

Applying the Science of Reading in Vocabulary to Build Comprehension and Engagement

Elfrieda H. Hiebert
TextProject



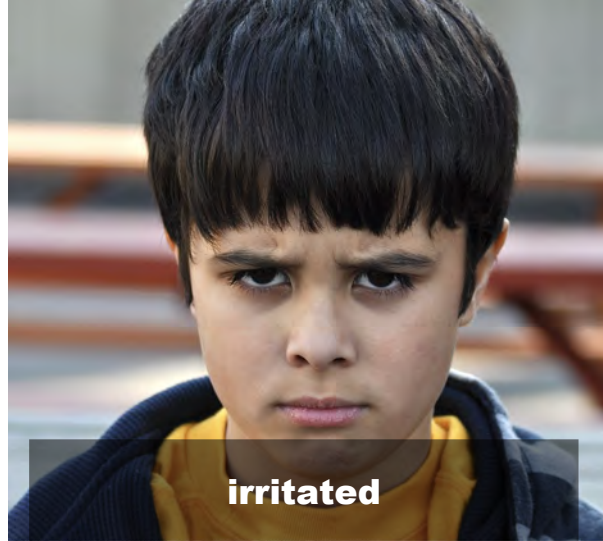




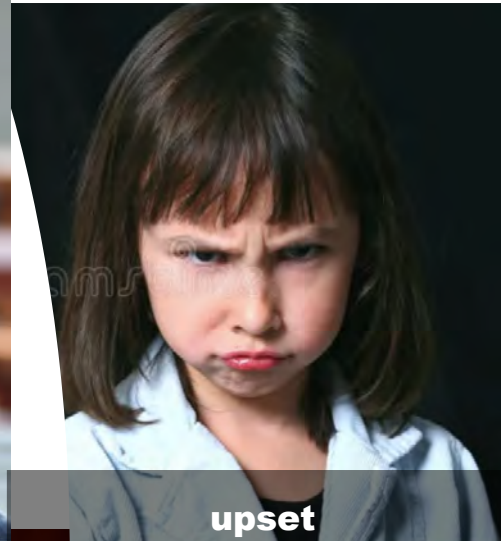
pleasant

boisterous





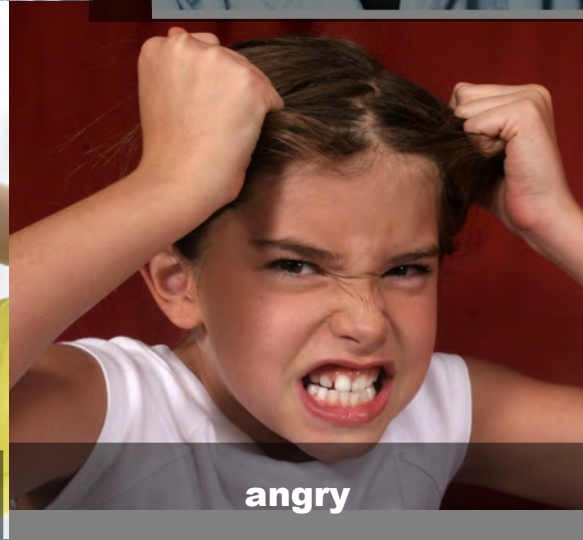
irritated



upset



furious



angry



What we know about....

- I. role of vocabulary in proficient reading
- II. nature of English vocabulary
- III. effective vocabulary instruction



I. What we know about vocabulary's role in proficient reading



★ As text complexity levels increase, students' reading rates decrease. For students with less advanced reading skill and/or in earlier grade levels/ ages, the negative relationship between text difficulty and reading rate is especially strong (Amendum et al., 2017).

★ Knowledge of words (i.e., familiarity) is a strong predictor of children's word recognition (Kim et al., 2013; Nation & Snowling, 2004). *Oral vocabulary is related to word recognition through phonology and semantic representation (Ouellette 2006).*

★ Vocabulary knowledge is positively associated with reading comprehension at every stage of reading development (Cromley & Azevedo, 2007; Wagner & Ridgewell, 2009) and a longitudinal predictor of reading growth (Cunningham & Stanovich, 1997).



II. What we know about the nature of English vocabulary



gargantuan

enormous

humongous

massive

immense

monumental

colossal

....especially in written language





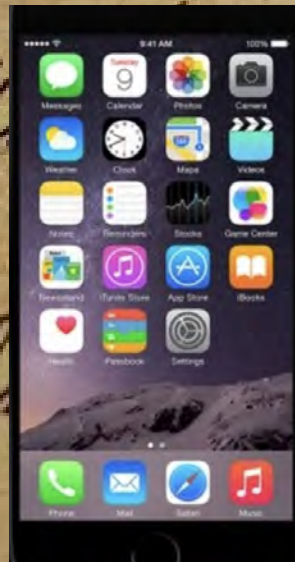
Oxford Unabridged Dictionary

•282,500
root or head
words

•326,000
derivatives
& phrases

•47,150
obsolete
words

And this doesn't include the
multiple meanings of words.



CHAPTER 9

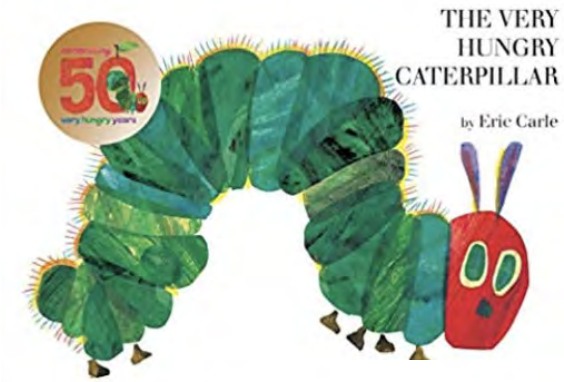
Different Labels But the Same Concepts English Learners

Example 1: “I’m going to catch a crab today,” yelled Sailor Paul. Soon his nets were full and fast, and Paul hauled them up on the dock. “Get away, silly squid,” scolded Sailor Paul. “Don’t sprawl on my yawl!” (Sailor Paul and the Crab, Paulson, 2000)

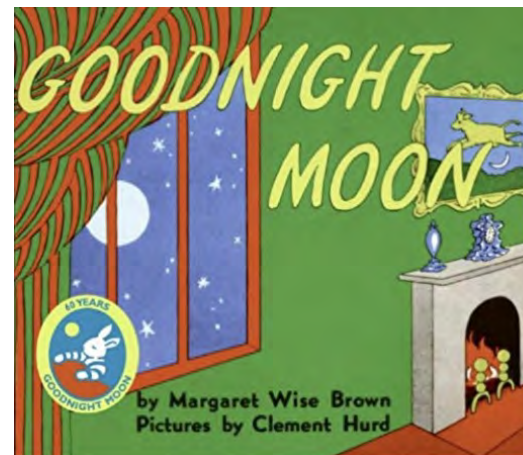
Example 2: The children are drawing pictures. Ann draws a green lawn. What’s on the lawn? A little deer or a fawn is on the lawn. Ben draws a pile of yellow straw. What is in the straw? A fawn lies in the straw. (Drawing Pictures, Hebert, 2009)

In the United States as we approach a new decade—2020—about 10% of our students enter school speaking native languages other than English (McFarland et al., 2018). English learners (ELs) may not have English labels for concepts, but they do have labels for concepts in their native languages. In the usual materials and approaches of English/Language Arts, ELs are asked to learn to read words for which most young children do not have associated meanings in their native language, such as *tart* and *yawl* in Example 1. Instructional demands such as those represented by the first excerpted text can intensify the challenge for ELs. Example 2 illustrates a text where students’ knowledge of activities (e.g., drawing) and aspects of nature (e.g., animals, growing things) are the foundation for learning new concepts such as *fawn* and *lawn*.

Additionally, evidence points to strengths of ELs, such as their acuity in attending to the sounds of language, which often are not recognized in schools. This chapter develops a perspective in which strengths that ELs bring to language learning are the foundation for the design of learning experiences for those students and in which



Bill Martin Jr / Eric Carle





B. In addition to being an alphabetic language, English is a morphological language. For every word you learn, there are typically at least several words that share the root word.



