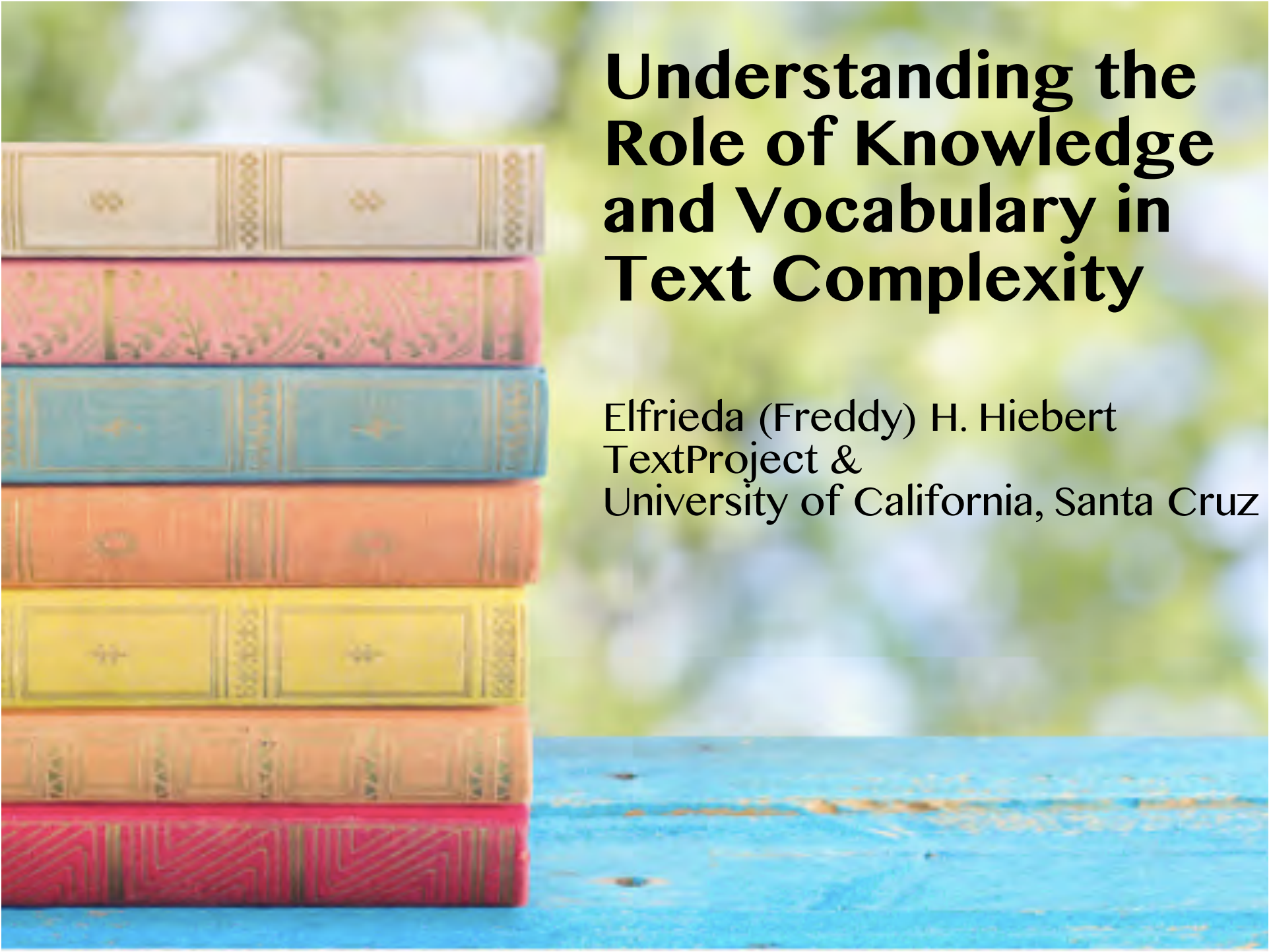




Understanding the Role of Knowledge and Vocabulary in Text Complexity

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

1963



 Jack, the kitten has a mitten.

 A mitten?

Where is the mitten?

 Here is the mitten.

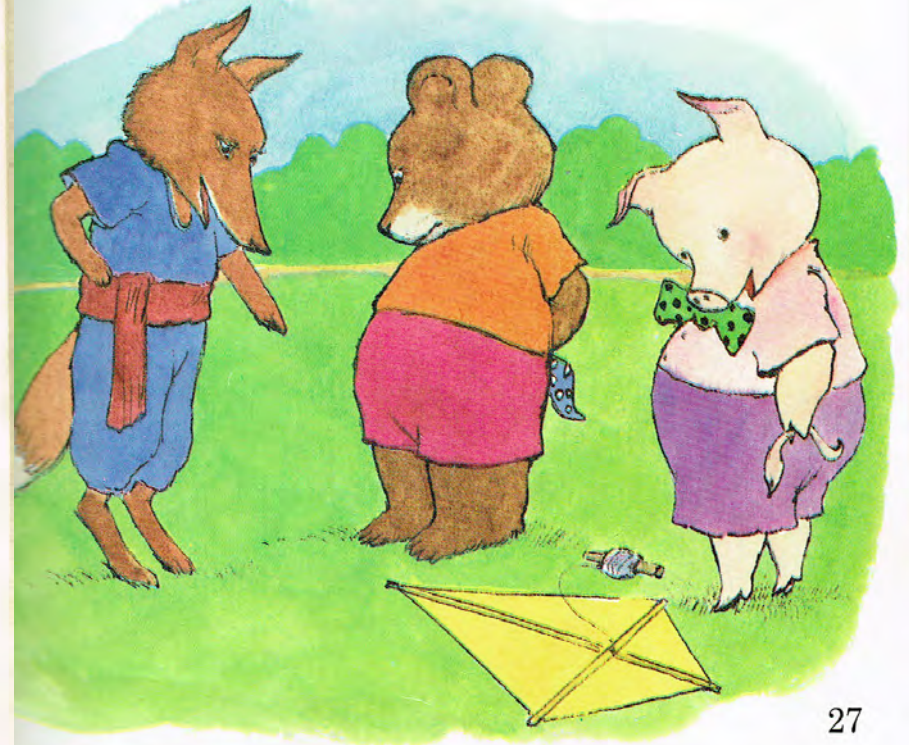
We have a kitten with a mitten.

1986

Fox: I see what you need.
You need a big tail.

Pig: I have a tail.
But my tail is little.

Boo: My tail is little, too.



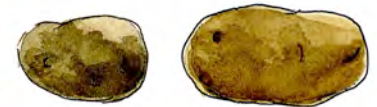


So they dug



and they weeded,

1993



50

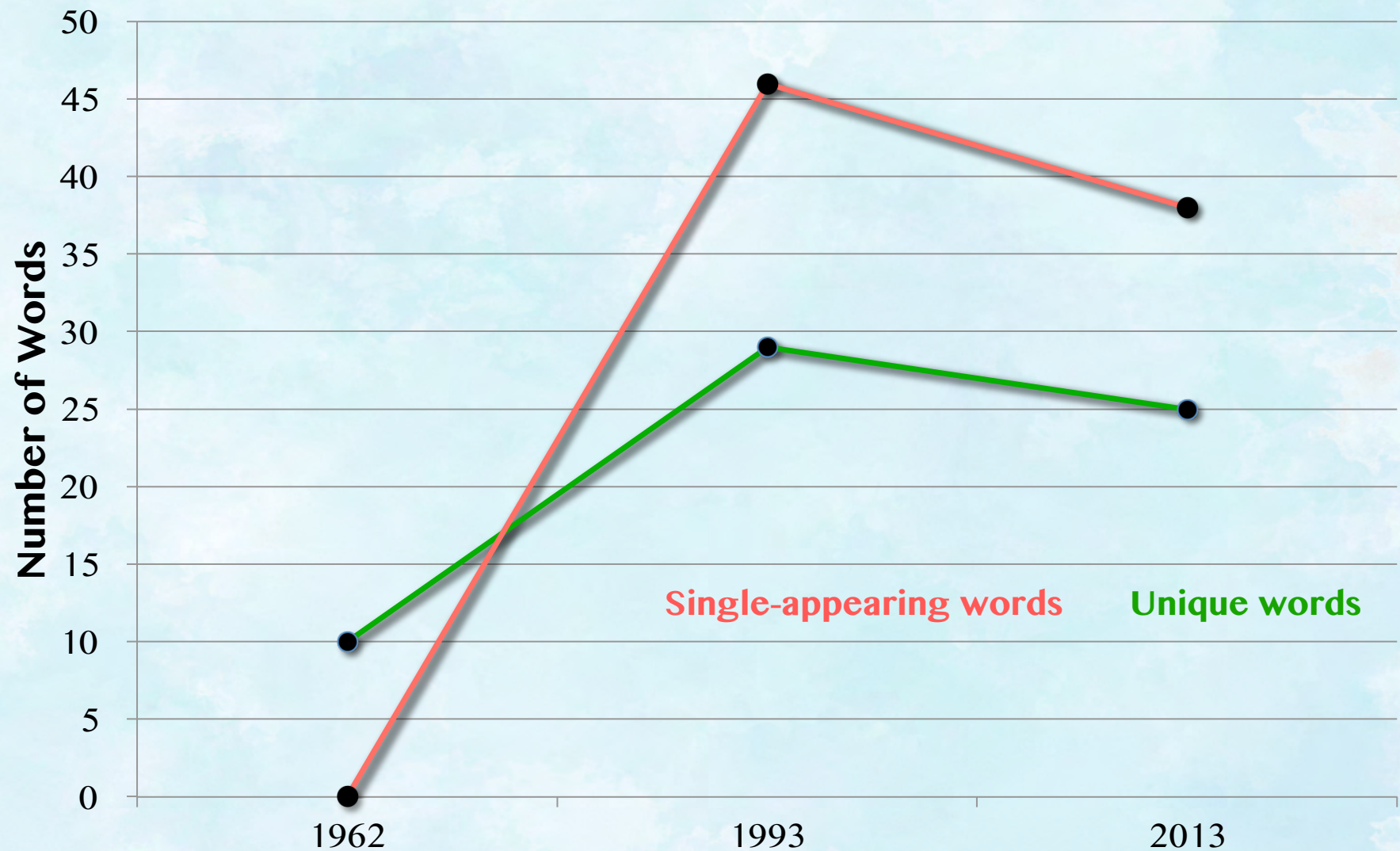


they raked



and they planted.

Beginning of Gr. 1: Task Over 50 Years



Leveled Texts (or Guided Reading Books)



Wishy-washy. Wishy-washy.
"Ee-ee!" the pig squeals.
"I have been scrubbed
from my nose to my heels."

Leveled Books in a Week of Instruction

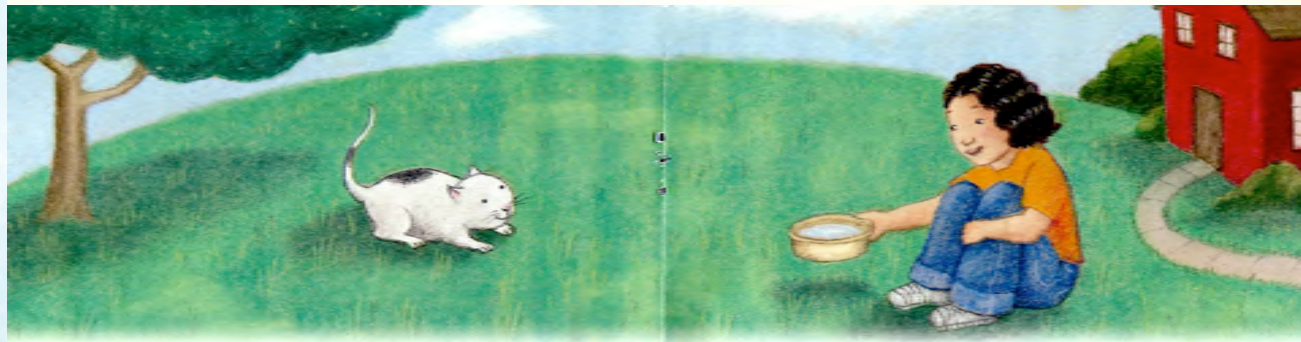


Rosa put a leash
on the puppy.

8

"Come walk,"
said Rosa.

9



Where is that cat?
My cat is on the grass.

4

Here, cat!
Come here, cat.
Come for a drink.

