TEXT COMPLEXITY

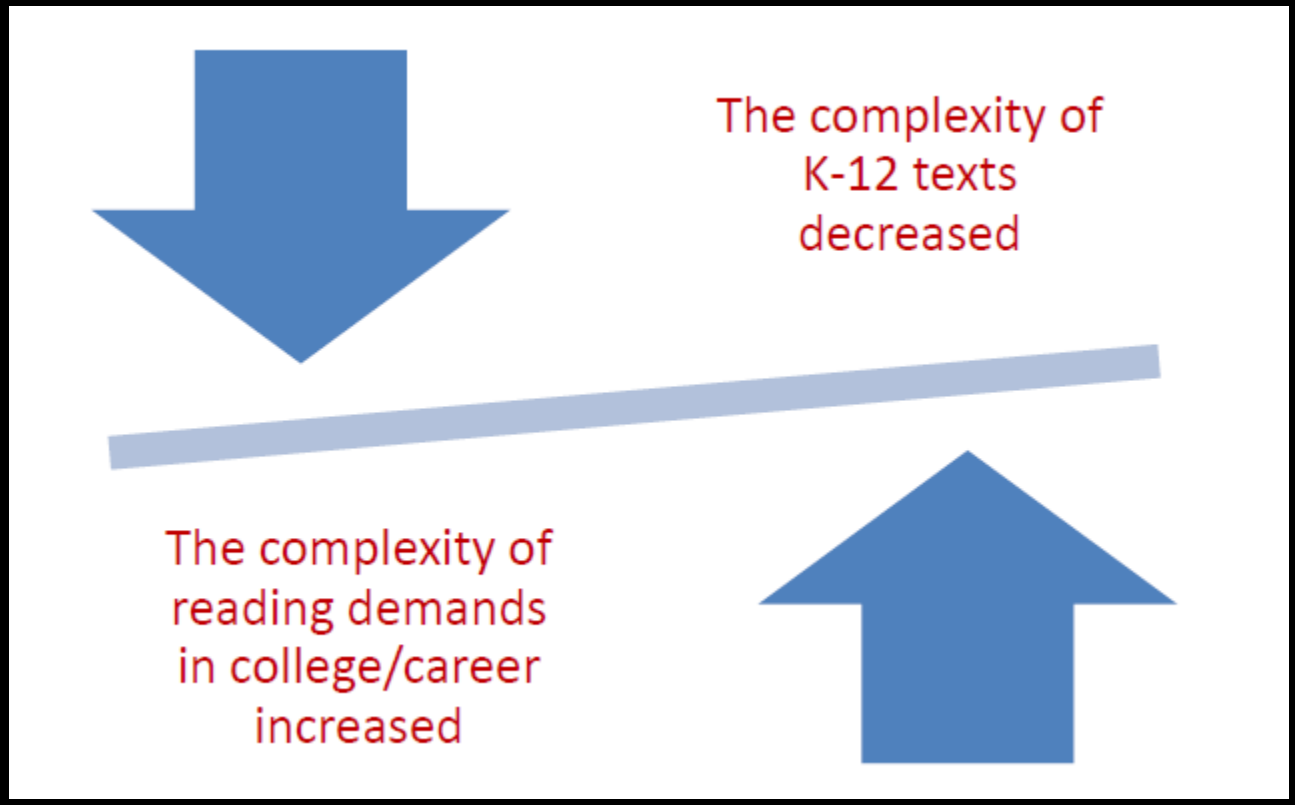
Choosing Appropriate Text for a Classroom

Objectives:

- Identify the importance of text complexity in disciplinary literacy.
- Compare the CCSS grade level expectations for text complexity.
- Identify the three tools used to evaluate text complexity.
- Examine and apply text complexity tools to determine an appropriate reading selection for a classroom.

