

The View of Text Complexity Within the Common Core Standards: What Does it Mean for Struggling Readers?



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The Goal of the Text Complexity Standard of the CCSS/ELA



- By the time they complete high school, students must be able to read and comprehend independently and proficiently the kinds of complex texts commonly found in college and careers.

Today's Presentation



- **WHY:** The rationale for an emphasis on text complexity
- **WHAT:** The view of capacity for text complexity
- **WHERE:** Students' proficiency relative to the goal
- **HOW₁:** Malleable factors that contribute to text complexity
- **HOW₂:** Growing capacity for complex text

1. WHY: Rationale for Text Complexity

- **Reported decline in high-school level text:** More 8th & 10th graders are on track for college-level reading than late juniors/early seniors (ACT, 2006, *Reading between the lines*)
- **Increase in text difficulty of college/career texts:** College professors assign more periodical reading than high school teachers (Milewski, Johnson, Glazer, & Kubota, 2005). Difficulty of scientific journals and magazines increased from 1930 to 1990 (Hayes & Ward, 1992).
- **Claimed decline in school texts overall:** “K–12 reading texts have actually trended downward in difficulty in the last half century.” (CCSS/ELA, Appendix A, p. 2)
 - Decrease from 1963 to 1975 in difficulty of Gr. 1, 6, & 11 texts (Chall, Conard & Harris, 1977).
 - Decline in sentence length and vocabulary in reading textbooks (Hayes, Wolfer, & Wolfe (1996)

2. **WHAT?** The view of text difficulty



Qualitative

Quantitative

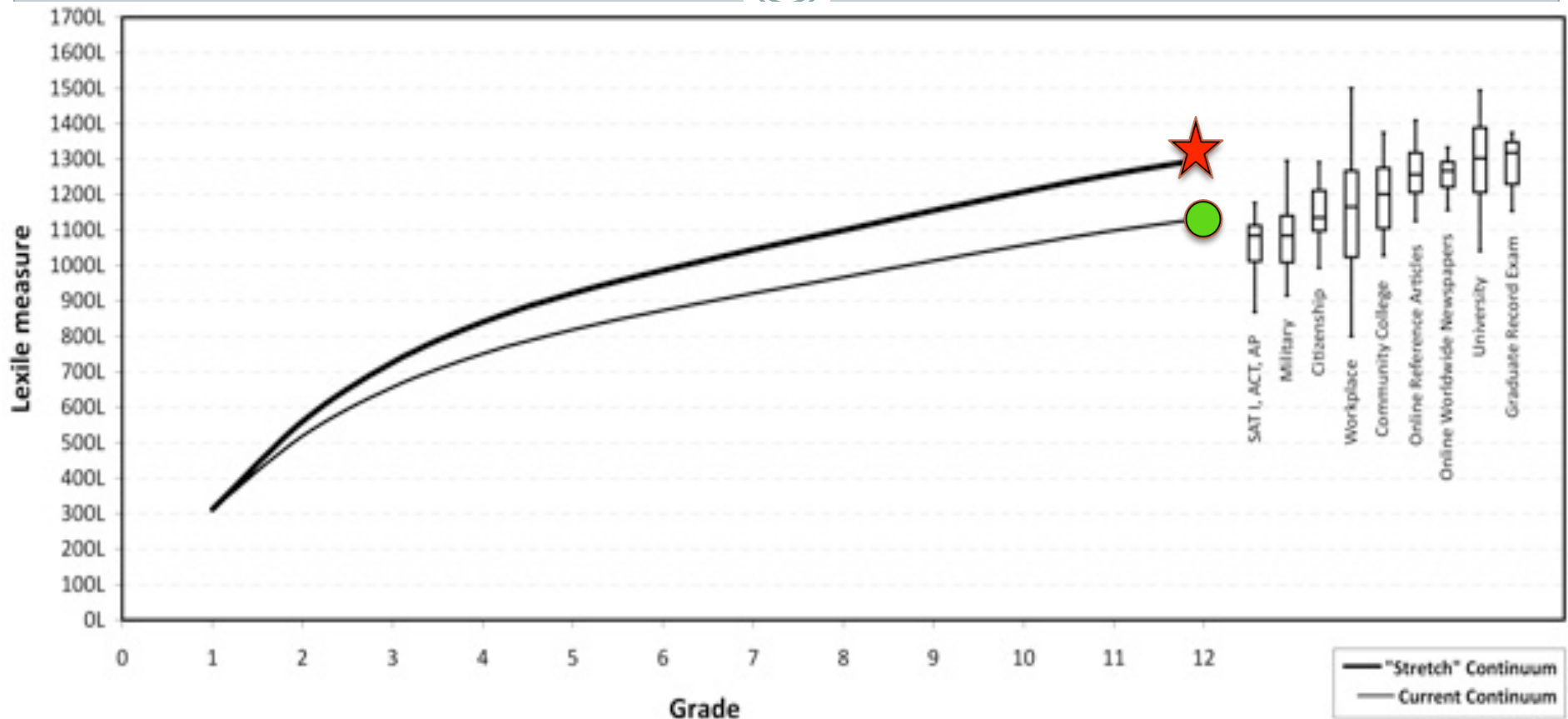
Reader and Task

Quantitative Measures: Lexiles



- Lexile units are based on word frequency and sentence length. Word frequency is calculated based on words in Lexile databank (almost one billion).
- Lexiles range from 0 (beginning reading) to 2000 (highly technical texts). A grade level difference is approximately 100 Lexiles. However: reliable scoring does not begin until second grade (Lexile range of 350-400).