The Sources of English Vocabulary

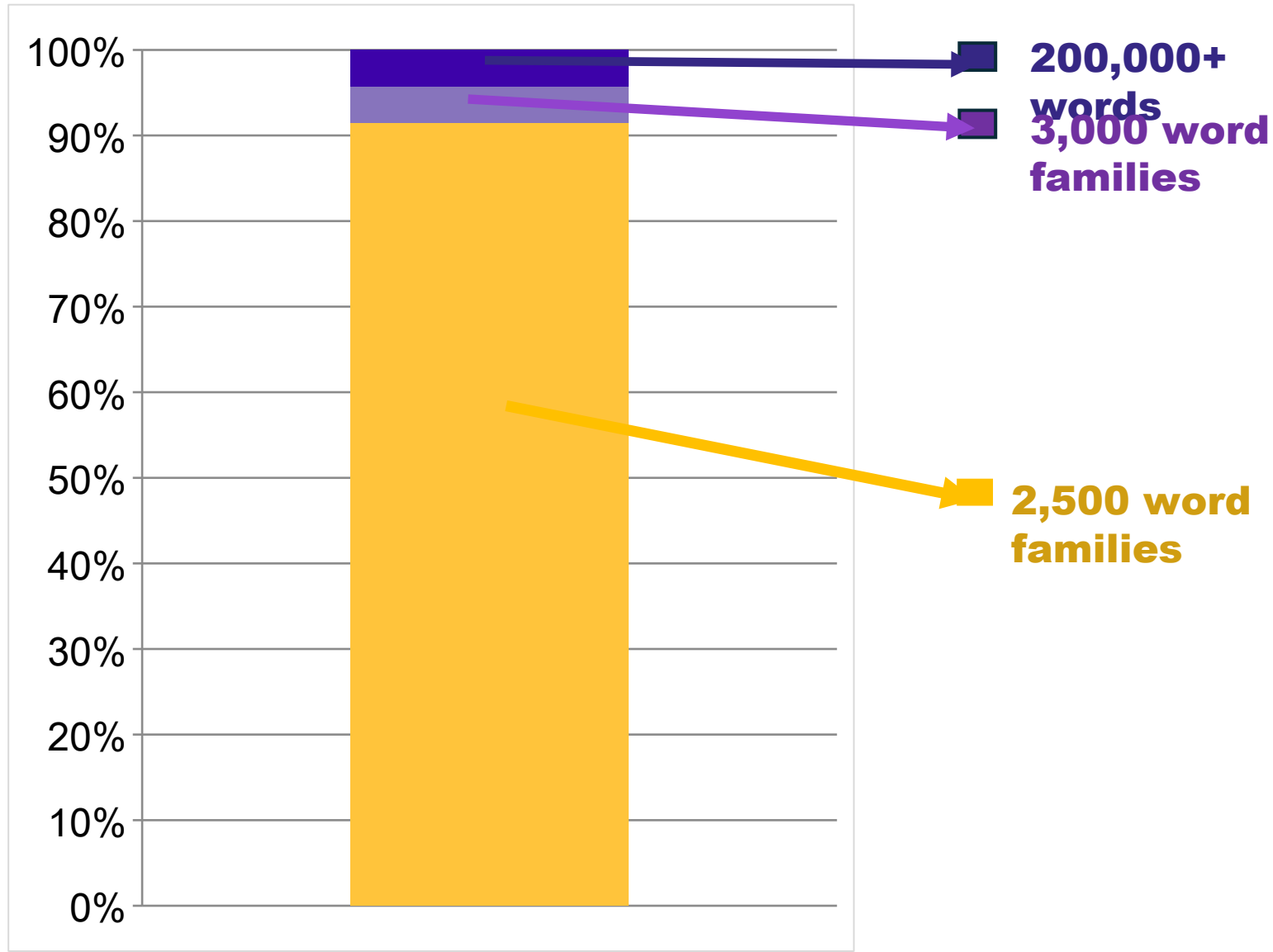


| Anglo-Saxon | French/Latin | Greek |
|-------------|--------------|-------------|
| king | regent | monarch |
| flash | realization | epiphany |
| wreck | disaster | catastrophe |



C. Distribution of English words is “skewed.”

Distribution of Vocabulary in English Lexicon

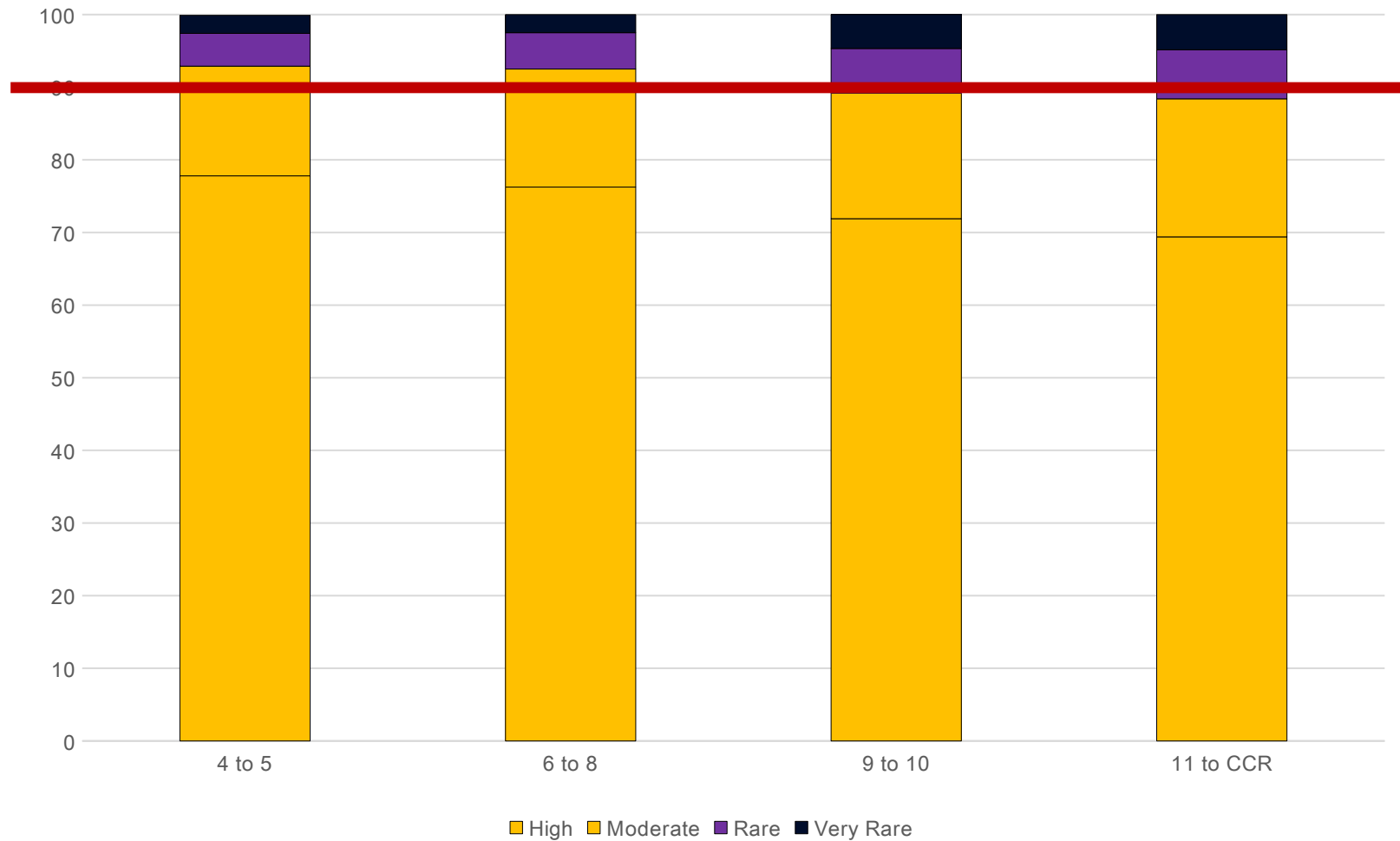




**A small group of words does
the heavy lifting in English.**

| Word Zone | Examples of Words |
|-------------|---------------------------------|
| 1st 100 | the, by, through |
| 101-300 | long, great, family |
| 301-1,000 | power, strong, answer |
| 1,001-1,500 | valley, imagine, motion |
| 1,501-2,000 | responsible, presence, trail |
| 2001-2,500 | discovery, civilization, assume |

Distributions of Words in Texts



Texts on Standards-Based Assessments (SBAC)

GRADE 5

Every day Tapir would go off into the forest for hours at a time. Some-times when she returned, she smelled like some- thing sweet. Other times she would **burp**. Mouse began to get **suspicious** and called a meeting of all the other animals and birds. "Tapir's finding something good to eat, and she's not sharing it with us," said Mouse.

"We'll follow her tomorrow," someone suggested. "Mouse should go alone," said someone else. "He's the smallest. Tapir won't see him." So it was decided. When Tapir set off

GRADE 7

No matter whose team won, Scott and **Brad** always shook hands and **complimented** each other on the way they played. The two didn't become close friends because they were always on opposite sides. But the boys grew up admiring each other's **athletic** skills. And it was their childhood com-petition that **forged** a lasting friendship and set the stage for an extraordinary display of **sportsmanship** seldom seen in track and field.

It happened while the boys were members of school cross-country teams, Scott at **Murray High**

GRADE 9

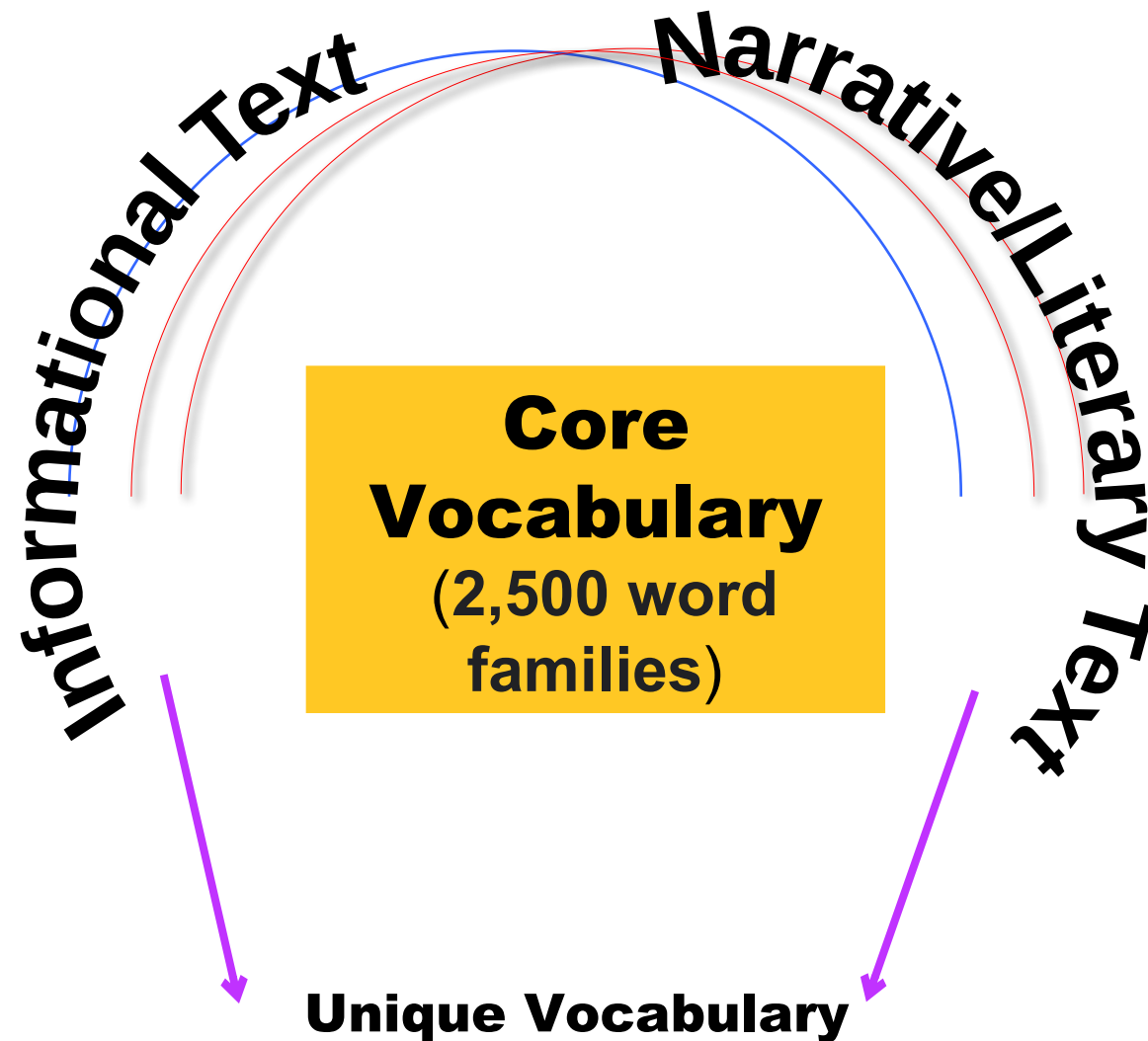
It was altogether an uncomfortable dinner, and Polly was very glad when it was over. They all went about their own affairs; and after doing the honors of the house, Fan was called to the dressmaker, leaving Polly to **amuse** herself in the great drawing room. Polly was glad to be alone for a few minutes; and, having examined all the pretty things about her, began to walk up and down over the soft, flowery carpet, **humming** to herself, as the daylight faded, and only the **ruddy** glow of the fire filled the room. Presently Madam came slowly in,