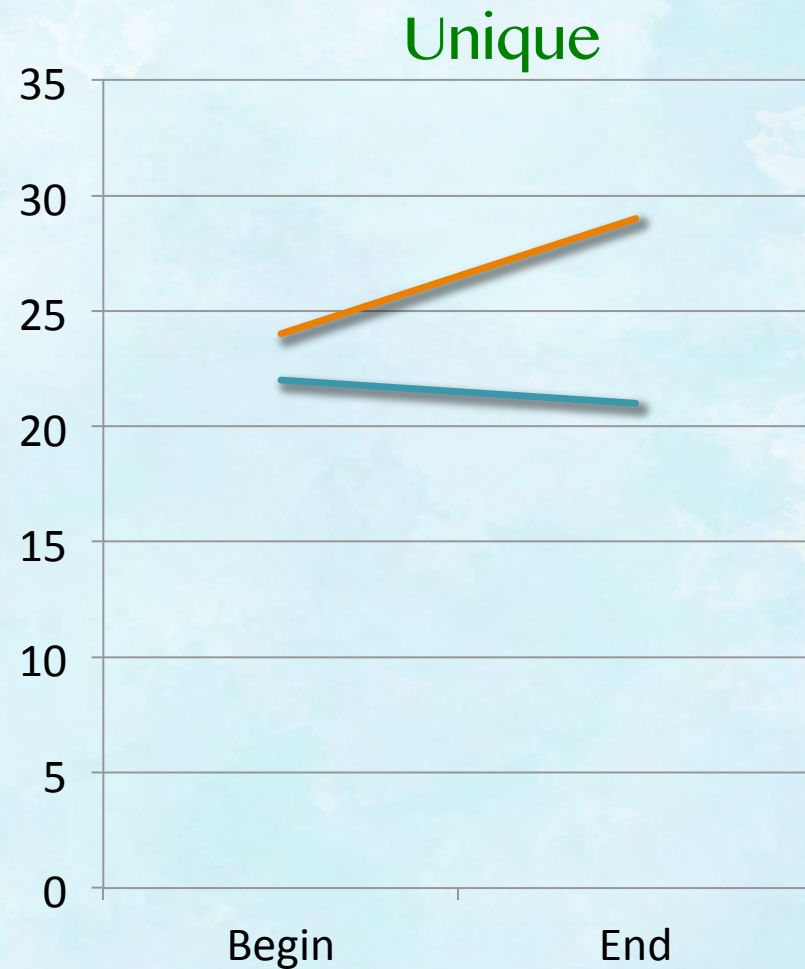
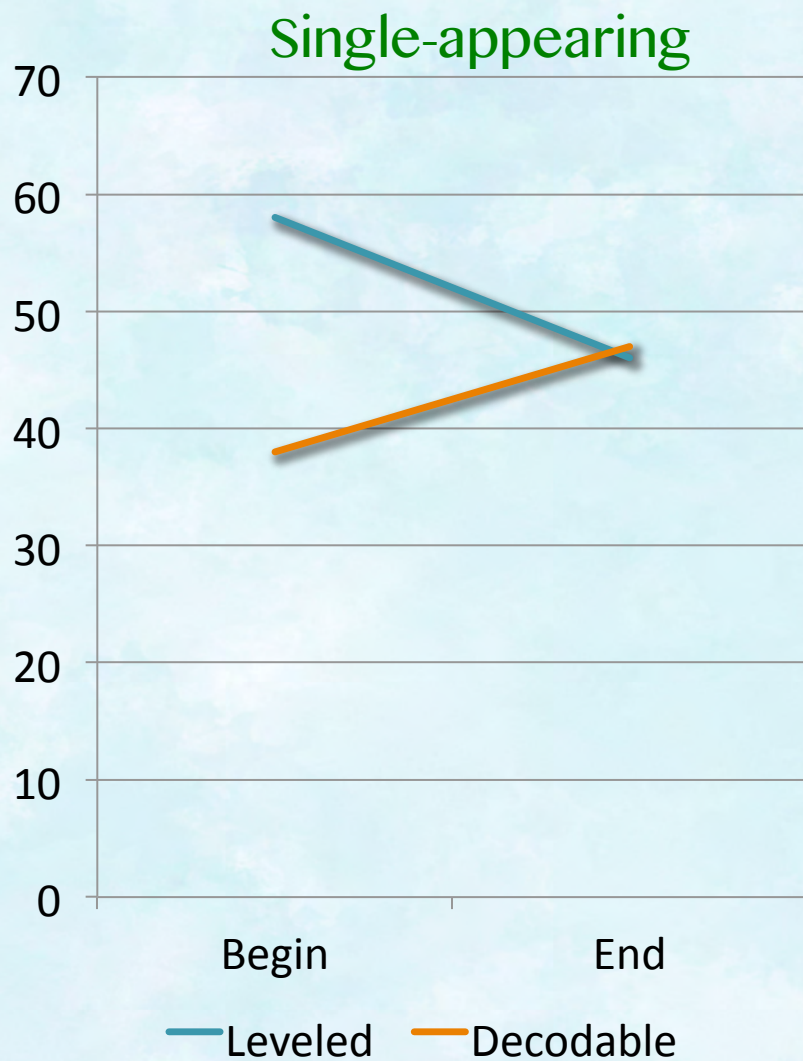
5

Decodable Texts



Brad's ram spins
and nabs his hat.
Brad is mad.
Brad nabs his hat.

Features of Current Leveled (LLI) & Decodable (My Sidewalks) Texts



Once upon a time, there was a duck named Drakes Tail.



Drakes Tail was a duck with brains. He saved all of his money. One day, the king asked to **borrow** some. Drakes Tail said yes.

12

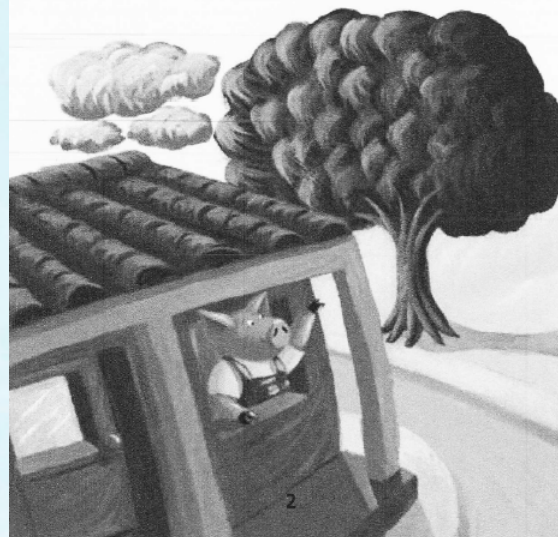
Anthology

Text Diet for One Week: Mid-Year Gr. 1 in A Core Reading Program

Leveled

Once upon a time, Pig and Mule were pals. Pig lived across the way from Mule.

Pig and Mule liked to bake.



2



Rain is on Mom's gray rug.
Rain is in Mom's braid.
Rain is on Big Jay's tail.
There is so much water!

2

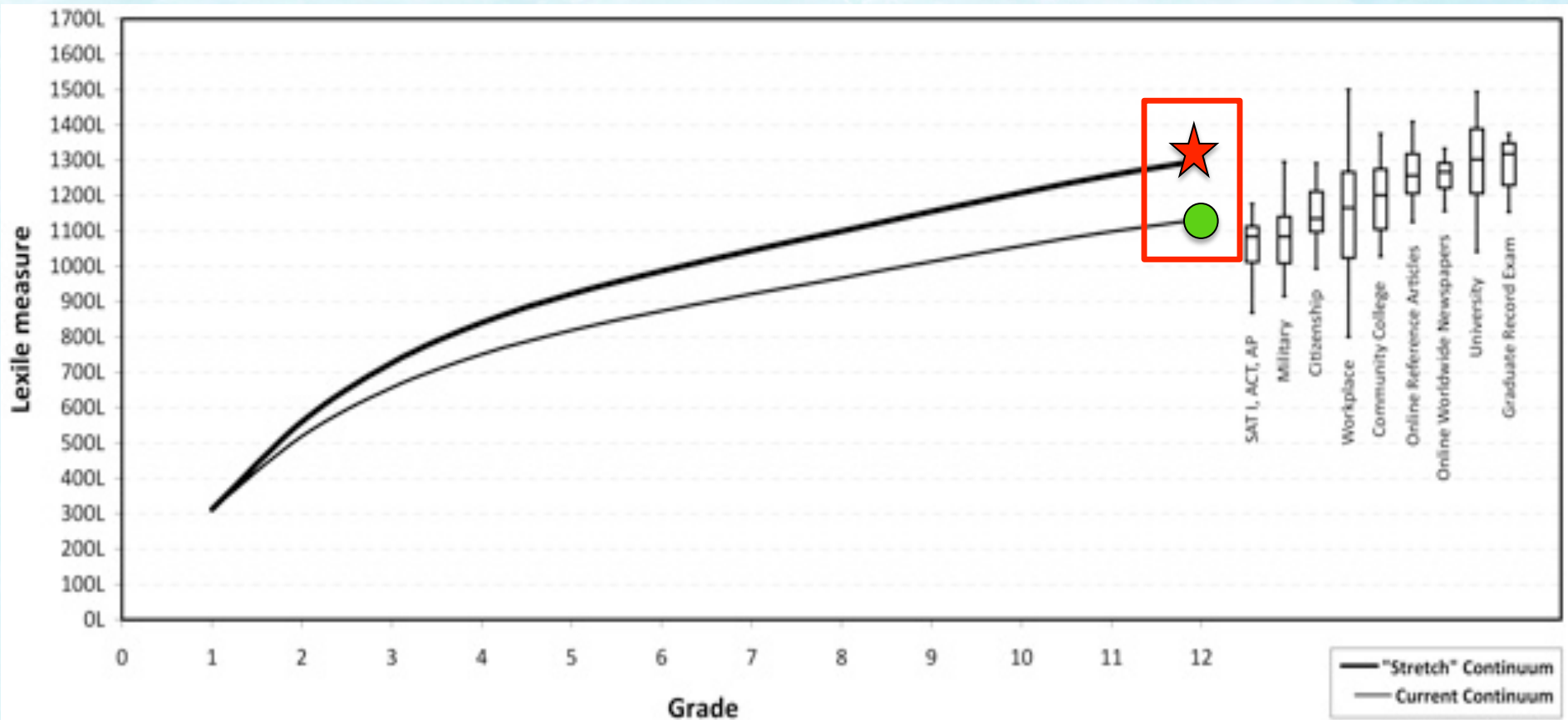
Decodable

Common Core & Text Complexity: Assumption 1: Dumbing-down of texts

K–12 reading texts have actually trended downward in difficulty in the last half century.

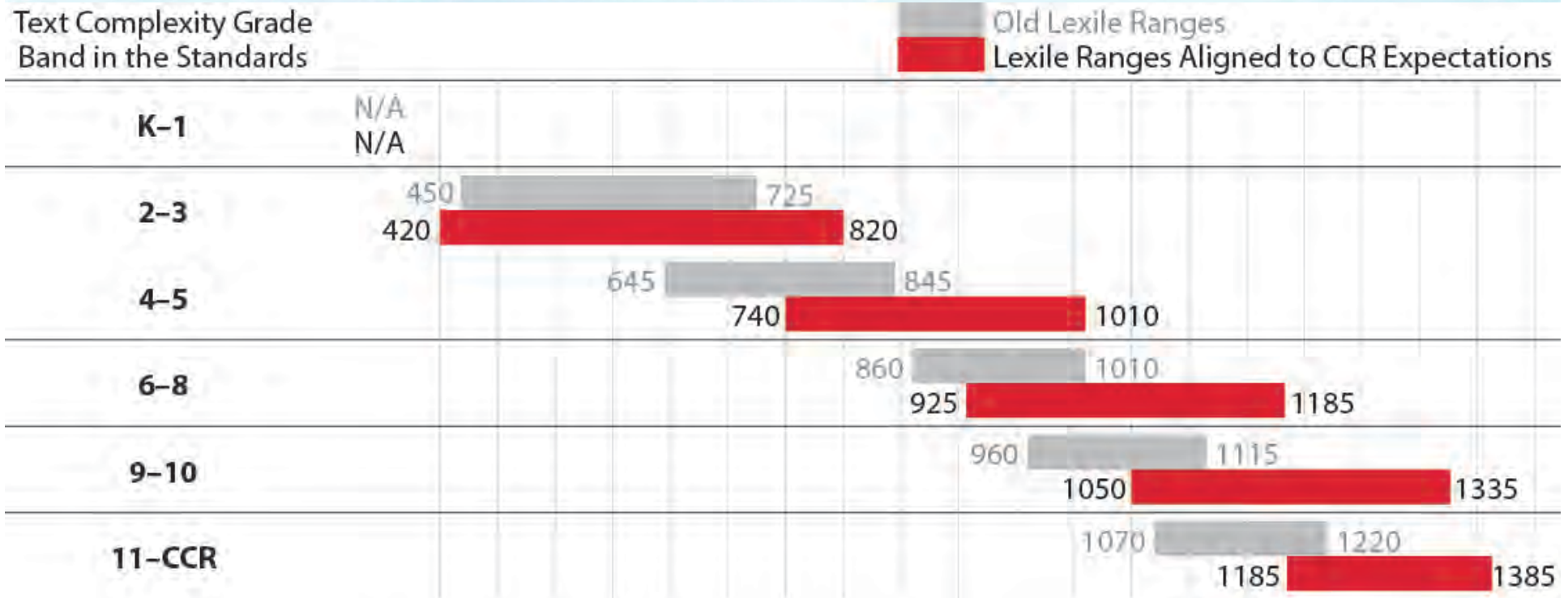
Common Core State Standards, Appendix A, page 3

Claims for Dumbing Down



Stenner, A. J., Koons, H., & Swartz, C. W. (2010). *Text complexity and developing expertise in reading*. Chapel Hill, NC: MetaMetrics, Inc.