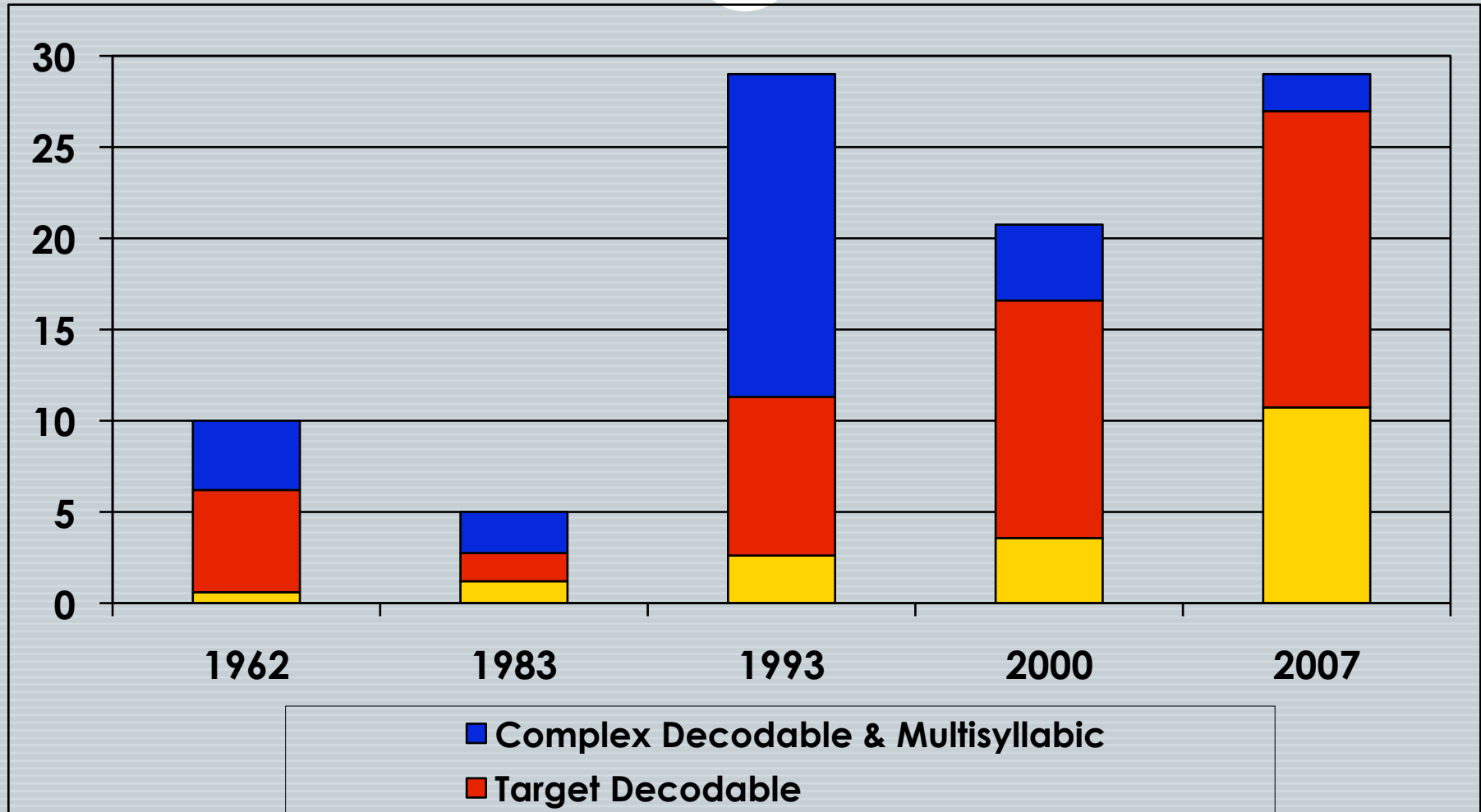
Metametrics Solution



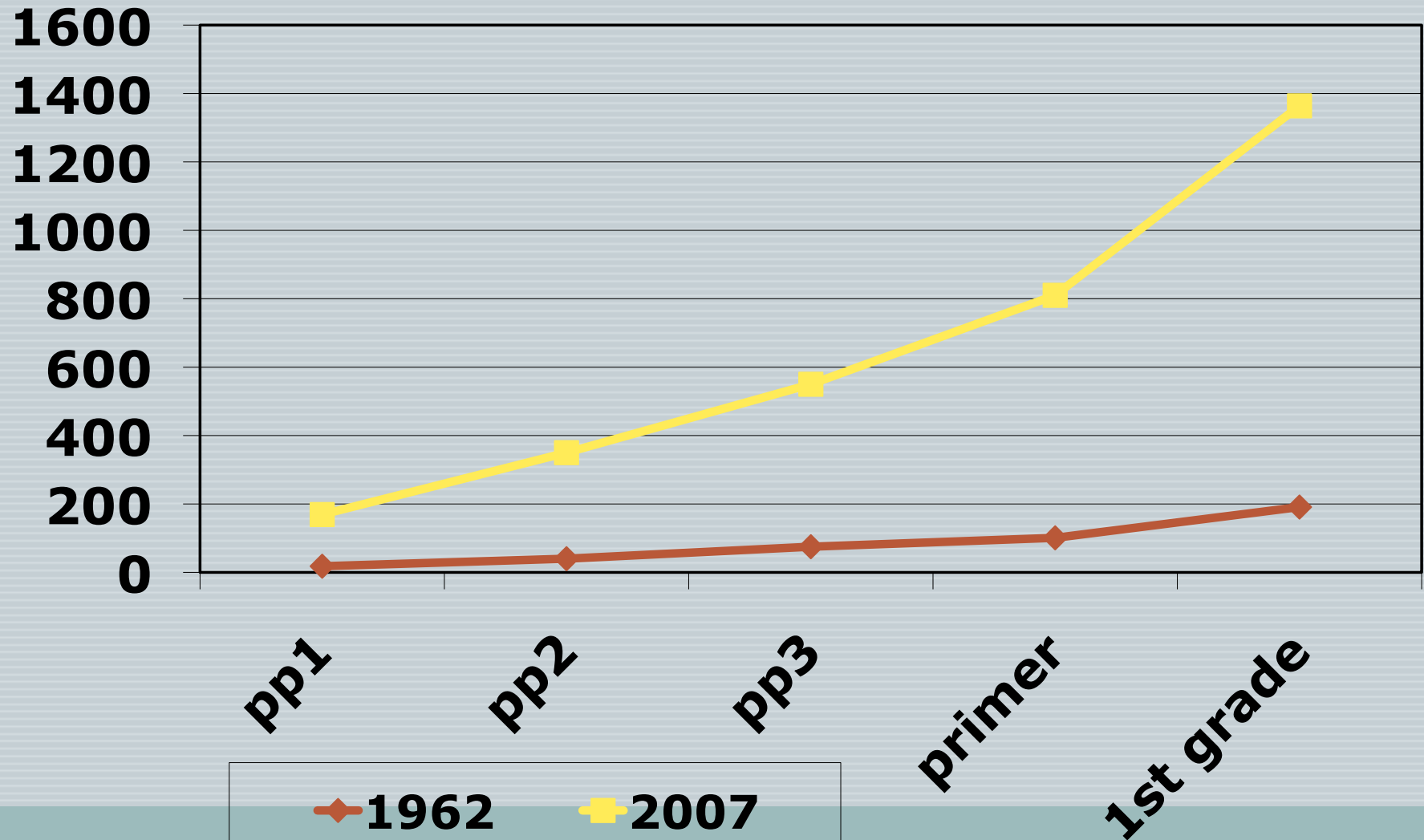
Stenner, A. J., Koons, H., & Swartz, C. W. (in press). *Text complexity and developing expertise in reading*. Chapel Hill, NC: MetaMetrics, Inc.

