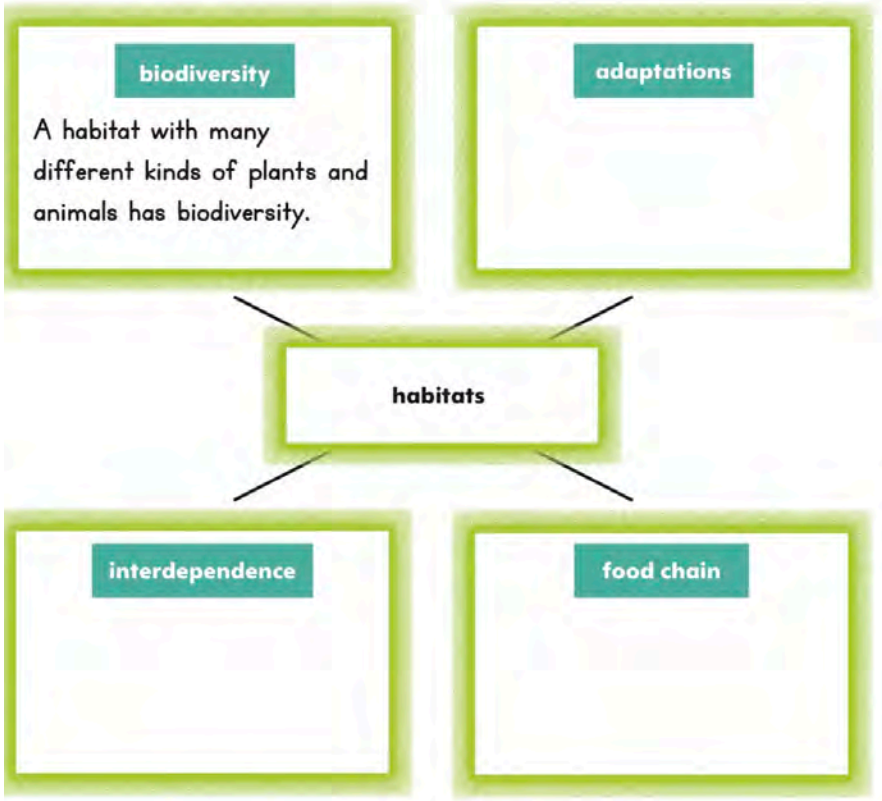
eliminated
reintroduced

How we teach vocabulary

Develop Vocabulary

In informational text, authors use specific words to explain a topic. When authors write about scientific topics, such as habitats and nature, they may use scientific words to inform readers about the topic.

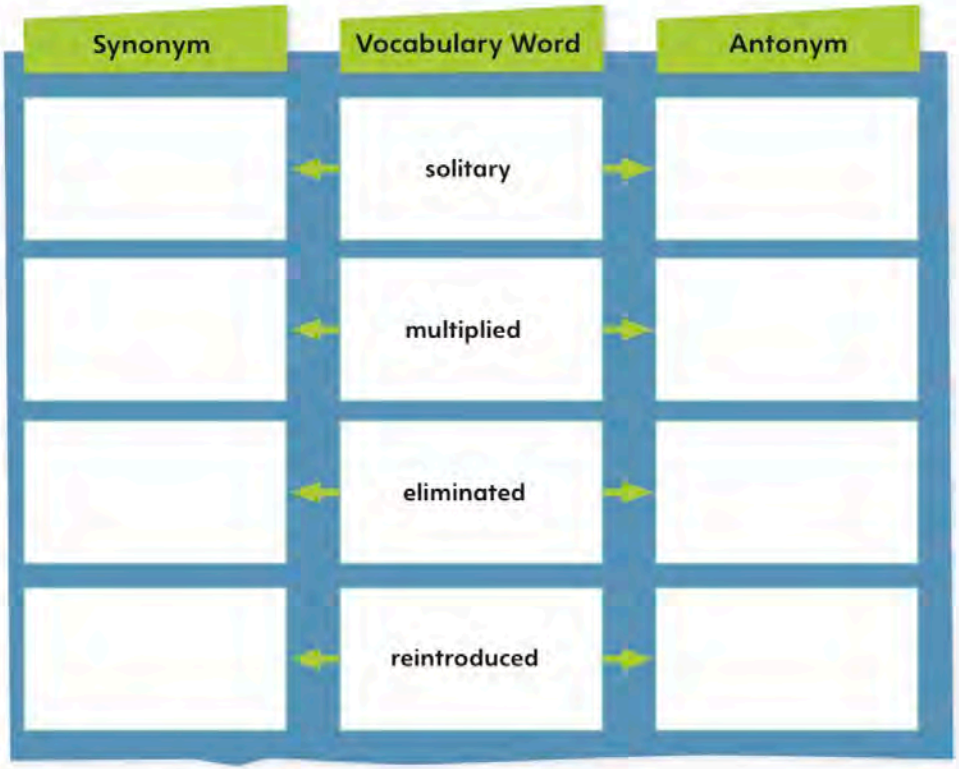
MyTURN Look at the word at the top of each box. In the box, write a sentence to show how that word relates to habitats.



Develop Vocabulary

Authors often use synonyms to provide variety in their writing. They also use antonyms to show the opposite of an idea.

My TURN Review each vocabulary word in the texts. Identify a synonym and antonym for each word and explain its meaning by writing its definition. Then, work with a partner to use each synonym and antonym in a sentence of your own.