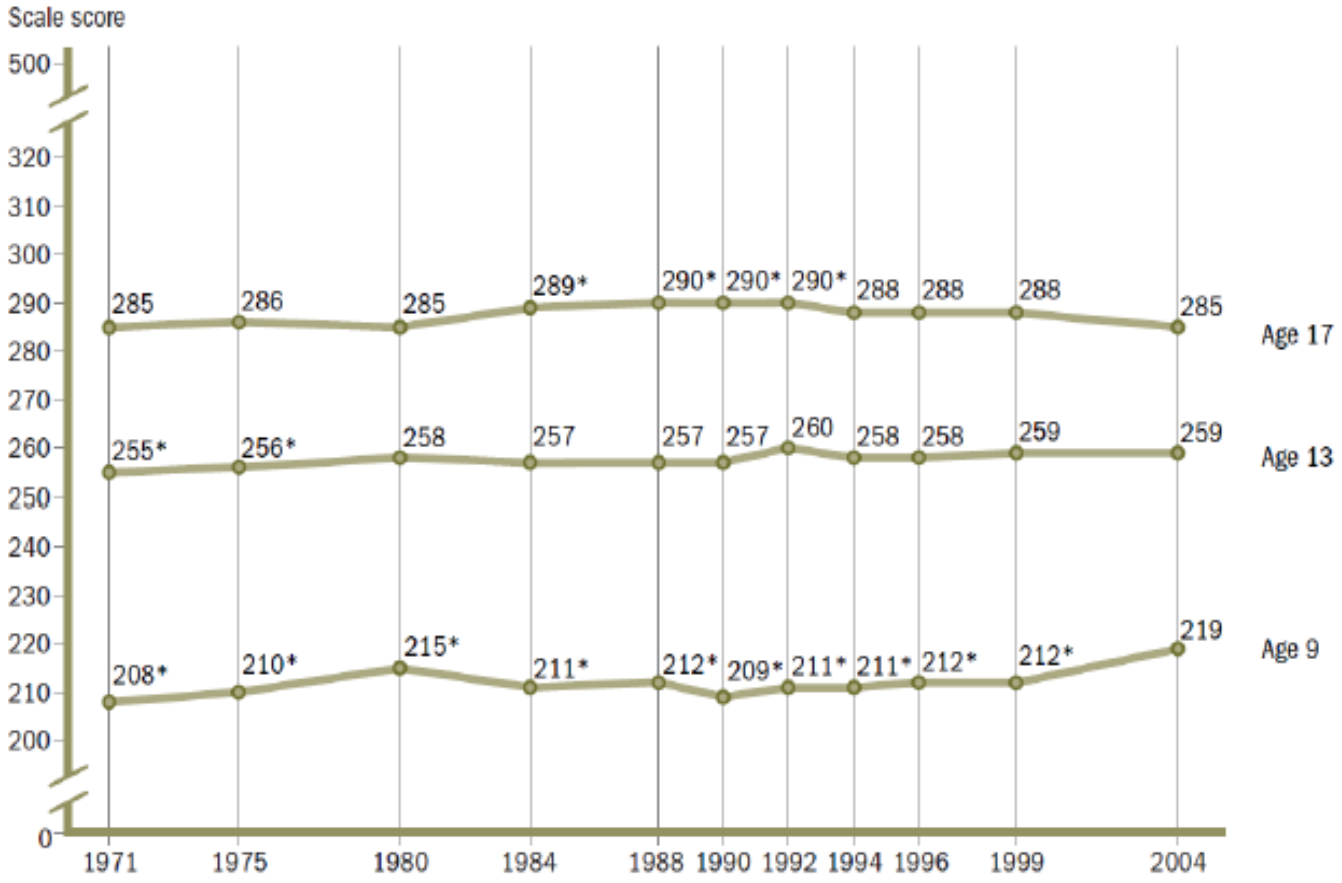
What evidence supports the importance of text complexity?

Changes in text complexity



Trends in Reading Scale Scores

Figure 2-1. Trends in average reading scale scores for students ages 9, 13, and 17: 1971–2004



*Significantly different from 2004.

