

Learning Words, Learning How Words Work: The Foundation for Reading Complex Text



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Knowledge in the Digital Age

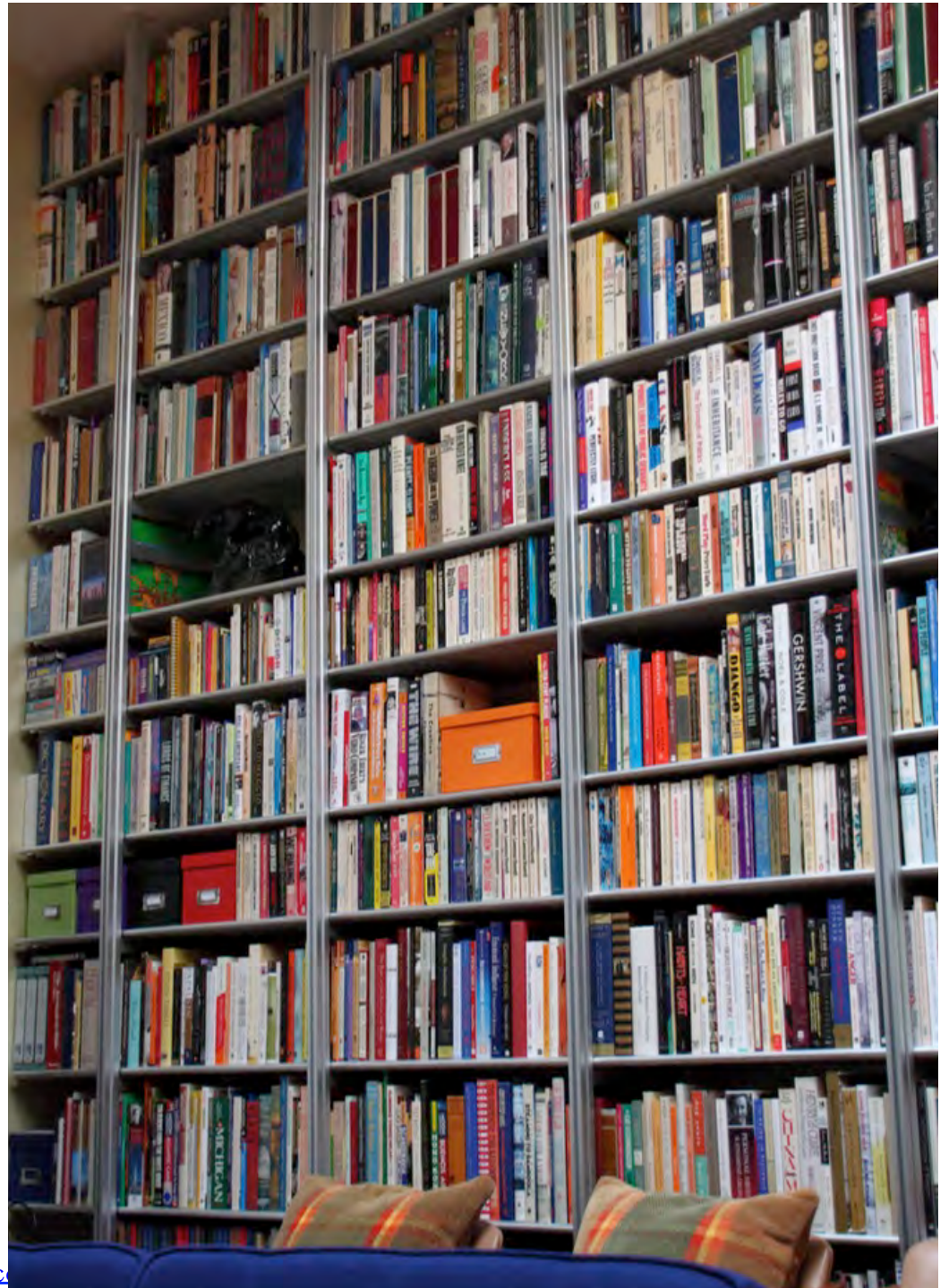
1986



2007

2018

Knowledge is
“stored” in
texts and...



**texts typically
have more rare
words than
conversations/
oral language.**



Discussion #1:

1. How many words do you estimate you teach in English/Language Arts instruction in a year?
2. What percent of the English vocabulary is this?



Idea 1: You can't teach all English words but you can teach students about the underlying systems.

ENGLISH HAS THREE DISTINCT MORPHOLOGICAL SYSTEMS.





ACTION 1: Have explicit conversations about rare vocabulary in ALL texts



Conversations about New Words in New Texts

Why?

- Develop the understanding that every complex text has new, challenging vocabulary. Vocabulary instruction gives students the means for figuring out new words in text, not instruction in every single word that might appear in new texts.

When?

- Talks about the vocabulary of new texts need to occur across a school year (with extra doses prior to assessment periods).

How?

- Take a portion of the text (25 or 50 words is enough). Use a highlighter to mark the words in the 1,000-2,000 most-frequent words (list on textproject.org)
- Mark the words that are potentially challenging with a different colored highlighter. (List of 4,000 simple word families at:
<http://textproject.org/classroom-materials/lists-and-forms/lists/word-zones-for-5-586-most-frequent-words/>)

--An example of a snippet of text for a board/projection is the following, which comes from a sample assessment for Grade 7
[http://www.parcconline.org/samples/english-language-arts-literacy/grade-7-reading-informational-text-\(Amelia-Earhart-2\)](http://www.parcconline.org/samples/english-language-arts-literacy/grade-7-reading-informational-text-(Amelia-Earhart-2))

When 10-year old Amelia Mary Earhart saw her first plane at a state fair, she was not impressed. “It was a thing of rusty wire and wood and looked not at all interesting,” she said. It wasn’t until Earhart attended a stunt flying exhibition, almost a decade later, that she became seriously interested in aviation.

Idea	Action	Open-Access Resource
1. English has more words than can be taught.	1. Teach students to expect new words in texts.	1. Talking Points for Teachers: New Words in New Texts
2. A small group of words does the heavy lifting in English.	2. Increase volume of reading	2. •FYI for Kids •ReadWorks.org
3. Rare words in narrative texts belong to synonym networks; those in informational texts in topic networks.	3. Teach students prolific synonym networks & organize topics into networks.	3. •Super Synonym Sets for Stories (S4) •Exceptional Expressions in Everyday Events (E4)
4. Teach vocabulary in the service of developing bodies of knowledge.	4. Develop bodies of knowledge in ELA instruction.	4. •Intentional Read-Aloud Curriculum •ReadWorks Lessons •Word Pictures

DISCUSSION 2

1. What percentage of the vocabulary is the same across STARR narrative texts for Grades 3, 5, & 7? For expository texts for Grades 3, 5, & 7?

STARR—Grade 3 (Narrative)

Mrs. Snavin looked at the screen, and then she looked at this book, and then back at the screen again. Then she shook her head and let out this big sigh. I could tell she was almost ready to call Mrs. Reed.

I've always liked computers, and I know how to do some stuff with them. Like turn them on and open programs, play games and type, make drawings, and build Web pages, things like that. So I got up from my desk, pointed at the screen, and said, "Mrs. Snavin, if you double-click on that little thing right there, then the program will start running. about number lines."

STARR—Grade 5 (Narrative)

The calf looked over his shoulder at me, then took a step closer to Lewis. That didn't make any sense. Lewis and I were a team; moving close to Lewis was like moving close to me.

Next, Lewis did something that surprised me. He reached out his hand and placed it on the calf's head, the same way he put his hand on my head sometimes. That was the last thing I expected. Could it be that Lewis wanted the calf to stay with us? What was Lewis thinking?

"Where's your mother?" Lewis said.

At that moment everything became clear, like the streams in the mountains.

STARR—Grade 7 (Narrative)

"So small," he said, "millions can fit in a flea's eye." That got my attention.

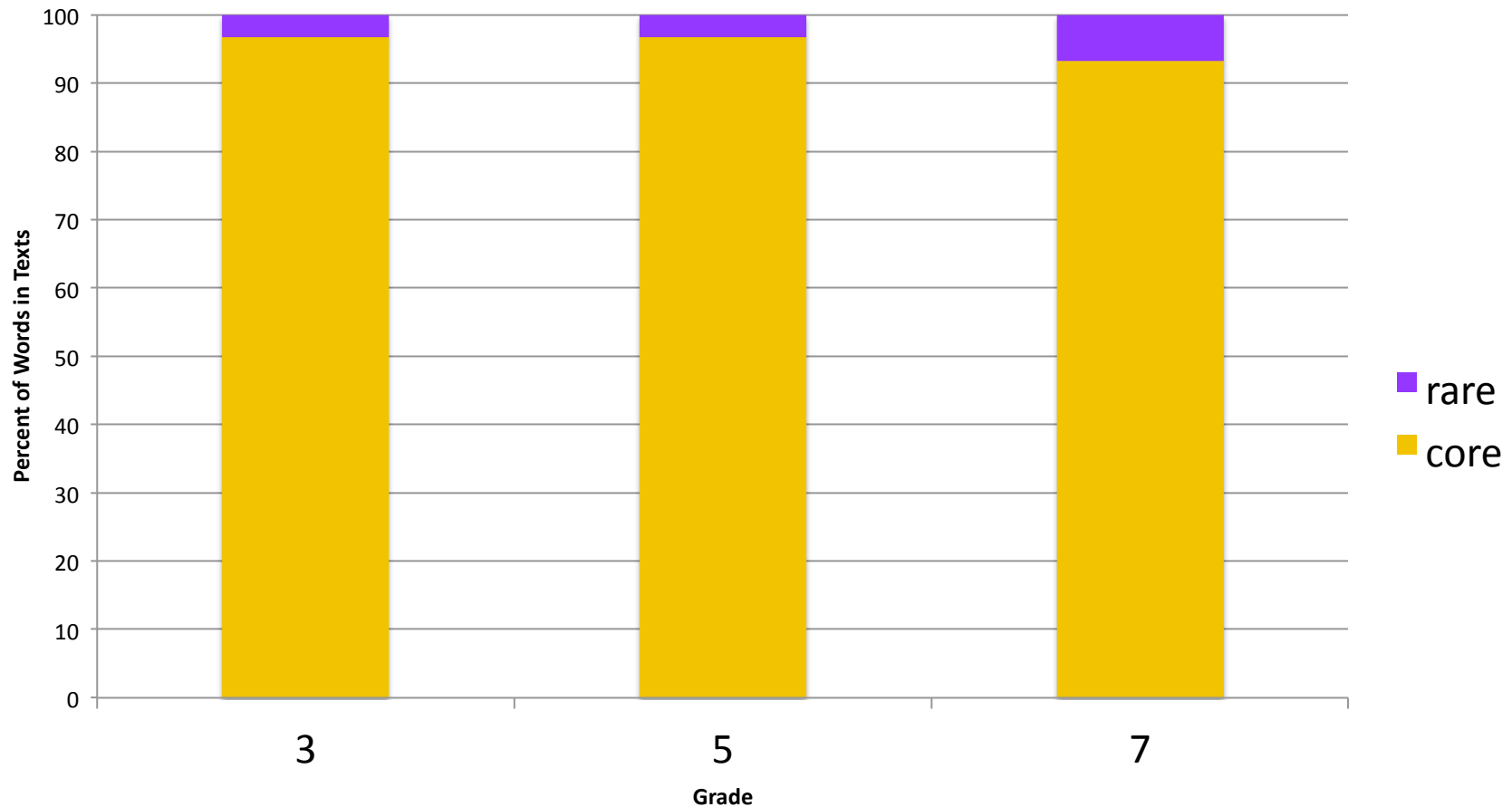
Then he zeroed in on protons. "Atoms may be mostly space," he said, "but a proton is nothing but a proton. Small as an atom is, a proton is millions of times smaller." "You could squint till your eyeballs pop out and you'll never see one," he said, daring me to try.

"And you know what the coolest thing about protons is?" He said.