REFUTING CLAIMS RE DECLINE IN GR 1 TEXTS

Types of Unique Words (per 100 Words of Text)



Unique Words per Unit: Grade 1



New (Common Core State Standards) & Old (Metametrics)



	450-600	600-750	750-900	900-1,050	1050-1200	1200-1350
2-3						
4-5						
6-8						
9-10						
11-CCR						

	New/CCS Text Difficulty Range
	Old Text Difficulty Range (Metametrics)

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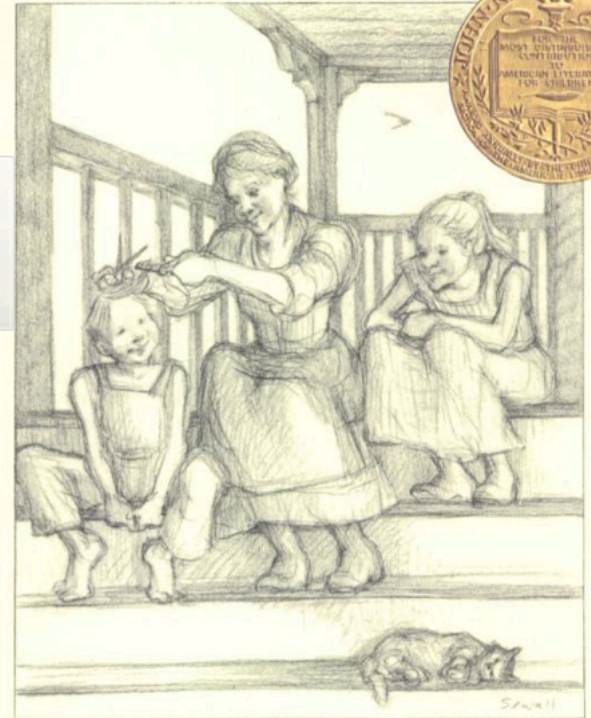


T R O P H Y N E W B E R Y

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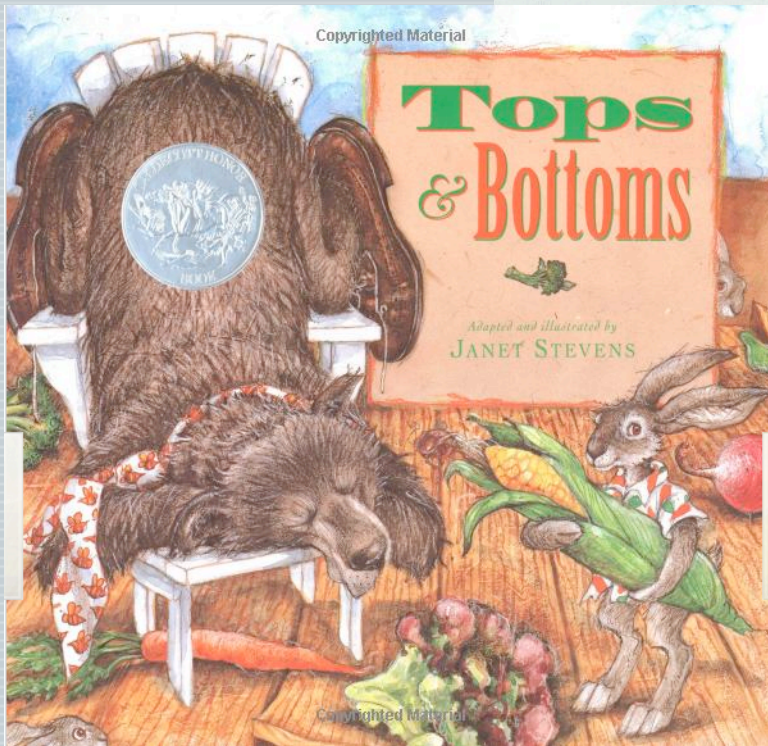
Sarah, Plain and Tall