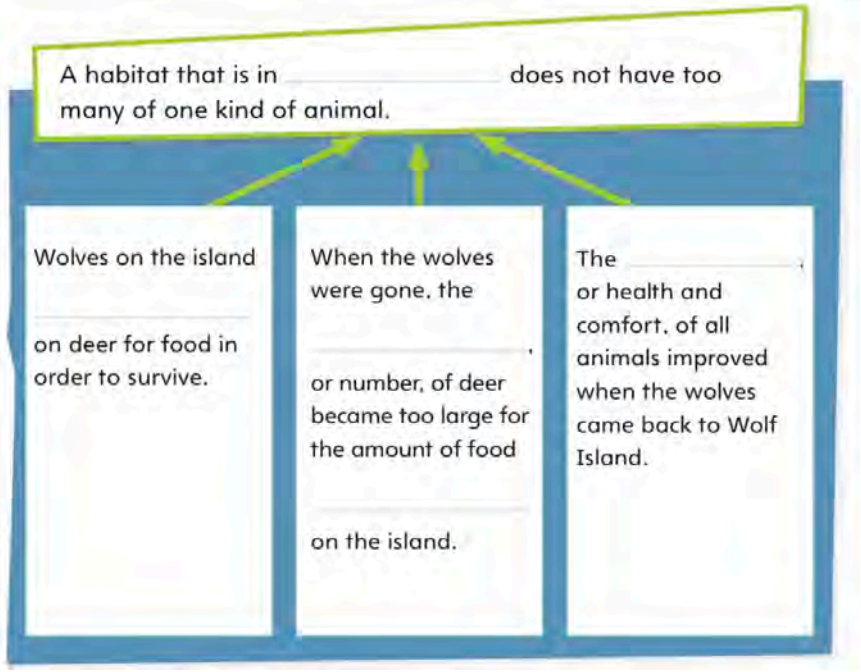
Develop Vocabulary

In realistic fiction and other forms of fiction, authors choose words that tie ideas together. The author of *Wolf Island* chose words that describe the connections between the animals and plants that live there.

My TURN With a partner, take turns discussing the meanings of the selection vocabulary words. Listen carefully. Then complete each sentence with the word from the word bank that best fits the meaning and connects the ideas in each box.

Word Bank

available **balance** **depended** **population** **well-being**



Develop Vocabulary

In informational text, authors often use specific words that explain the topic. When reading informational texts about nature, notice scientific words that describe living things and how they behave.

My TURN Add the vocabulary word from the word bank to tell what the author is describing. Then complete the remaining columns of the chart.

Word Bank

immune **species** **predators**

Vocabulary Word	The author is describing . . .	This word helps me know . . .	Example Sentence
	animals that live by eating other animals.		
	a group of living things that are the same in most ways.		
	a living thing unaffected by something, such as an illness.		

TEXT COMPLEXITY

Competitors' View of Text Complexity

	Lexile	Sentence Length	Core Vocabulary (%)	Number of Words
ADVANCED *Guide Dog School*	610	10.53	97.3	969
ON-LEVEL *School in a Garden*	580	9.31	97.0	931
BELOW *Schools of Long Ago*	530	7.32	95.2	564
EL *New School for Chris*	480	6.26	96.4	475
INTERVENTION *Down the Hill*	250	4.85	93.2	296

Why We Need Plants

Plants are important to our life. Plants give us air to breathe, food to eat, and medicine to take when we get sick.

Plants make and clean the air that we breathe. Plants use their roots to get water. Then, using energy from the sun, they turn this water into air that we can breathe. Plants also take a dangerous gas called carbon dioxide out of the air. By taking this gas out of the air, plants make it easier for us to breathe.

Without plants, humans would not be able to eat fruits, vegetables, roots, or seeds. We would not be able to eat meat, either, because many of the animals that humans eat also need to eat plants to live. One way or another, most of the food that humans eat comes from plants.

Another way plants benefit humans is by giving us medicine. For example, willow tree bark has been used for thousands of years to treat pain, while aloe vera is used all over the world to treat burns and insect bites.

Humans need clean air, food, and medicine. By giving us all of these things, plants benefit humans in many ways.

Why We

Plants provide us with
eat, and medicine to
important way that p
by helping us stay ali

Plants benefit human
the air that we breath
the ground. Then the
to convert this water
important part of the
absorb carbon dioxid
air safe for us to breathe.

Plants give us most of the food that we eat. Without plants, we would not have fruits, vegetables, roots, and seeds. Most of the animals we eat, including cows, chickens, and fish, would not exist either. These animals eat plants to survive.

	1	2	3
Lexile	830	710	600
Sentence Length	12.13	10.26	10.1
Word Frequency	3.47	3.52	3.58
Number of Words	194	195	196

e. One example is
his bark to treat
reeks. Another
orld, people use
ites.

od, and medicine.
life on Earth.

Plants provide us with air, food, and medicine. By providing us with these things, plants help us stay alive.

One of the greatest benefits that plants give humans is the air that we breathe. Using their roots, plants draw water out of the ground. Plants then use energy from the sun to convert the water into oxygen. Plants also absorb carbon dioxide from the air. Humans cannot breathe this gas, but plants need it to live. By taking it out of the air, plants help to keep the air clean.