Assumption 2: Raising text levels by end of elementary school ensures HS proficiency with complex text

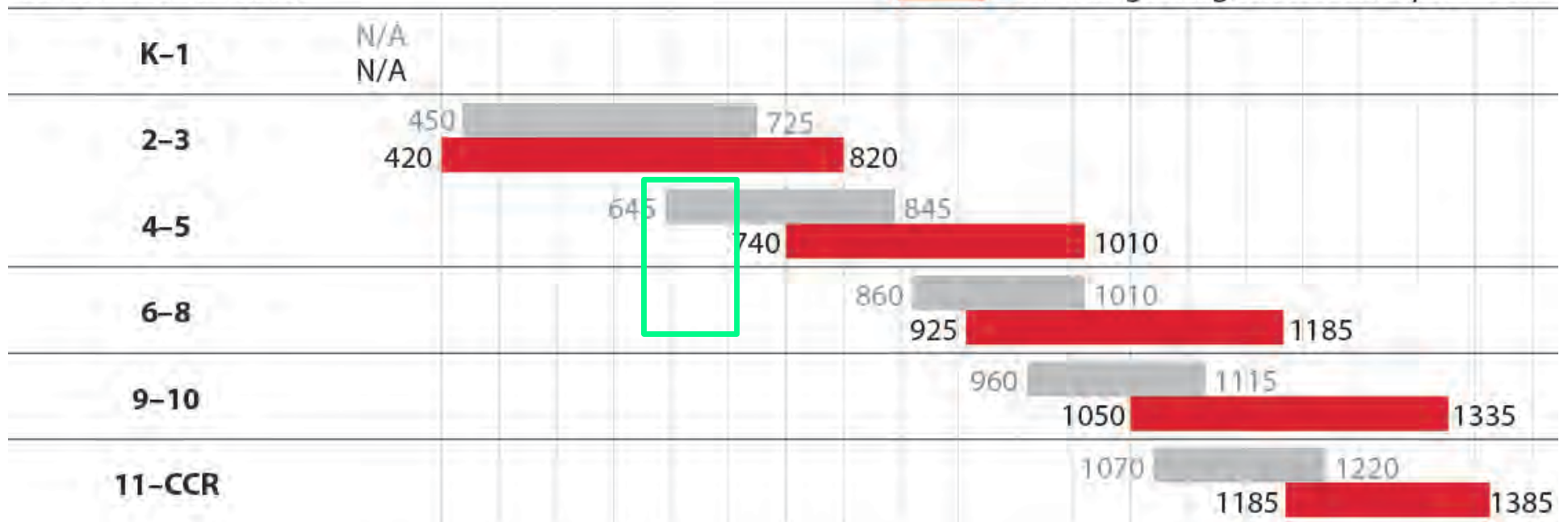


Hiebert, E.H. (October, 2010). *Anchoring Text Difficulty for the 21st Century: A Comparison of the Exemplars from the National Assessment of Educational Assessment and the Common Core State Standards* (Reading Research Report 10.02). Santa Cruz, CA: TextProject, Inc.

Text Complexity Grade
Band in the Standards

Old Lexile Ranges

Lexile Ranges Aligned to CCR Expectations



I. QUANTITATIVE: LEXILES & ATOS

1st Generation: Paper & Pencil computation--Dale-Chall

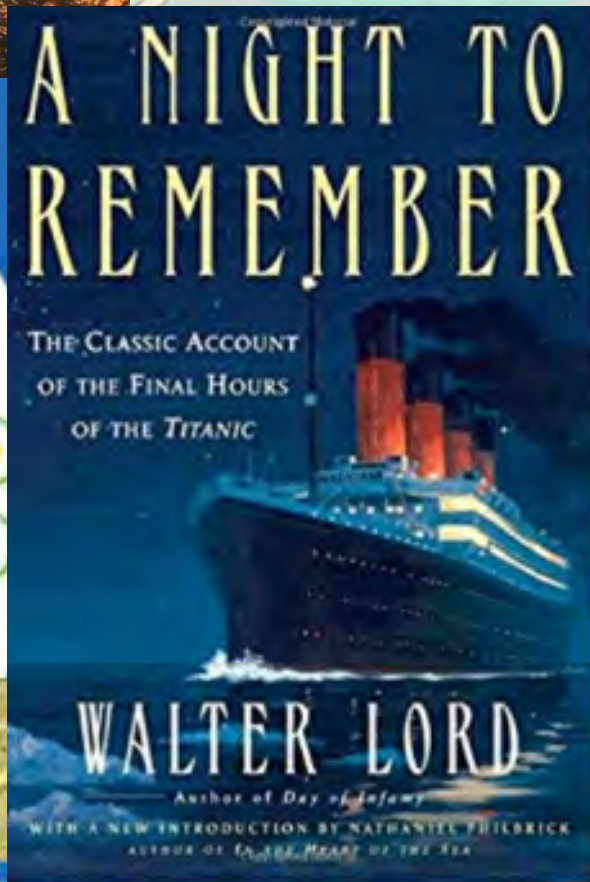
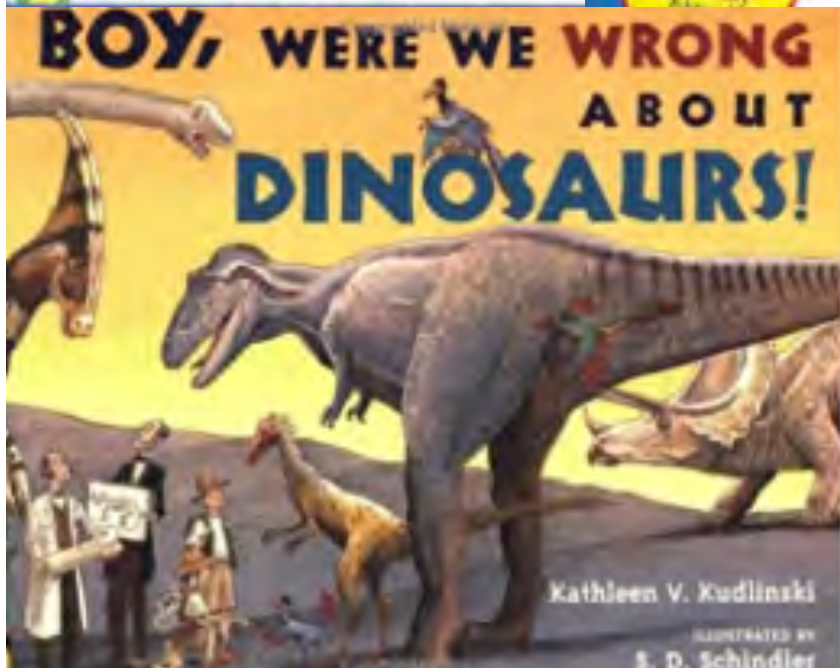
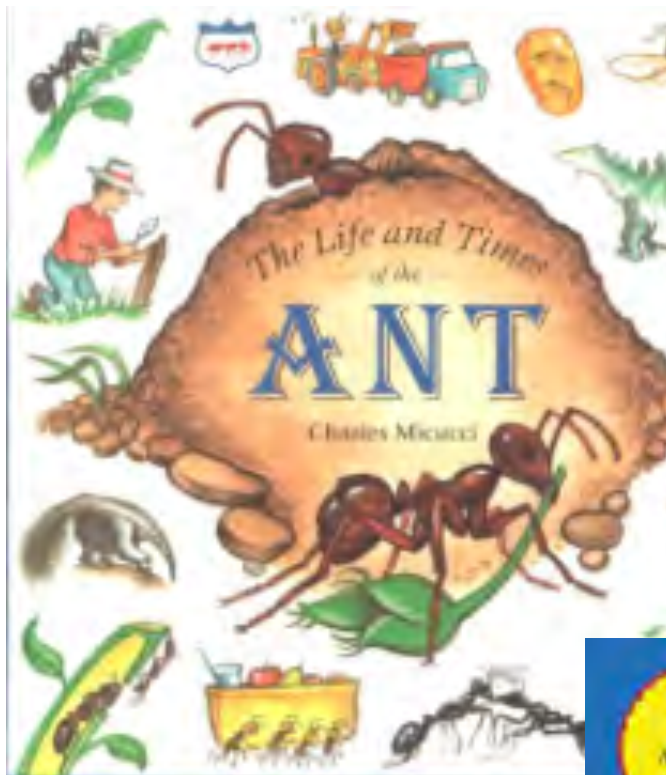
When other animals head north in March to avoid the Antarctic winter, emperor penguins head south. Antarctica is surrounded by a huge mass of sea ice in the winter. This ice floats on the ocean in the southernmost part of the earth. Harsh and frigid, it is here where emperor penguins choose to mate and lay their eggs.

- 12% of words not found on Dale-Chall Readability list
- Grades 7-8

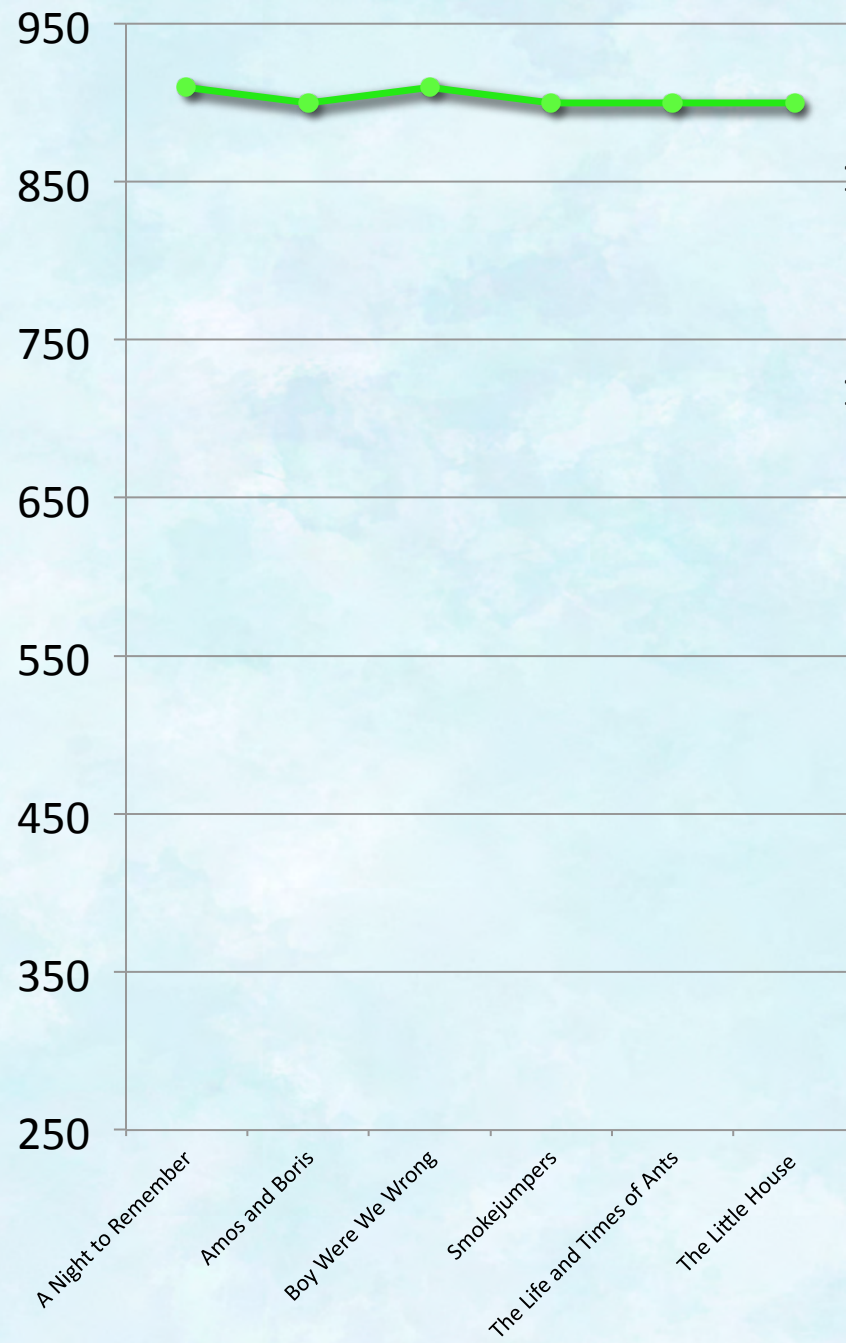
2nd Generation: Digitally generated--Lexiles

When³¹³⁷ other²²⁰⁵ animals³⁵⁷ head⁴³⁷ north²⁷⁵ in¹⁹⁰⁰⁴ March⁴⁷ to²⁵⁵⁸⁰ avoid⁵⁸ the⁶⁸⁰⁰⁶ Antarctic² winter,¹⁵¹ emperor³³ penguins² head⁴³⁷ south.²⁵⁵ Antarctica⁴ is¹⁰²⁵⁷ surrounded³⁷ by⁴⁰⁸³ a²⁴⁰⁷⁰ huge¹³⁰ mass¹⁰³ of²⁸⁵²⁶ sea²⁷⁶ ice¹³⁸ in¹⁹⁰⁰⁴ the⁶⁸⁰⁰⁶ winter.¹⁵¹ This⁴²⁴³ ice¹³⁸ floats²⁴ on⁶⁶⁷⁴ the⁶⁸⁰⁰⁶ ocean¹⁴⁵ in¹⁹⁰⁰⁴ the⁶⁸⁰⁰⁶ southernmost^{0.8283} part⁶⁹⁴ of²⁸⁵²⁶ the⁶⁸⁰⁰⁶ earth.³⁶⁶ Harsh¹⁴ and²⁷⁵⁹⁴ frigid,^{0.9983} it⁹³⁸⁶ is¹⁰²⁵⁷ here⁶⁵⁵ where¹⁰⁷³ emperor³³ penguins² choose⁹¹ to²⁵⁵⁸⁰ mate¹⁵ and²⁷⁵⁹⁴ lay¹⁵³ their³⁰³⁷ eggs.⁵²