Patricia MacLachlan



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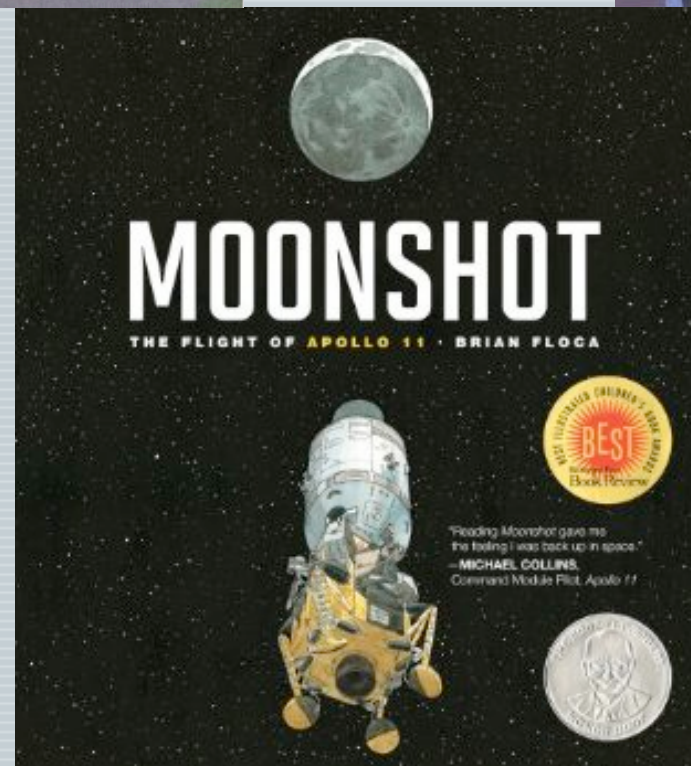
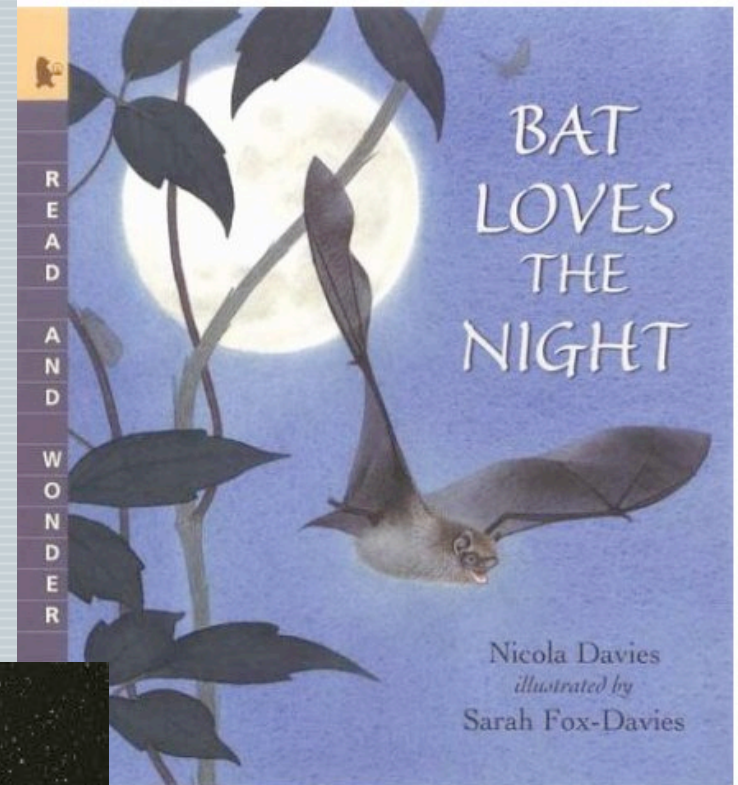
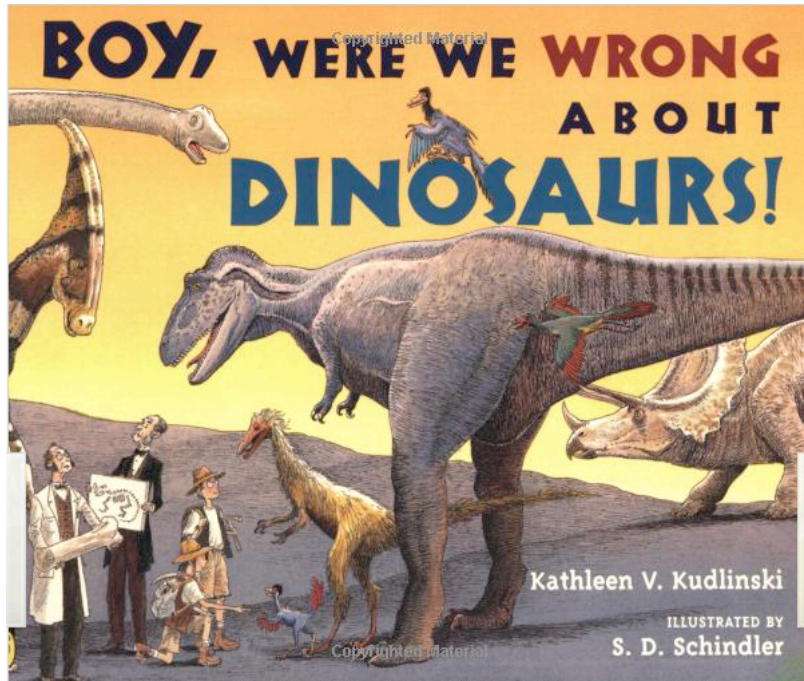
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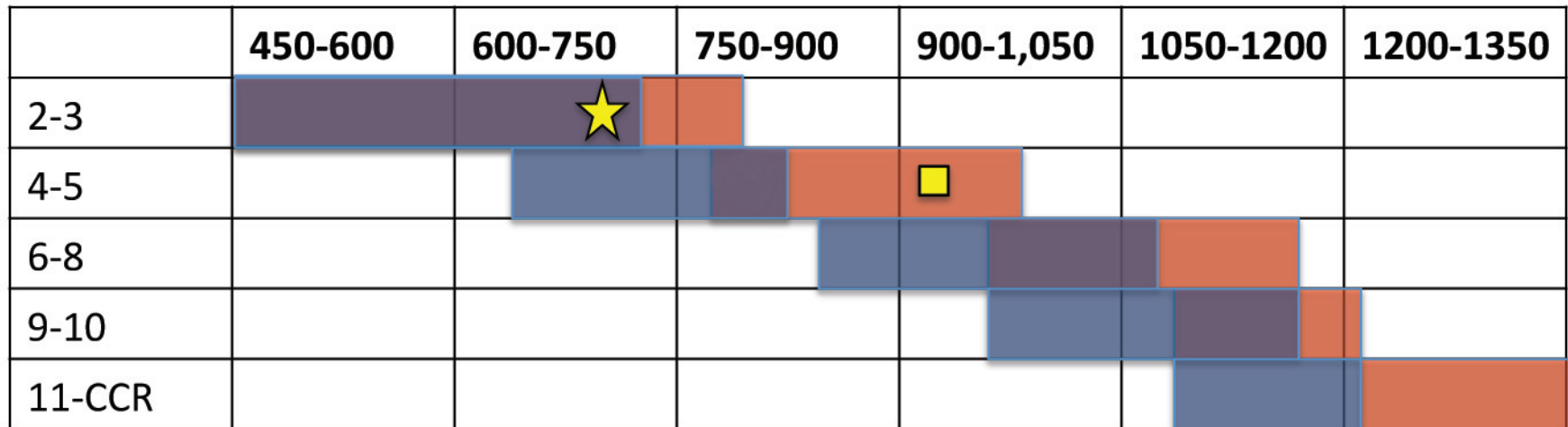
**Tops
& Bottoms**

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Summary of Text Difficulty: Elementary Exemplars