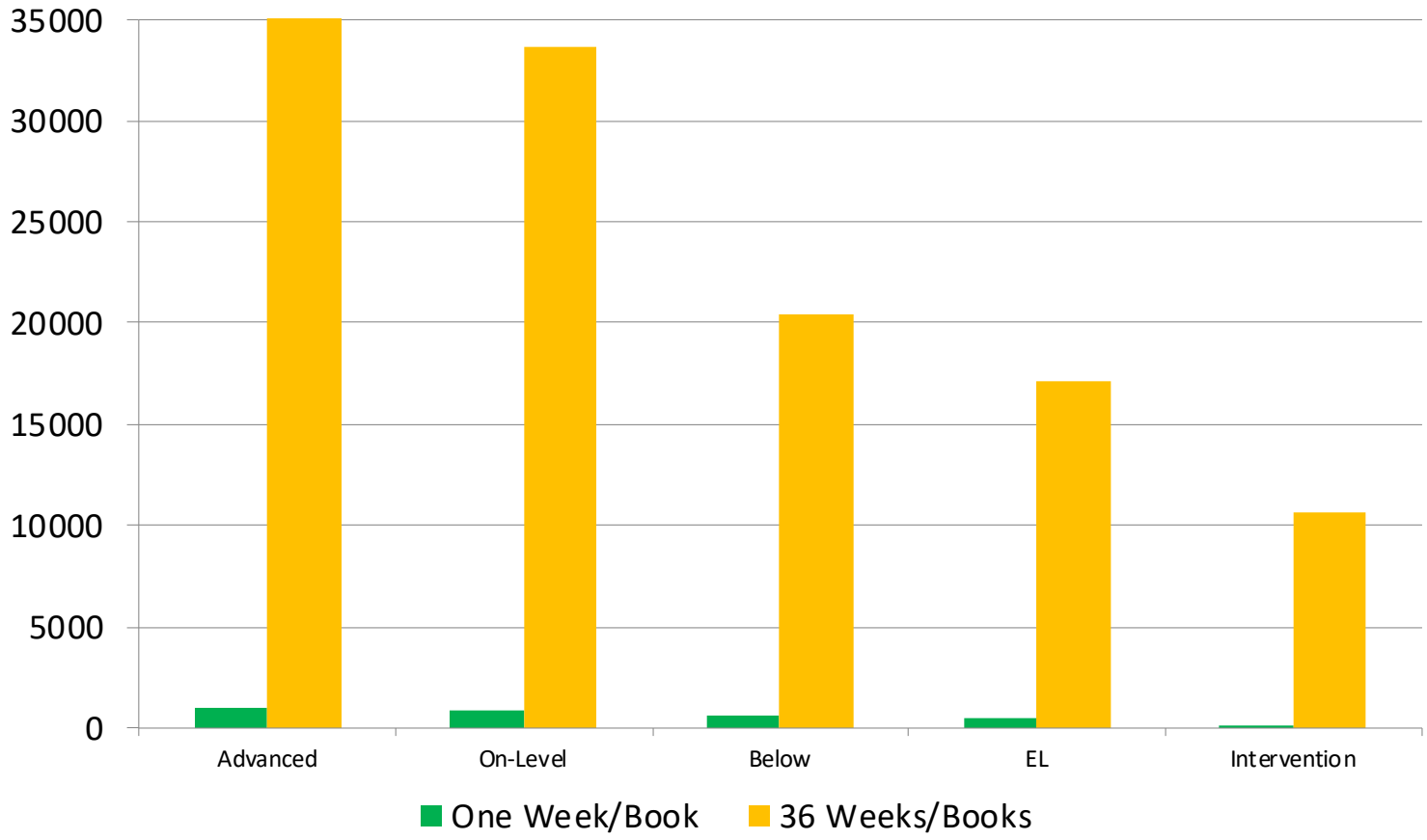
If there were no plants, humans could not eat fruits, vegetables, roots, or seeds. Many of the animals we eat would also not exist. Animals such as cows, chickens, and fish rely on plants as a source of food.

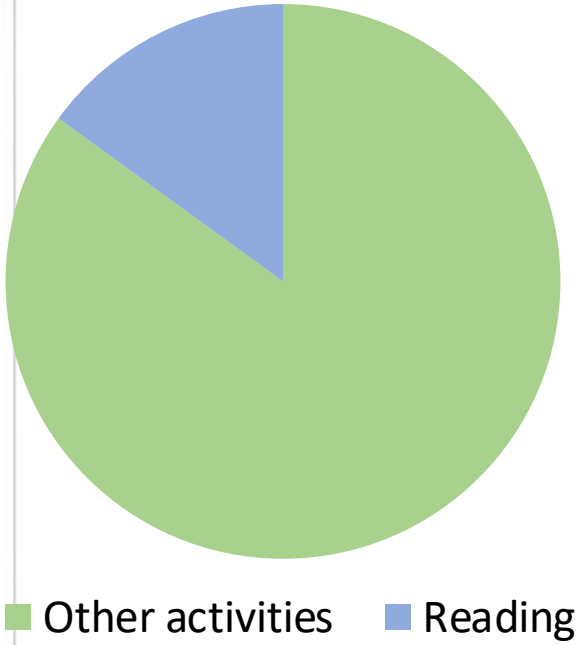
Many plants are medicinal, which means that they can be used as medicine. For example, the gel from aloe vera is used to soothe burns and insect bites. Also, the use of willow tree bark as a pain remedy can be traced back to the ancient Greeks.

Plants benefit humans by giving us air, food, and medicine. Life on Earth could not exist without plants.