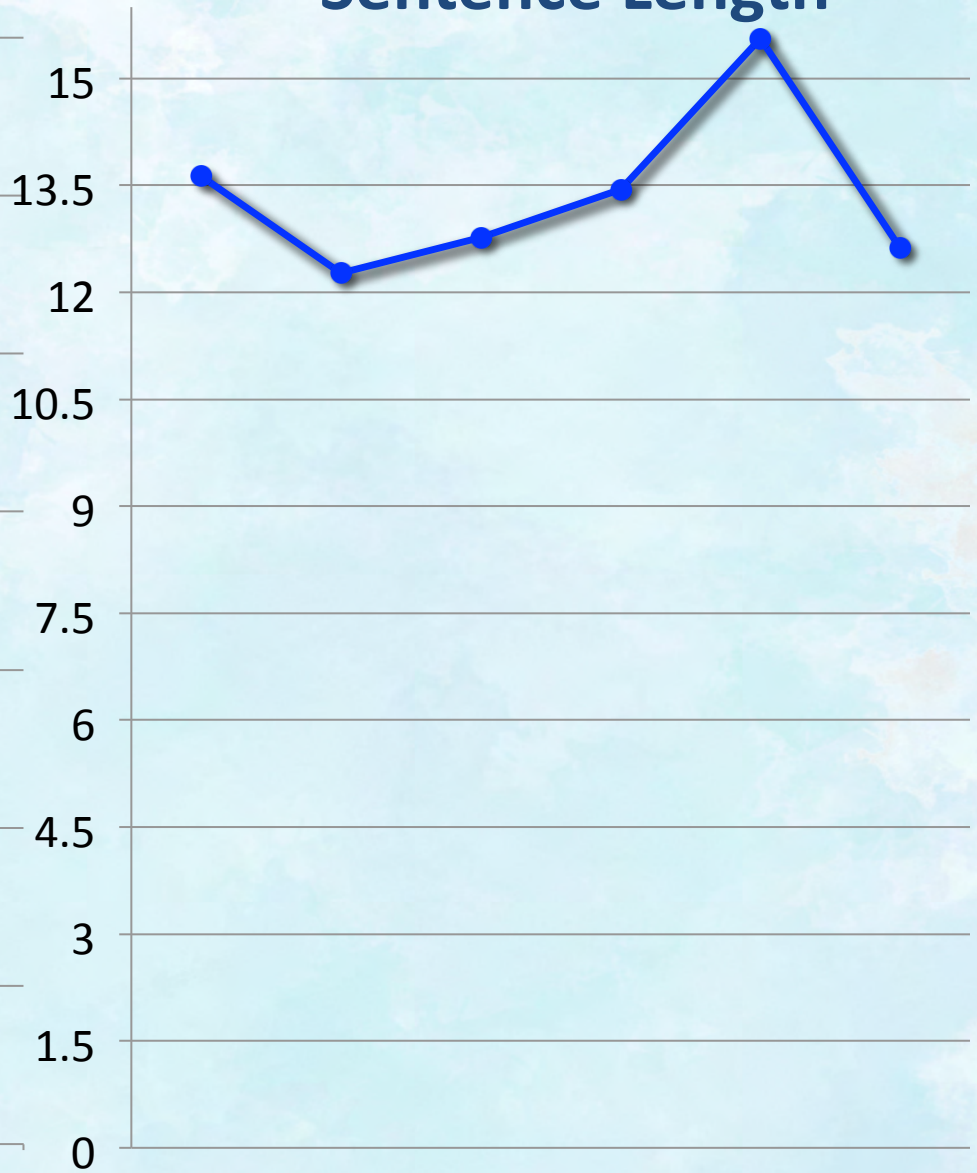
- Lexile: 1030
- Mean Sentence Length: 15.0
- Mean Log Word Frequency: 3.38
- Common Core Staircase: Grade 7-8



Lexile



Sentence Length



Unit of 2.1 Texts (GRP Levels: L & M)

***Families Working
Together***



NOT NORMAN
A Goldfish Story



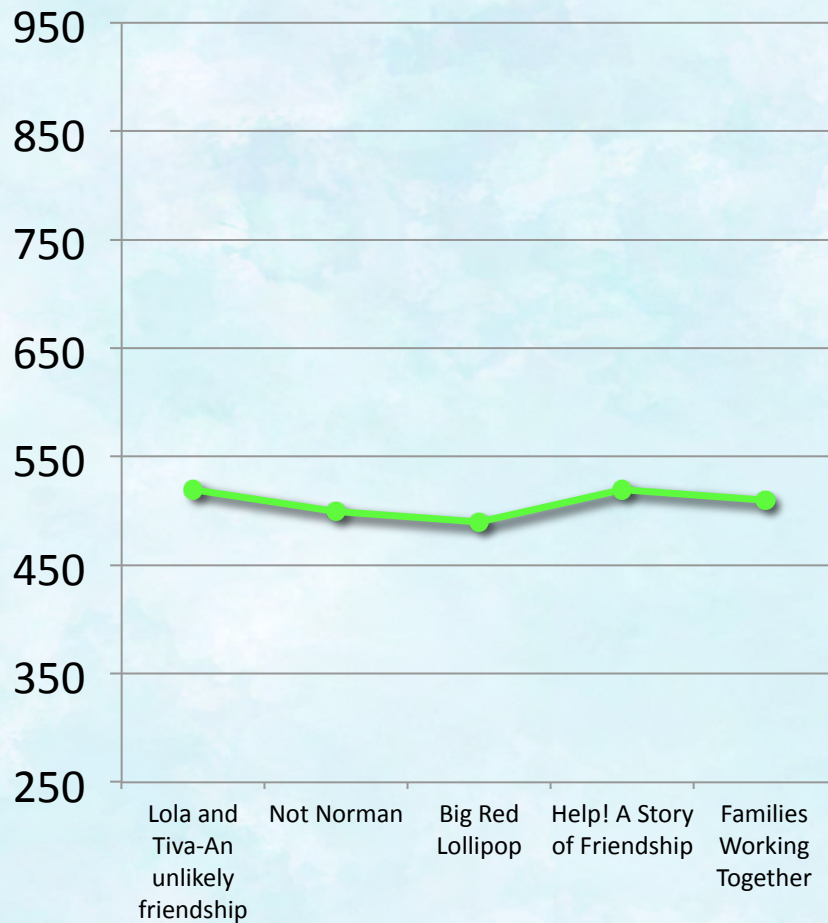
Lola & Tiva
An Unlikely Friendship

LEVEL 2
EMERGENCY READER

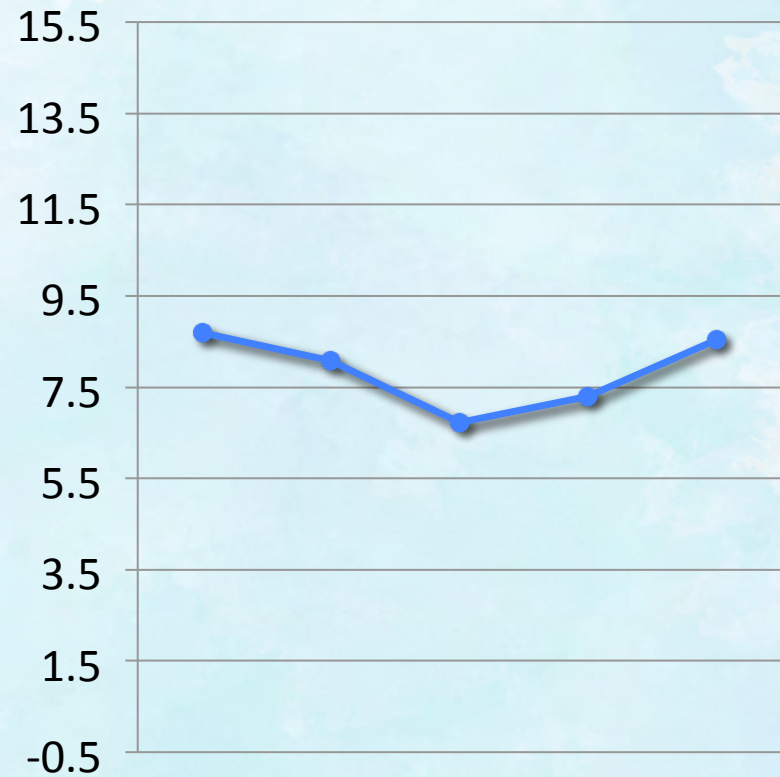


Grade 2.1 Texts

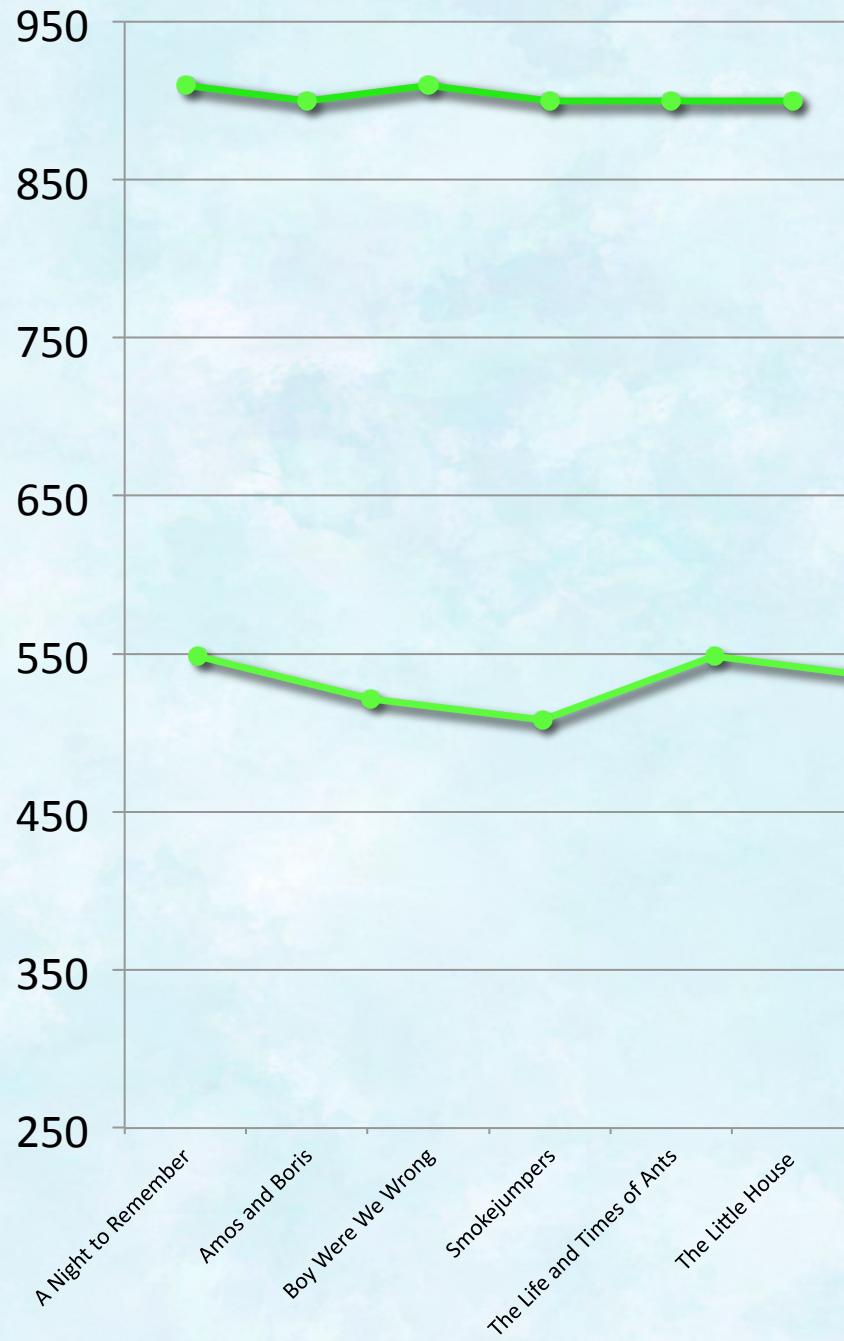
Lexile



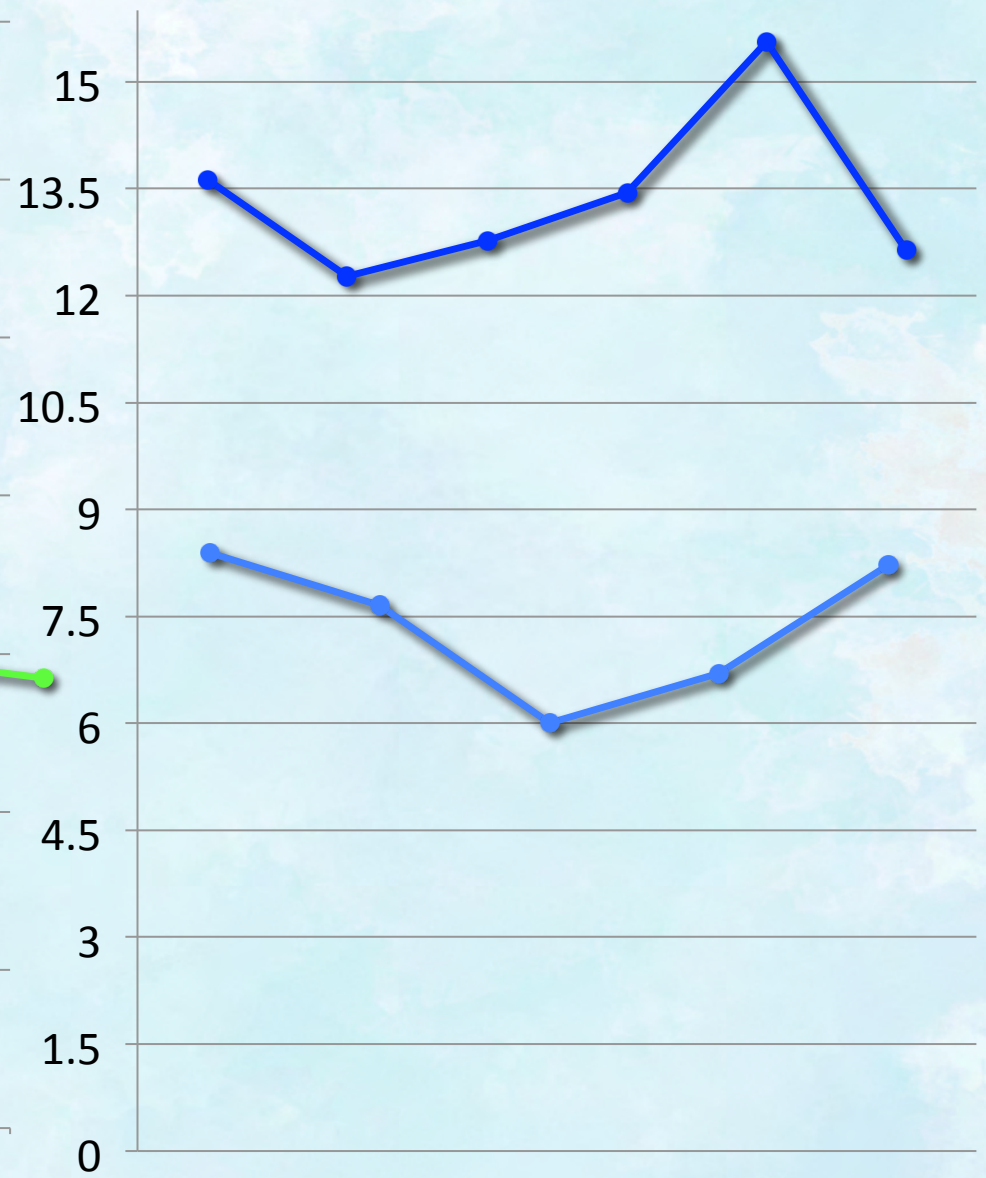
Sentence Length



Lexile



Sentence Length



Jack Thayer stayed with Milton Long on the starboard side of the Boat Deck. They studied an empty davit, using it as a yardstick against the sky to gauge how fast she was sinking. They watched the hopeless efforts to clear two collapsibles lashed to the roof of the officers' quarters. They exchanged messages for each other's families. Sometimes they were just silent.