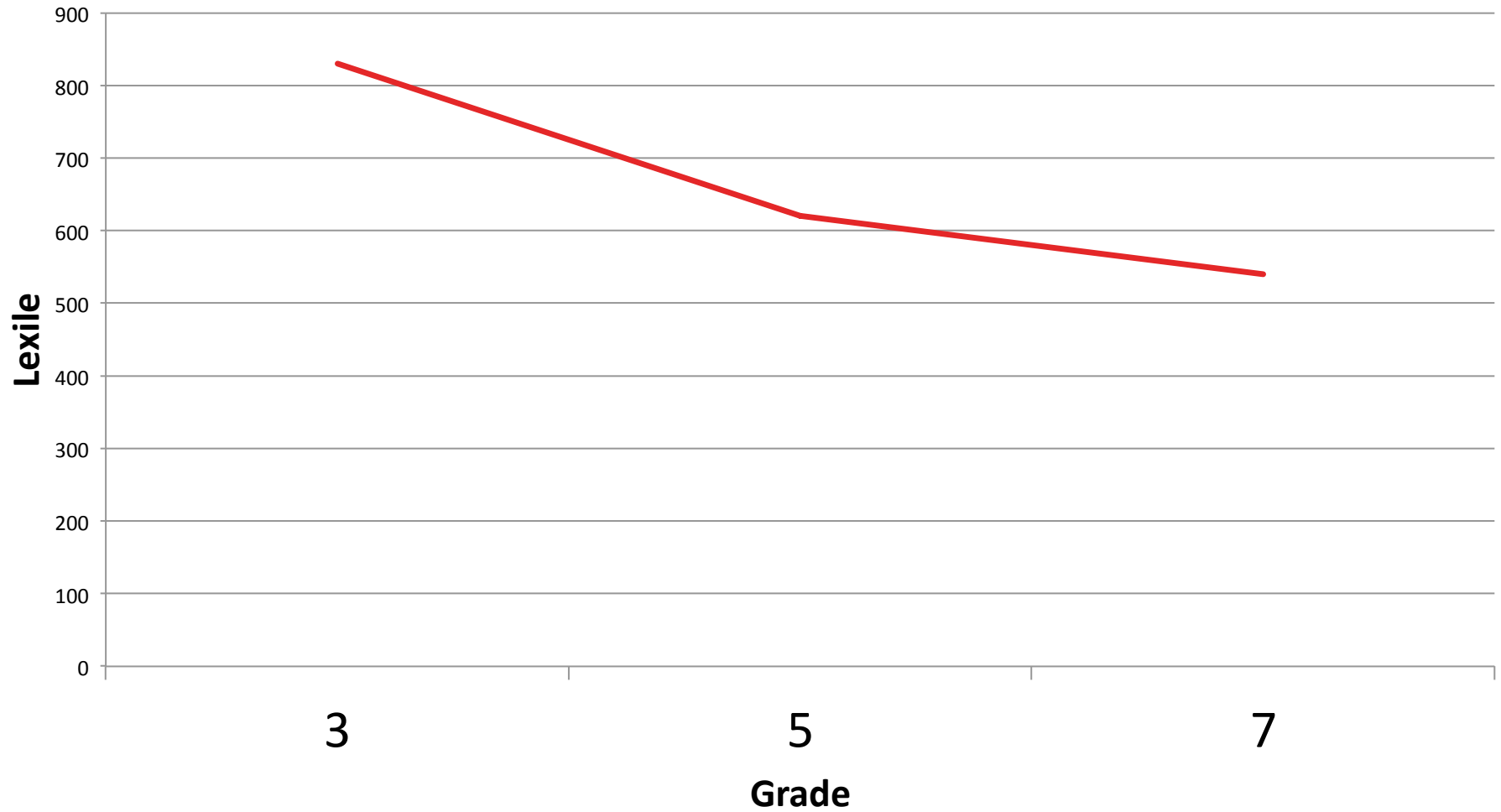
"What?" I said.

He clacked his jawbreaker for a while, building the suspense. "You can't do anything to them," he said. "You can't break them."

Word Patterns in STARR Texts (Narrative, 2017)



Lexiles of STARR Texts (Narratives, 2017)



STARR—Grade 3 (Expository)

She baked all day because she could fit only a few loaves of bread at a time in her wood burning stove. Her oldest sons walked to the homes of the customers and delivered the baked goods.

Soon Mrs. Baird's baked goods were so popular that her sons needed a faster way to deliver them. They began to use their bicycles. Even more people ordered from Mrs. Baird. She had to find a way to bake more products at one time.

In 1915, Mrs. Baird purchased a used oven from a hotel. The oven cost \$75, but Mrs. Baird was able to pay only \$25 in cash.

STARR—Grade 5 (Expository)

Coach Summitt noticed that players sometimes had to repeat instructions to Catchings while on the court. Summitt convinced Catchings that wearing hearing aids would not only help her be a better player but also help others who were hearing impaired by allowing her to serve as a role model. Catchings started wearing her hearing aids and eventually began to speak openly about her hearing loss. As Coach Summitt predicted, Catchings has been an inspiration to many children. She has proved that having a disability does not have to be a disadvantage.

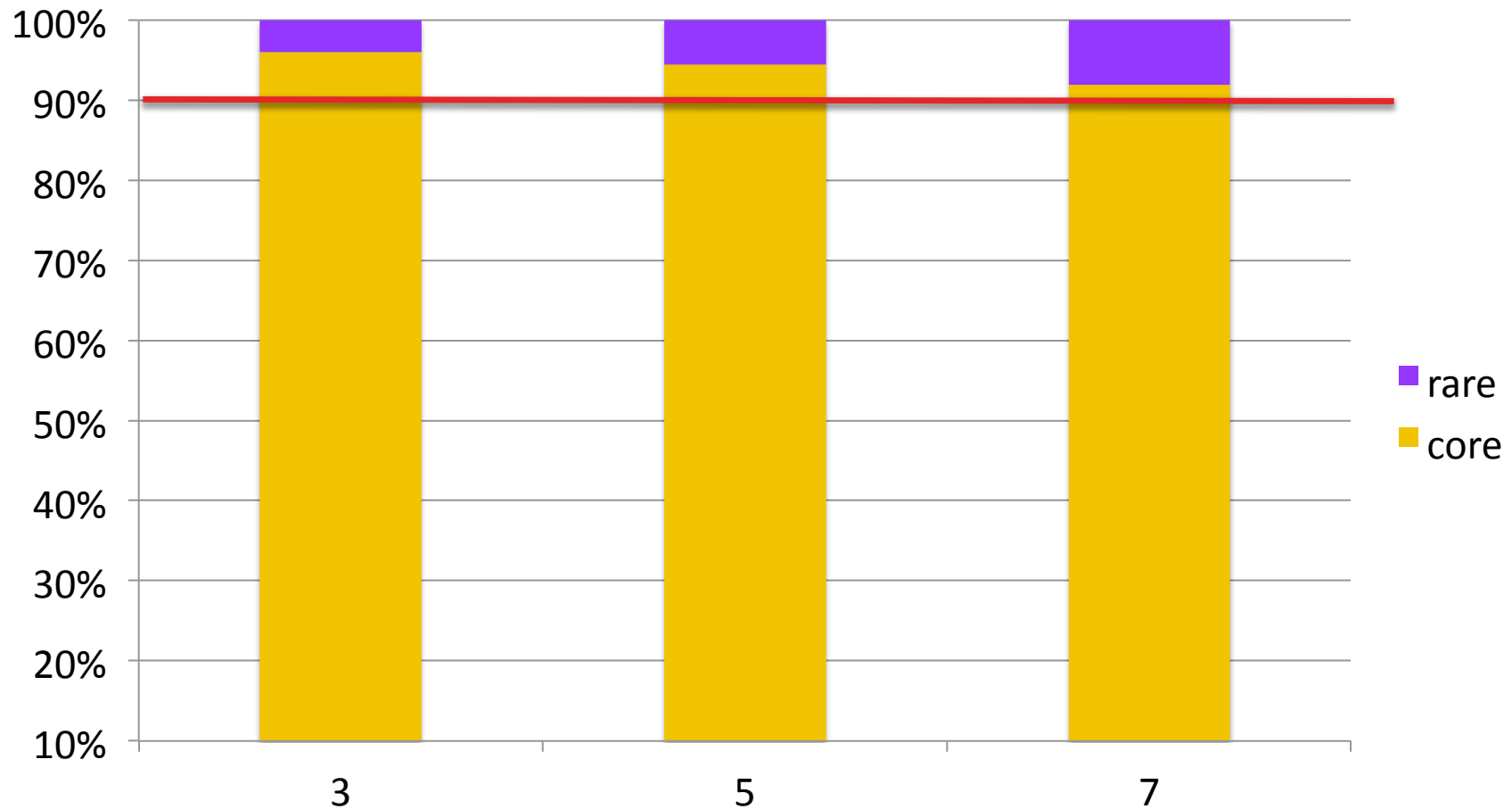
Catchings has even written a book, *Dreams Are for Catching*, to share her story with others.

STARR—Grade 7 (Expository)

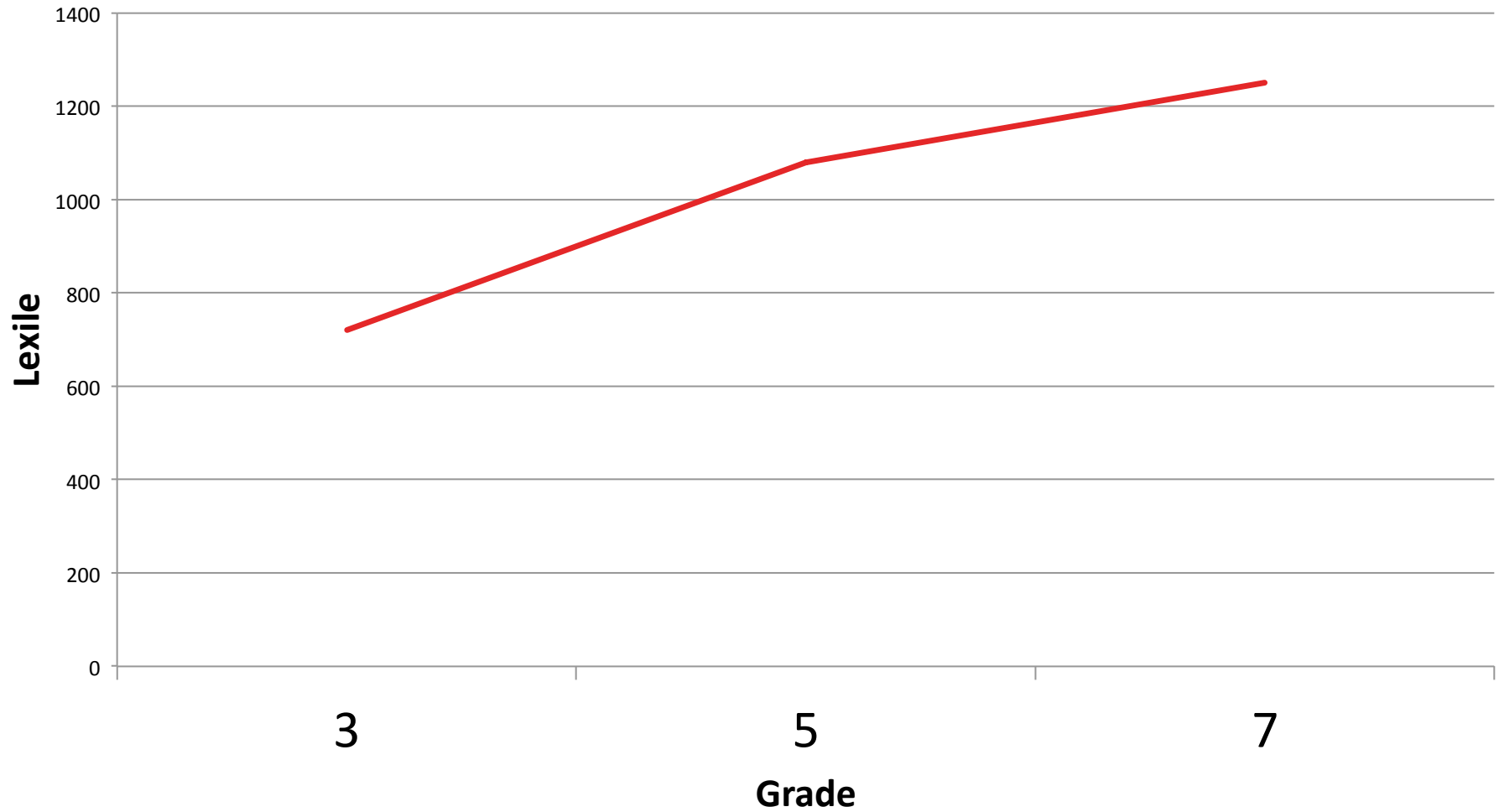
When a type of food is no longer grown because of a natural disaster, such as a flood, or because it becomes unpopular or too expensive to grow, it can disappear from stores and kitchens forever. The Global Crop Diversity Trust wants to prevent this by preserving as many varieties of seeds as possible. The assortment at the vault ensures that food supplies can be maintained or replenished if necessary.

The Svalbard Seed Vault opened in 2008 with more than 11,000 seed samples from around the world. It has the capacity to store 4.5 million seed samples. The entry to the vault is a carefully guarded tunnel behind a steel door illuminated by fiber optic light and sunlight reflected off mirrors.