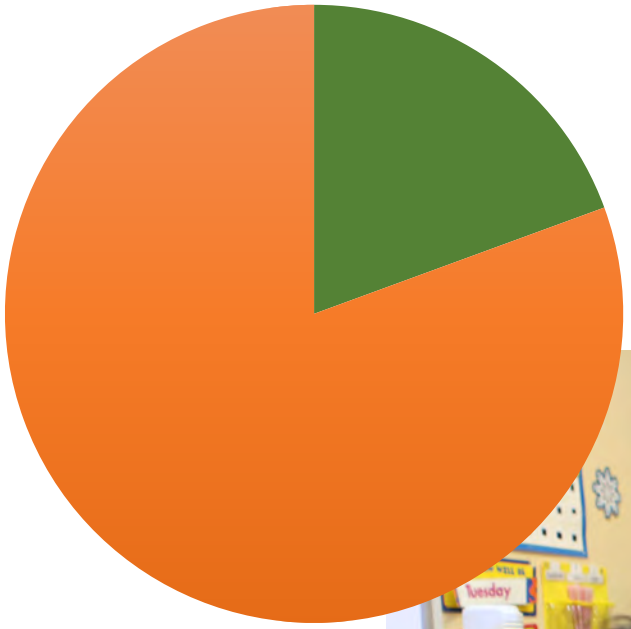
READING
VOLUME

What Shorter Texts Mean: A Competitor's Program



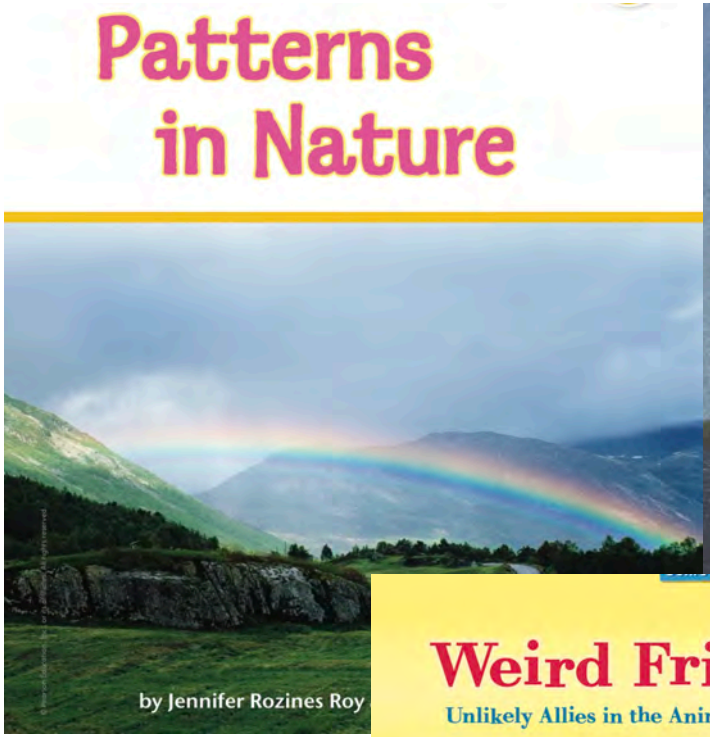


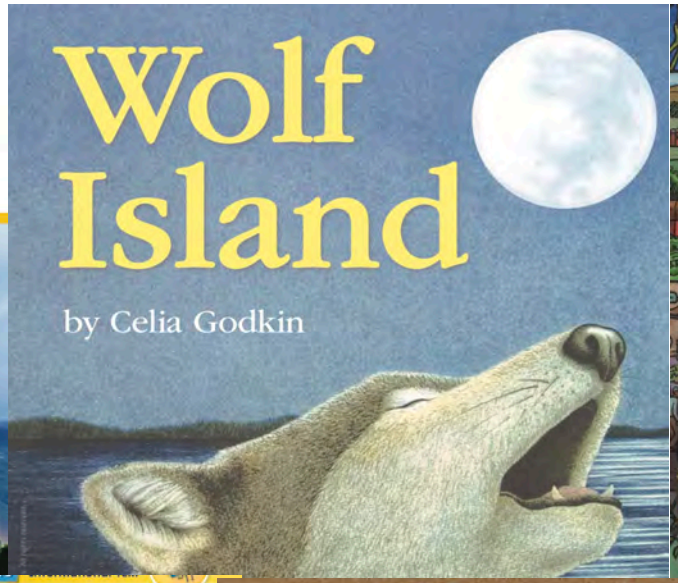
Swanson, Wanzek, McCulley, Stillman-Spisask, Vaughn, Simmons, Fogarty, & Hairrell, 2015).