GRADE 11

Dr. Mortimer refolded his paper and replaced it in his pocket. "Those are the public facts, Mr. Holmes, in connection with the death of Sir Charles **Baskerville.**"

"I must thank you," said **Sherlock Holmes**, "for calling my attention to a case which certainly presents some features of interest. I had observed some newspaper comment at the time, but I was exceedingly preoccupied by that little affair of the **Vatican cameos**, and in my anxiety to oblige the Pope I lose touch with several interesting English cases. "This article, you

Unique words in narrative & informational texts are different.



Narrative : *The Storyteller's Candle*

The children rehearsed the play, the dances, and the stories. Don Ramon donated boxes and crates from his bodega to make the decorations. The mothers from El Barrio met at church or the library to paint, cut, and paste.

Finally, by the evening of January 5th, the library was ready for Three Kings' Day.

The next day, everyone came from far and near. Outside, the snow was rising high. Inside the library, the logs burned in an open fireplace and the storyteller's candle flickered. The room bubbled with the voices of children and adults. Everyone spoke at once, in Spanish and in English.

Informational : *Energy Island*

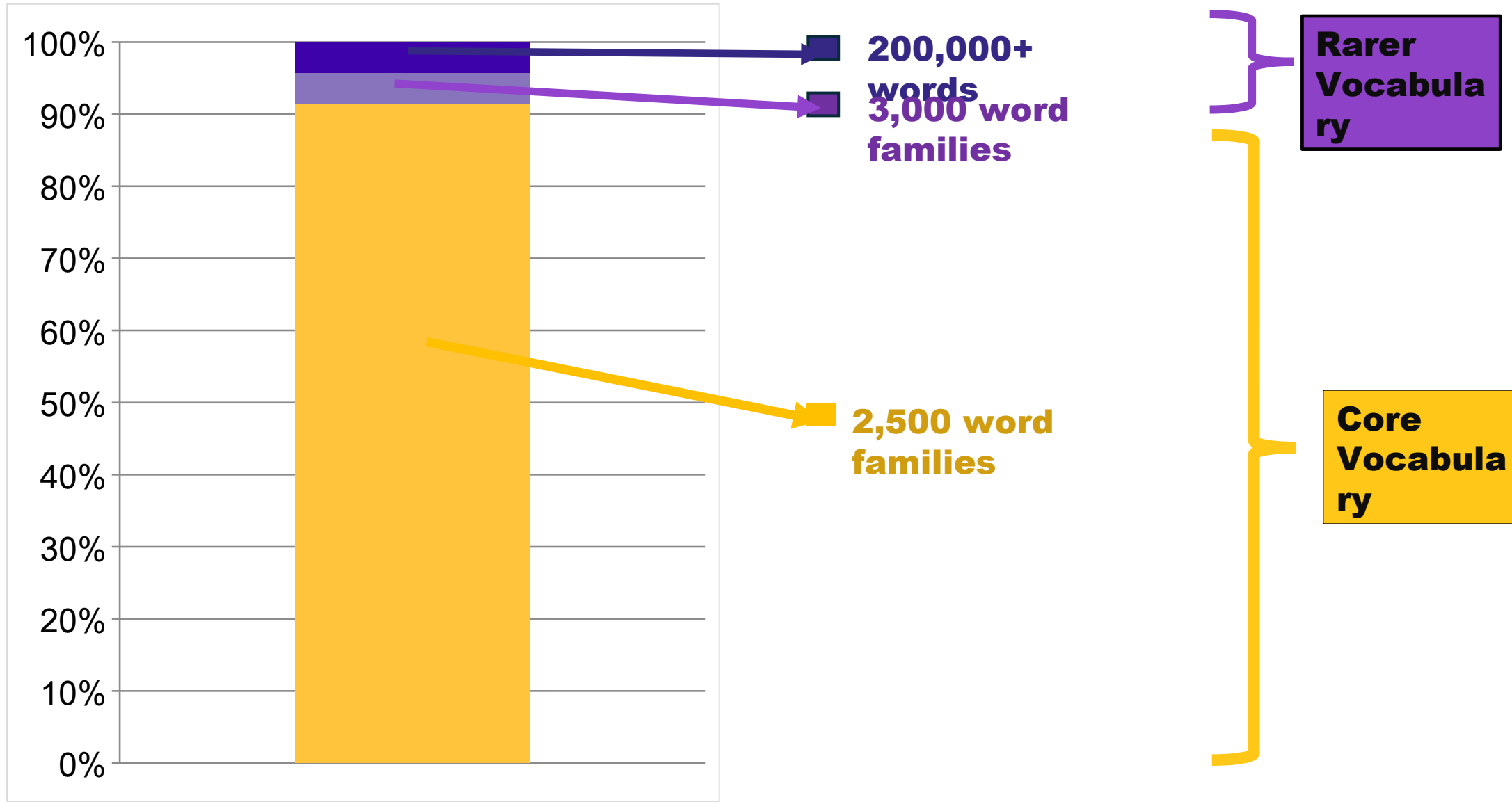
Renewable energy comes from resources that will never run out, or that can be replaced. For example, wind is a renewable resource, since the wind will always blow. Windmills were invented to catch that energy.

Rivers keep flowing all year, so they are also a source of renewable energy. People have been using dams, water mills, and other means of harnessing waterpower for thousands of years.

Sunlight, which can be converted into solar power, is another example of a renewable resource, and so are the plants and trees that can be harvested and converted into biofuels and then replanted.



Distribution of Vocabulary in English Lexicon



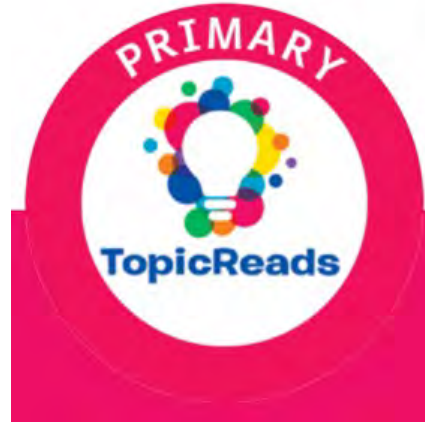
A. Supporting the Core Vocabulary



- Read interesting, informative texts with high percentages of core vocabulary

Texts for Beginners

(open-access @textproject.org)



Hot Pigs

The pig gets red!
The pig has a sunburn!
Yes, pigs can get sunburns.

The pig
Pigs n
Pigs can get sunburns just like us!

1 Level
3 Level A
5 Level A-6 Book 1: Hot Pigs



LEVEL A-6: Pigs | Book 1

written by Elfrieda H. Hiebert & Wendy Svec



Hot Pigs:

Some pigs sit in the sun.

They sit and sit.

This pig falls asleep.

The pig gets hot.

The pig gets too hot.

The pig gets red!

The pig has a **sunburn!**

Yes, pigs can get sunburns.

Cool Pigs:

A hot pig sits in the mud.

The mud is cool.

A hot pig swims in water.

The water is cool.

It is too hot!

So, a pig swims in water.

And a bird has a ride on the pig!

Pig nests:

Pigs make nests.

They make nests with sticks.

Pigs put grass in nests too.

The grass makes the nest soft.

A little pig is called a **piglet**.

The piglets rest in a nest.

Pig Tricks:

Can you ask a pig to do a trick?

Yes, you can ask a pig to sit.

You can ask a pig to jump.

The pig will jump.

Yes, you can ask a pig to do tricks.

But pigs need you to learn the tricks.

Texts for Middle Grad

(open-access @textproject.org)



Computer animation
lets artists draw
real-looking cartoons.

Computer Animation

Before computers, hundreds of artists spent years carefully drawing frame after frame to make an animated film. Every second of film needed 12 to 24 drawings. A five-minute cartoon could have more than 7,000 drawings.

Today, most animated films are drawn on computers. Computer animation can look almost as real as life. The animals seem to move like real animals, even though they can talk. The people look more real, too, even though they can stretch like clay. Some films also combine real people and animals with computer animation.

The film Toy Story, which was first shown in 1995, was the first full-length computer-animated film, and it was very popular. Today, many artists who once drew each frame by hand now create cartoons with computer animation.

Key Notes:

What is computer animation?



The Comic Strip:

American comic strips first appeared in New York City at the end of the 19th century. At that time, a newspaper called the New York World began running a comic strip called The Yellow Kid, which many people think was the first comic strip in the United States. The Yellow Kid got its name because his clothes were covered with yellow ink. The Yellow Kid had speech balloons that showed the words people spoke. Soon, almost every newspaper printed comics, or funnies, as they are also called.

Today, comic strips, many with speech balloons, are found in newspapers across the country. On Sundays, the color comics are one of the most popular parts of the newspaper. In addition, the Sunday comics are usually larger and more colorful than the daily comics.

Anime:

In Japan, people of all ages read anime and watch it on TV and in movies. Anime is the new of a style of art and cartoon that was created in Japan in the 1950s. The anime that people read and watch in the United States often features children and imaginary beasts that have huge eyes.