Lexile: 900
Sentence: 14.11
Vocabulary: 3.58

Jack Thayer stayed with Milton Long on the starboard side of the Boat Deck. They studied an empty davit. They used it as a yardstick against the sky to gauge how fast she was sinking. They watched the hopeless efforts to clear two collapsibles lashed to the roof of the officers' quarters. They exchanged messages for each other's families. Sometimes they were just silent.

Lexile: 690
Sentence: 10.24
Vocabulary: 3.59

Jack Thayer stood with Milton Long. They were on the starboard side of the Boat Deck. They studied an empty davit. They used it as a yardstick against the sky to gauge how fast she was sinking. Two collapsibles were lashed to the roof of the officers' quarters. They watched the hopeless efforts to clear them. They exchanged messages for their families. Sometimes they were just silent.

Lexile: 560
Sentence: 8.52
Vocabulary: 3.61

II. QUALITATIVE--GUIDED READING LEVELS (FOUNTAS & PINNELL'S GRP)

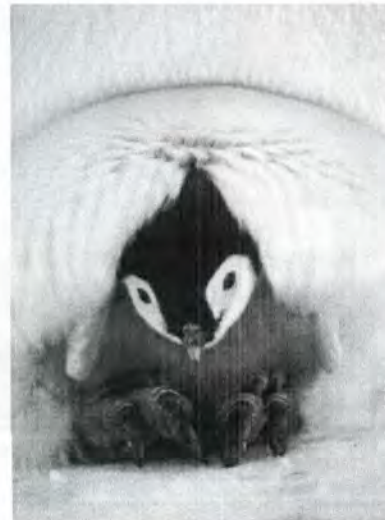
Qualitative Measurement

- Guided Reading Levels:
–P (end of Gr.3/start of Gr. 4)

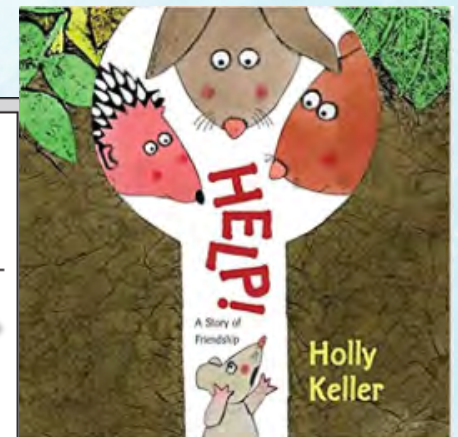
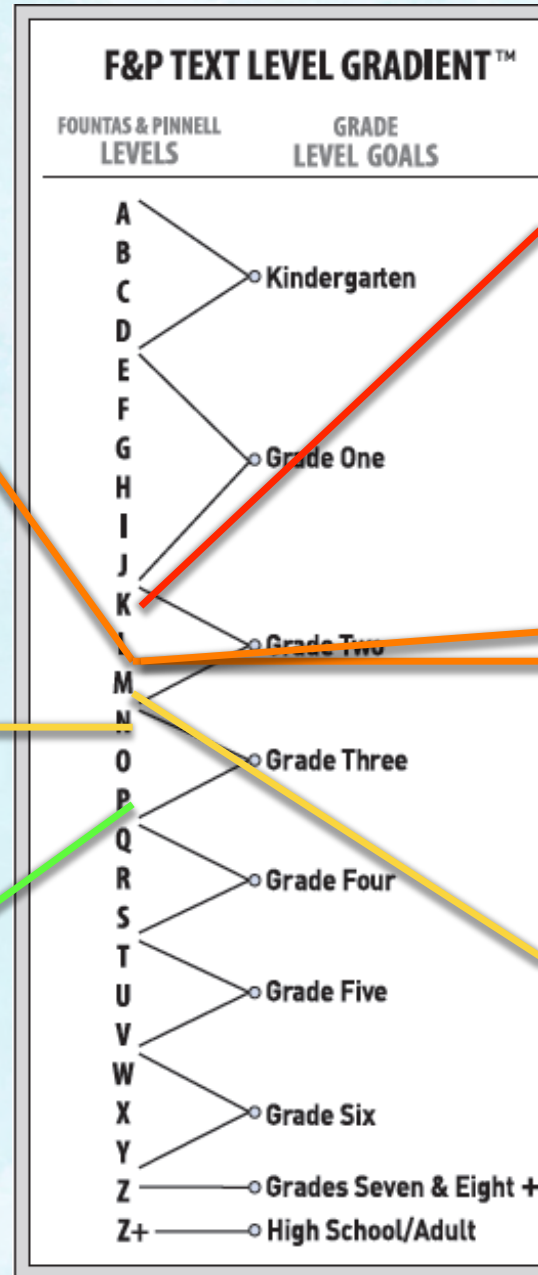
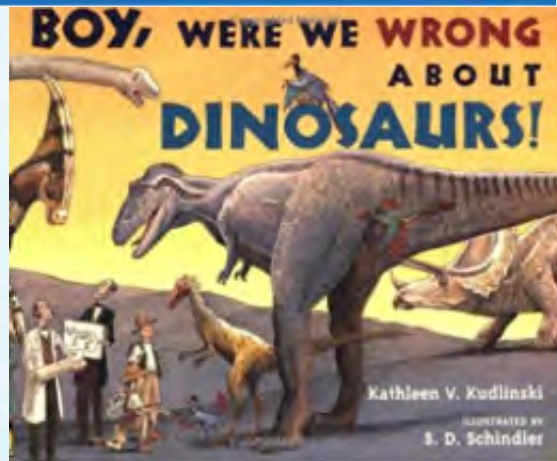
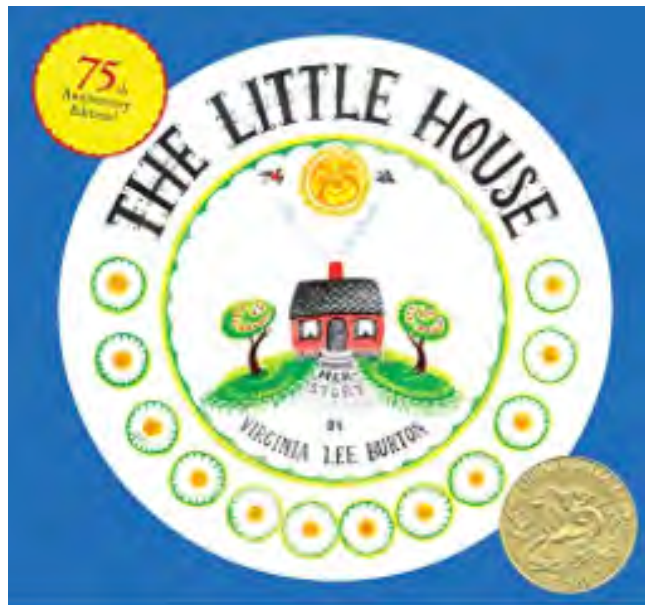
One scientist who spent an entire winter observing these amazing birds says it is staggering to see 10,000 penguins in a single quiet huddle. The temperature inside can be 77°F. Standing nearby when a huddle breaks up, observers can feel, smell, even see the heat. It's like a wall of steam. The penguins are packed in so tightly that when one comes out, the bird is square-shaped for a few moments from the pressure of the other birds.

All for One

Not only is it unbelievably cold while the emperor dad stands holding his egg all winter, it's also dark. Nevertheless, he keeps the egg warm, without stopping for anything, even food. He loses up to a half of his body weight before his mate comes back from feeding at sea in July. She takes over the egg, which then hatches. The male finally gets to go eat. When he gets back, the parents take turns holding the chick on their feet to keep it warm for the next eight weeks. At that point it's old enough to safely stand on the ice by itself.



A newly hatched chick stays warm by standing on top of a parent's feet.



L	N	P
GENRE Informational, fantasy, realistic fiction, folktales, simple biographies, simple mysteries	Same as L	Same as L & N
TEXT STRUCTURE Underlying structures (compare & contrast)	•Complex plots with numerous episodes & time passing	
CONTENT •Some technical content—challenging & not typically known	•Multiple characters •Various ways of showing character attributes	•Topics beyond readers' personal experience •Multiple characters to understand •Characters revealed by what they say, do, think, & by what others say or think about them
THEME & IDEAS	•Multiple topics that represent subtopics of themes)	•Ideas & themes needing unfamiliar perspective •Some more challenging themes (e.g., environment) •Many ideas & themes requiring understanding of cultural diversity
LANGUAGE & LITERARY FEATURES		Extensive use of descriptive & figurative language that is key to understanding plot •Building suspense through events of plot •Some more complex fantasy elements
SENTENCE COMPLEXITY	•Variety in length complexity	
VOCABULARY •New voca. Largely unexplained	Some new voca. & content-specific words •Words with prefixes & suffixes	•Many complex content-specific words in nonfiction, defined in text, illustrations, glossary
WORDS: •Multisyllabic words that are challenging to take apart	Same as L plus: •many 2 to 3-syllable words; some 3+ syllable	Multisyllable proper nouns that are challenging to take apart or decode
ILLUSTRATIONS		
BOOK & PRINT FEATURES 60 to 100 pages of print		More difficult layout of informational text and some fiction text with denser format

Not Norman

I take out my tuba and begin to play.

I glance over at Norman. He's swaying back and forth,
Glu, glu, glu plug, he mouths.

“Look! Norman's singing,” I say. “Pay attention,” snaps
Maestro. “And try to play the proper notes.”

Maestro makes me stay for extra practice. By the time
my lesson is over, it's too late to go to the pet store.
Don't think that just because you like my music, I'm
going to keep you, I tell Norman. He glugs.

That night, I'm sound asleep when screech, scratch!
What's that noise?

Lola and Tiva

She could not find her mother and her blind mother could not find her. The rangers who worked at Lewa searched for Lola. When they found her, they brought her to a safe place in Lewa that was near Tiva's house. There, Lola would be out of danger.

Tiva was excited when Lola arrived. She wanted to take care of Lola. Like any baby, Lola needed many things. Most of all Lola was hungry and needed milk. Tiva learned to feed Lola. Lola drank a bottle five times a day. Each time, she drank over a gallon!

The Little House

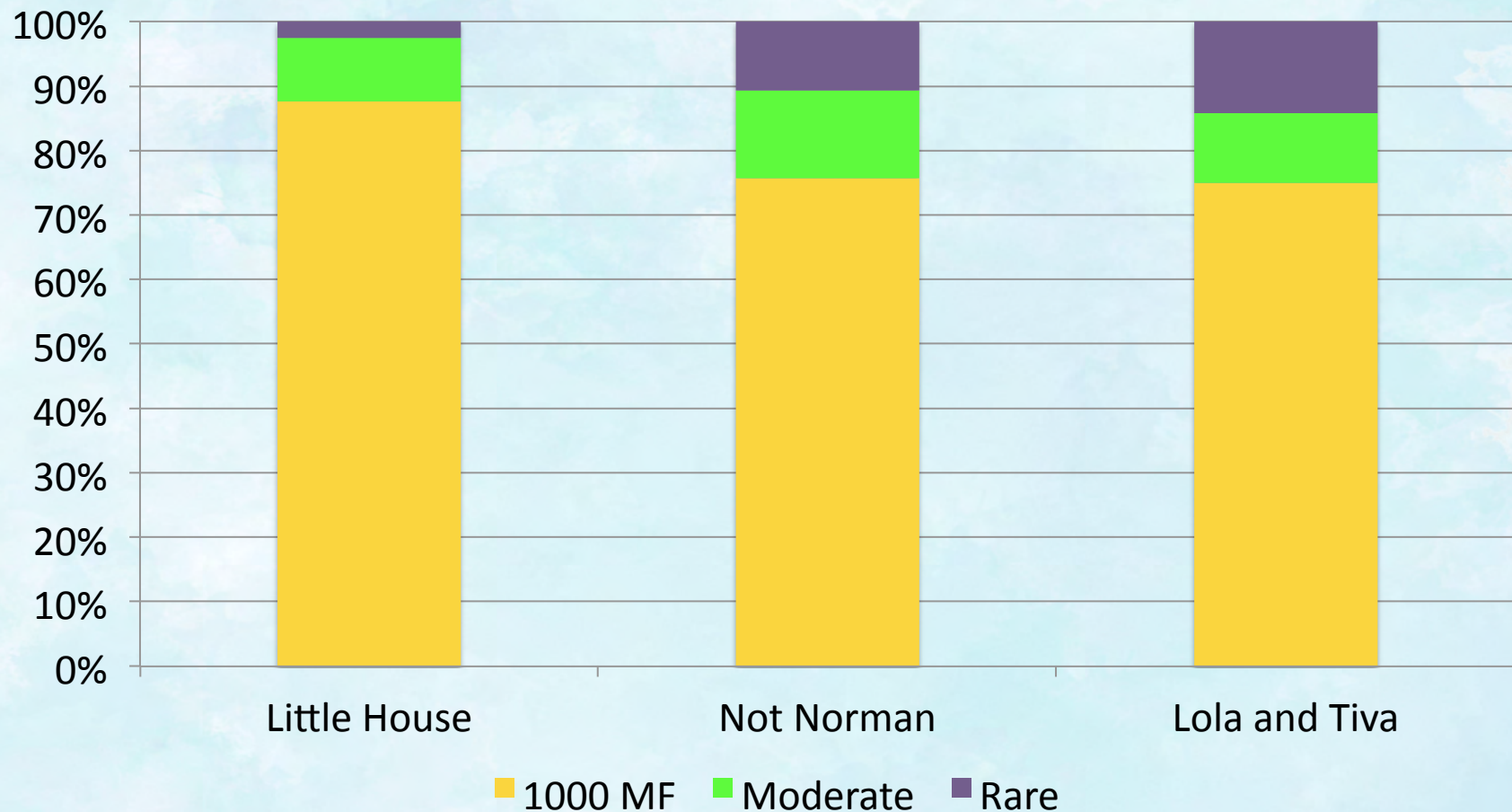
Pretty soon there was an elevated train going back and forth above the Little House. The air was filled with dust and smoke, and the noise was so loud that it shook the Little House.