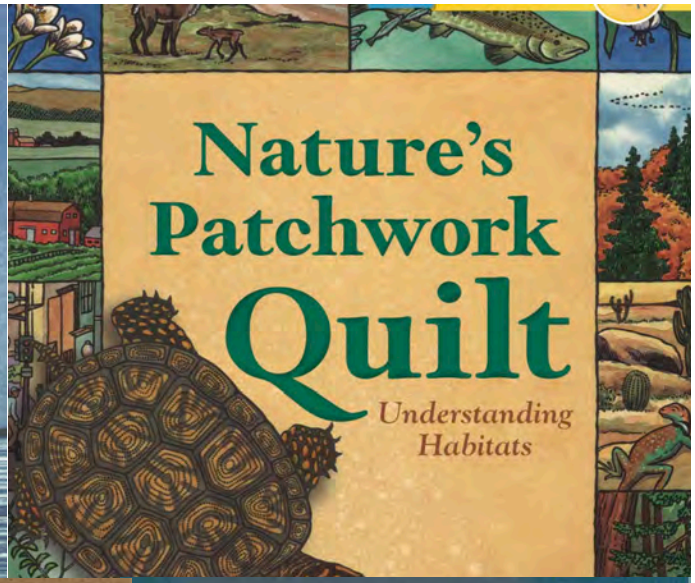


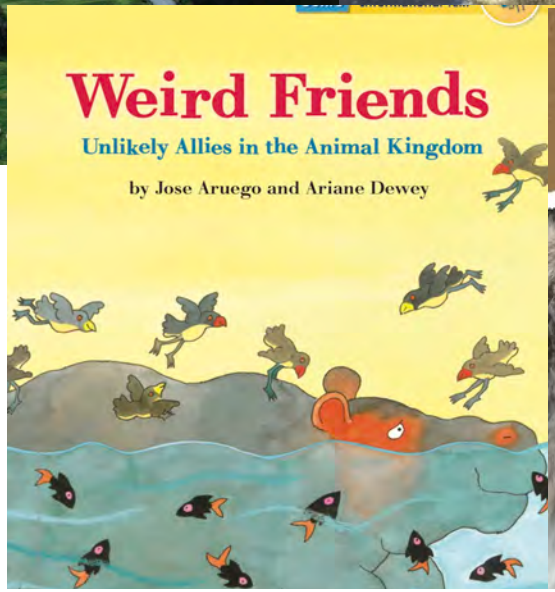
Silent Reading

Listening, Following Along to Oral Reading

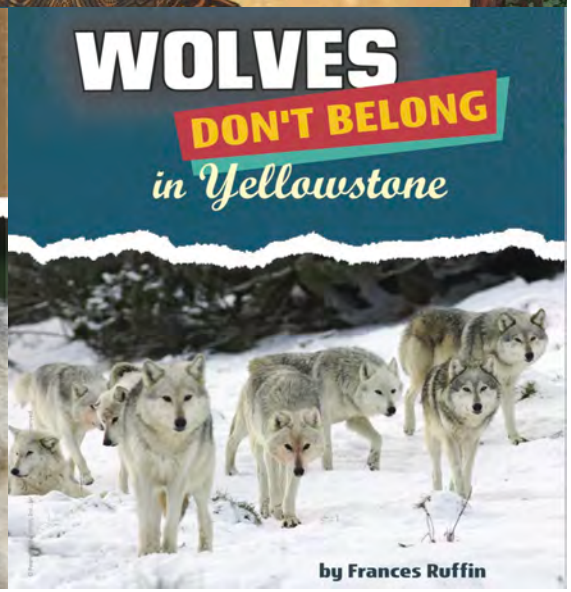

Patterns
in Nature
by Jennifer Rozines Roy


Wolf
Island
by Celia Godkin


Nature's
Patchwork
Quilt
Understanding
Habitats


Weird Friends
Unlikely Allies in the Animal Kingdom
by Jose Aruego and Ariane Dewey

Welcome Back,
WOLVES!
by Pooja Makhijani


WOLVES
DON'T BELONG
in Yellowstone
by Frances Ruffin

Why We Need Plants

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Humans need clean air, food, and medicine. By giving us all of these things, plants benefit humans in many ways.

Relationships in Nature

A symbiotic relationship is between two species of animals or plants. Some relationships are helpful, while other relationships are anything but. All of t are needed to keep nature in balance and for life Earth to exist.

Sometimes, both partners work together. This kind of relationship can be seen between plants and be Flowers make pollen. Bees eat pollen, but they also bring it back to their hives. As bees search for food they transfer pollen from the flower of one plant t the flower of another. Pollen helps flowers grow se By moving the pollen around like this, bees make that they will have a lot of flowers to visit in the fu In this relationship, both bees and plants win.

Sometimes, one partner will take advantage of the other. They take something without giving anything back. For example, mosquitoes drink our blood to help them make eggs. But the only things that people get in return are itchy bites. In the relationship between humans and mosquitoes, humans lose.

Symbiotic relationships can be helpful or harmful. However, all of these relationships are important. They are all needed for a balance in nature.

Coral Reefs: Living Environments

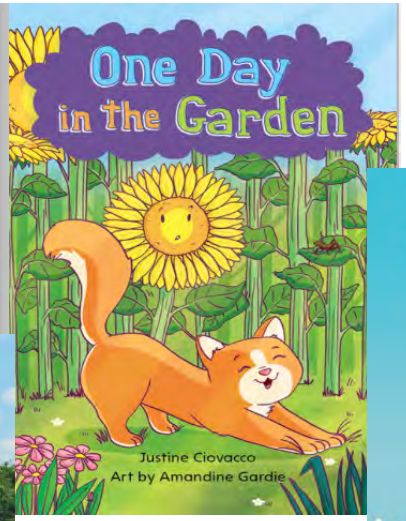
Coral reefs are living environments made of animals called polyps. A reef forms when many of these animals gather on rocks and hard surfaces on the ocean floor. It grows larger as more of the polyps are born. Coral reefs help to keep the ocean healthy.

Australia, Indonesia, and the United States are just some of the places around the world where you can find coral reefs. Around 4,000 species of fish live in reefs.