Since anime films and TV shows were first created, their viewers have grown up. Although Japanese viewers still love the anime style of drawing, they now want stories that feature adults. Many anime books, films, and TV shows are

Graphic Novels:

Although they don't look like novels, they also don't look like comic books. Graphic novels, which look like a mixture of comics and novels, are an art form that blends fiction and art.

Graphic novels look like comic books because they have drawings and tell stories. However, they are different from comics because they tell longer stories that are more like those told in novels. Also like novels, they may have many characteristics and a plot with many parts. Both teens and adults enjoy graphic novels' strong drawings and stories. In addition, graphic novels feature many different subjects. Some graphic novelists write about World War II. Some write love stories or science fiction. Others write stories that make readers laugh. Graphic novels today appeal to a growing number of readers.

Computer Animation:

Before computers, hundreds of artists spent years carefully drawing frame after frame to make an animated film. Every second of film needed to drawings. A five-minute cartoon could have more than drawings.

Today, most animated films are drawn on computers. Computer animation can look almost as real as life. The animals seem to move like real animals, even though they

Texts for Middle & High School

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3

Spirit of the Bear



This totem pole was carved by the Southern Kwagwilt people of Canada. Totem poles are monuments. This totem shows a bear holding a human. Bears are seen as protectors.

5

The bear holds a special place in the heart of Yona, a Cherokee teen. Even as a little girl, Yona has felt that the bear is her spirit animal. She proudly wears a bear claw necklace as a symbol of strength and protection. To Yona, it is a way to show her identity. It is a way to connect to the roots of her culture.

Within many Native American cultures, it is said that animals have special powers. Since ancient times, this belief was based on a key idea. You can connect the natural world to the spiritual world. The animals are the messengers. They bridge the gap between the worlds. Animal symbols are deeply woven into the art and stories of many Native American cultures.

Today, for many Native American teens, spirit animals are protectors. Each animal reflects special traits. The bear is a symbol of strength, courage, and wisdom in Native American lore. Bears embody the idea that one can be both gentle and strong. This is a concept that rings true for many



The bear claw on this necklace is a symbol of strength and protection. It also gives the wearer a way to recognize their roots.

teens who are learning to be both vulnerable and strong in their own lives.

We live in a fast-paced world. Often, we are far away from nature. The belief in spirit animals offers Native American teenagers a special way to connect with their culture. It can help guide them through life's ups and downs. Bears, with their deep symbolism, become a source of inspiration. They are a reminder that, within, teens carry the strength to face whatever comes their way.

So, the next time you see a Native American teenager proudly wearing bear claws, remember it's not just a piece of jewelry. It's a symbol of a rich culture and a deep connection to the past. It's a source of strength for the future. Embracing the spirit of the bear, these teens are not just honoring tradition. They are carving their own path. They are doing so with courage, wisdom, and a deep understanding of their place in the world. Like Yona, they know that they are not alone on their journey.

6

Furbaby

Have you ever heard of fur babies? They may not be what you picture when you think of a baby. In the past few years, it has become a hot trend to own a fur baby. This is true for **teens** more than ever.

So, What Are Fur Babies? Fur babies are pets that people treat like their own children. They can be furry friends like dogs, cats, rabbits, and even **hamsters**. These pets become a big part of their owners' lives. The term "fur babies" is a way to show how much these pets mean to their owners, just like a human baby means to their parents.

Why Are Fur Babies So Trendy?

A fur baby can bring joy, comfort, and friendship. That is one reason they are a trend. Many teens turn to their furry friends during hard times. Fur babies can listen without judgment and can offer love without strings.

A study found that, if you interact with pets on social media, it can have a positive impact on your well being. You are more likely to have less stress.

Why else are fur babies popular? Some people say it is the rise of social media. Teens like to share fun pictures and **videos** of their fur babies. These posts often go viral. Then, these pets gain fame online. People follow them to see **cute** moments that bring smiles to their faces.

It's Not All Fun and Games:

A fur baby can also teach a sense of duty. If you own one, you have to make sure its fed. You have to **groom** it. It must get check-ups from the **vet**. It's a big job. Just like real babies, fur babies need lots of care. They have feelings and need love too. Teens can learn about the needs of the pet they want. Then, they can make sure they can give them a loving home.

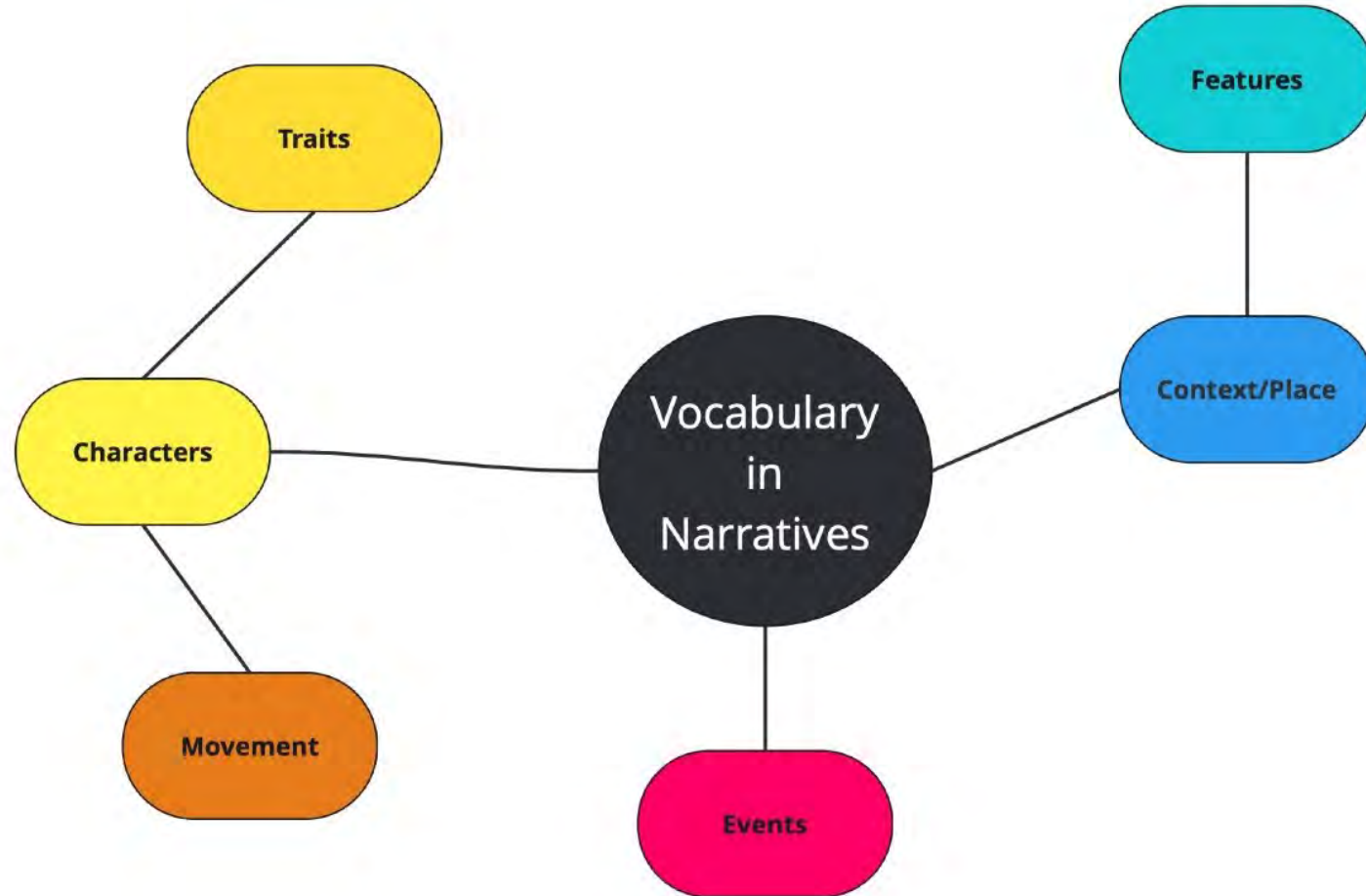
In sum, the trend of fur babies is all about love, friendship, and caring. Fur babies have