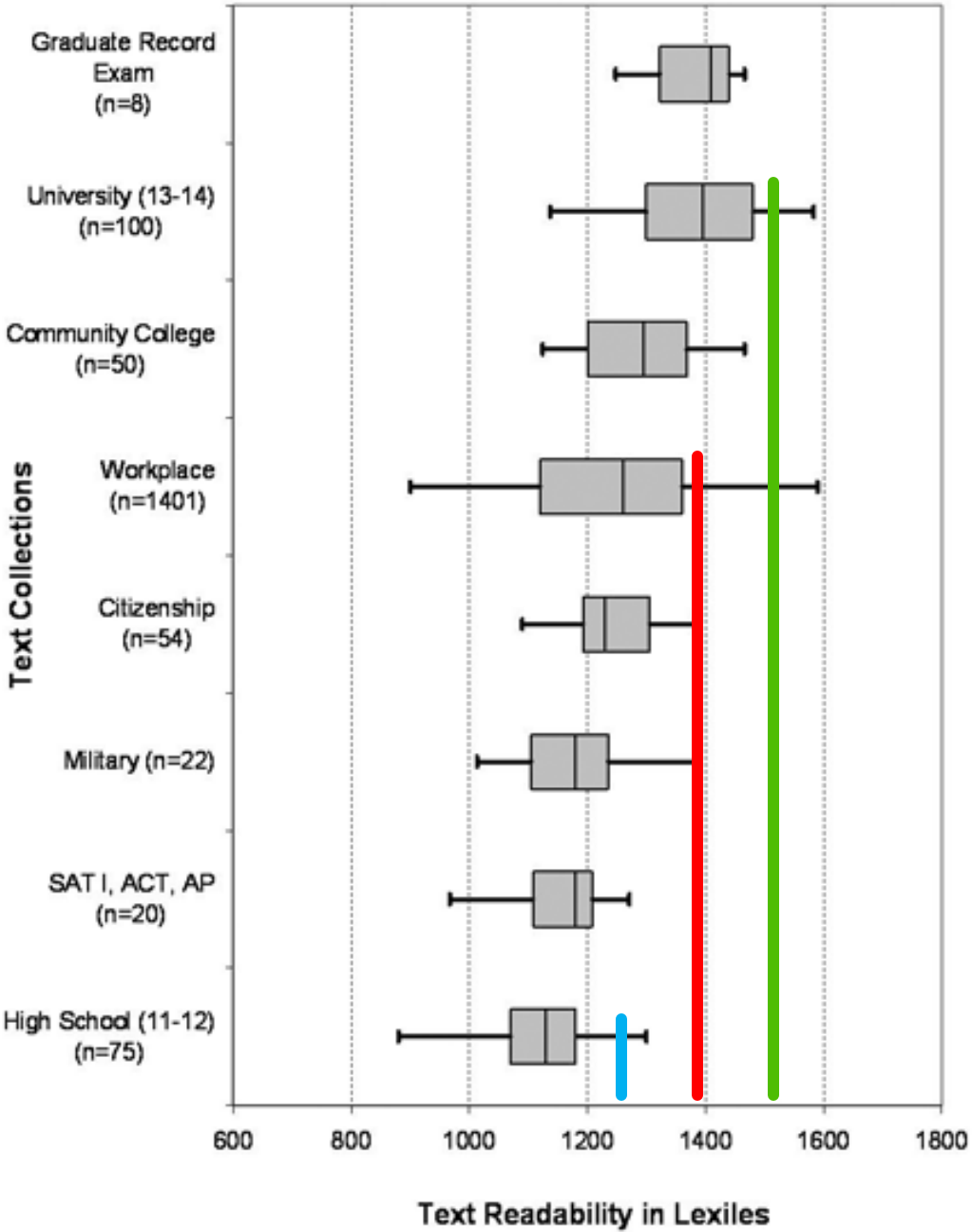
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1971–2004 Long-Term Trend Reading Assessments.