Now she couldn't tell when Spring came or Summer or Fall, or Winter. It all seemed about the same.

Pretty soon there was a subway going back and forth underneath the Little House. She couldn't see it, but she could feel and hear it. People were moving faster and faster. No one noticed the Little House any more. They hurried without a glance.



Word Distributions of Three Texts with “L” Designation



Words Repeated 3+ times (Moderate & Rare)

Not Norman	Lola and Tiva	The Little House
sorry (3) pet (8) bowl (3) scratch (3) Austin (3) Norman (25) glu (3)	milk (3) drank (3) puppy (3) calf (3) rangers (3) bugs (4) mud (5) rhino (6) Lewa (10) Tiva (17) Lola (33)	trucks (3) rolled (3) steam (3) dug (3) countryside (3) stars (4) forth (5) apple (6) hill (7) pretty (9) daisies (5)

A Teacher's ToolKit for Text Complexity



Principle of Text Complexity

- Teachers' expertise is always needed in making choices about appropriate texts for students.

1. Be cautious about assigning a student to a single level—of anything

- The variability within levels and within single texts
- Background knowledge/vocabulary is the best predictor of comprehension
 - Background knowledge can be taught
 - One of the functions of reading in school is to develop background knowledge.



“And thirdly, the code is more what you’d call “guidelines” than actual rules.”

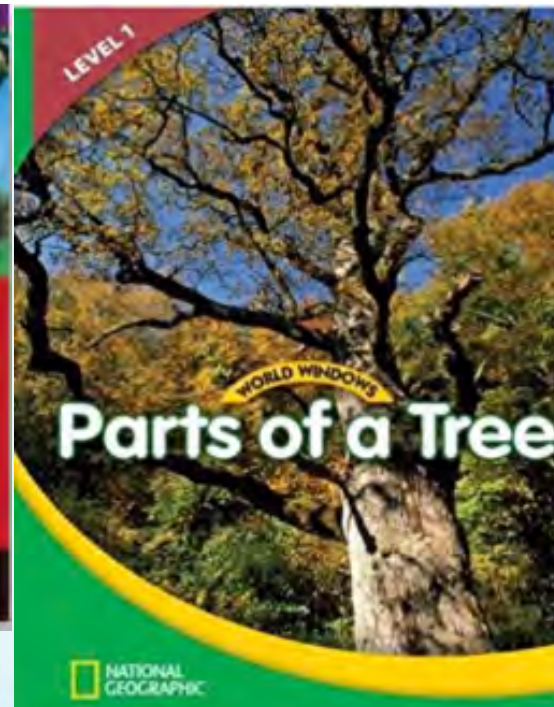
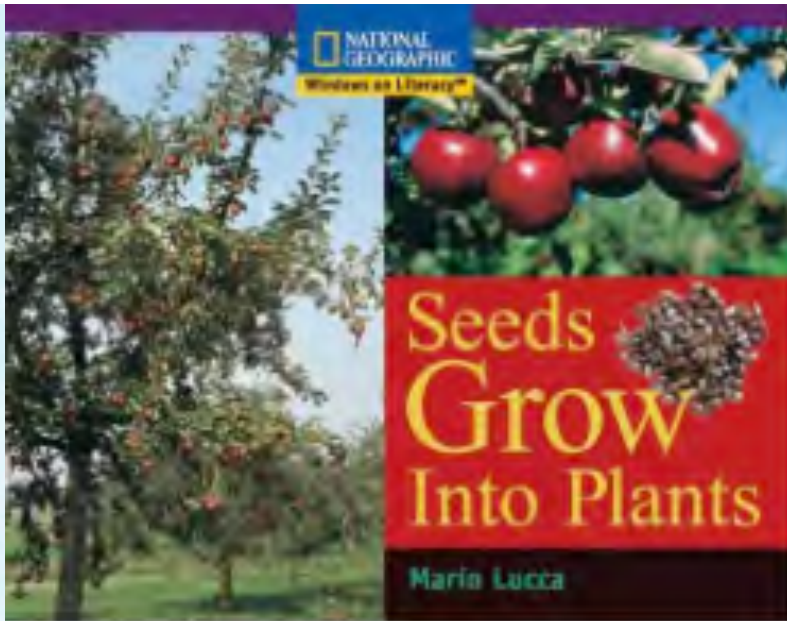
Captain Hector Barbossa in
Pirates of the Caribbean: The
Curse of the Black Pearl

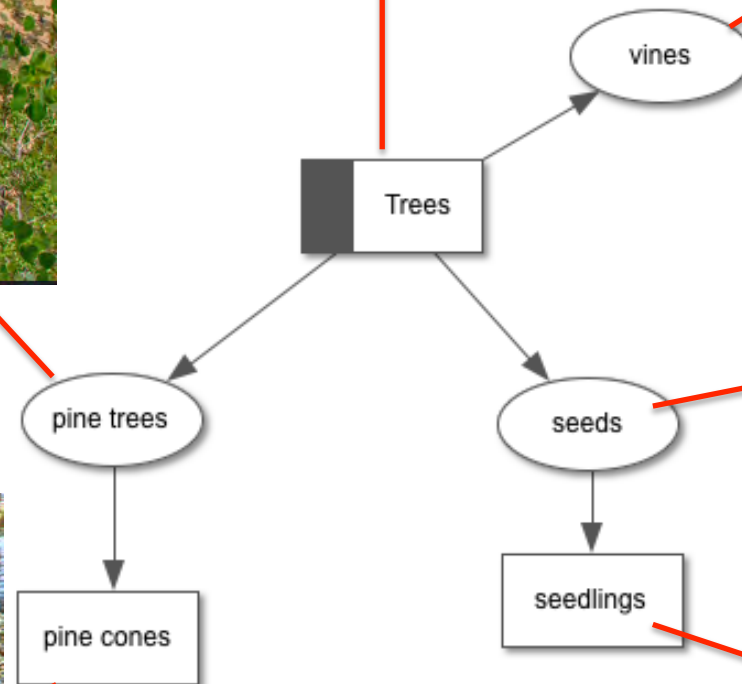
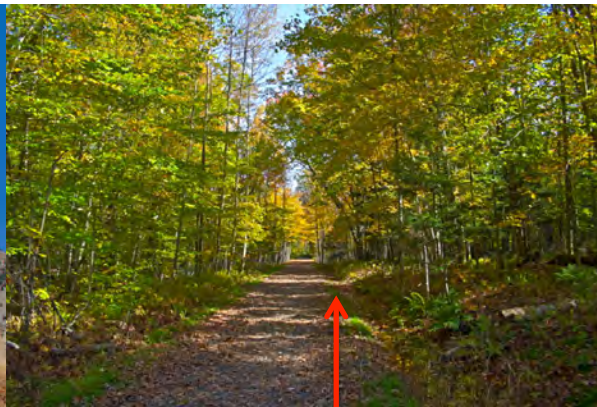
2. Know about the strengths and gaps in current text complexity systems

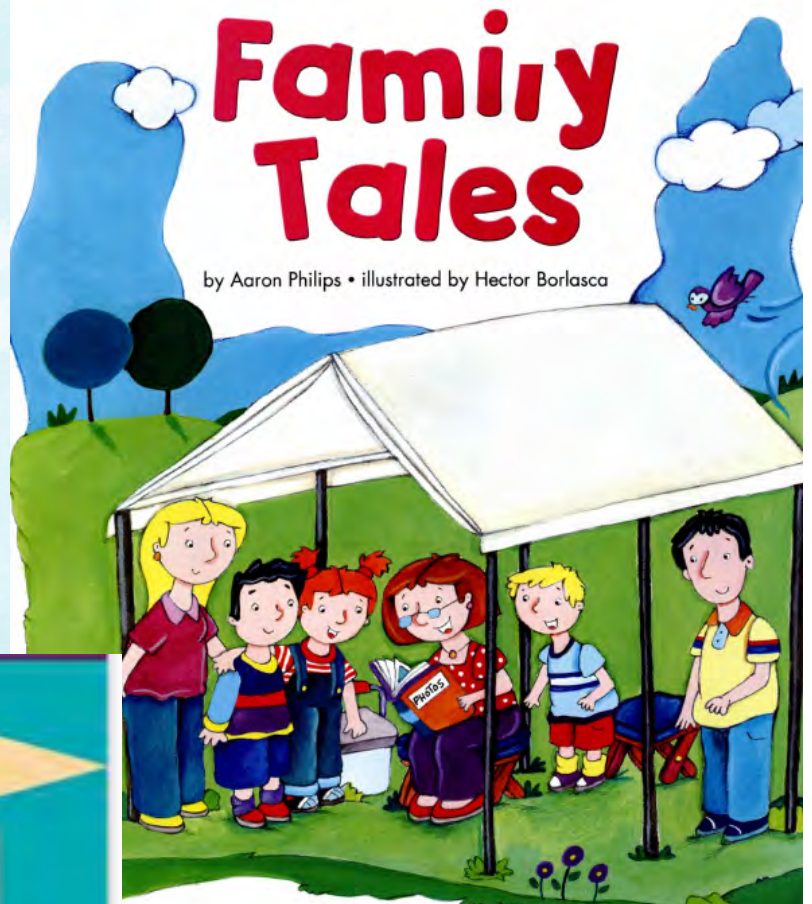
	Strength	Gap
Lexile Framework	•For texts with high Lexiles but within a “familiarity band” (e.g., guided reading level), look at sentence complexity.	•Examine the vocabulary in a text: Do students have the background knowledge? How might the essential vocabulary be developed?
Guided Reading Level	•Length of text for early levels of reading •Familiarity of the content	•Sort texts by common features: --For young readers: Grapheme-phoneme patterns •Recognize the cueing system that the text is emphasizing •Again: emphasize background knowledge/ vocabulary.

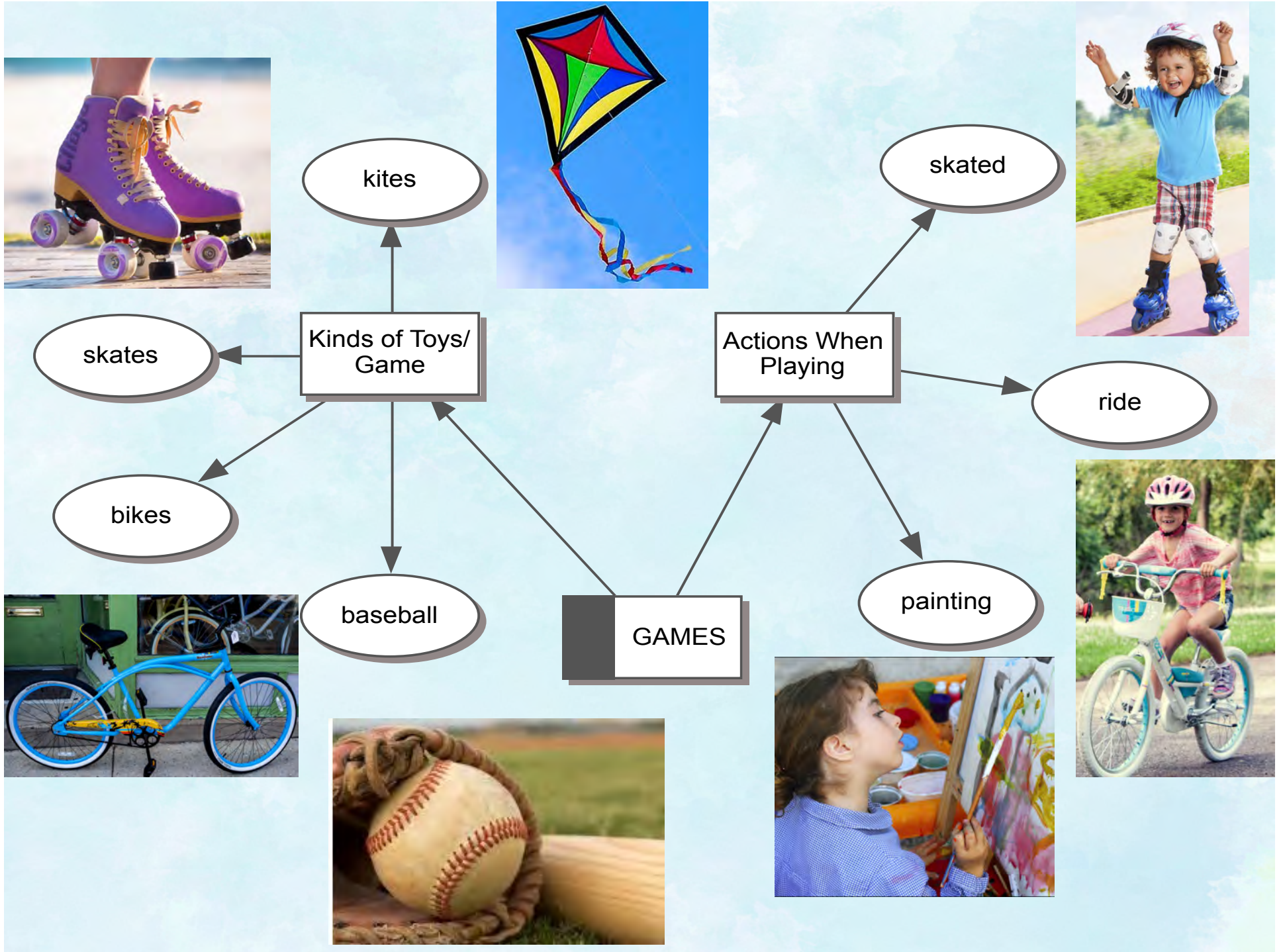
**3. Organize instruction
(especially texts) by
themes...and ensure that
students are exposed
to the thematic
vocabulary**