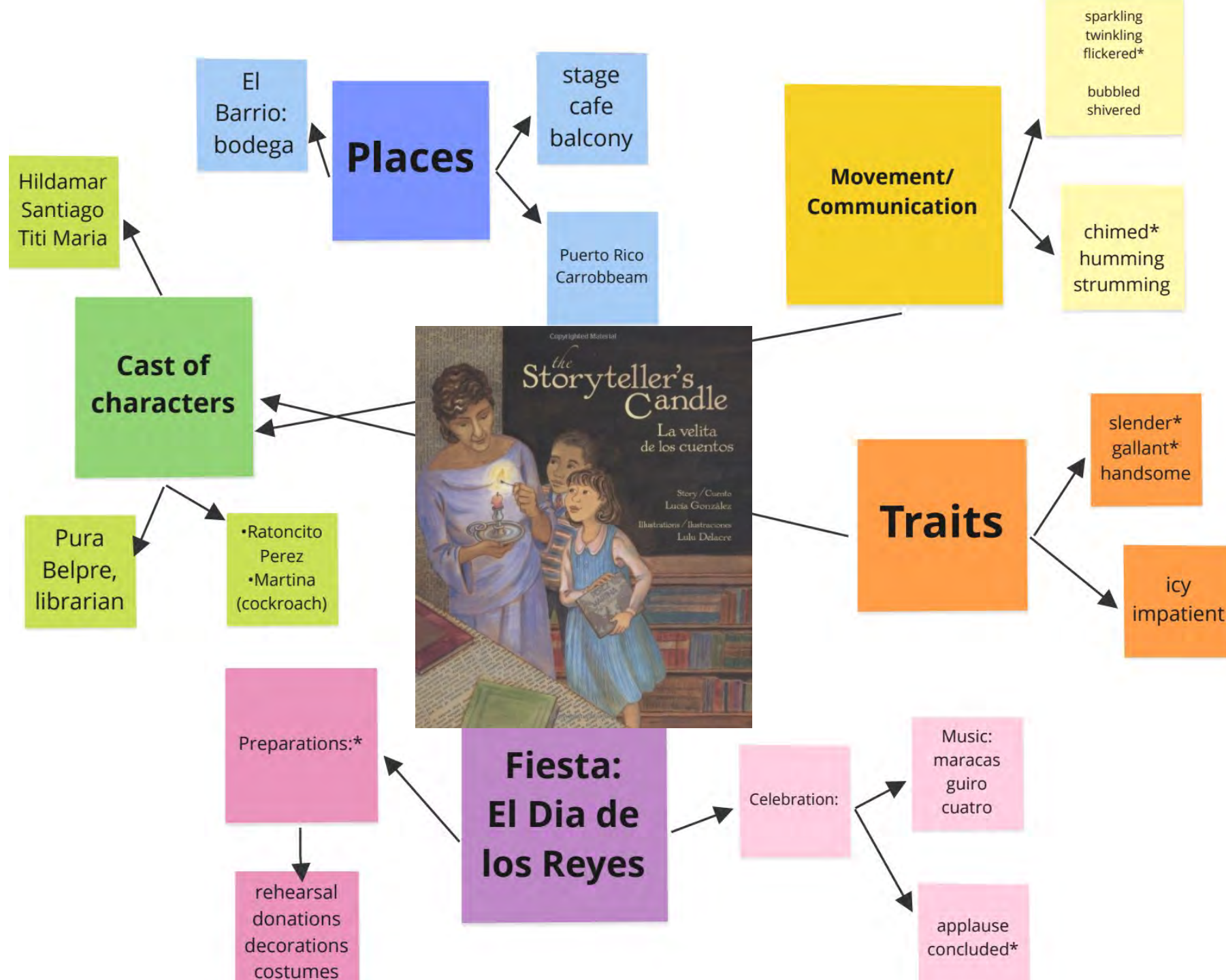
B. Teaching Rare Words: Narratives

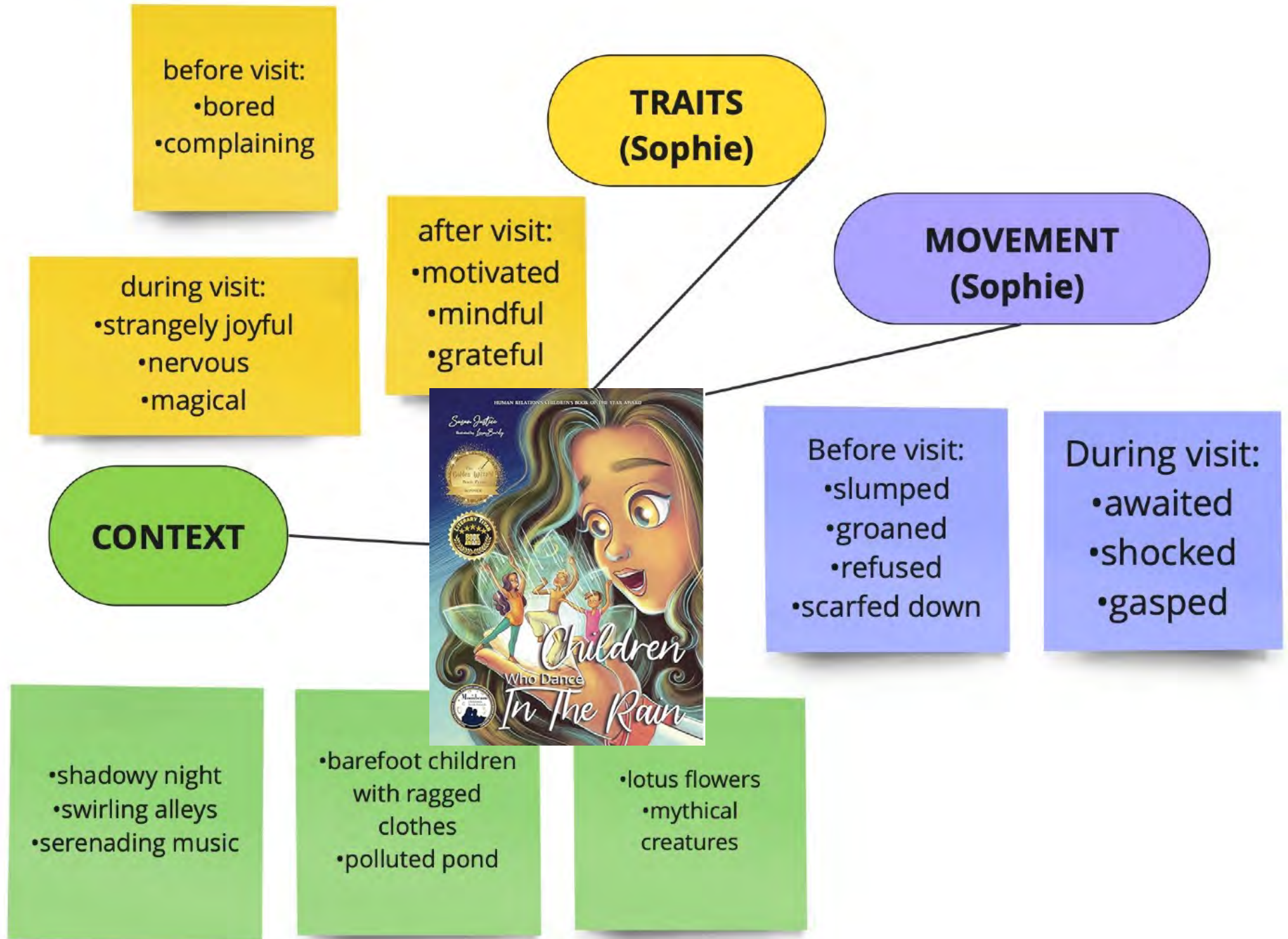
First: All critical words in narratives can be taught before or after reading. There are simply too many words, many of which appear a single time.

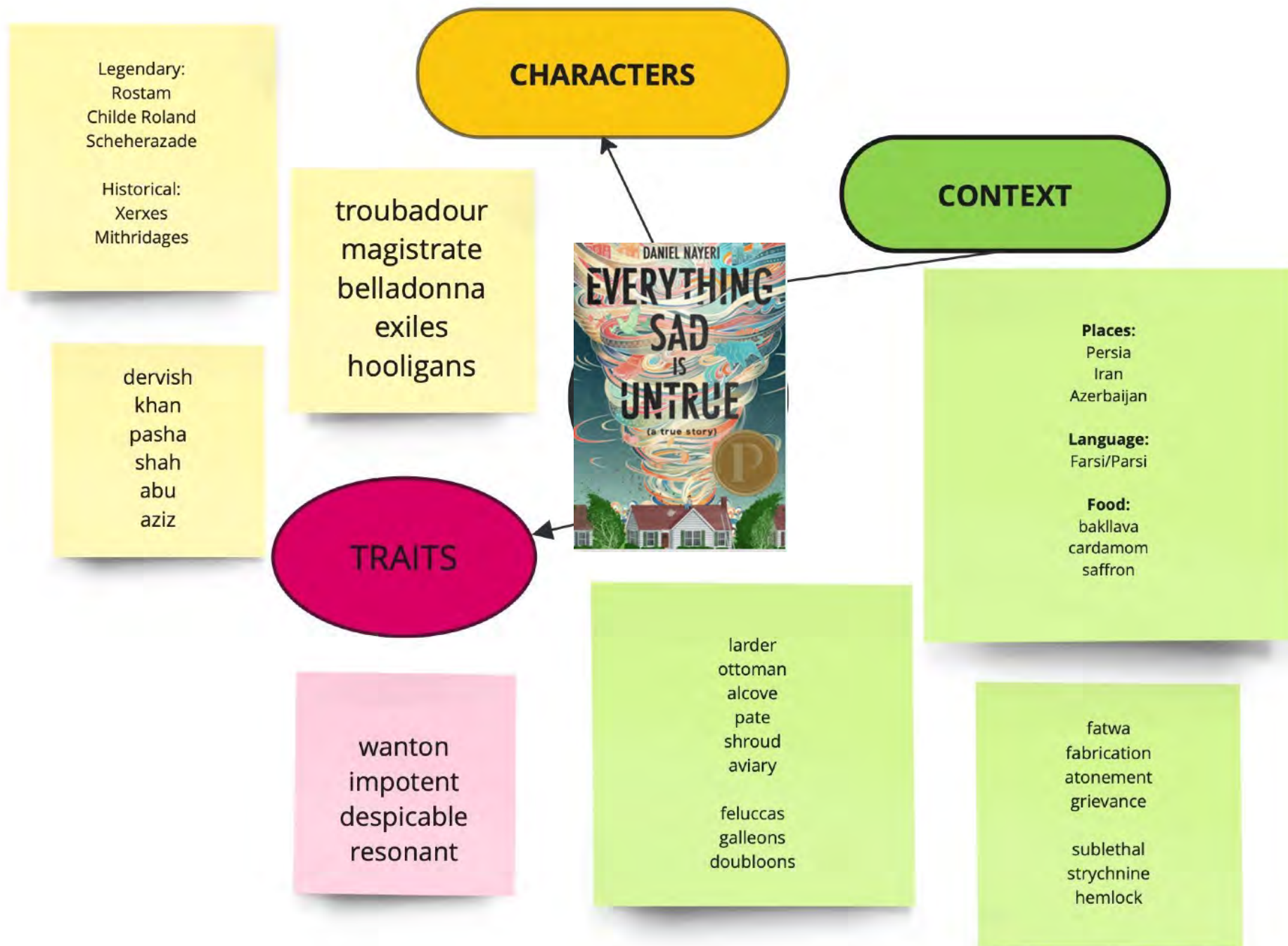


Second: Semantic maps have proven effective for organizing and reviewing vocabulary.