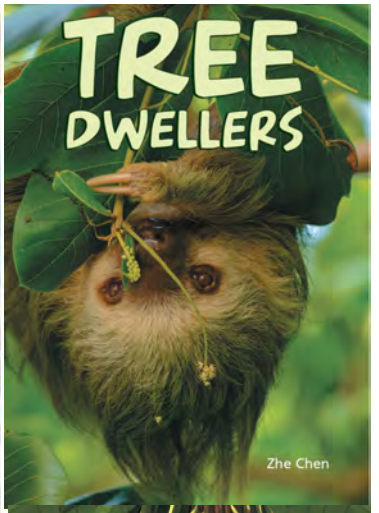
Water environments, such as coral reefs, are full of life. They help Earth in many ways. However, pollution and changes in water temperature are putting reefs in danger. Reefs are important. We must do all we can to save them.

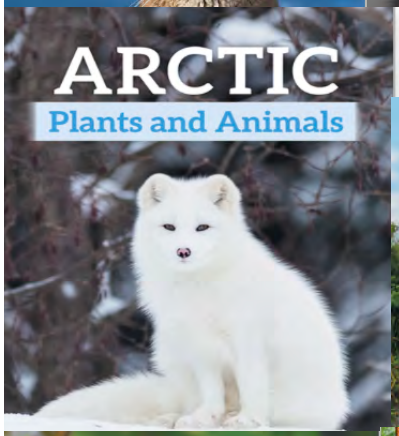
EARTH
ENVIRONMENTS

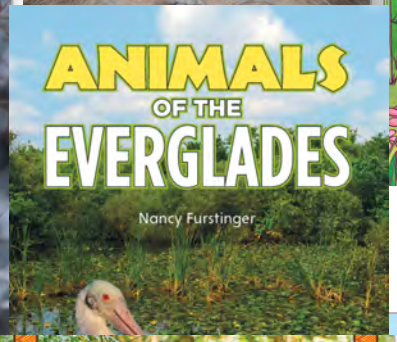
WHAT'S FOR
DINNER?


One Day
in the Garden
Justine Ciovacco
Art by Amandine Gardie

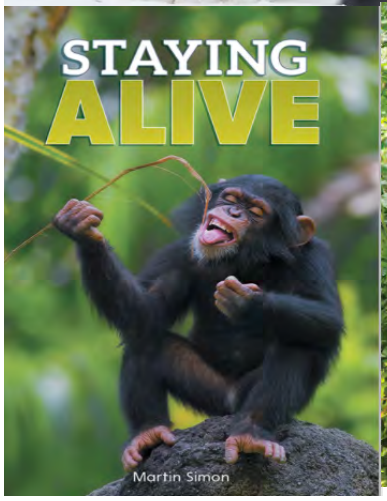
RELATIONSHIPS
IN NATURE

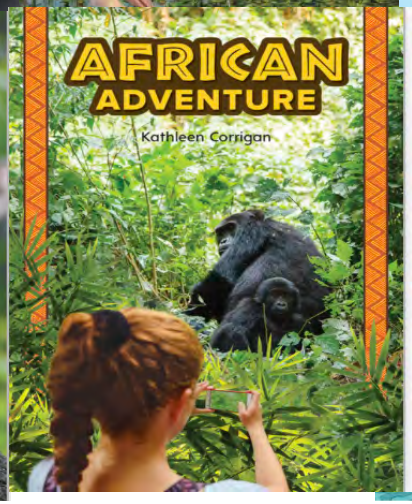

TREE
DWELLERS
Zhe Chen

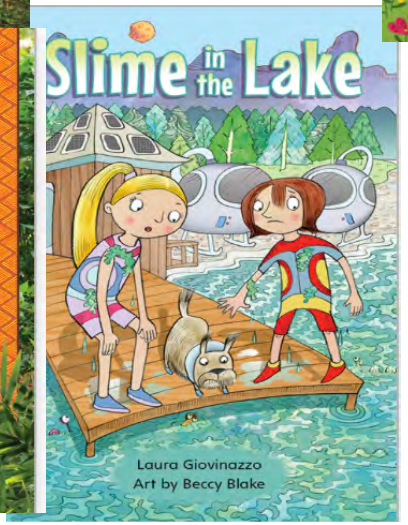

ARCTIC
Plants and Animals


ANIMALS
OF THE
EVERGLADES
Nancy Furstinger

A Buzzing
Problem


STAYING
ALIVE
Martin Simon


AFRICAN
ADVENTURE
Kathleen Corrigan


Slime in the Lake
Laura Giovinazzo
Art by Beccy Blake

A Home for
a Chicken
Mariana Llanos
Art by Maxime Lebrun

Hummingbird's
Garden
Mariana Llanos
Art by Émilie Pépin

Independent Reading

In this unit, you will read informational texts and realistic fiction with your teacher. If you have a favorite topic, you might choose to read about it during your independent reading time.