Word Patterns in STARR Texts (Expository, 2017)



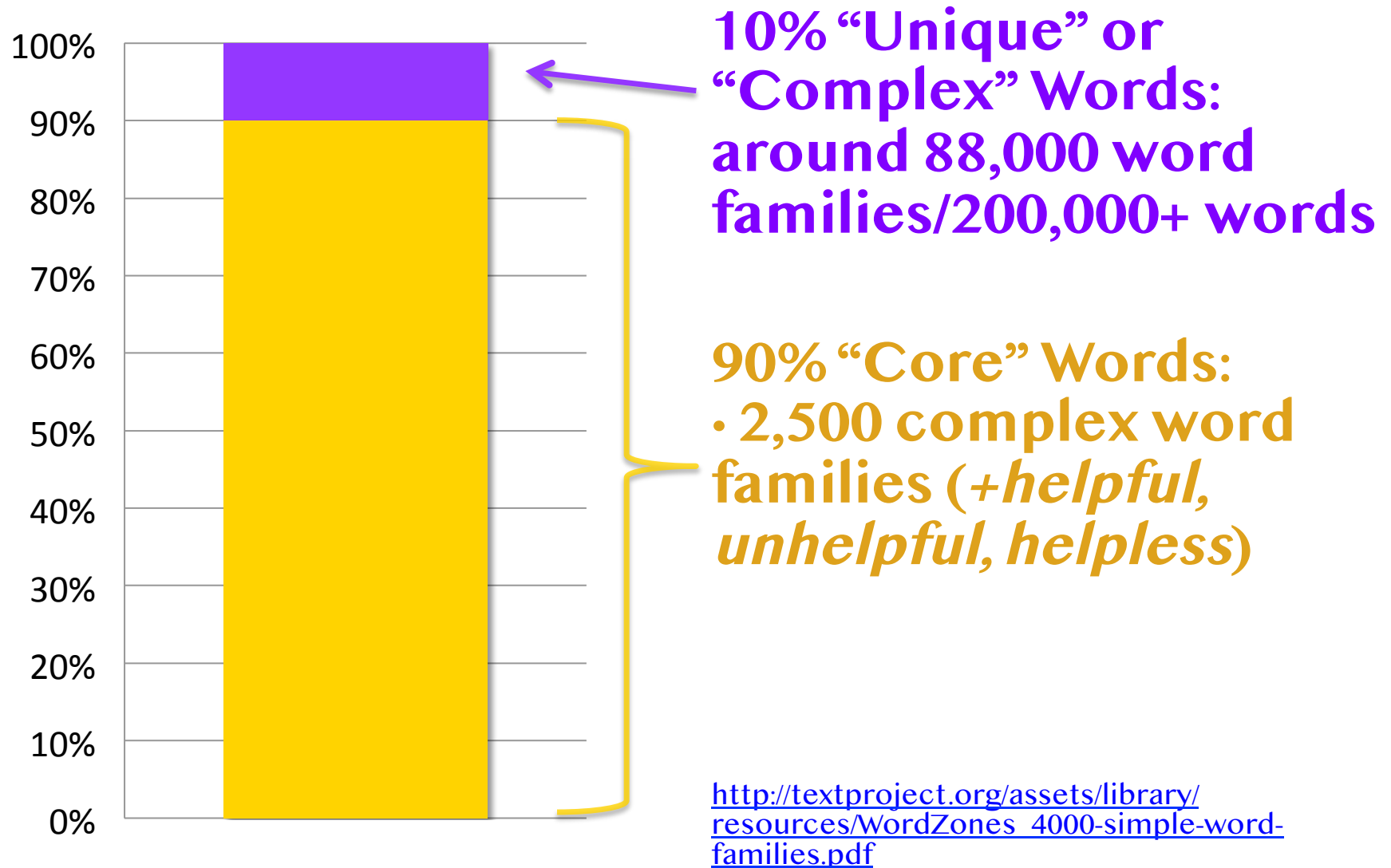
Lexiles of STARR Texts (Expository, 2017)





Idea 2: A small group of words does the heavy lifting in English.

The distribution of words in written English



Examples of the Words in the Core Vocabulary

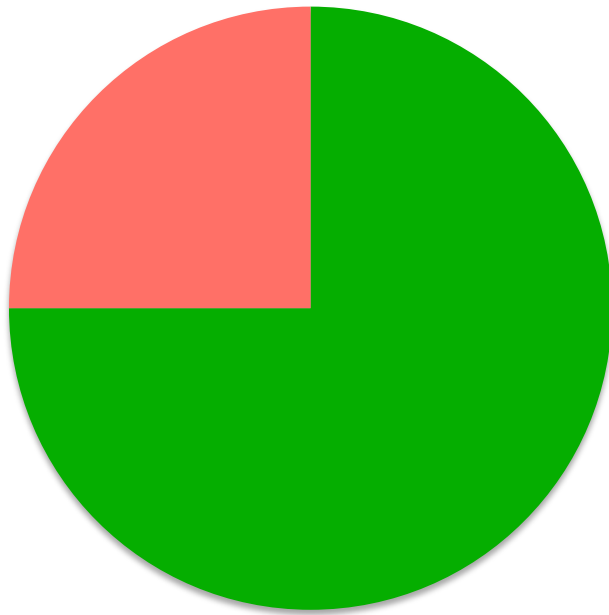
	words
1st 100	the, by, no, through, must
101-300	long, great, put, last, family
301-1,000	power, north, story, strong, answer
1,001-1,500	valley, imagine, motion, nearby, importance
1,501-2,000	character, responsible, design, presence, trail
2001-2,500	mixture, discovery, civilization, attitude, assume



Action 2: To support students' core vocabulary, increase volume of reading

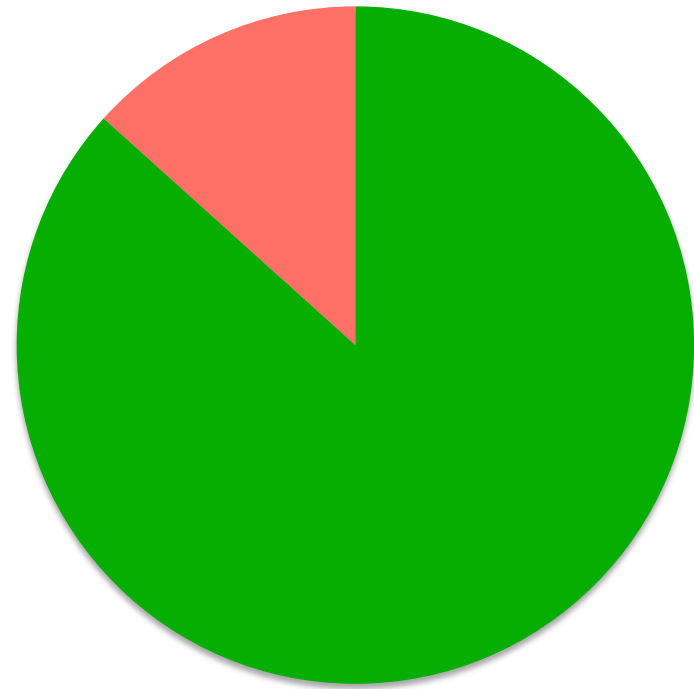
Time Spent in Reading Instruction & “Eyes on Text”

**Reading Instruction (1970s
to late 1980s)**

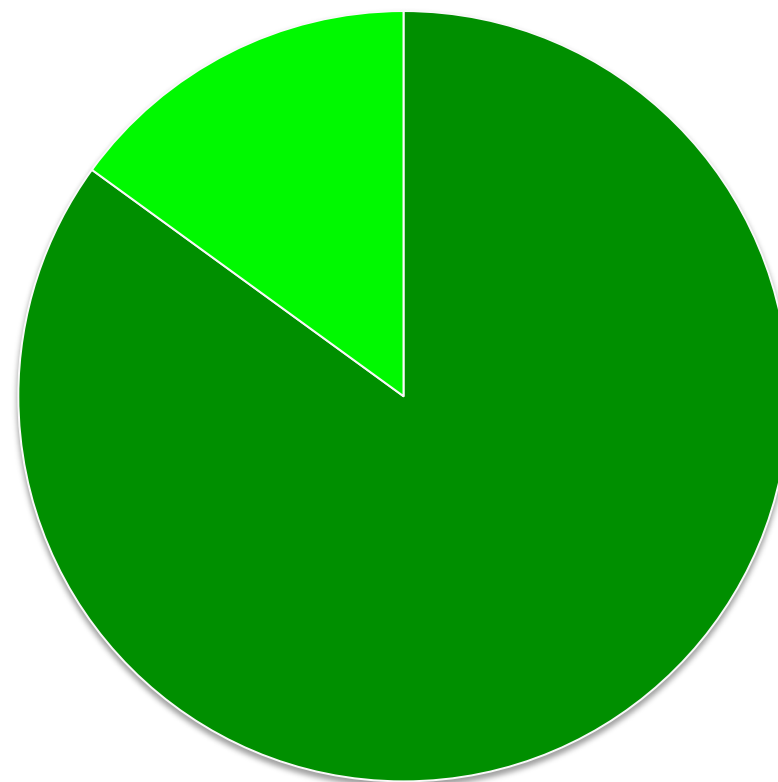


■ Instruction ■ Time Spent reading

Reading Instruction (late 1990s -)

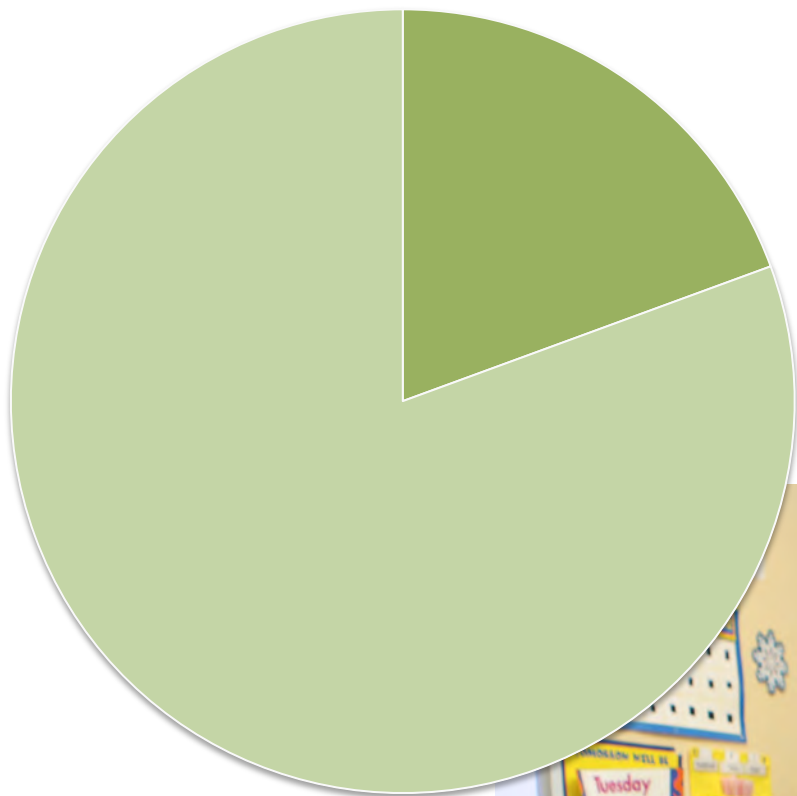


■ Instruction ■ Time Spent reading



■ Other activities ■ Reading

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



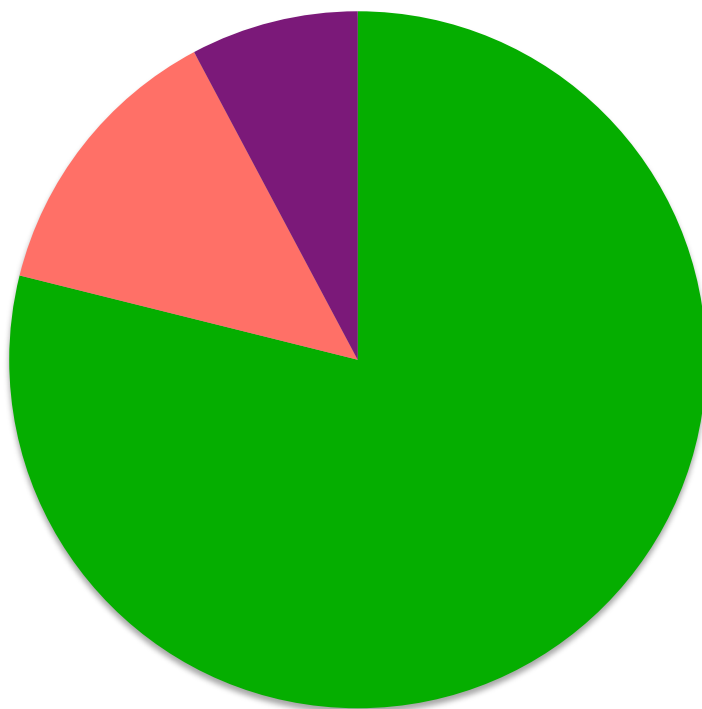
■ Silent Reading

■ Listening, Following Along to Oral Reading

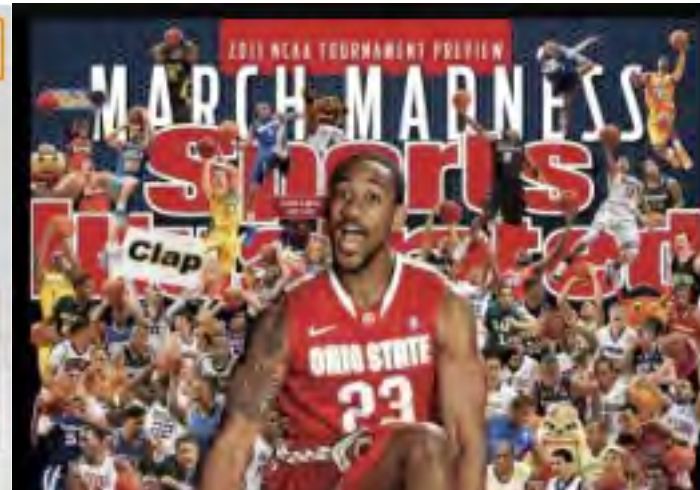


2.1 7 Minutes of Additional Reading

**Reading Instruction
(w/ 7 additional minutes)**



■ Instruction ■ Time Spent reading ■ Additional 7 minutes



Way to increase reading?
Engage students in articles



Putting Two Words Together

volume 3
issue 2



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A lot of sports that people play use balls. In basketball, players try to get a ball through a hoop. In baseball, players use a bat to hit a ball. In football, players throw a ball to get it close to the goal.