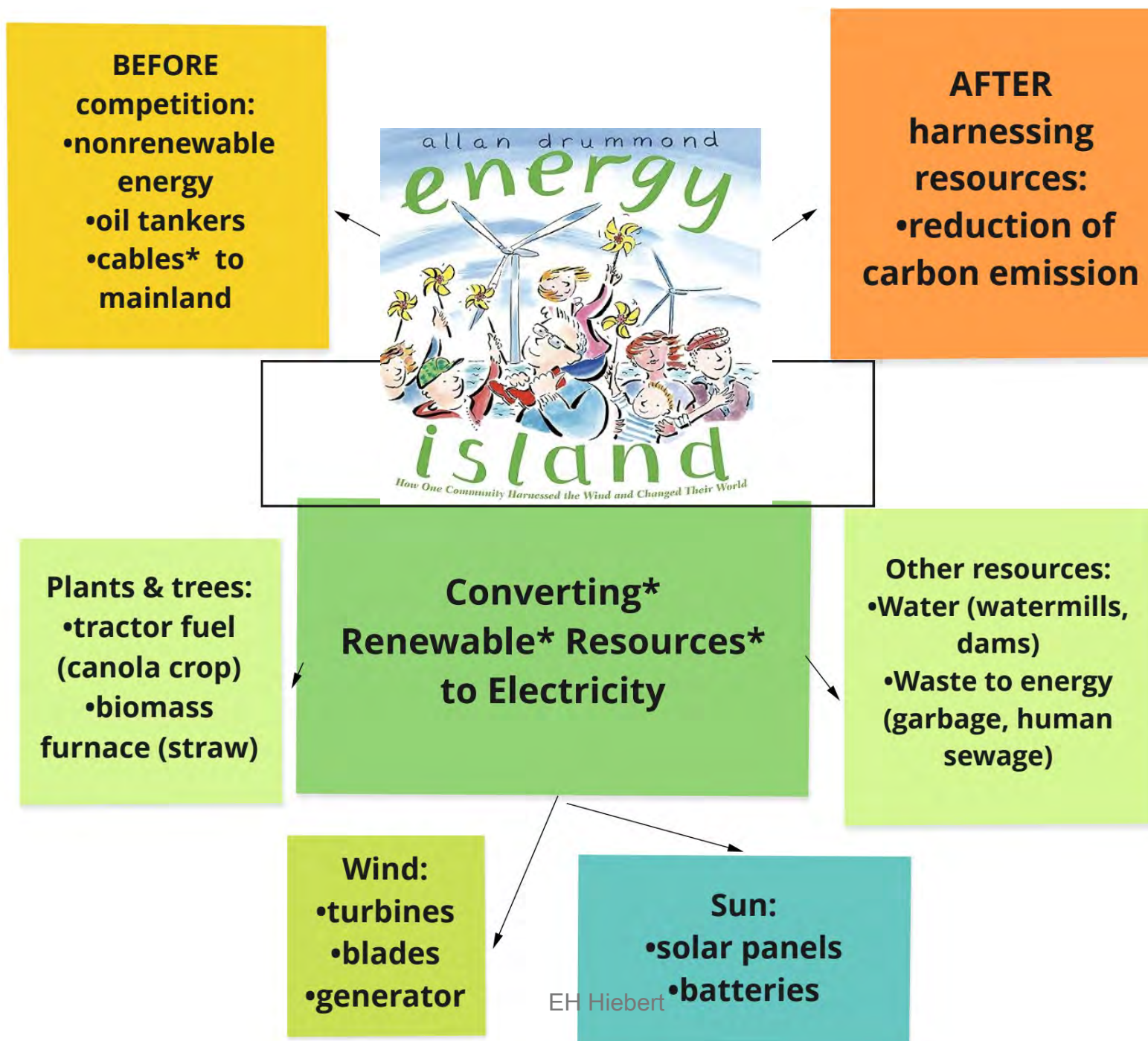


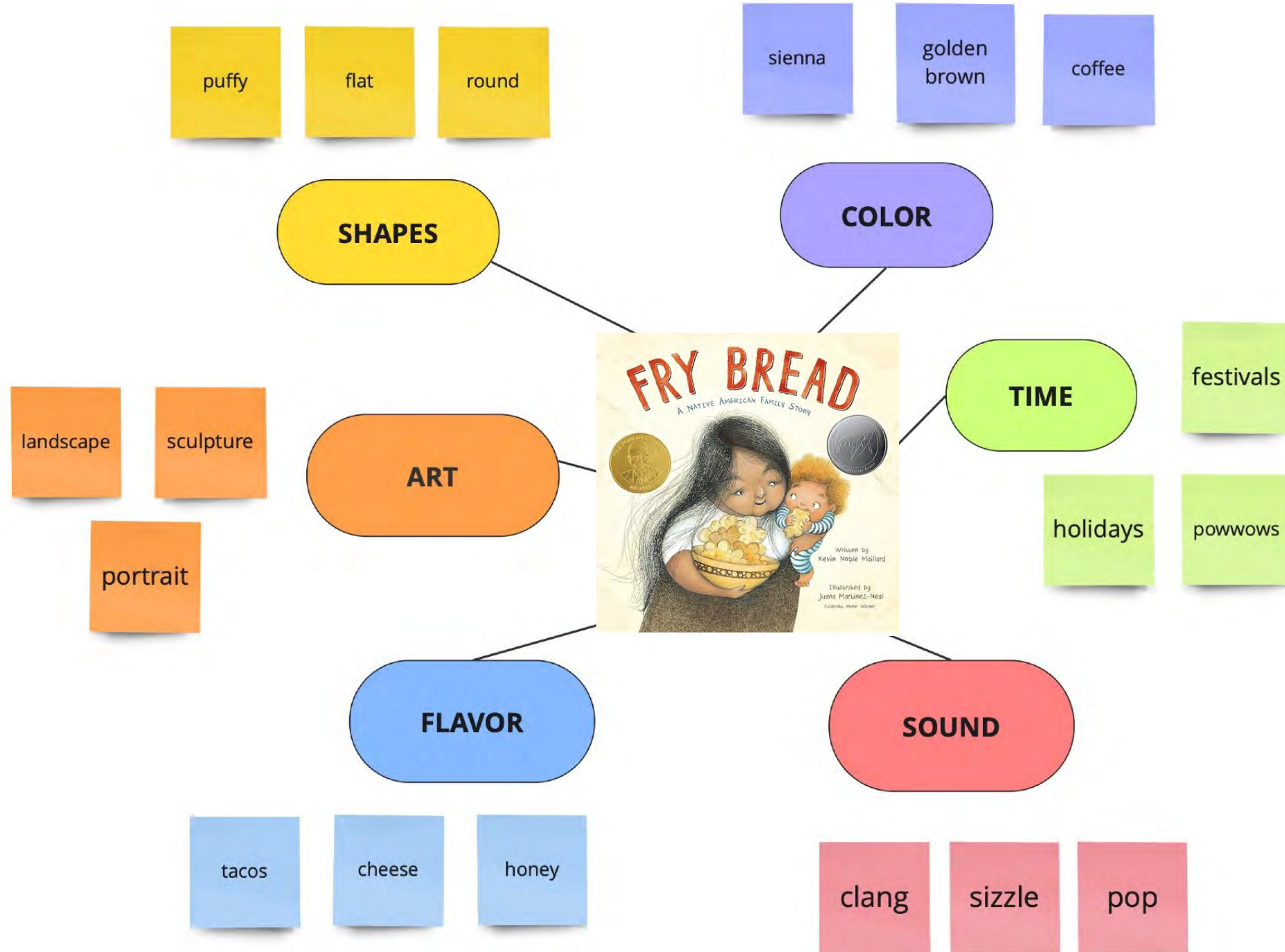


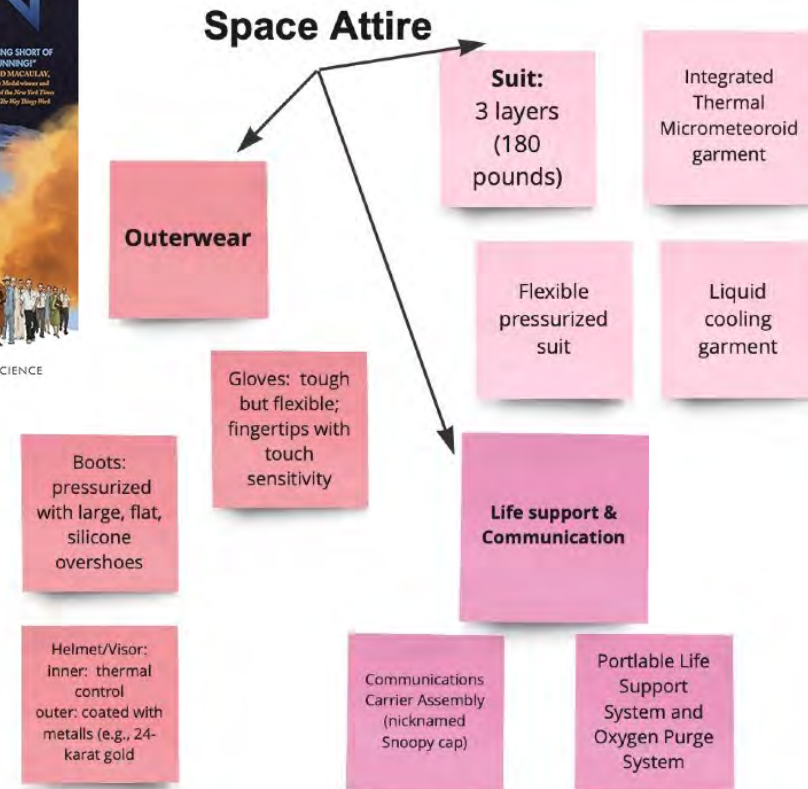
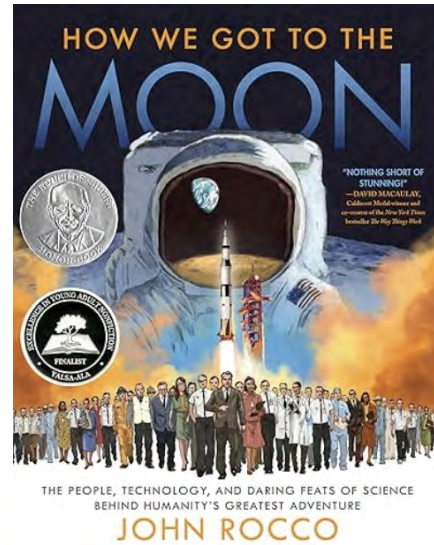
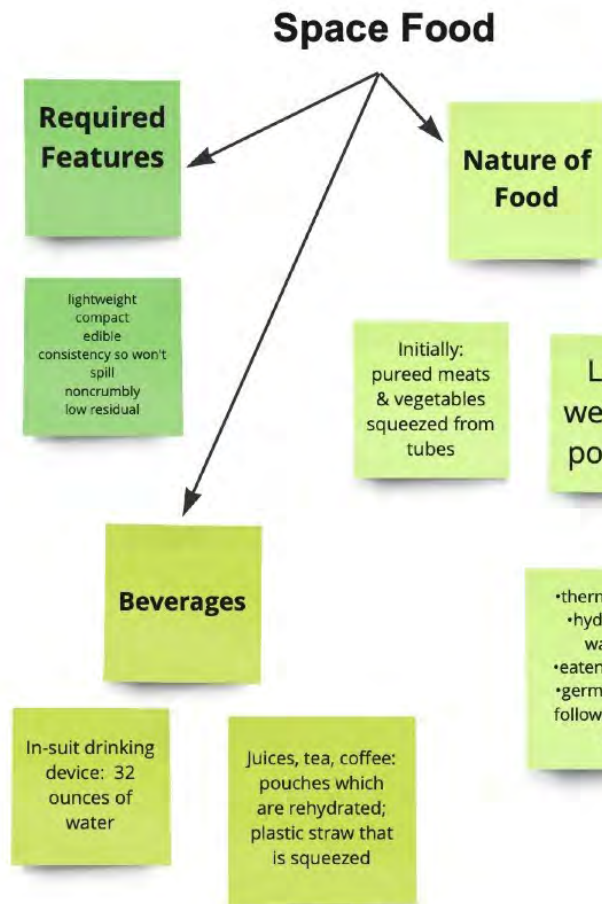
Teaching Rare Words: Informational texts