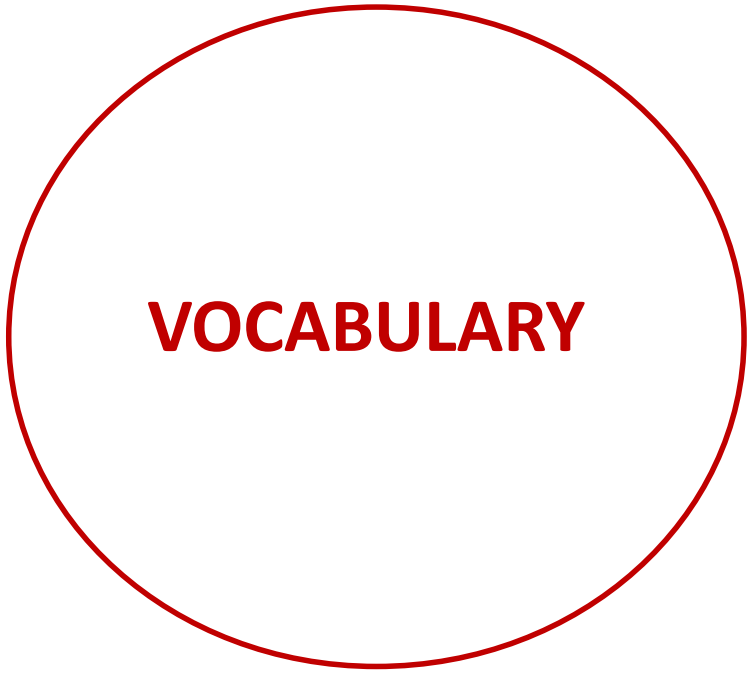
To self-select an informational text, follow these steps.

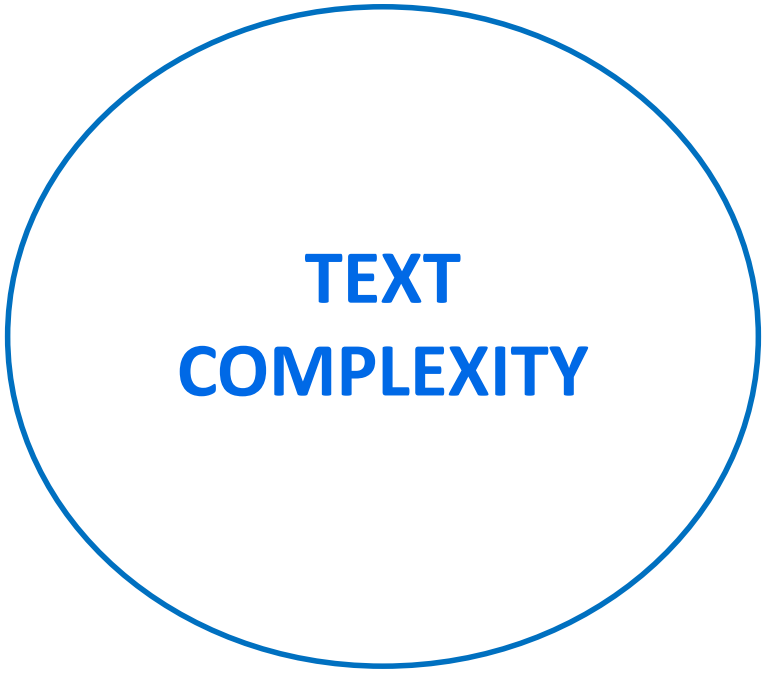
Step 1 To help you set a purpose for reading, before you begin, make a personal connection to the topic by identifying what you already know and what you want to learn. New information is easier to remember when you connect it to your background knowledge. Use support from your peers and teachers to read and respond to these prompts.

- I want to read about _____.
- What do I already know about this topic?
- What do I want to learn about this topic?