There are other words with “ball” that describe things that are round. But they are not balls with which you play a game. Meatballs are not used in any sport. But

they are great with spaghetti.

Eyeballs help in playing sports. But there isn’t a sport called eyeball where teams throw and catch eyeballs. You wouldn’t want to be in a game that uses fireballs. If you would ever see a fireball, you should get as far away as fast as you can. Then call 911 right away. You should also watch out if a cannonball is going to be fired. It is round but you don’t want to play with a cannonball. You especially do not want to catch a cannonball!

There are some words, though, that have ball in them but it has nothing to do with round. Ballpoint pens make

writing a lot easier. It’s easy to see how the “point” got into ballpoint pen. But why the ball? That part is in the name because of the tip of a pen is round. There are also rooms that are called ballrooms. People hold balls in ballrooms but they aren’t the round kind.

Other words with ball have nothing to do with round. In these words, the “ball” part of the word is not even said the same as ball in baseball or meatball. Ballerina is not ball with “erina.” Ballerinas are dancers and the word has nothing to do with ball. A ballot is used by people to vote but it is not round. You don’t even say “ball” when you say the word ballot.

Whenever you see ball as part of a word, look carefully. Usually, the word has something to do with games and sports. But remember eyeballs, fireballs, and cannonballs. These balls may be round but they aren’t used in sports! Ballerina and ballot show that some words with “ball” have nothing to do with being round.



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Putting Two Words Together

volume 3
issue 2



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Whenever you see ball as part of a word, look carefully. Usually, the word has something to do with games and sports. But remember eyeballs, fireballs, and **cannonballs**. These balls may be round but they aren’t used in sports! Ballerina and ballot show that some words with “ball” have nothing to do with being round.



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Kites: Dancers in the Wind

volume 3
issue 15



You're on a beach, and the wind is blowing off the ocean. Your kite floats and swirls, dancing in the wind.

Kites were invented in China more than 2,000 years ago. They were first used by the Chinese military, but about 1,000 years ago, people started flying kites for fun. Since then, kites have been used for celebrations, in competitions, and

for science. In addition, kite festivals show off the many shapes and colors of kites. These festivals are held in Japan, Pakistan, and many other countries.

The first kites were made of silk. After paper was invented, around the year 100 AD, people used it to make kites. Today, most kites are made of paper or cloth, with sticks to hold them in shape and string to hold onto them. However, there are also kites for skiing or for moving a buggy on a beach.

In ancient times, kites carried lines across rivers. These lines helped build bridges. In the 1880s, kites

were first used to take photographs. In the early 1900s, the United States Weather Bureau used kites to help with weather prediction. The kites measured winds and temperatures.

The word kite is from an Old English word that means "a kind of hawk." Kites were probably given this name because of the way they look when they fly.

To fly a kite, find a large open area, such as a park or a beach. Make sure there are no trees or power lines the kite can get caught on. Then hold the kite's string up and run. The kite will lift when it catches the wind. Guide your kite by pulling the string. Make sure you look around when you're running so you don't run into anything.

As you watch the kite, notice how it moves. If the wind is just right, your kite will dance, too, swirling as the wind takes it high up into the sky.



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**Readworks.org has
approximately 3,500 free
passages for Grades 1-High
School—including 450
curated sets of articles in the
Read-an-Article-a-Day
initiative**

Idea	Action	Open-Access Resource
1. English has more words than can be taught.	1. Teach students to expect new words in texts.	1. Talking Points for Teachers: New Words in New Texts
2. A small group of words does the heavy lifting in English.	2. Increase volume of reading	2. 7 minutes of additional reading daily, especially of magazine articles
3. Rare words in narrative texts belong to synonym networks; those in informational texts in topic networks.	3. Teach students prolific synonym networks & organize topics into networks.	3. •Super Synonym Sets for Stories (S4) •Exceptional Expressions in Everyday Events (E4)
4. Teach vocabulary in the service of developing bodies of knowledge.	4. Develop bodies of knowledge in ELA instruction.	4. •Intentional Read-Aloud Curriculum •ReadWorks Lessons •Word Pictures

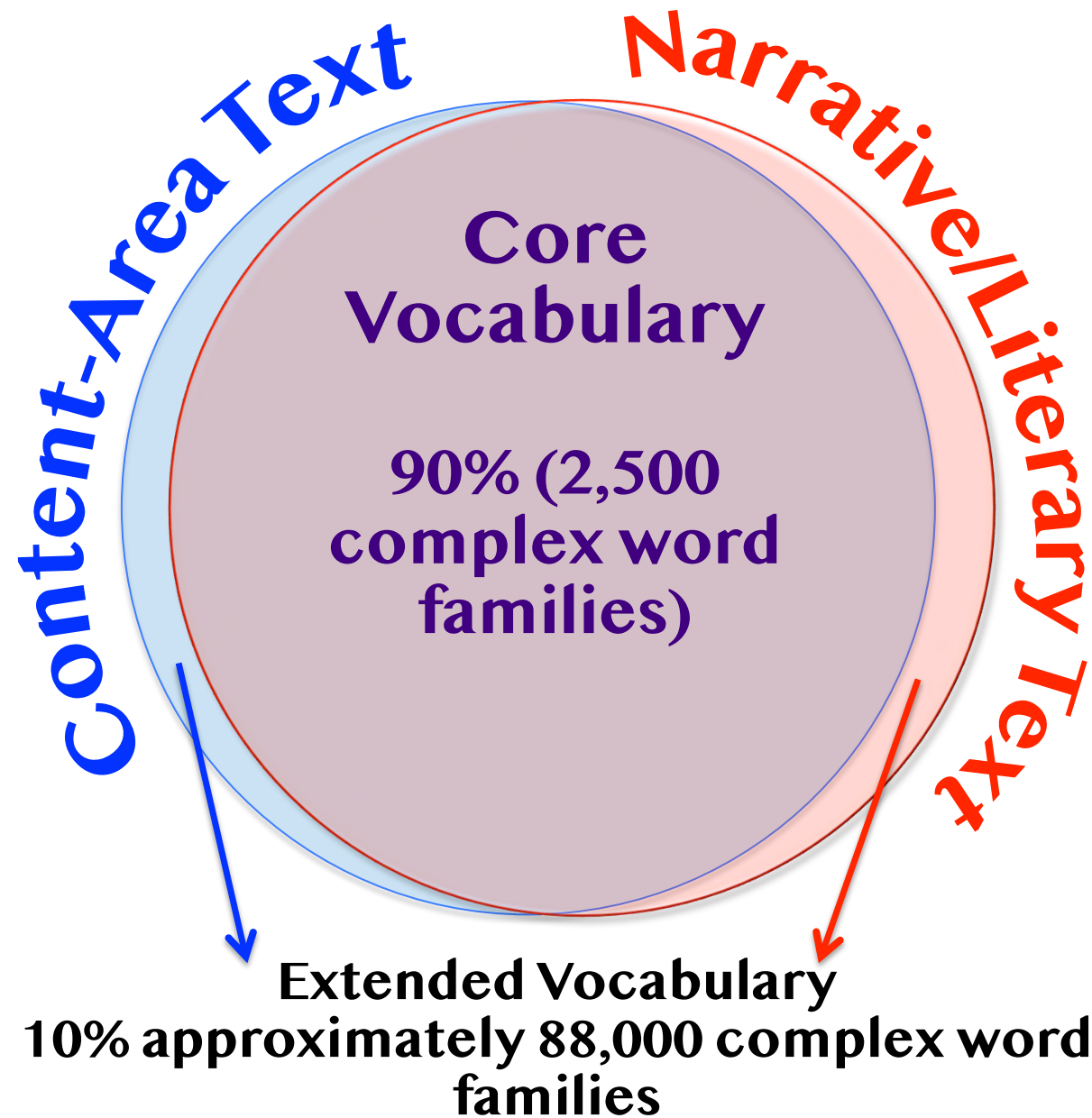
Discussion 3

- 1. How do you teach rare vocabulary in narrative texts? In expository texts?



**Idea 3: Rare words are part
of networks**

The Other 10%: Rare Words in Writing



Narrative Text

Even with eyes protected by the green spectacles, Dorothy and her friends were at first dazzled by the brilliancy of the wonderful City. The streets were lined with beautiful houses all built of green marble and studded everywhere with sparkling emeralds. They walked over a pavement of the same green marble, and where the blocks were joined together were rows of emeralds, set closely, and glittering in the brightness of the sun. The window panes were of green glass; even the sky above the City had a green tint, and the rays of the sun were green.

From *The Wonderful Wizard of Oz* Frank Baum)

(a)
**Networks in
narratives
are
synonyms
related to
story
elements.**

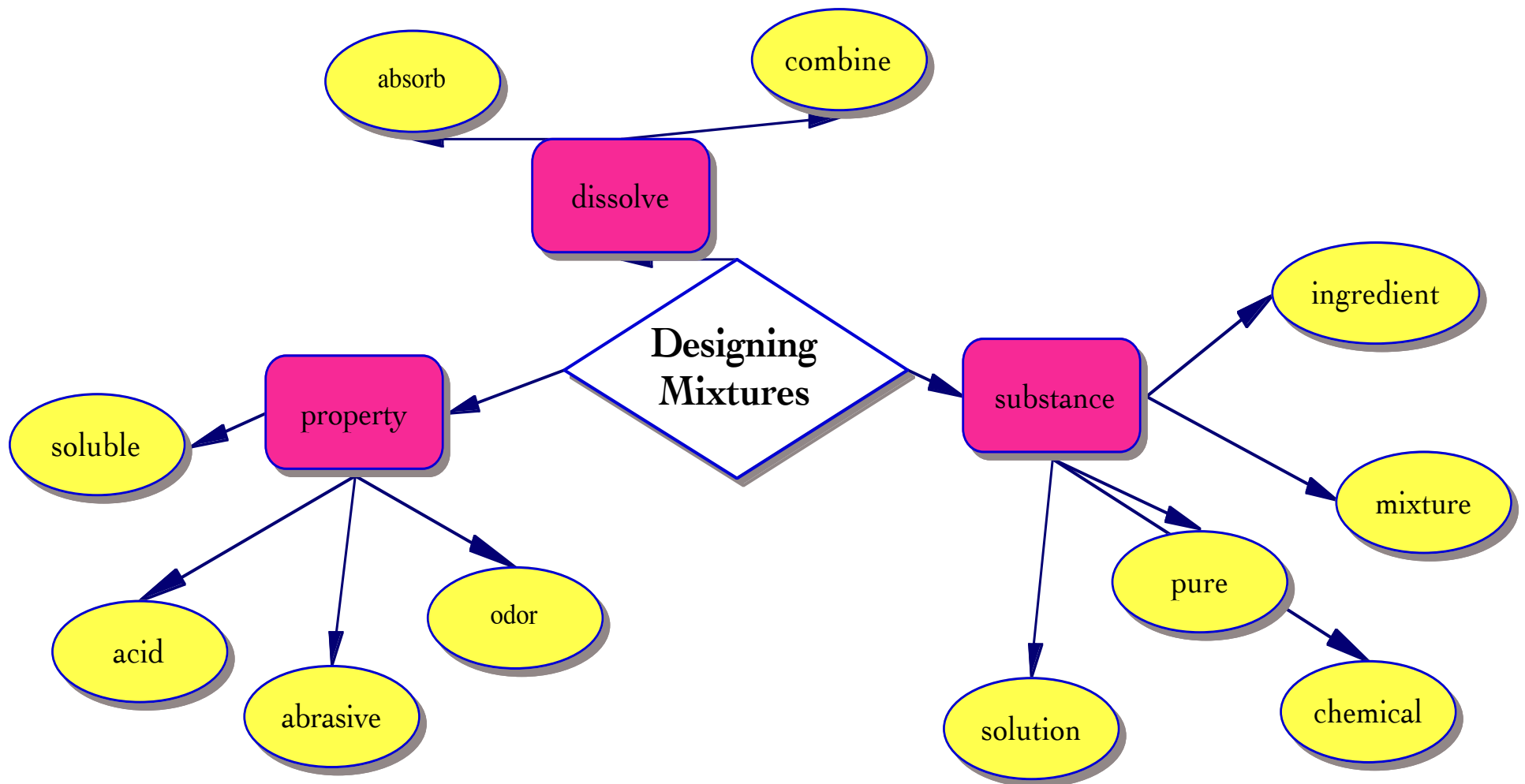
Story Word	Other Possibilities
dazzled	hypnotized awed
brilliancy	effulgence luminosity
glittering	shimmering radiance

(b) The rare words in
informational texts
belong to topical
networks.

Informational Text

A simple solution is basically two substances that are evenly mixed together. One of them is called the **solute** and the other is the **solvent**. A solute is the substance to be dissolved (sugar). The **solvent** is the one doing the dissolving (water). As a rule of thumb, there is usually more **solvent** than **solute**. The amount of **solute** that can be dissolved by the **solvent** is defined as **solubility**.