cable
resources
environmental
renewable
converted
willing

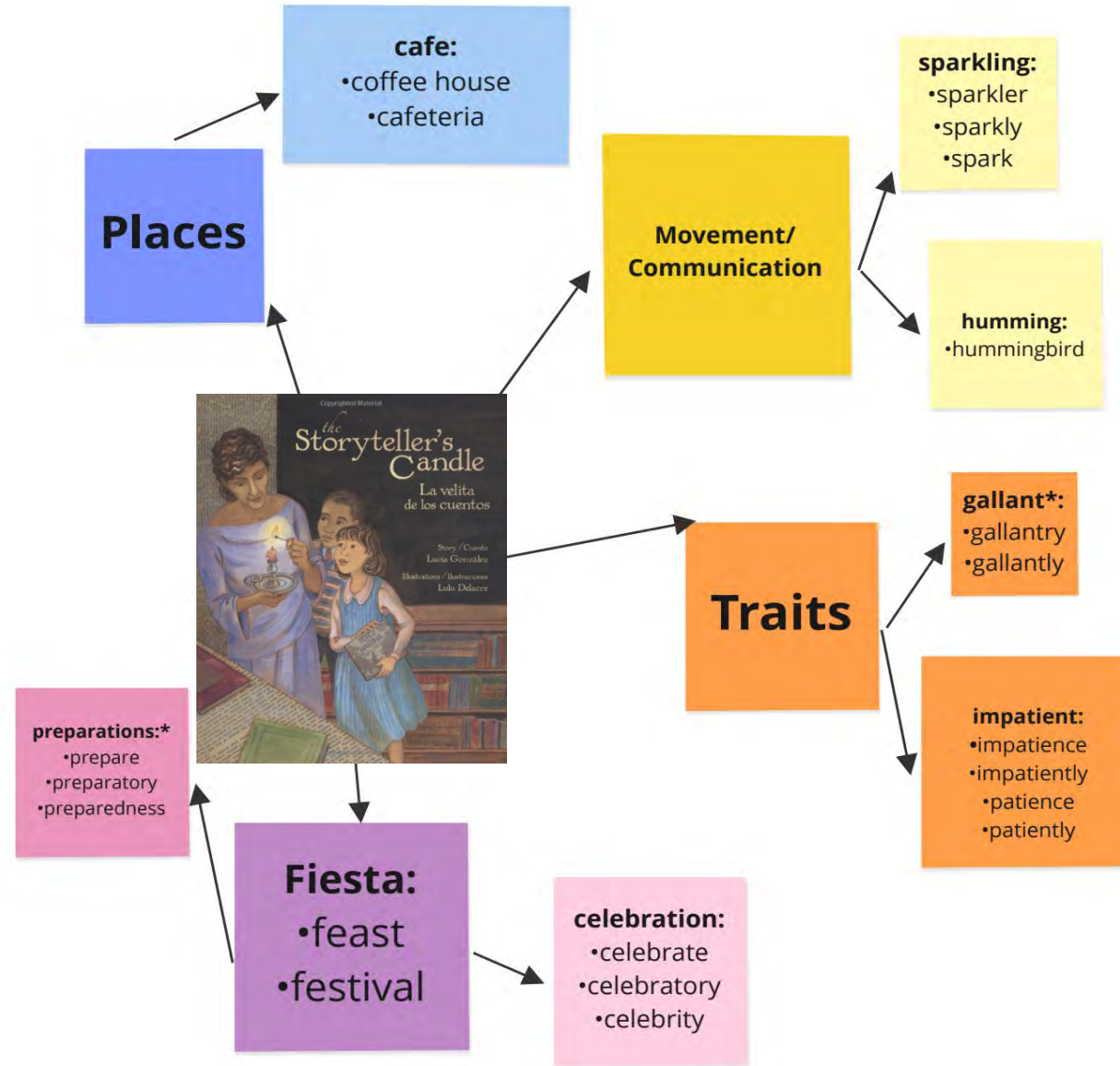








C. Building an Awareness of Morphological Family Members



**BEFORE
competition:**
•nonrenewable
energy
•oil tankers
•cables* to
mainland

Nonrenewable:
•renew
•renewable
•renewability

competition:
•compete
•competitive
•noncompetitive

**AFTER
harnessing
resources:**
•reduction of
carbon emission

energy:
energetic
energizing

independence:
independent
dependence
dependent

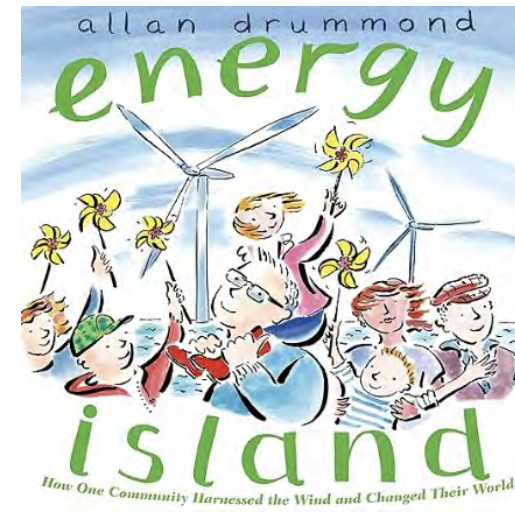
Energy Independence

emission:
•emit
•emitter

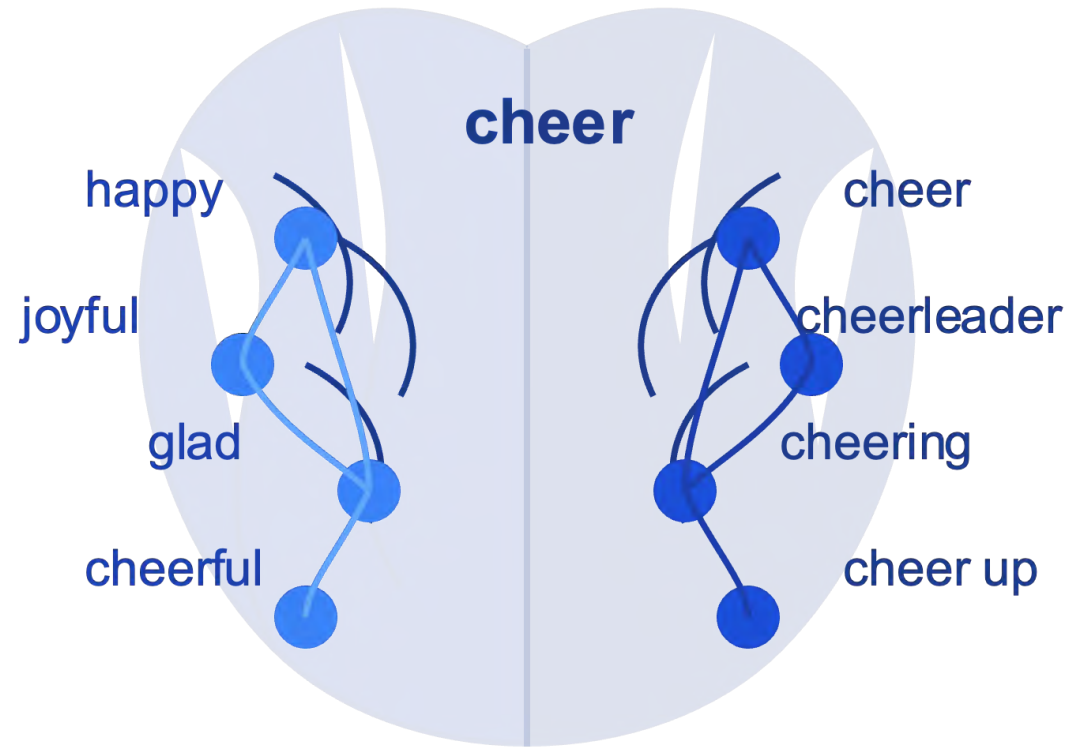
reduction:
•reduce
•deductible

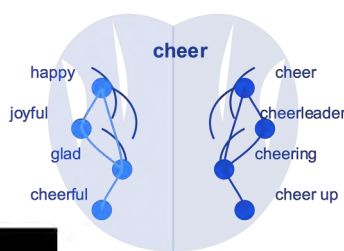
**Converting*
Renewable* Resources*
to Electricity**