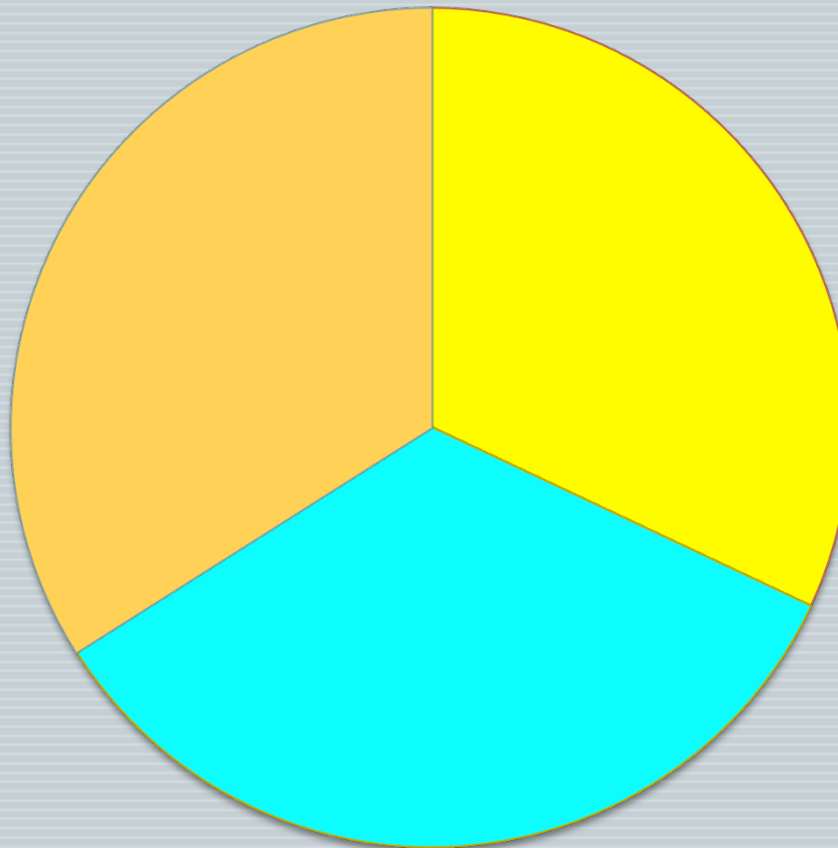


Average level of Gr. 2-3 exemplars provided by CCS

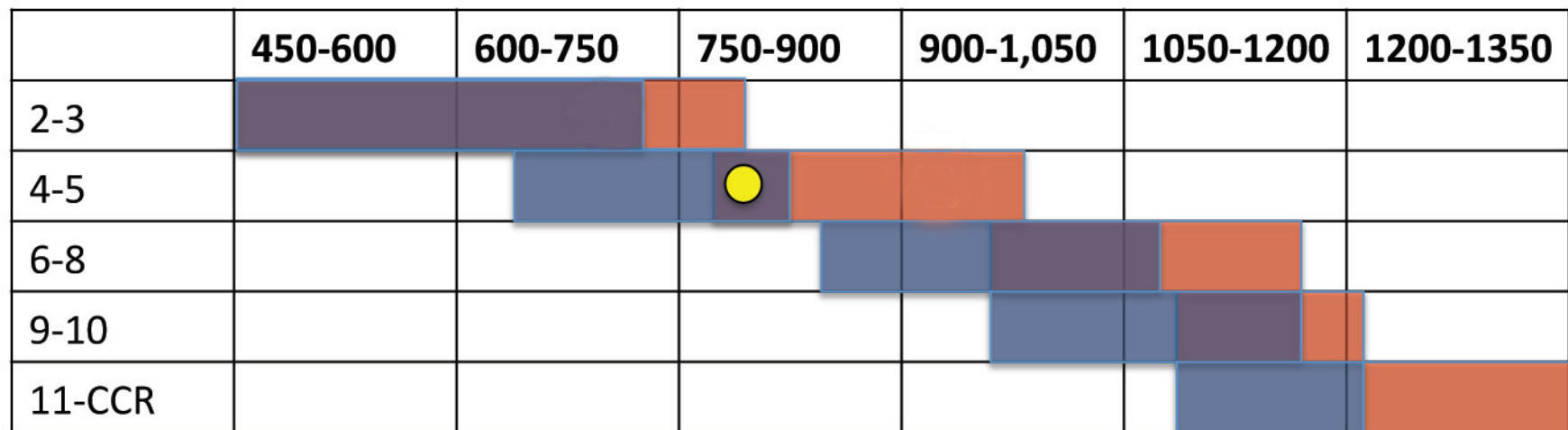


Average level of Gr. 4-5 exemplars provided by CCS

3. **WHERE?** Students' Proficiency relative to the goal National Assessment of Educational Progress (2009)(4th Gr.)



- **Proficient & Above**
- **Basic**
- **Below Basic**



Average Level: National Assessment of Educational Progress (Gr. 4)

Specific Data: Special NAEP studies

1994 Oral reading text (Pinnell et al., 1995) (311 words)

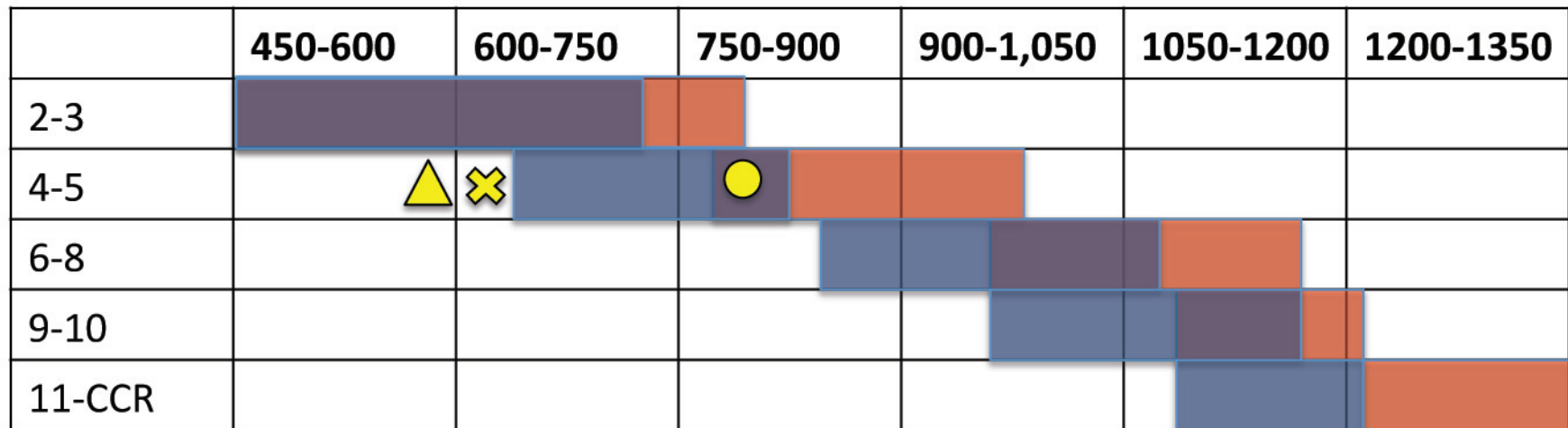
Spider was a hungry one, he always wanted to eat. Everybody in Ashanti knew about his appetite. He was greedy, too, and always wanted more than his share of things. So people steered clear of Spider.

But one day a stranger came to Spider's habitation out in the back country. His name was Turtle. Turtle was a long way from his home.

2004 Oral reading text (Daane et al., 2005) (198 words)

Soon the house was buzzing with excitement. Megan sat on the stool watching while Mom and Aunt Nancy prepared the birthday dinner. Dad wouldn't be back for at least two hours. Jason wandered outside trying to think of something to do, but his thoughts kept returning to the box in the barn.

Difficulty of Texts in NAEP Special Studies



	Average Level: National Assessment of Educational Progress (NAEP; Gr. 4)
	Hungry Spider (used in 1994 special NAEP study)
	Box in a Barn (used in 2004 special NAEP study)

4. **HOW₁?** Identifying malleable (teachable) factors that contribute to text difficulty



I. Text Features

- Syntax?*
- Vocabulary*
- Cohesion
- Length

*Variables that are part of
Lexiles/typical readability
formulas

II. Genres

- Narrative
- Informational

Teachable Factors I: Text Features



Source of Text	Grade	# of Texts	Lexile	Sentence Length	MLWF
CCS/ELA	2-3	24	686.3 (217.4)	10.7	3.6
NAEP	4	18	816 (195.9)	12.7	3.6
CCS/ELA	4-5	28	940 (162.5)	14.3	3.4

From E.H. Hiebert (November, 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.