An Example of a Topical Network



A close-up photograph of a young child's face, focusing on the eyes and nose. The child has blonde hair and blue eyes. The background is blurred, showing some greenery and a blue object. A semi-transparent yellow box is overlaid on the upper part of the image, containing the text.

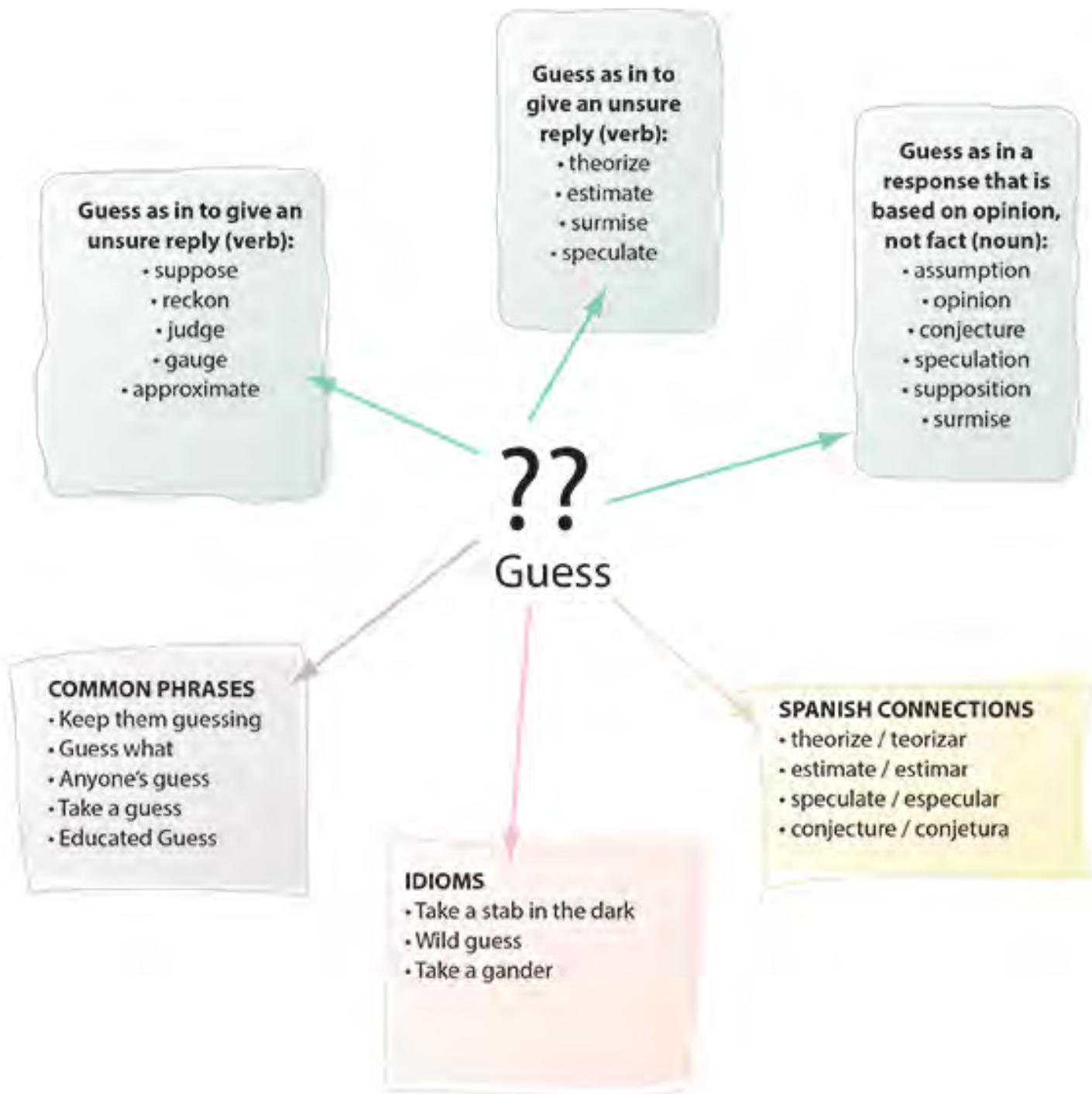
**Action 3a: TEACH
STUDENTS PROLIFIC
SYNONYM NETWORKS**



Synonym Networks in Narrative Texts

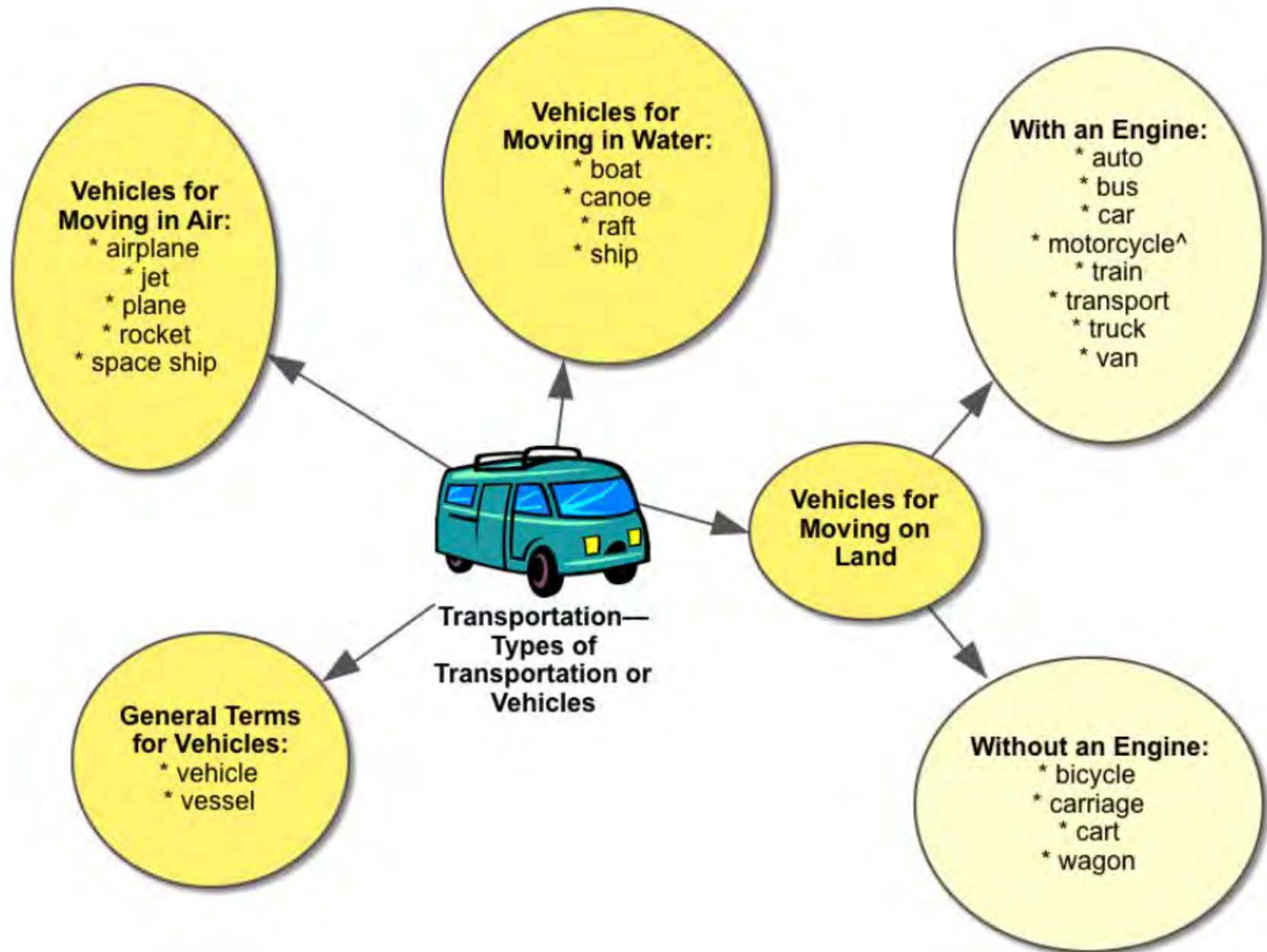
Prolific Groups of Synonyms

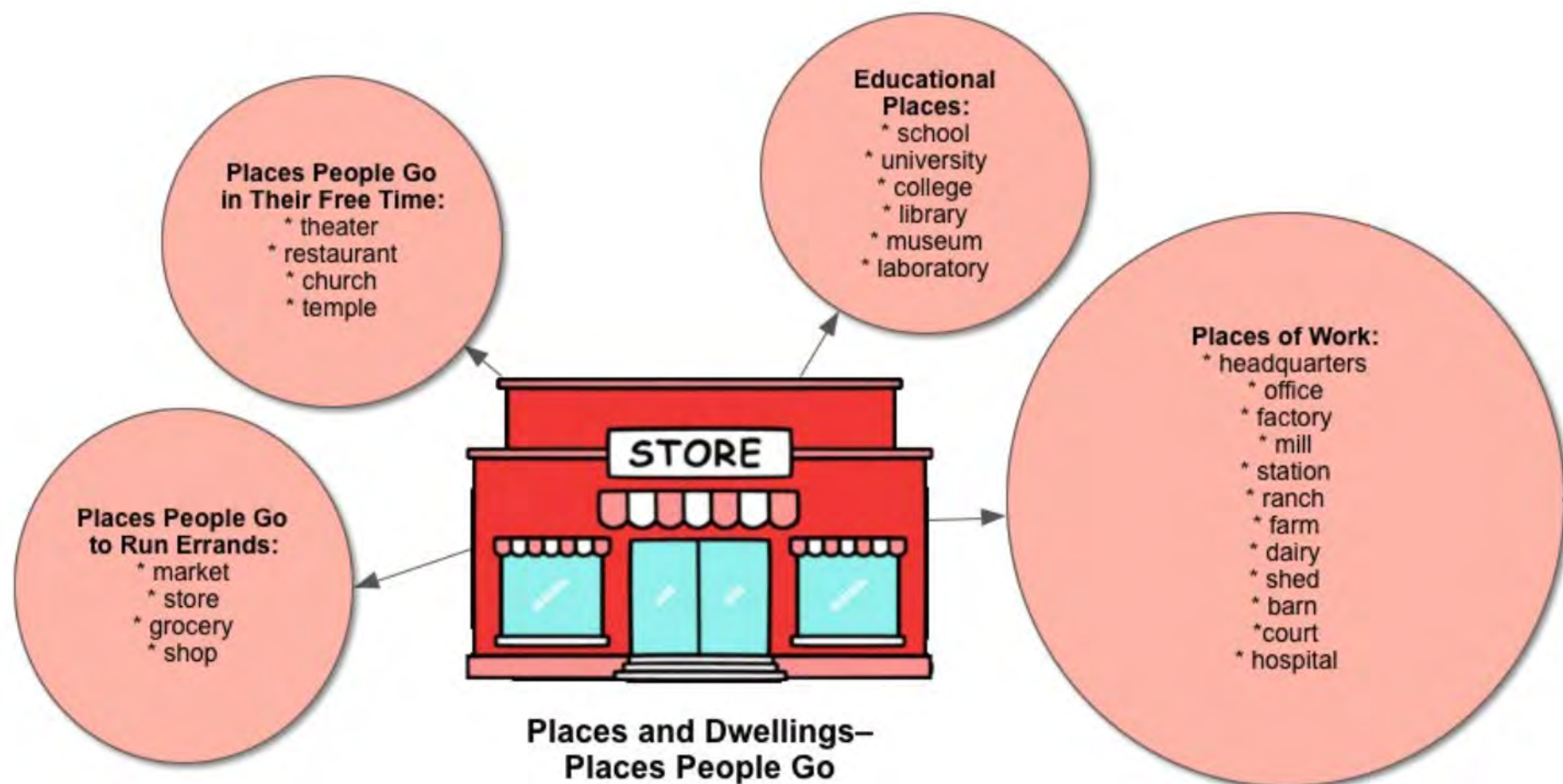
Communication /Internal Processes (verbs)	Emotions (adjectives)	Movement (verbs)	Traits (adjectives)
think	happy	go	funny
argue	sad	send	smart
look	mad	start	brave
guess	hope	stop	selfish
said	fear	stay	shy