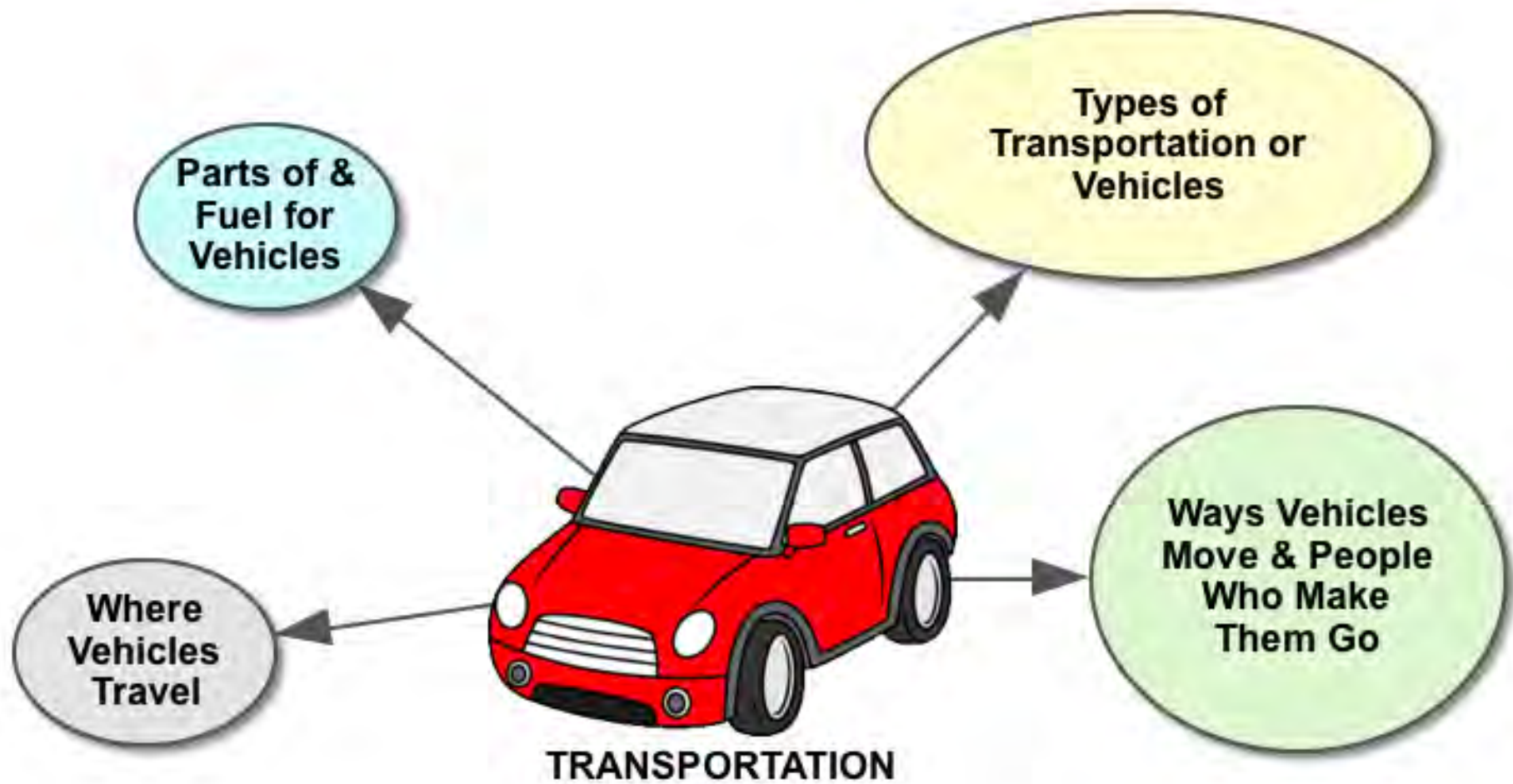
Transportation—

Types of Transportation or Vehicles



For more information about TextProject, visit www.textproject.org
v.1.0 © 2014 TextProject, Inc. Some rights reserved
<http://creativecommons.org/licenses/by-nc-nd/3.0/us/>

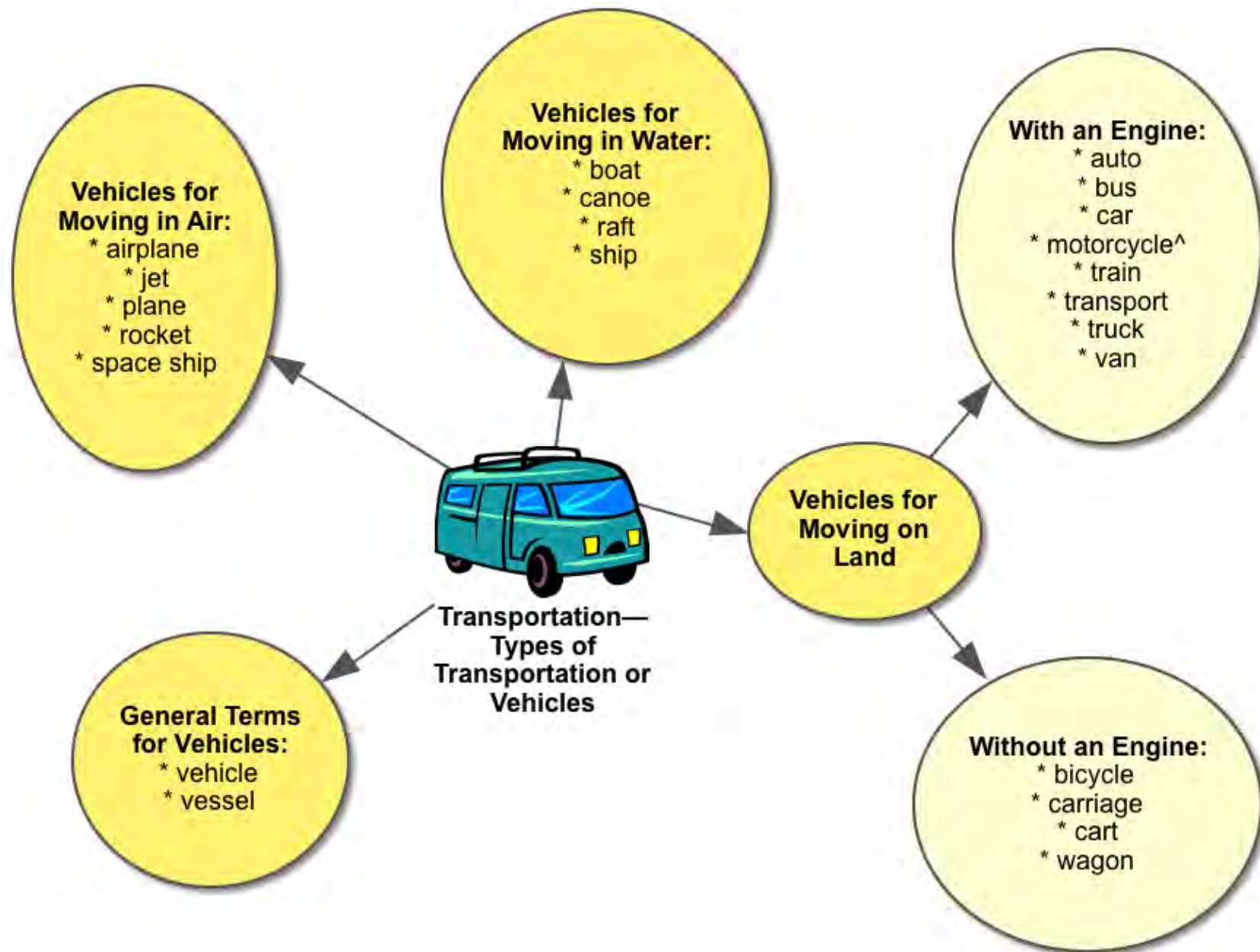
©2010 by Anthony Muñoz at Flickr. Some rights reserved. <https://creativecommons.org/licenses/by-nd/2.0/>



Transportation

There are lots of words that describe the way we move from place to place. We've grouped them into four groups.





^ non core vocabulary words added to supplement concept

vehicle

(ve·hi·cle)



canoe

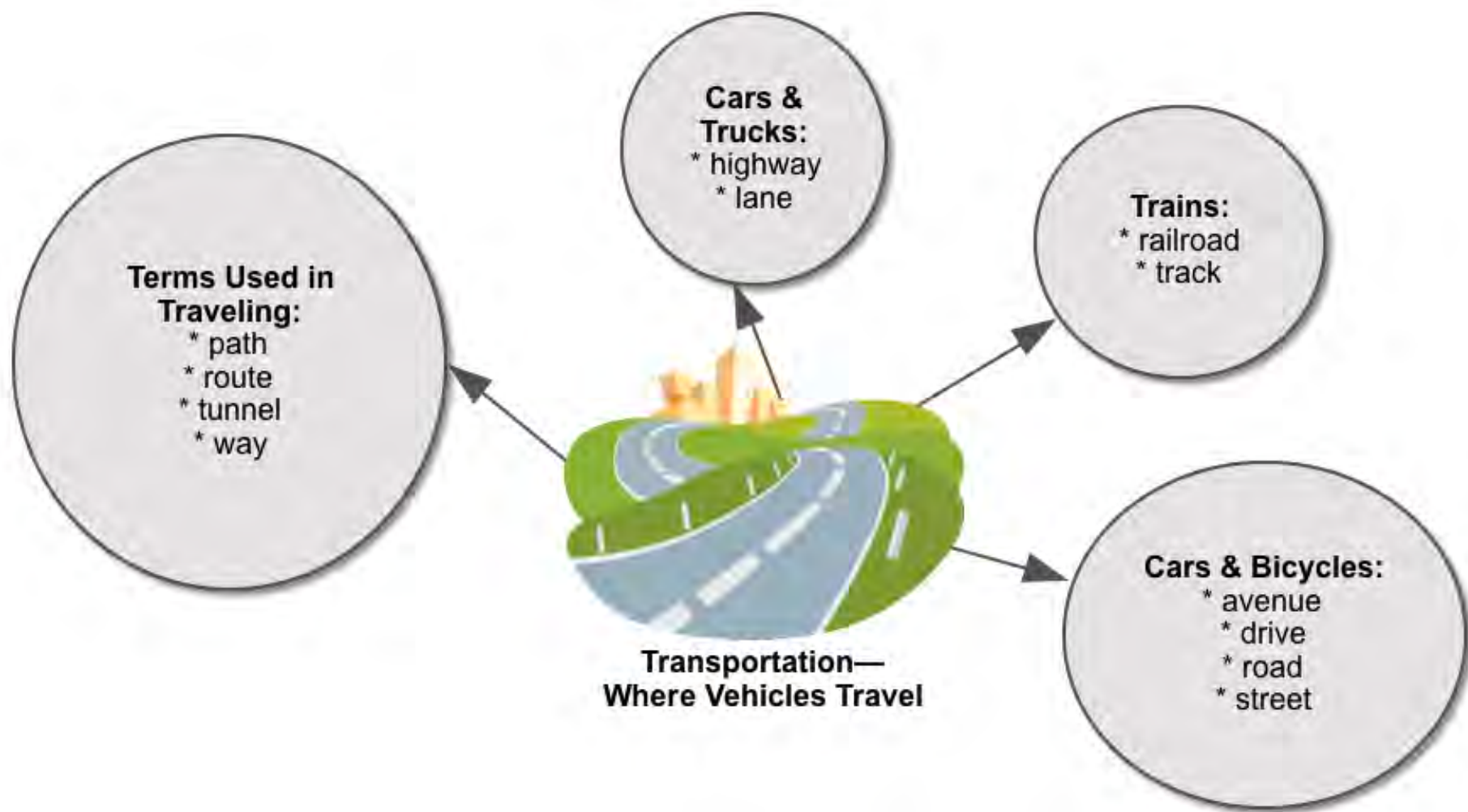
(ca·noe)



raft

(raft)





path (path)