Intra-Lexile Measures



CCS/ELA Exemplar Sample (Hiebert, 2010)

- Lexile & Sentence Length: .86
- Lexile & MLWF: -.51

K-1 set of 444 texts (Hiebert & Pearson, 2010)

- Lexile & Sentence Length: .57
- Lexile & MLWF: .06

Texts equated on vocabulary (MLWF = 3.4) but different syntax



**The Birchbark House: 700
Lexile, 9.94 (SL)**

Startled, Omakayas slipped and spun her arms in wheels. She teetered, but somehow kept her balance. Two big, skipping hops, another leap, and she was on dry land. She stepped over spongy leaves and moss, into the woods where the sparrows sang nesting songs in delicate relays.

**King Midas: 910 Lexile,
12.87 (SL)**

There once lived a very rich king called Midas who believed that nothing was more precious than gold. He loved its soft yellow hue and comforting weight in the palm of his hand. The chink of gold coins dropped into a leather purse sounded sweeter to him than the songs of his finest musicians.

Teaching Syntax: What do we know?



- Features of complex sentences such as clauses, phrases, and modifiers can influence comprehension (DiStefano & Valencia, 1980).
- Instruction in writing with a focus on combining sentences has been shown to affect comprehension (e.g., Hunt, 1965).
- However, research on “intervening in syntax” as part of reading instruction is almost nonexistent.

Texts equated on syntax (9.9) but different vocabulary



**The Birchbark House: 700
Lexile, 3.4 (MWLF)**

Startled, Omakayas slipped and spun her arms in wheels. She teetered, but somehow kept her balance. Two big, skipping hops, another leap, and she was on dry land. She stepped over spongy leaves and moss, into the woods where the sparrows sang nesting songs in delicate relays.

**Dishpan Ducks: 630 Lexile,
3.6 (MWLF)**

Rosa walked home from school slowly. The rows of apartment buildings and the streets full of cars looked all the same. And it was cold.

Rosa missed her country. She had begun to learn some English, but she did not know what to say or what to do when other kids were around.

Teaching Vocabulary: What do we know?



- We know a substantial amount about *how* to teach vocabulary (although *what* to teach has been more elusive).
- But significant effects on standardized tests have not been extensive. One explanation may be that the selection of vocabulary on assessments, like instruction, assessment is ungrounded & inconsistent (Nagy & Hiebert, 2010; Pearson, Hiebert, & Kamil, 2007)

Understanding MLWF: View 1



Table 5.
Distributions of WordZones (Hiebert, 2005) for Narrative Texts Classified by
MLWF

	MLWF 3.9	MLWF 3.5	MLWF 3.1
0-2	85	77	85
3	8	5	4
4	4	6	4
5	4	10	4
6	0	1	4

Understanding MLWF: View 2



WordZone	Narrative (MLWF3.1)	Expository (MLWF3.0)
4	wandered quarters delicate mysterious ugly	hatch mission circuits cameras orbit
5	stammered wrung governess cholera disagreeable	ignite cubes switches helmets bolts
6	toddling tyrannical Fretful hibiscus imploringly	countdown velcro unclick onboard liftoff

Teachable Factors II: Genre



	Lexile	MSL	MLWF
Narrative	749.7	11.9	3.6
Expository	884.5	13.3	3.4

Lexiles & Genres



- Concern of CCS/ELA: Concern that Lexiles underestimate the difficulty of narrative texts as in “simple, familiar language to convey sophisticated ideas, as is true of much high-quality fiction written for adults and appropriate for older students.”
- Traditional concern of researchers: Readability overestimate the difficulty of expository texts in that every appearance of a content word is counted uniquely.