converting:
convertible
conversion



My Neural Neighborhood S





My Neural Neighborhood: *The Storyteller's Candle*

broadcast

Verb Forms

broadcasts
broadcasted
broadcasting

Noun Forms

broadcaster
broadcasters
broadcast
broadcasts

Re- Forms

rebroadcast
rebroadcasts
rebroadcasted
rebroadcasting

shout*

proclaim

broadcast

announce

notify

tell*

say*

Verb Forms

proclaims
proclaimed
proclaiming

proclaim

Noun Forms

proclaimer
proclaimers
proclamation
proclamations

Ex- Forms

exclaim
exclaimed
exclaiming
exclamation
exclamations

announce

Verb Forms

announces
announced
announcing

Noun Forms

announcer
announcers
announcement
announcements

Re- Forms

reannounce
reannounced
reannouncing
reannouncement

Pre- Forms

preannounce
preannounced
preannouncing
preannouncement

Un- Form

unannounced

notify

Verb Forms

notifies
notified
notifying

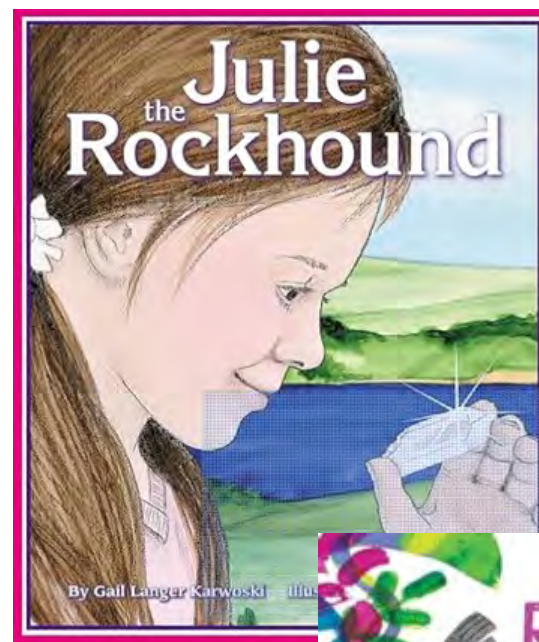
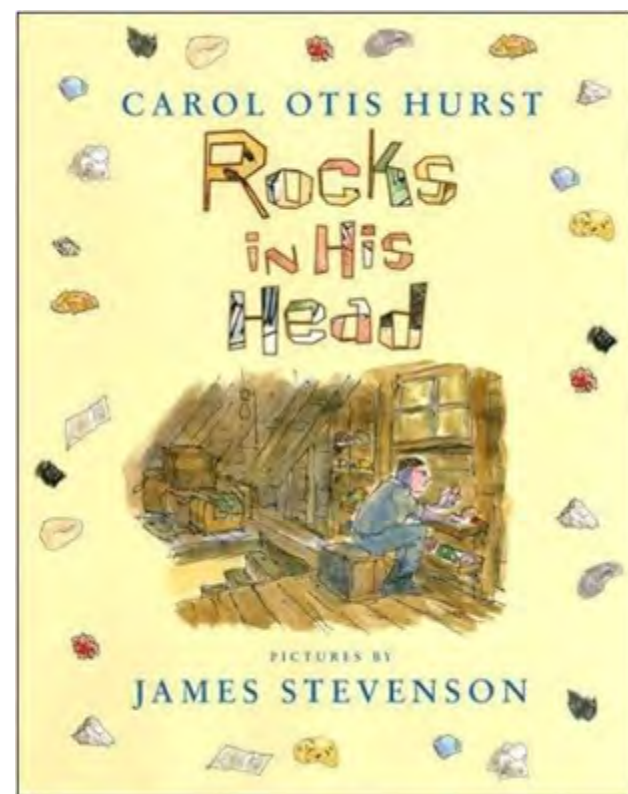
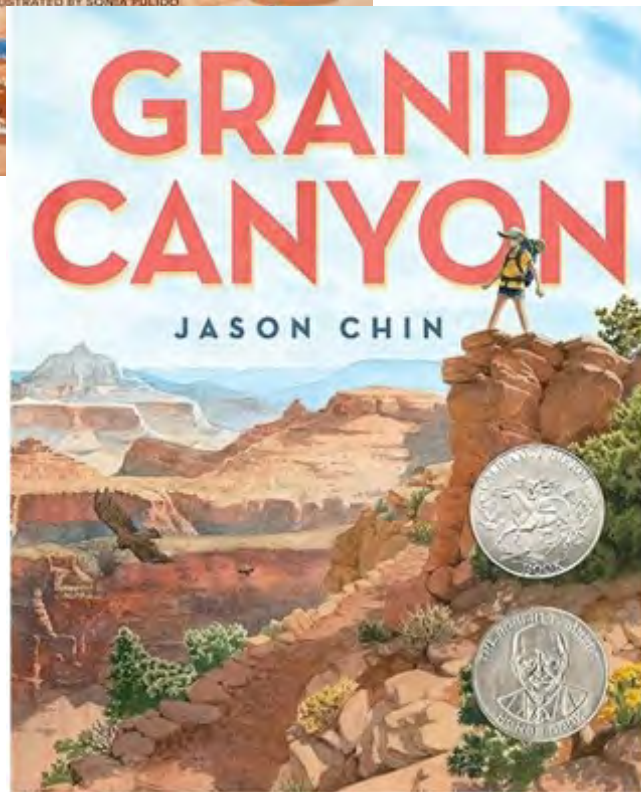
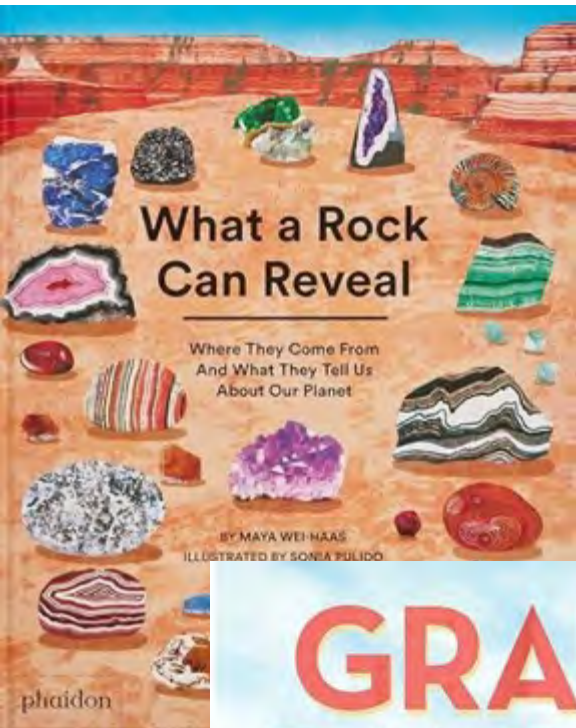
Noun Forms

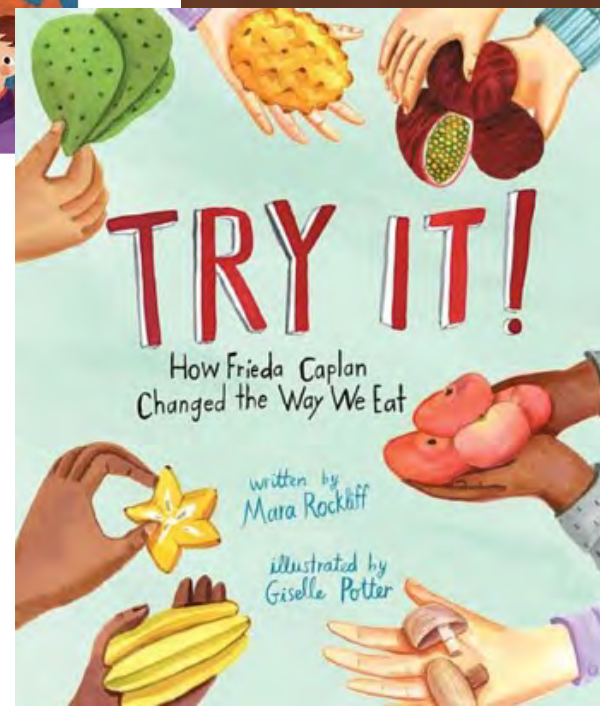
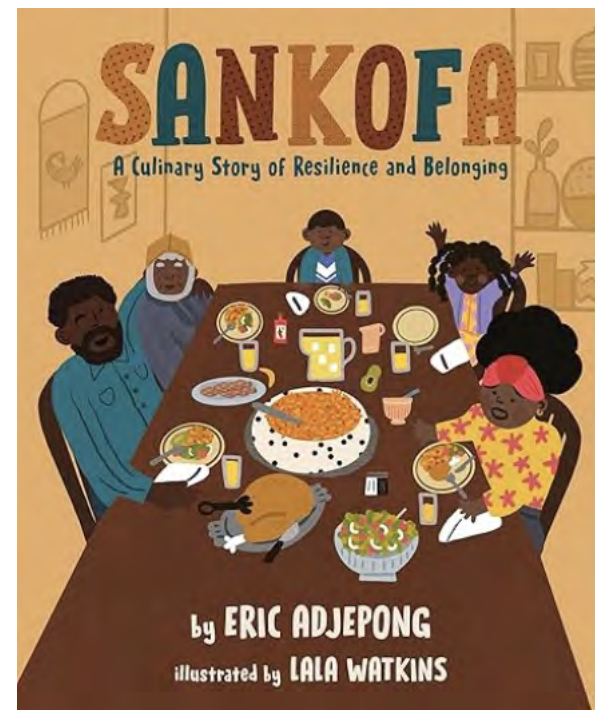
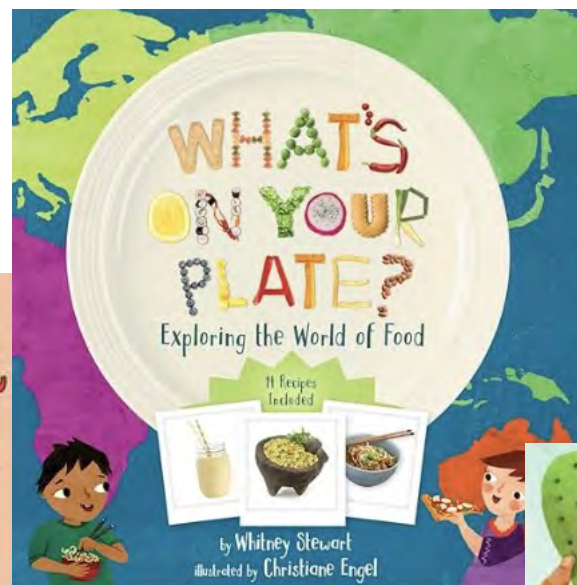
notifier
notifiers
notification
notifications

Pre- Forms

prenotify
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prenotifying
prenotification









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Strategies, tools, and texts to bring beginning readers and struggling readers to high levels of literacy

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**Sincerest thank you for
your time & commitment!**

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