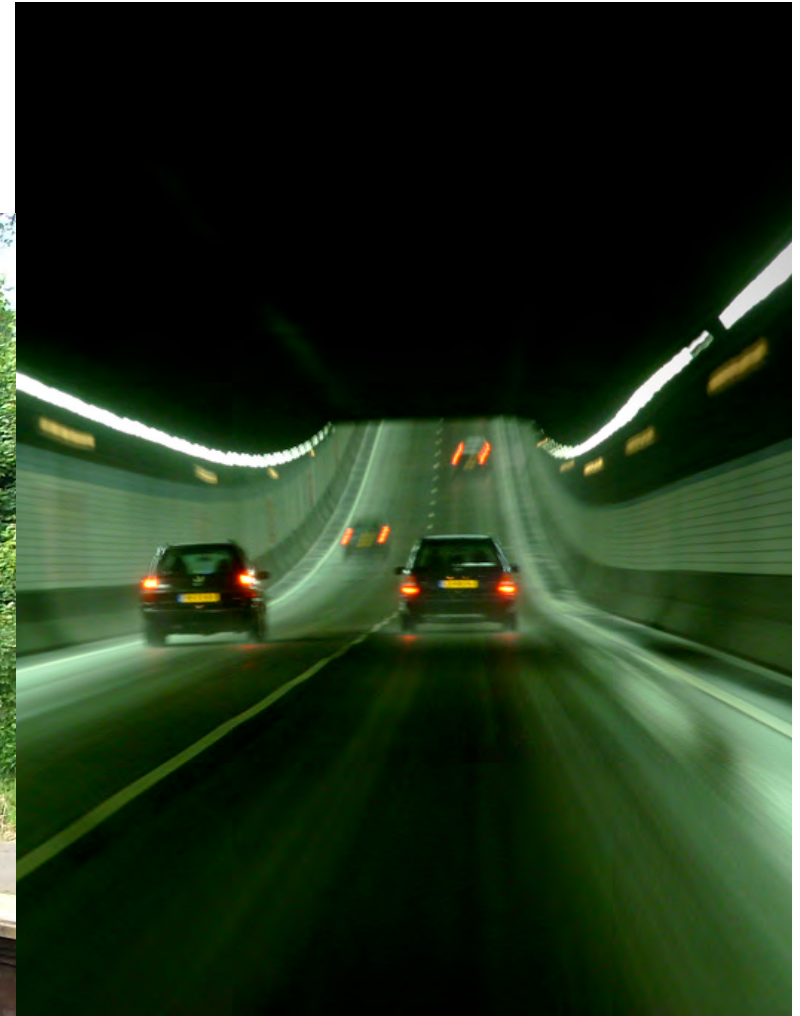
A *path* is the way along which a vehicle or vessel travels.

These
canoes are
all traveling
along the
same *path*
through the
water.

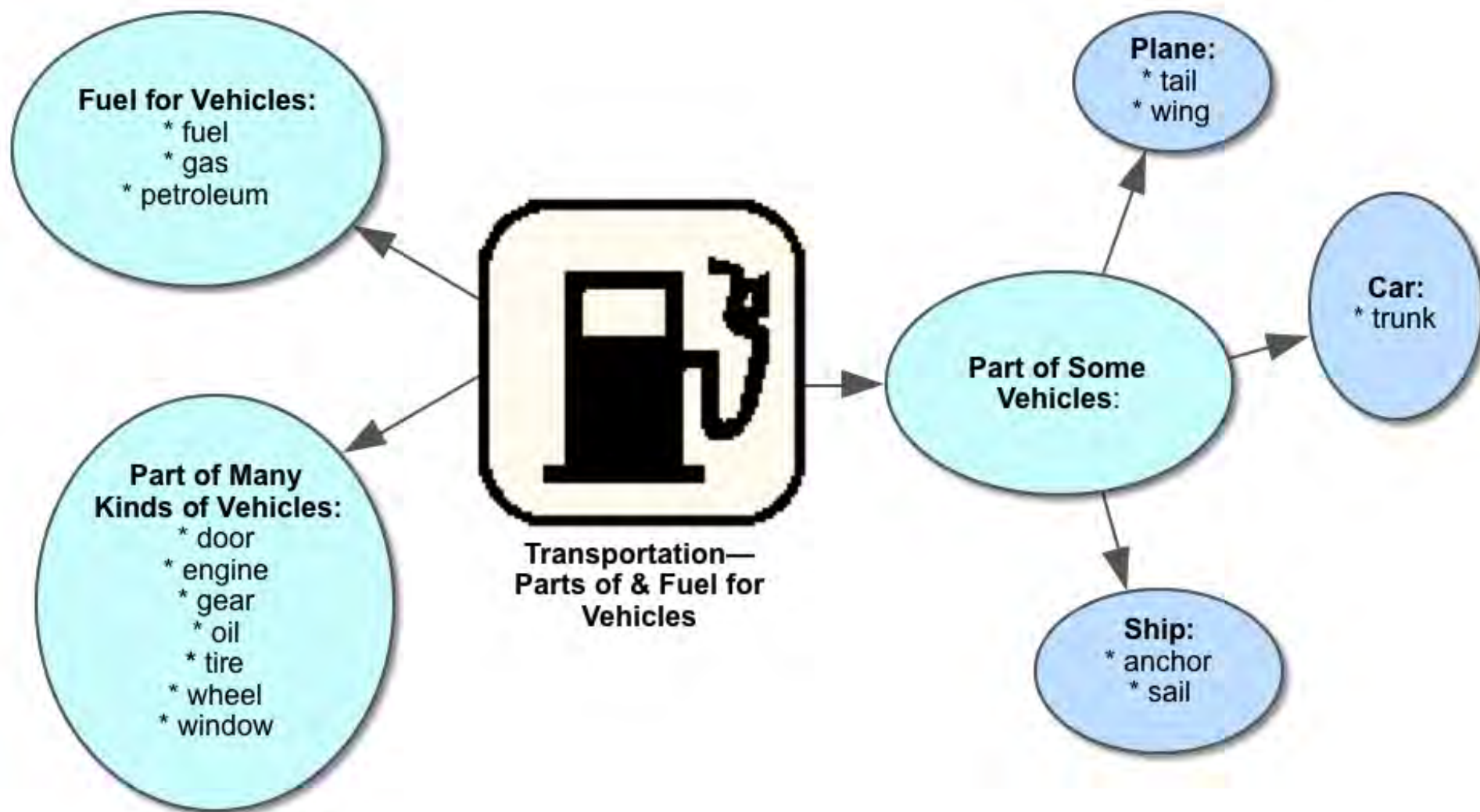


tunnel

(tun·nel)



Tunnels take train tracks and roads under bridges or underground.



engine

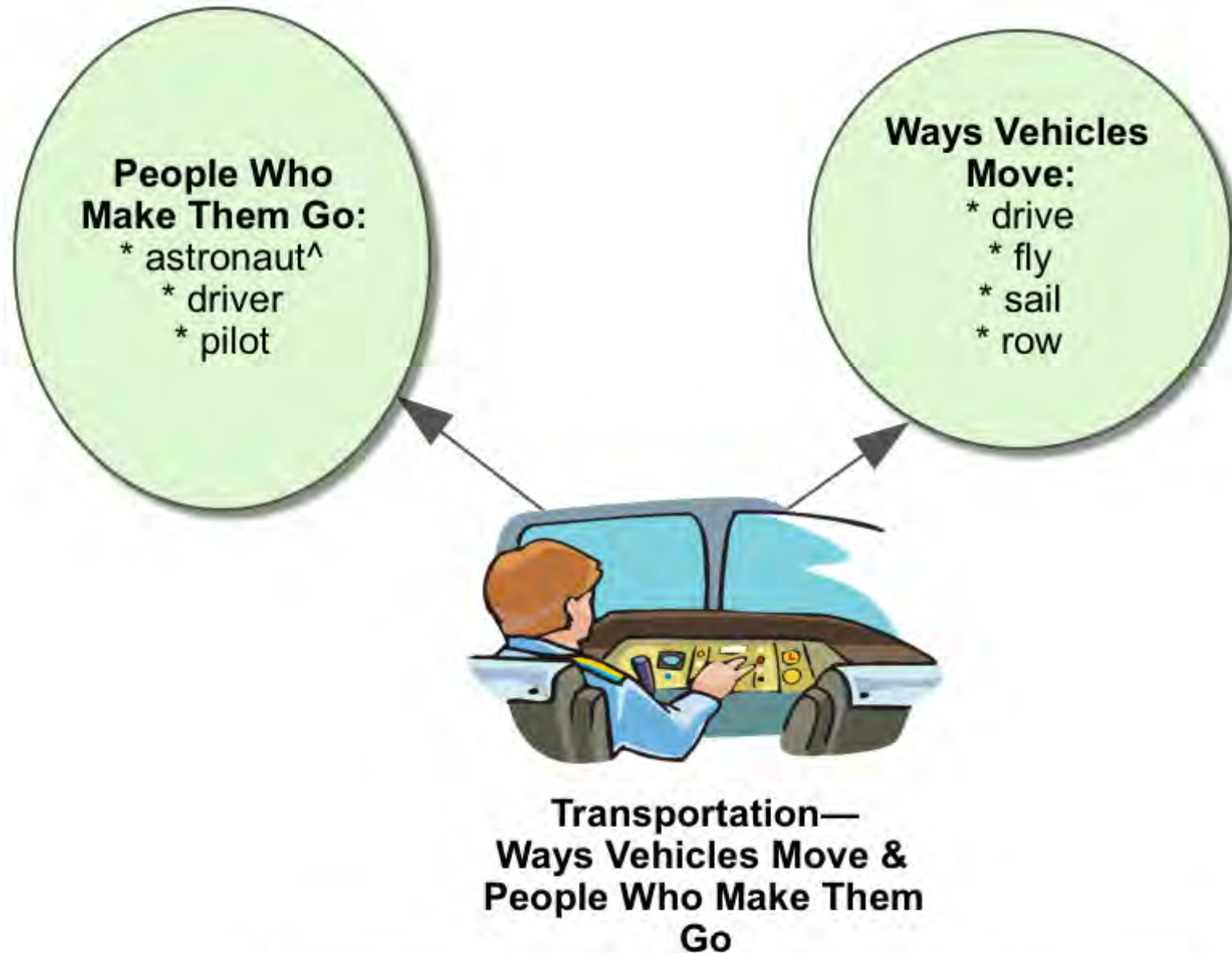
(en·gine)



Photo: V8 engine compartment in a 1966 Rambler. November, 2009. Released into public domain by Christopher Ziemnowicz in en:wikipedia.

sail
(sail)





^ non core vocabulary words added to supplement concept

astronaut

(as·tro·naut)



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pilot

(pi·lot)



4. Put a priority on instruction of text selection

- Students have views of what makes texts hard or easy. Find out what they are.
 - As they get older, they make choices as to whether they're going to read a text or not—including on assessments.
- Teaching about the presence of core vocabulary and of hard words & also changes within texts

Talking
Points

For
Teachers

1.1. 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?

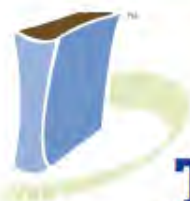
- Take a portion of the text (25 or 50 words is enough). Use a highlighter to mark the words in the 1,000-2,000 most-frequent words (list on textproject.org)
- Mark the words that are potentially challenging with a different colored highlighter. (List of 4,000 simple word families at:
<http://textproject.org/classroom-materials/lists-and-forms/lists/word-zones-for-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-artsliteracy/grade-7-reading-informational-text-\(Amelia-Earhart-2\)](http://www.parcconline.org/samples/english-language-artsliteracy/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.

5. Ask publishers for additional information on vocabulary of texts they are selling

Help! A Story of Friendship					Families working together				
		Big Red Lollipop		Not Norman		Lola and Tiva			
bandaged	1	bedtime	1	bubbles	1	begged	1	a.m	
bouquet	1	boots	1	curtains	1	biting	1	chickens	
gasp	1	celebrate	1	dipping	1	conservancy	1	chores	
gossip	1	chocolates	1	emily	1	full-grown	1	customers	
grabbed	1	closet	1	flapping	1	gallon	1	drills	
hello	1	dining	1	flipping	1	grab	1	michigan	
hesitated	1	fool	1	furry	1	kenya	1	outdoor	
hobble	1	greedy	1	glance	1	licked	1	repair	
insist	1	hips	1	goofy	1	nap	1	shovels	
knot	1	knock	1	googly	1	posed	1	stove	
scaring	1	mana	1	gunky	1	shrubs	1	tractors	
shade	1	okay	1	hamsters	1	shy	1	tuesday	
shhhhh	1	rat	1	jenny's	1	sunscreen	1	jam	
silly	1	rubbing	1	lizards	1	twigs	1	rene	
spiders	1	scoots	1	mice	1	wandered	1	strawberries	
wishywishywis									
hy	1	scurries	1	outta	1	wildlife	1	gelder	
hop	2	shame	1	rescue	1	wrap	1		
mice	2	shelf	1	scared	1	baths	2		
prickles/ly	2	shove	1	screaming	1	hook	2		
rescue/d	2	skitters	1	slide	1	roam	2		
skunk	4	sofa	1	snaps	1	wallow/ing	2		
squirrel	8	tap	1	swap	1	calf	3		
hedgehog	24	weird	1	swaying	1	drank	3		
		cake	2	tuba	1	rangers	3		
		candies	2	twitches	1	bugs	4		
		cream	2	wanna	1	puppy/puppies	4		
		plead	2	yikes	1	rhino/'s/ceros	9		
		ruby	2	chase/ing	2	lewa	10		
		they'll	2	fin/s	2	tiva/'s	18		
		toys	2	goldfish	2	lola/'s	35		
		whistle	2	lesson	2				
		beg/ing	3	maestro	2				
		fridge	3	pups/ies	2				
		rubina/'s	3	screech	2				
		screams	4	austin	3				
		maryam	5	scratch	3				
		triangle	5	glu/glug/s	7				
		wanna	5	norman	26				
		invite/d/							
		invitation/s	10						
		lollipop	8						
		sana/'s	20						
		ami	22						



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