Summary: Identifying Malleable Factors

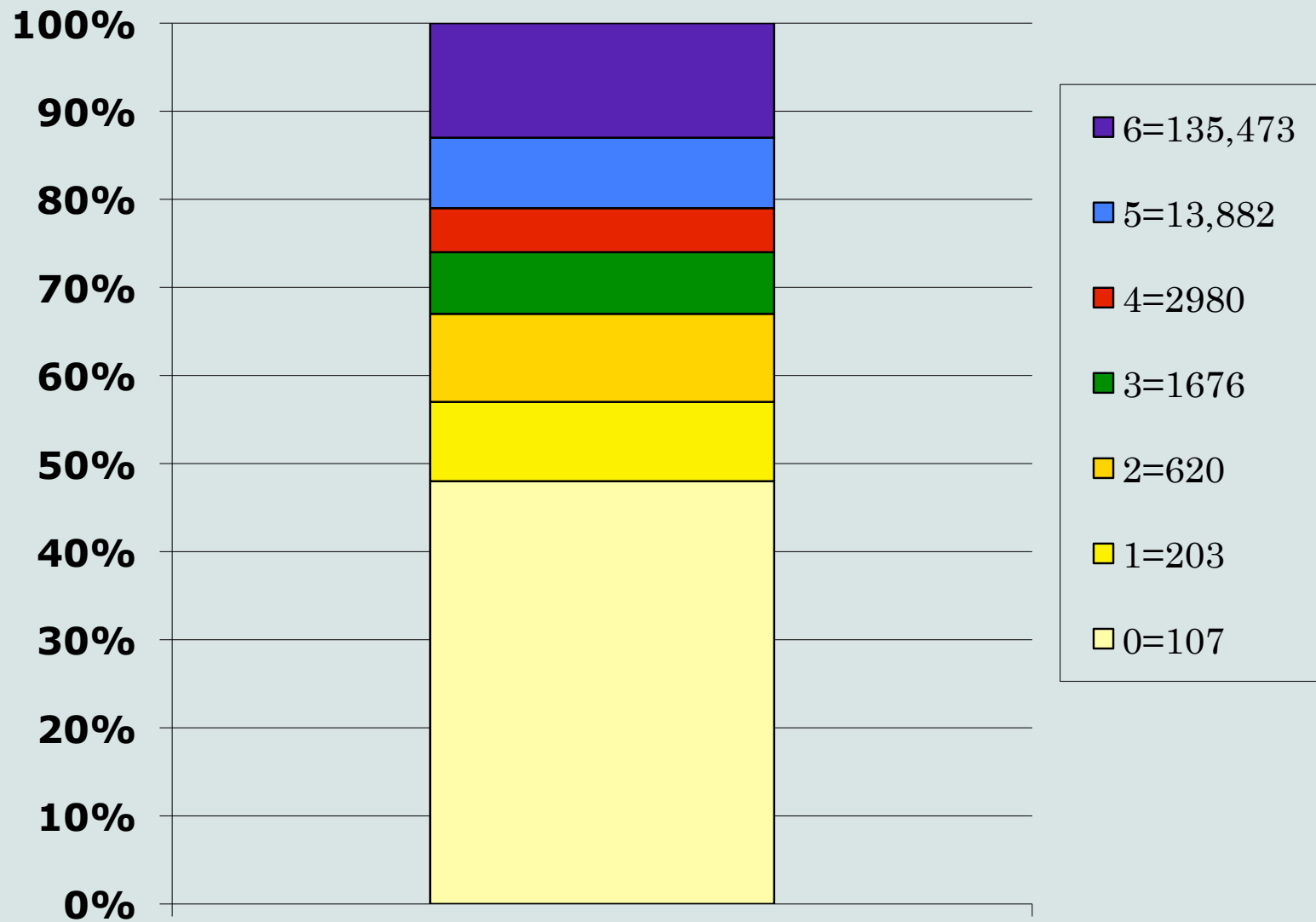


HOW 2: INCREASING CAPACITY FOR COMPLEX TEXT



- **HOW2.a:** Opportunities to develop automaticity with core content (both vocabulary & concepts): The Core Vocabulary Curriculum
- **HOW2b:** Opportunities to grow vocabulary strategically
 - Most critical front for work: Strategic selection of literary vocabulary

DISTRIBUTION OF WORDS IN SCHOOL TEXT



(Zeno et al., 1995)

Core Vocabulary Curriculum: Ensuring automaticity with high-leverage words

Level A	300 most frequent words; short and long vowels
Level B	600 most frequent words; short, long and r controlled vowels
Level C	1000 most frequent words; all monosyllabic words
Level D	1000 most frequent words; monosyllabic words; two-syllable words with regular vowel patterns
Level E	2,500 most-frequent words (plus monosyllabic words)
Level F	5,000 most frequent words (plus monosyllabic words)

Making Movies

You've probably seen many movies, so you know that movies can be about many different things. Sometimes writers **create an idea for a movie. At other times, ideas for movies come from books.**

Any kind of book can be used to make a movie. Some books may tell stories the writer created. Others may be about real people and places.

When a movie is based on a book, movie-makers decide how closely to follow the book. They decide how the people and places in the book will look and which parts of the story they will show.

Making **fantasy** real

Some movies are based on fantasy books. In fantasy books, writers **imagine** a world of people and places that are not real. It is the job of the movie-makers to show the world that the writer imagined.

When the three Lord of the Rings books were made into movies, it took about 300 different sets to show the fantasy world the writer had imagined. Although the books were more than 1000 pages long, the three movies ran for about 11 hours. That means that the movie-makers had to show only the most important parts of the books.

Technology changes the arts

New technologies, or new ways of doing things, have changed the world. Today, we can ride in planes instead of riding on horses. That's because of new technology. We can send mail through **computers** instead of through the post office. New technologies have changed art and music, too. Although artists still use paint and musicians still play **pianos**, new technologies allow artists and musicians to create their work in new ways. Perhaps the most exciting part of these new technologies is that they have **created** new ways to create art works. Just as people still send letters through the post office, people still use paint and pianos without speakers.

Today, however, artists can paint with beams of light. Musicians can write music with computers. Technology adds richness to the ways people can create and experience the arts.

Digital photography

At first, many people thought that photography was not really one of the arts. A photograph, after all, was nothing more than a picture of something that **existed** in life. Early in the 20th century, though, people began to think of photographs as art. They understood that photographers chose their subjects and arranged them just as painters did. Today, photography is an **accepted** art form.

Although photography was once a new technology, digital photography has become an even newer technology. Digital **cameras** store photos on **memory** chips, not on film. Photographers using this new technology do not need a darkroom. Instead, they load their images on a computer and print them on a printer. Artists can easily change the colors, sizes, and shapes of their subjects on a computer screen. Digital photographers can also create photographs that look like paintings.

Level F

What does the nervous system do?

Although your body's systems work together, each one has a special job. The job of the nervous system is to manage the other system.

Your nervous system is made up of your brain, spinal cord, and nerves. Your brain is the control center of your body. Your spinal cord joins your brain to your nerves. Your nerves receive information from inside and outside your body and carry it to your brain. They also carry information from your brain to your muscles so that you can respond.

Your body has two types of responses. One is a conscious response. You think before making conscious responses, like answering a question. The other type of response is an unconscious response. You do not think before making unconscious responses. Jerking your hand away from a flame is an unconscious response. Your muscles respond before your brain tells you the flame is hot.

The control center

The human brain, which weighs about 3 pounds, is not the largest brain on earth. However, it is the largest when it is compared to the size of the body it is in.

The human brain is also the most complex brain on earth. It thinks about what is going on around it, and it plans what to do in response. Thinking is a complex process. It allows humans to decide how to respond to things. It allows humans to change themselves and the world around them. It also lets humans create things.

The three main parts of the brain are the cerebrum, the cerebellum, and the brainstem. Thinking and learning take place in the cerebrum. The cerebrum also stores memories. The cerebellum controls muscle movement. It also controls balance, keeping the body steady and stable. The brainstem manages basic life jobs, such as breathing and blood pressure.



HOW₂B: GROWING VOCABULARY



Vocabularies
of narrative
and
expository
texts are very
different and
require
different
curricula.