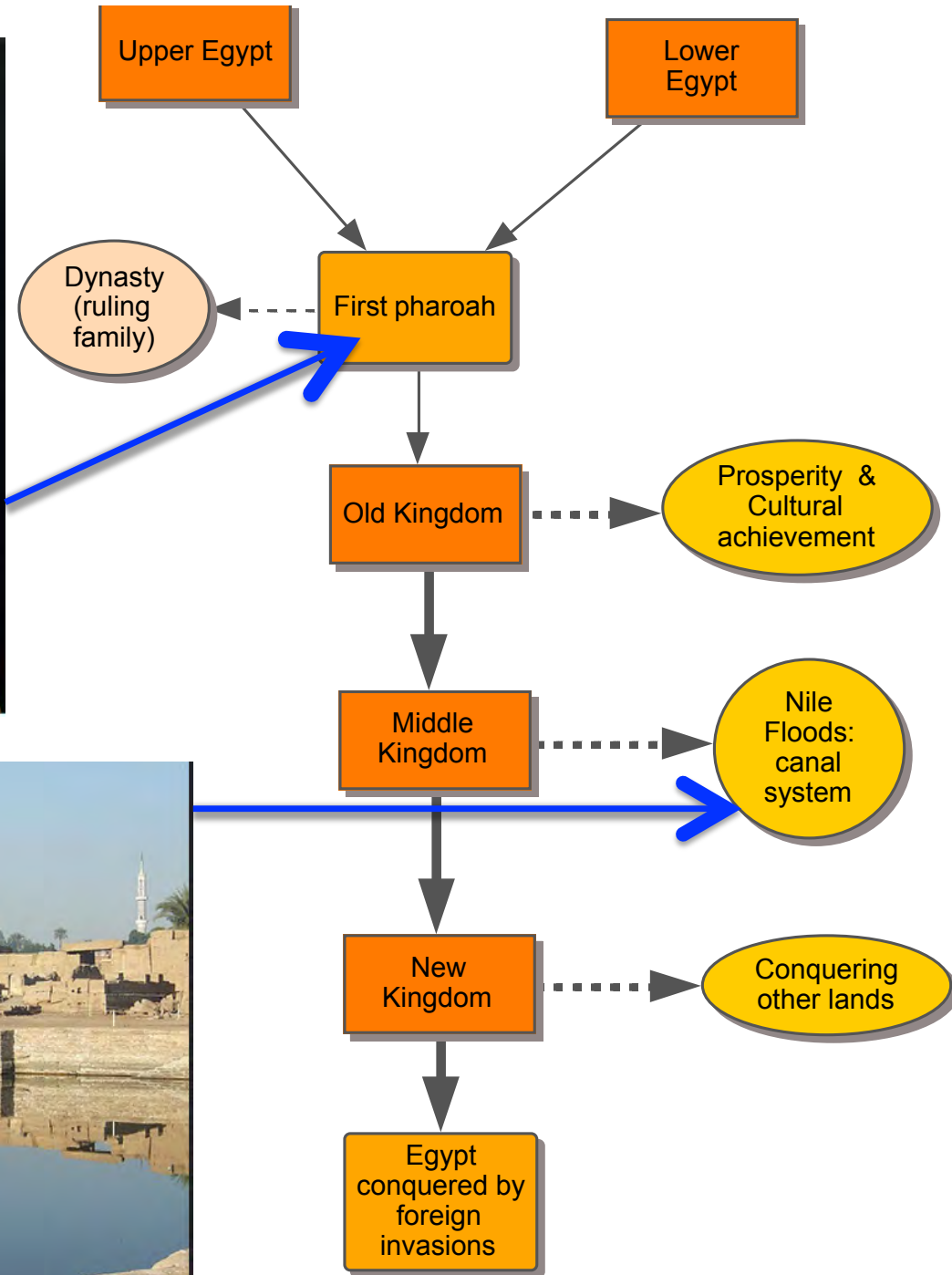


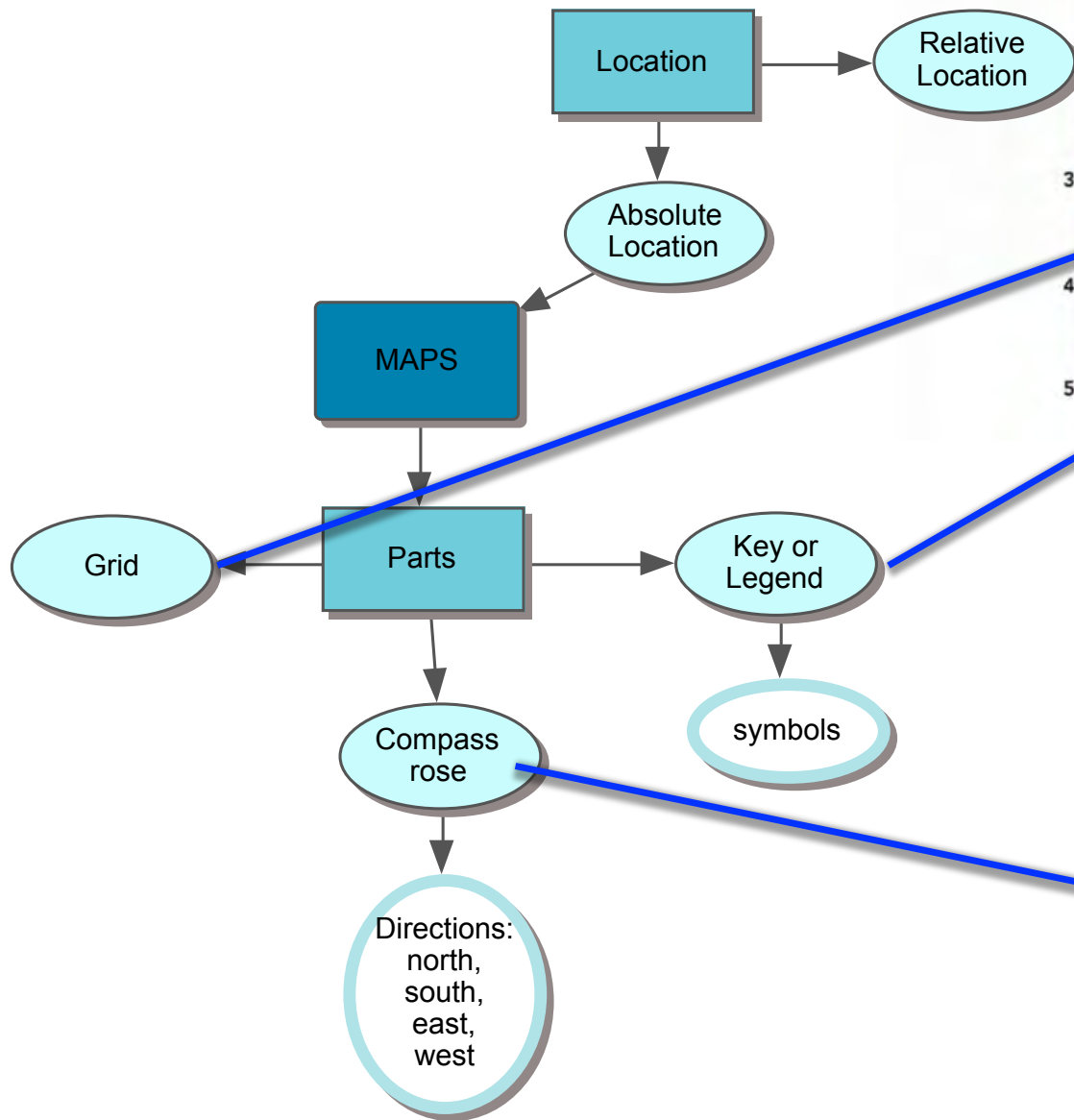


ACTION 3b. Teach students to organize rare words in informational texts into topical networks.









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Discussion 4

- 1. What are the bodies of knowledge that will be the focus of your English/Language Arts instruction this coming school year?

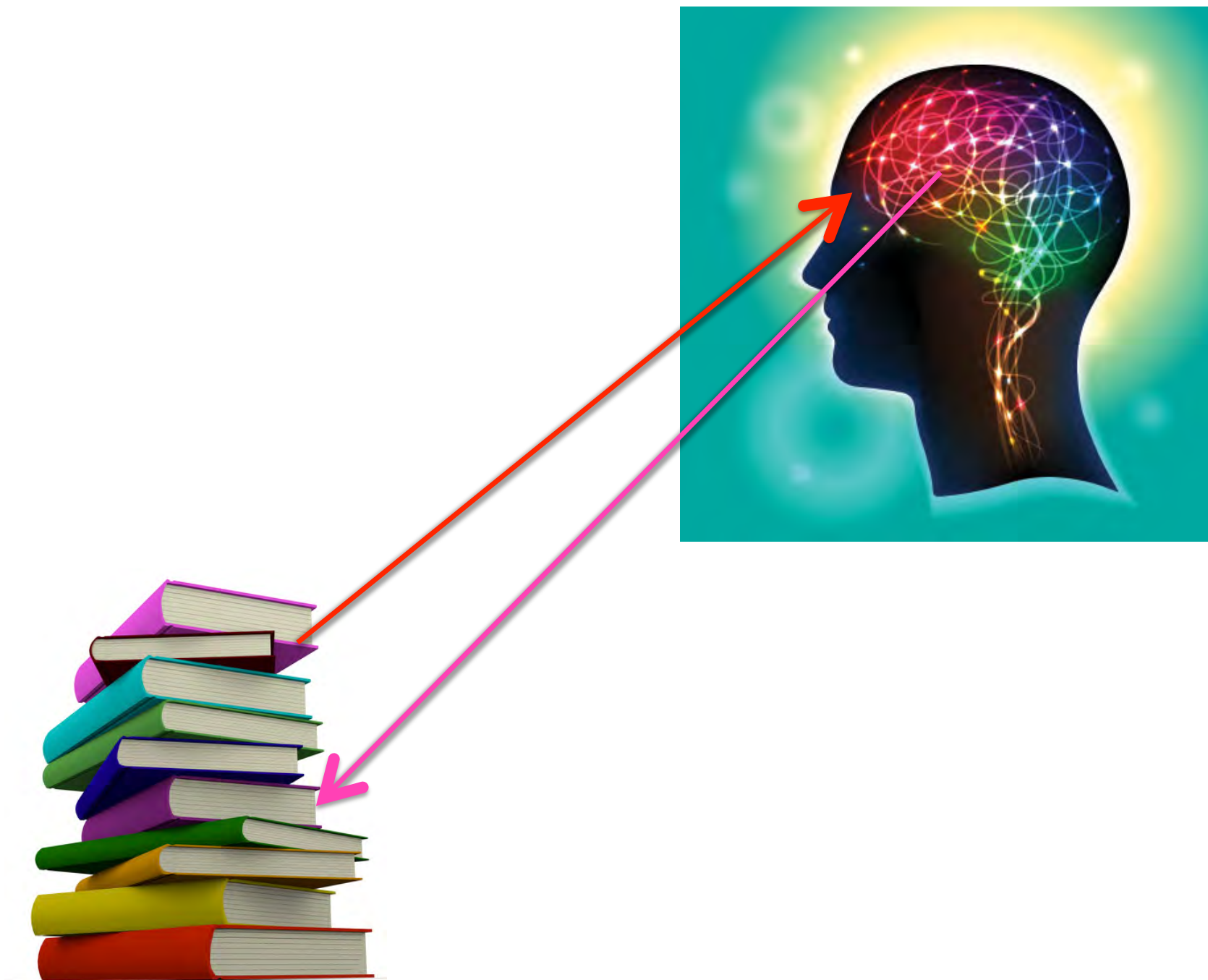


**Idea 4: Teach
vocabulary in
the service of
developing
bodies of
knowledge.**

Correlation between Background Knowledge & Comprehension = .94

Reading for Understanding Network Study of Comprehension in Grades
7-12

Slide is from the presentation of David Francis (April 19, 2013). CCSS Assessments and Students with Disabilities and English Language Learners. Plenary session at Institute on Assessment in the Era of the Common Core State Standards, International Reading Association.



Deep
knowledge
of some
topics



Broad knowledge of many topics



How did the animal shelter know that Scrub belonged to Noble? How did the workers there know how to contact her? All this information was available because of the microchip that had been placed under Scrub's skin many years earlier. A microchip is a computer chip about the size of a grain of rice that is used to keep track of pets. The chip is placed under an animal's skin with a needle, usually between the pet's shoulder blades. Once the chip is in place, the pet does not feel it anymore. Microchips have helped thousands of owners get their lost pets back.

Mrs. Snavin looked at the screen, and then she looked at this book, and then back at the screen again. Then she shook her head and let out this big sigh. I could tell she was almost ready to call Mrs. Reed.

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In 1917, Mrs. Baird bought a car. The family removed the seats from the back and filled the space with baked goods. They painted a sign on the side of the car that read Eat More Mrs. Baird's Bread. Delivering by car meant that even more people could enjoy Mrs. Baird's bread.

Today the people who work at Mrs. Baird's Bakeries are just as proud of their bread as Mrs. Baird was. Mrs. Baird's Bakeries operates four factories across the state of Texas. These large bakeries are located in Fort Worth, Houston, San Antonio, and Lubbock. Hundreds of schoolchildren visit the Fort Worth and Houston bakeries on field trips each year. At the end of the tour, everyone receives a warm slice of fresh bread. Yum!

At many hospitals around the country, kids can attend a teddy bear clinic. Children pretend their bear has gotten sick and take it to see a doctor. The doctors and nurses use the bears to help teach the children about their body, how to stay physically fit and healthy, and what to expect when they visit a doctor.