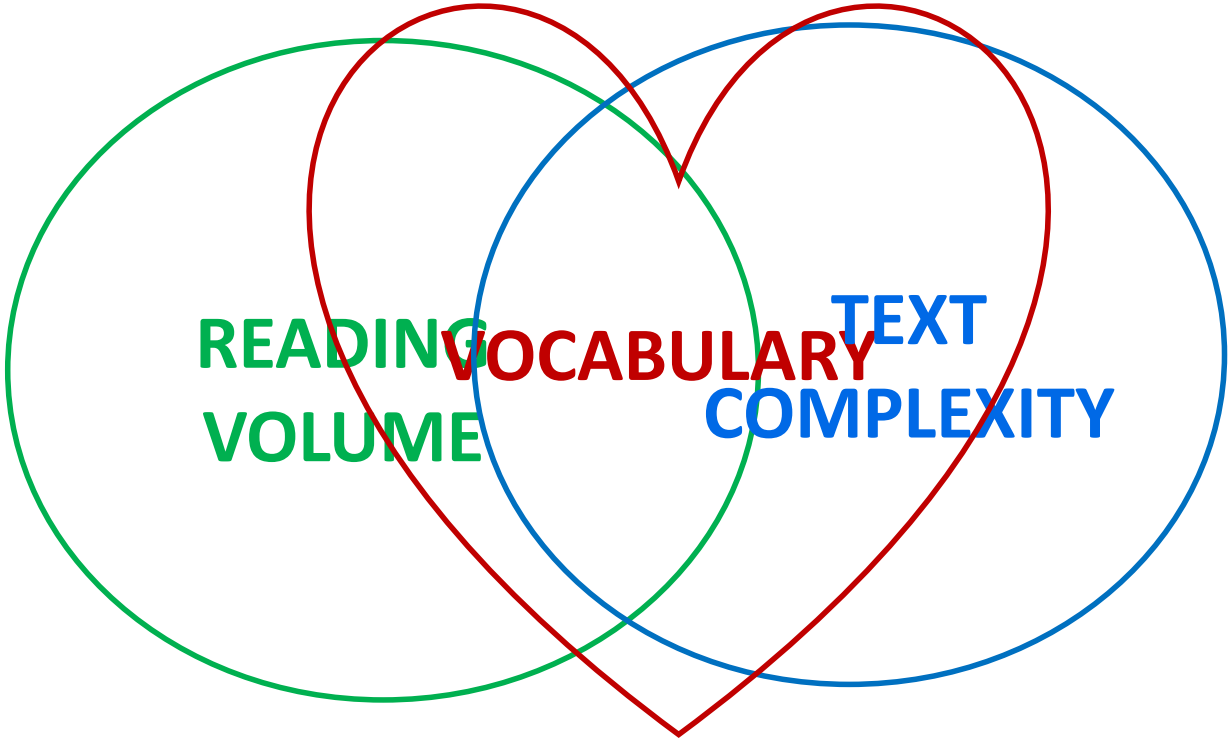
Independent Reading Log

Date	Book	Genre	Pages Read	Minutes Read	My Ratings
					☆☆☆☆☆

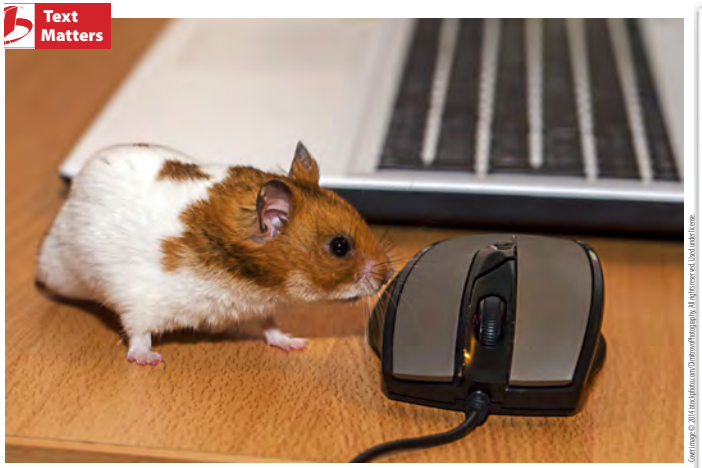

VOCABULARY


TEXT
COMPLEXITY

READING
VOLUME


READING
VOLUME
VOCABULARY
TEXT
COMPLEXITY

www.textproject.org



Recycling and Remixing:
Multiple Meanings and Uses of Words

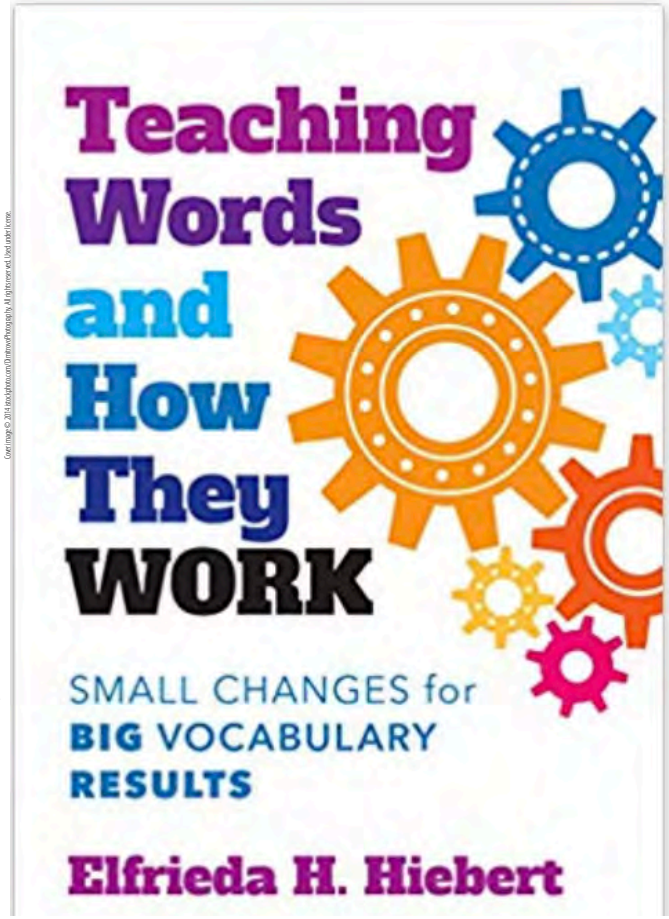
Elfrieda H. Hiebert
TextProject & University of California, Santa Cruz

From E.H. Hiebert (in press). Teaching words and how they work: Small changes for big vocabulary results. New York, NY: Teachers College Press. This chapter has not been copyedited or finalized by the publisher.

Example 1: My problems started when I learned that Mrs. Reno would be my fourth grade teacher. She had a lizard in her classroom, and lizards were on my list of terrifying things. (*Lizard problems, Adams, 2009*)

Example 2: Wilbur looked at his friend. She looked rather swollen and she seemed listless. "I'm awfully sorry to hear that you're feeling poorly, Charlotte," he said. "Perhaps if you spin a web and catch a couple of flies you'll feel better." (*Charlotte's Web, Chapter 8, White, 1952*)

For more information about Text Matters, visit www.textproject.org/text-matters



Reference List

- O’Reilly, T., Wang, Z., & Sabatini, J. (2019). How much knowledge is too little? When a lack of knowledge becomes a barrier to comprehension. *Psychological science*, *30*(9), 1344-1351.

Academic Vocabulary	Word Forms	Synonyms	Antonyms
prefer	preferable preferred preference	favor like care for	dislike refuse reject
features	featuring featured featureless	traits qualities characteristics	
investigate	investigated investigating investigation	examine explore research	ignore guess overlook
avoid	avoidance avoiding avoidable	miss escape stay away	seek meet welcome
associate	associates associated association	connect link relate	disassociate disconnect separate