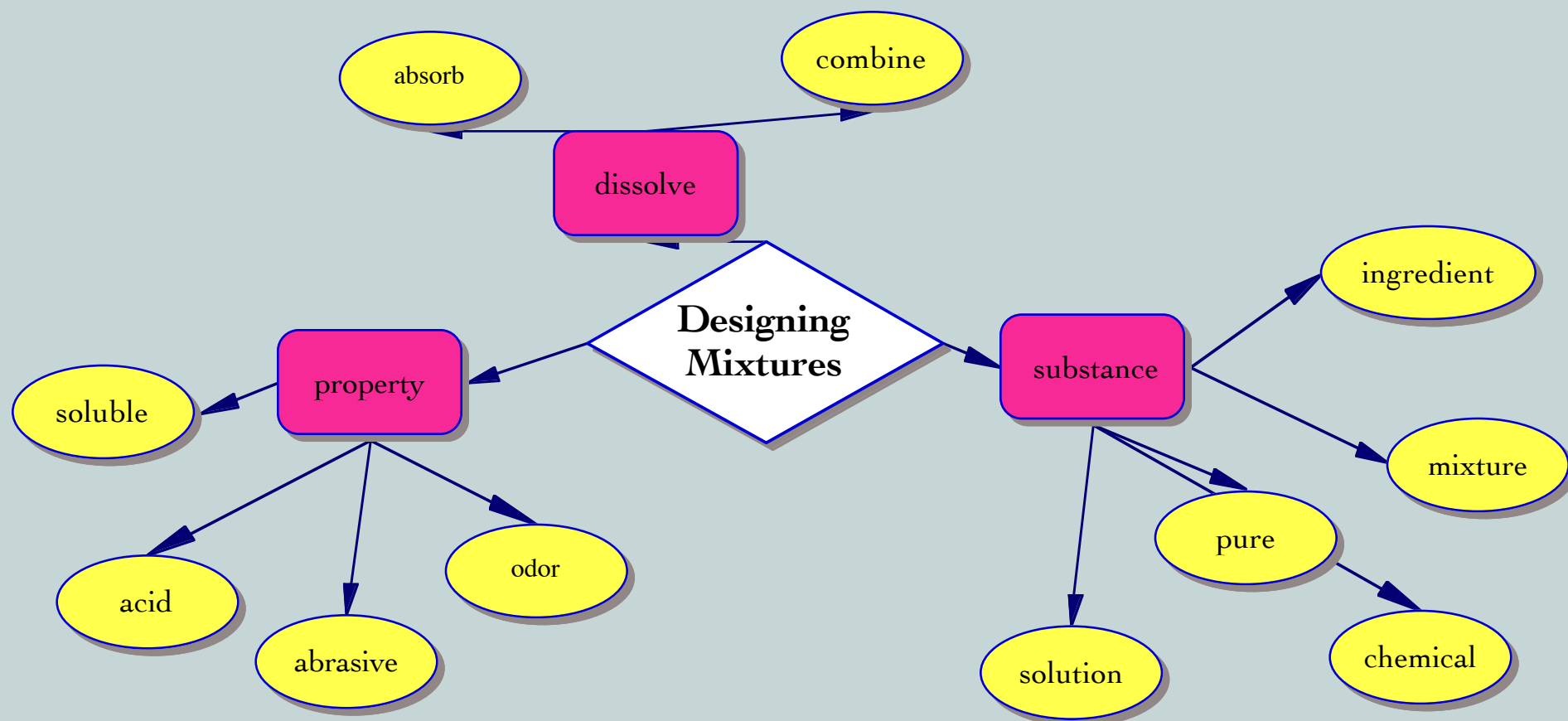
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- Study examined the thematic/semantic clustering of words within the taught/tested words in Grade 4 English/language arts (ELA) program and Grade 4 science program (*n* of 208-209 words in each).
 - ELA: 7 words per story with 1.4 words sharing a semantic/thematic cluster
 - Science: 8 words per unit with 3.2 words sharing a semantic/thematic cluster

Table 3.
Means for Features of Words in Narrative and Informational Texts



	Narrative	Informational	F (significance level)
Familiarity (LWV Grade)	6	7.5	42.752 (.000)
Frequency (U function)	13.7	39.1	28.039 (.000)
Frequency of Morphological Family	26.7	31	.275 (.600)
Dispersion Index	.60	.61	3.289 (.070)
Length	7.3	7.8	28.677 (.000)
Conceptual Complexity	1.4	2.3	

Designing Mixtures





The Stranger	Adelina's Whales	How Night Came from the Sea	Eyes of the Storm	The Great Kapok Tree
parlor	rumbling	massive	forecasts	dangle
draft	tropical	coward	inland	pollinate
frost	biologist	gleamed	expected	wondrous
terror	bluff	chorus	shatter	fragrant
fascinated	lagoon	shimmering	destruction	pollen
quaint		brilliant	surge	canopy
timid				dappled
etched				slithered

Vocabulary Megaclusters™

Narrative
Dominant

Narrative/
Content
Shared

Content
Dominant

Vocabulary Megacluster	Examples	Nar-rative	Inform-ational
Emotions/Attitudes	frightened, upset	.09	0
Character Traits	lazy, faithful	.09	0
Social Relationships	potential, unique	.02	.01

Vocabulary Megacluster	Examples	Nar-rative	Inform-ational
Communication	announce, warn	.10	.09
Characters	politicians, neighbors	.10	.07
Action & Motion	nudged, juggling	.12	.06
Comparatives & Causes	transformed, spectacular	.03	.05
Place/Events	Mexico, festivals	.06	.01
Physical Attributes (Objects, Events, Time)	patterns, overnight	.05	.08
Social Systems	movie, soccer	.06	.01

Vocabulary Megacluster	Examples	Nar-rative	Inform-ational
Human Body	sweat, gash	.03	.07
Natural Environment	sloth, hurricanes	.17	.48
Machines	plastic, computer	.08	.07

Story Word	Mega/Super/Miniclust	Size	Words in Miniclust (Beyond Story)
amazed	Emotions/Feelings/”Happy” Excitement	25	surprised jubilant ecstatic dumbfounded
fascinated	Emotions/Feelings/”Happy” Excitement	25	
marveled	Emotions/Feelings/”Happy” Excitement	25	
baffled	Communication/Mental Actions/Confused	9	confused bewildered mystified perplexed confounded
bewildered	Communication/Mental Actions/Confused	9	
stumped	Communication/Mental Actions/Confused	9	
humble	Traits/Shyness/Meek	12	reluctant retiring self-effacing
timid	Traits/Shyness/Meek	12	

WORD
CLUSTER:
FEAR--
EMOTIONS

fright (noun)

alarm****
fright
fear
shock
terror*
horror
panic
desperation

**startle
(verb)**

scare
frighten
haunt
petrify
terrify
horrify

**afraid
(adjective)**

fearful
frightened**
cautious
desperate
frantic
scarier****
terrified***

**cower
(actions
associated
with fear)**

wince
flinch
tremble*
shrink

PROMINENT
MEGACLUSTERS
WITHIN FOCUS
UNIT'S TEXTS

Text 1:
The
Stranger

stranger's emotions:
hypnotized terror
fascinated upset
trembling puzzling
terribly wrong

stranger's traits
shyly
timid peculiar

Text 2:
Adelina's
Whales

**movement of
whales:**
breaching
fluking
spyhopping
bobbing
glided
nudged pops
bumping
dove
surface
approach
rising
leaps

Text 3:
How Night
Came
From the
Sea

**sunlight/
light:**
shimmering
glittering
glistening
brilliant
gleamed
brightness
baking in
sunlight

**Metaphors for
night:**
dark, cool blanket
blue/black shadows
dark, quiet corners
quiet after crying

Text 4:
Eyes of the
Storm

actions during storm:
explosion
shatter smashed
knocked to the ground
flying through the air

storm outcomes:
destruction
wreckage
collapsed

future:
predict
forecast
expected
potential

Text 5:
The Great
Kapok
Tree

**how
characters
move:**
plodding
padded
slithered
swung
crawled
scampered
leapt
climbed
clinging
knelt

**how characters
communicate/
sounds:**
murmured
chattered
squawked
buzzed
hissed
piped
lulled
slid
howling
growled

Summary: Attending to the Malleable Factors



Summary: What do the CCSS mean for struggling readers?





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