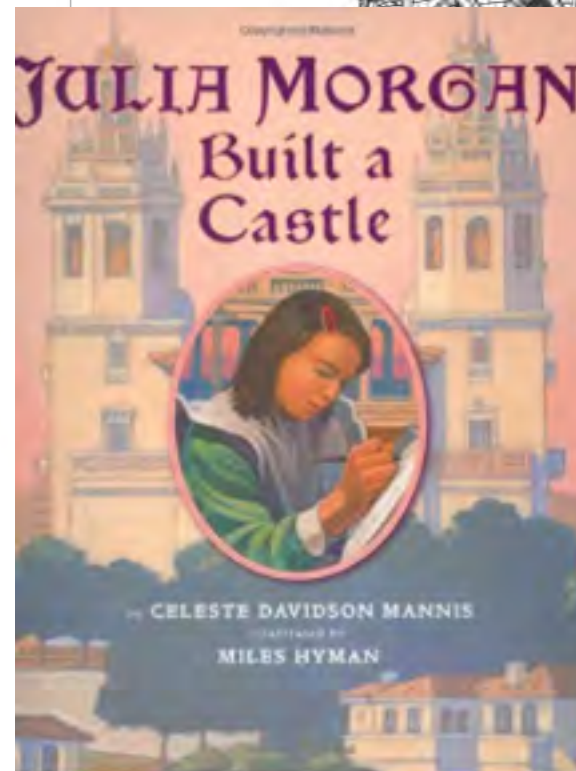
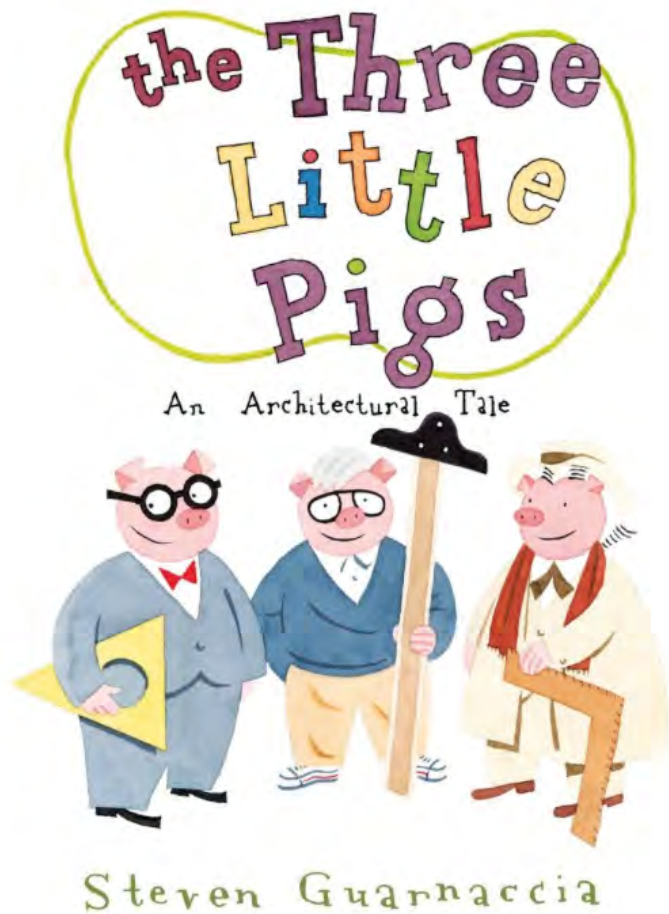
Teddy bears have even helped animals. In a national park in England, a young horse named Breeze got lost from his mother. Workers at a horse farm found Breeze and gave him food, but they thought he still needed his mother. So the workers gave Breeze a four-foot-tall teddy bear named Buttons. The young horse cuddled next to the teddy bear and slept.

A stylized illustration of a neural network. The background is dark, and the neurons are depicted as glowing blue structures. A central neuron is prominent, with a bright purple nucleus and a translucent blue cytoplasm. It has numerous thin, branching dendrites and axons extending outwards. Several points of connection (synapses) are highlighted with bright red-orange glows. The overall effect is a complex, interconnected web of light blue and red-orange lines and nodes.

Action 4: Develop bodies of
knowledge in English/Language
Arts instruction

4.1. Connect read-alouds, reading selections, independent reading, & vocabulary

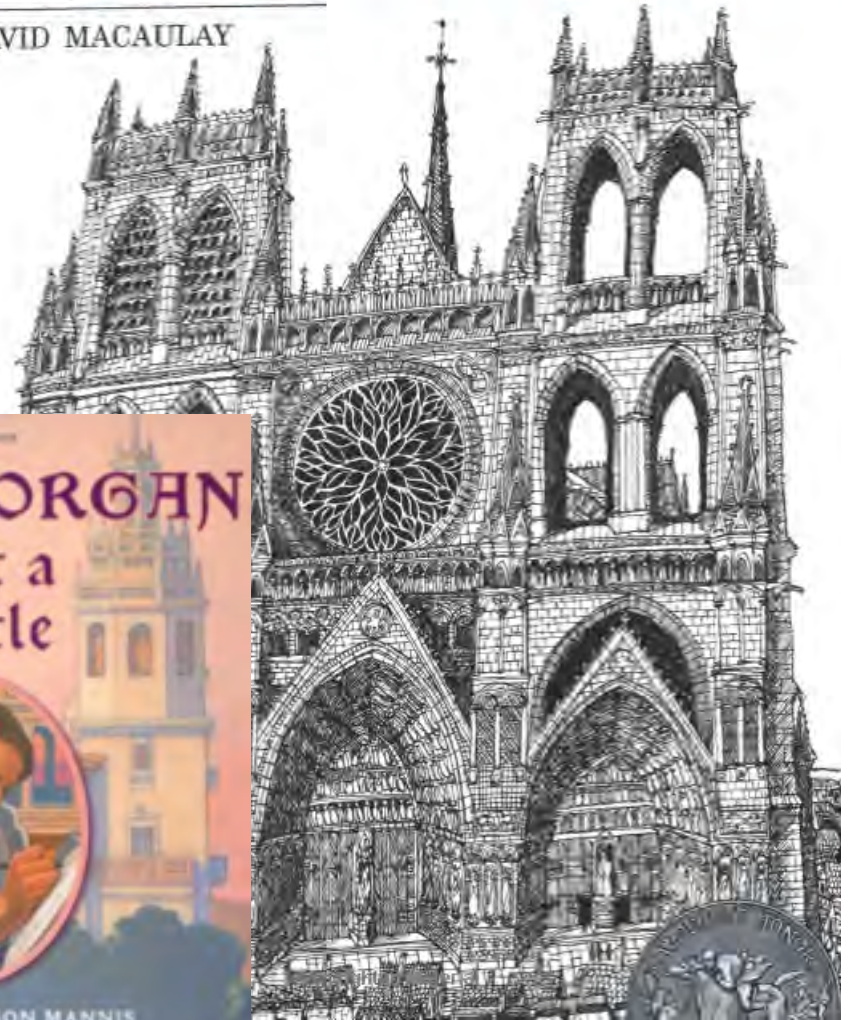
Read-Alouds



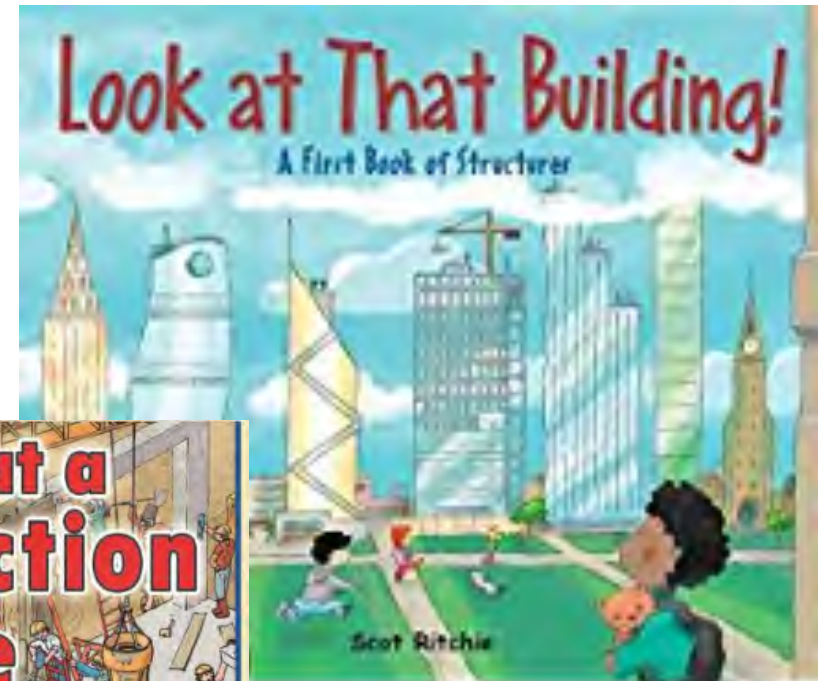
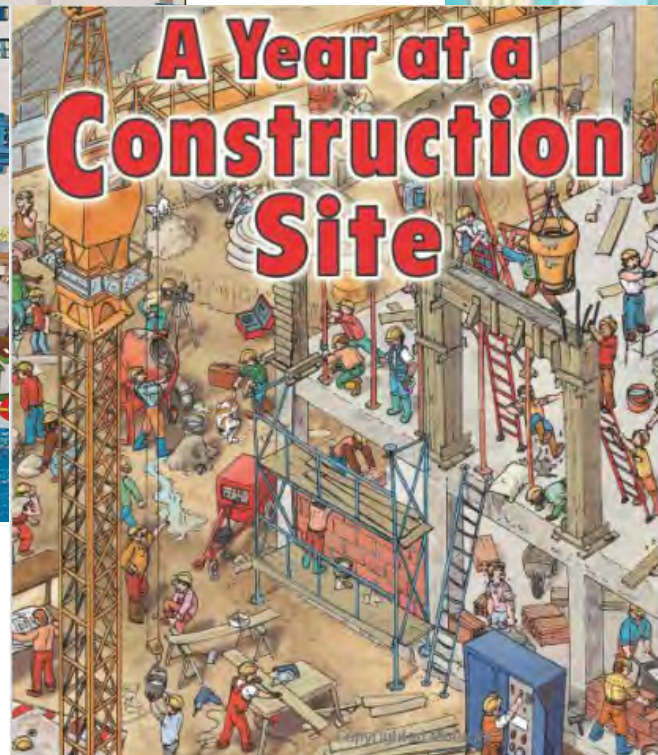
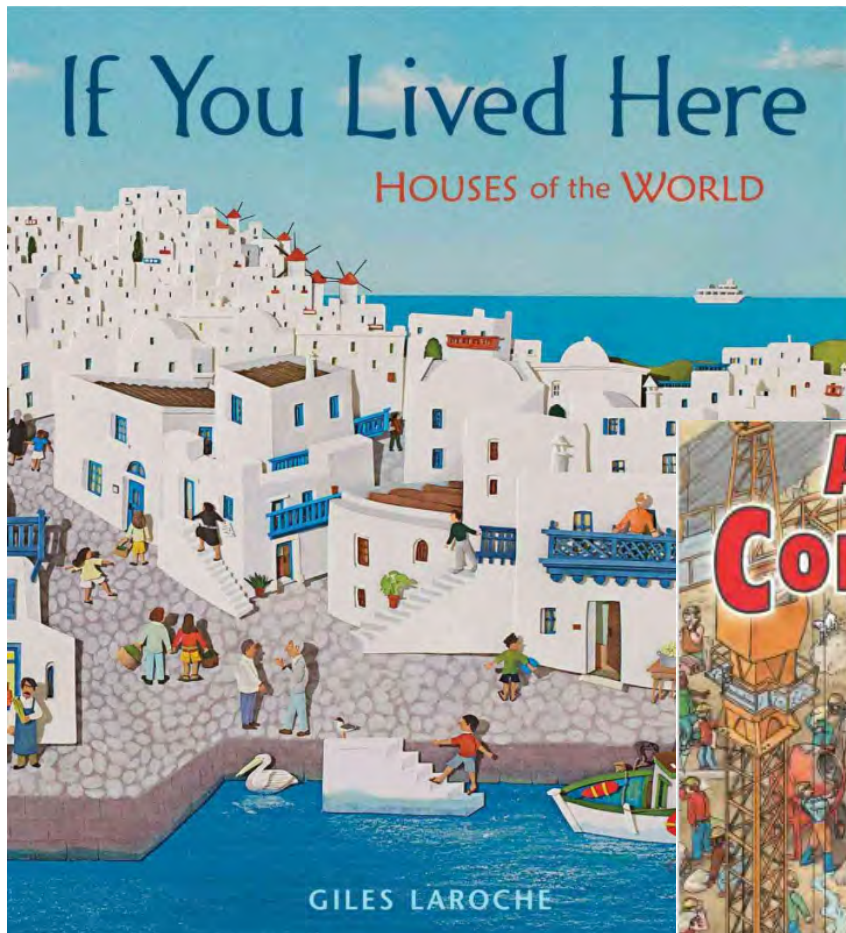
CATHEDRAL

The Story of Its Construction

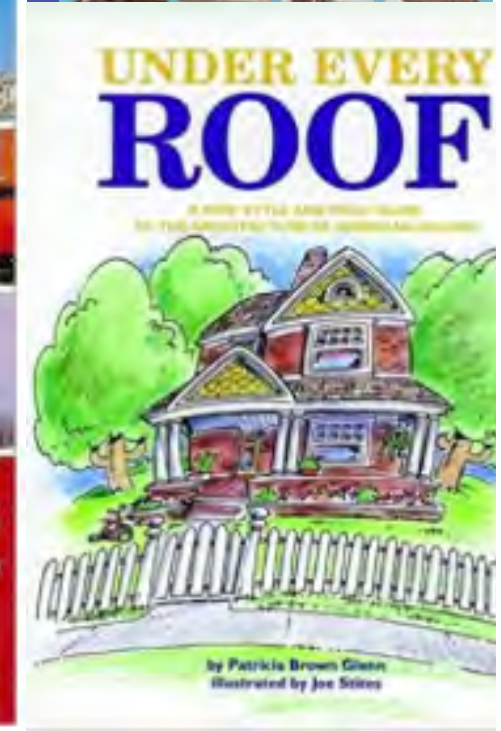
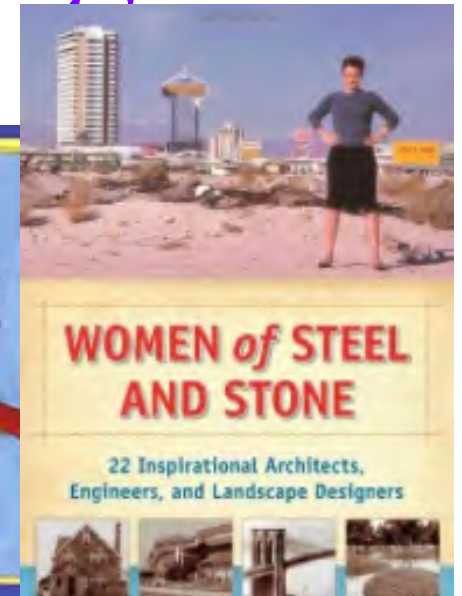
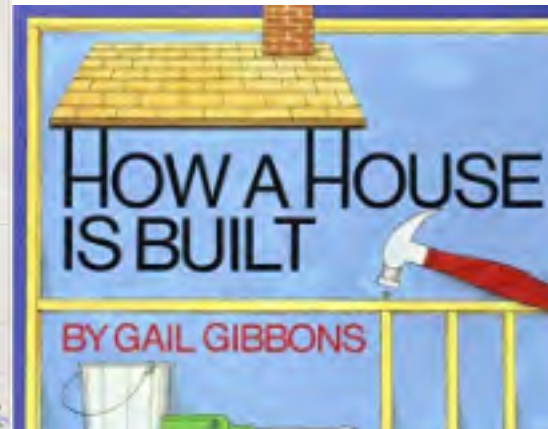
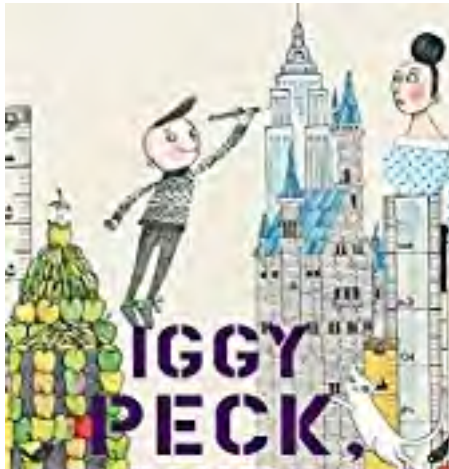
DAVID MACAULAY



Instructional Texts



Independent Reading



Vocabulary



cottage

(cot·tage)



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apartment

(apart·ment)



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estate (es·tate)

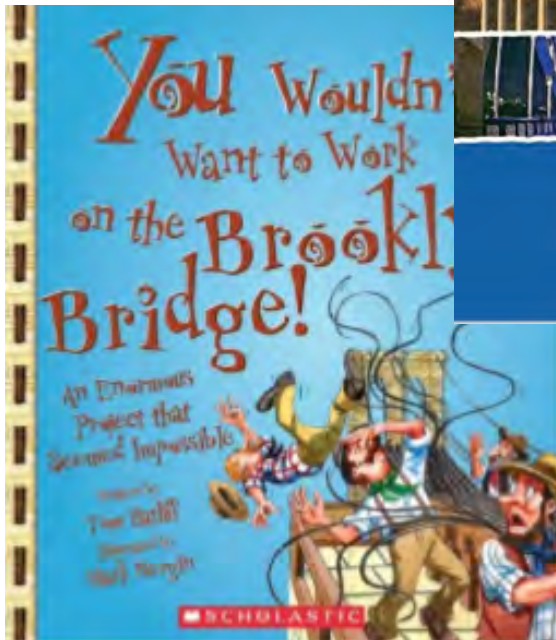
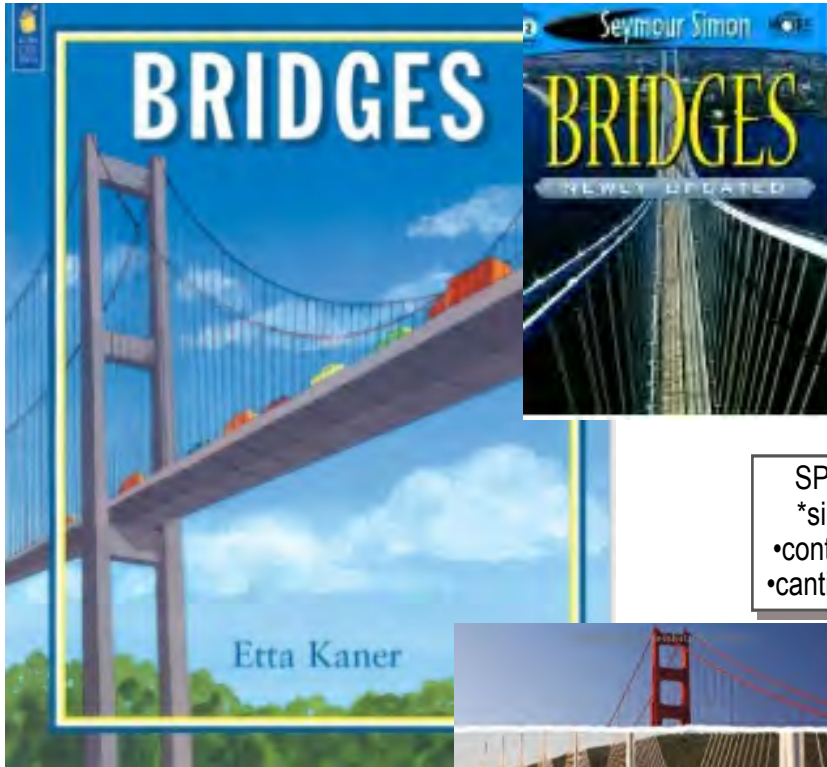


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4.2. Support remembering: Knowledge logs





SPANS:
 •simple
 •continuous
 •cantilevered

FEATURES
OF SITES:
 •bedrock
 •tides
 •currents

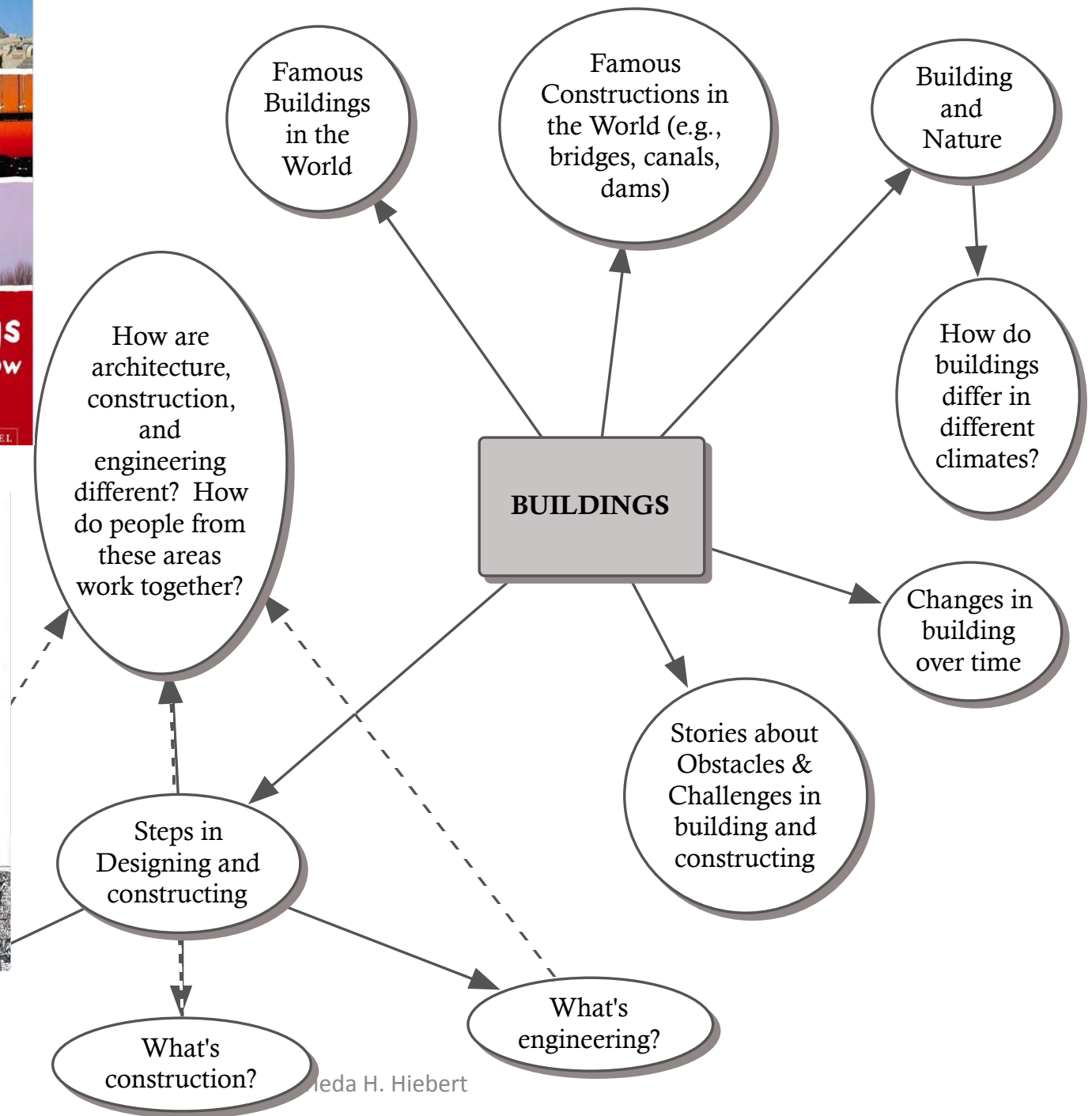
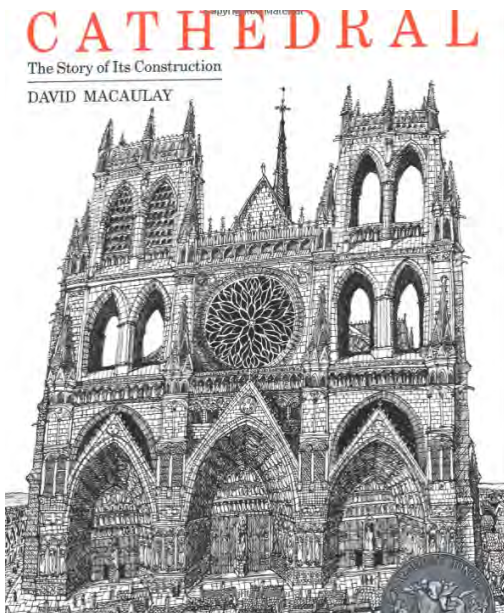
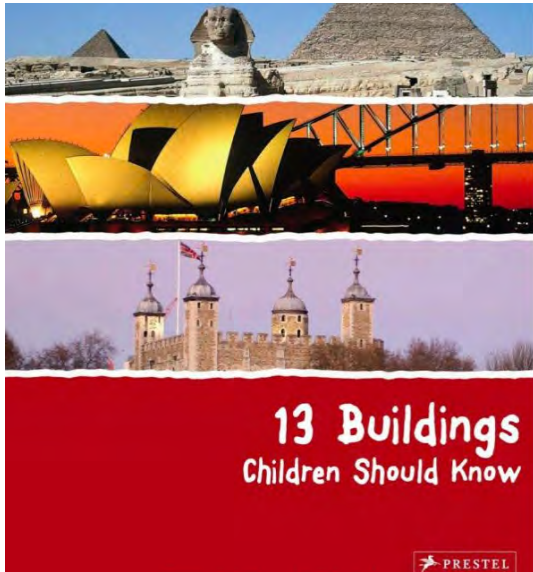
KINDS:
 •beam
 •arch
 •suspension

VARIATIONS:
 •truss
 •bascule/swing
 •semicircular
 •segmental arch

BRIDGES

COMPONENTS:
 •pier
 •tower
 •pylon
 •cables
 •girder

LOADS & FORCES:
 •compression
 •tension
 •torsion
 •shear forces



Idea	Action	Open-Access Resource
1. English has more words than can be taught.	1. Teach students to expect new words in texts.	1. Talking Points for Teachers: New Words in New Texts
2. A small group of words does the heavy lifting in English.	2. Increase volume of reading	2. 7 minutes of additional reading with student goal setting
3. Rare words in narrative texts belong to synonym networks; those in informational texts in topic networks.	3. Teach students prolific synonym networks & organize topics into networks.	3. •Super Synonym Sets for Stories (S4) •Exceptional Expressions in Everyday Events (E4)
4. Teach vocabulary in the service of developing bodies of knowledge.	4. Develop bodies of knowledge in ELA instruction.	4. •Intentional Read-Aloud Curriculum •ReadWorks & FYI for Kids •Word Pictures



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