Lexile scores of common text

	Lexile
CD-DVD Instructions	1080
USA Today	1100
High School Text (11-12)	1070-1220
College Text	1215
Baltimore Sun	1250
W4 Applications	1260
Student Loan Applications	1270
Wall Street Journal	1320
Washington Post	1350

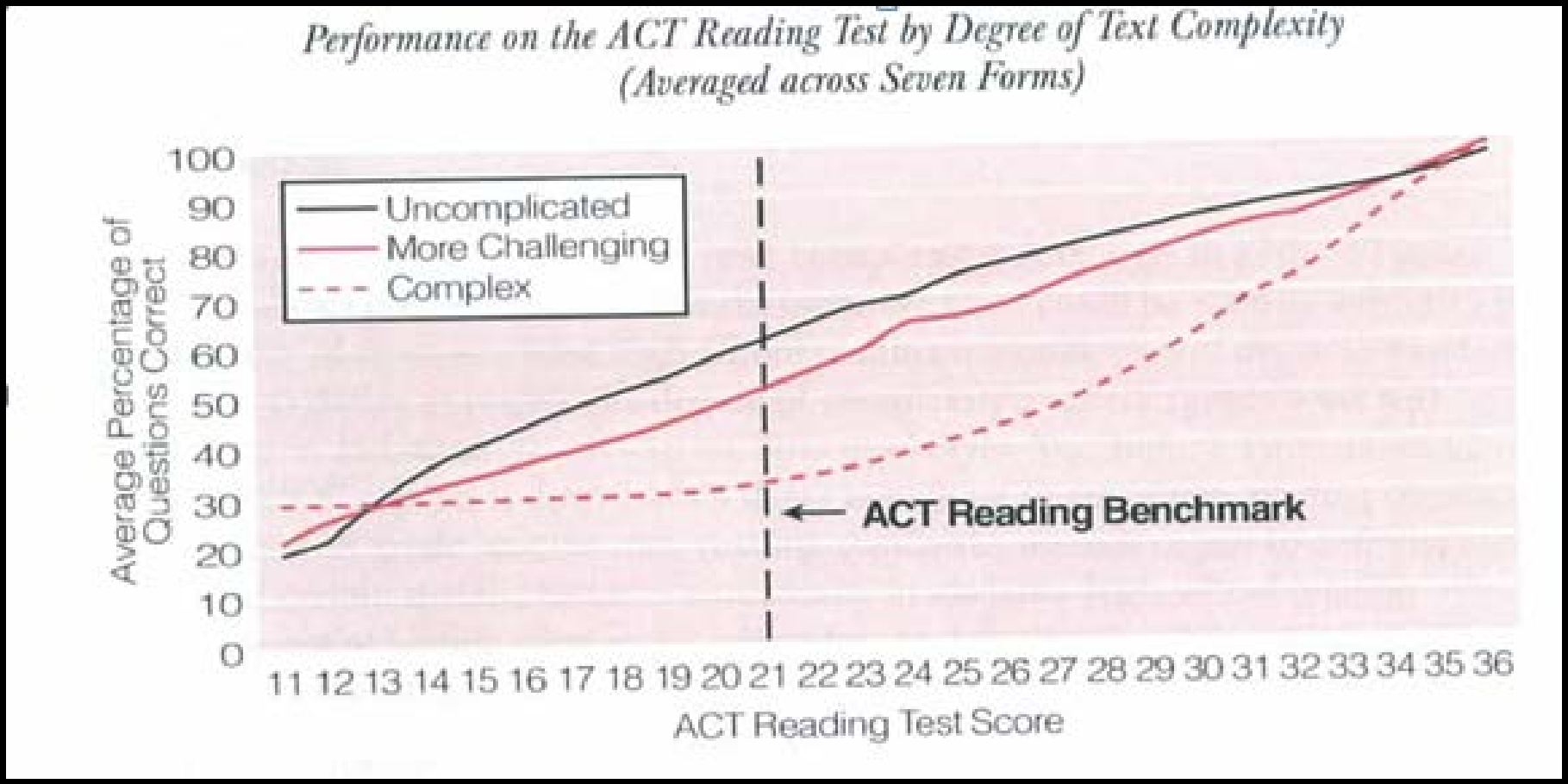
**Scores listed are averages*

Lexile Readability Scores for Key CCR Texts



There is a significant gap between the text complexity of high school texts and those required by many post-secondary pursuits.

ACT Performance and Text Complexity



- *"…what appears to differentiate those who are more likely to be ready from those who are less likely is their proficiency in understanding complex texts."*

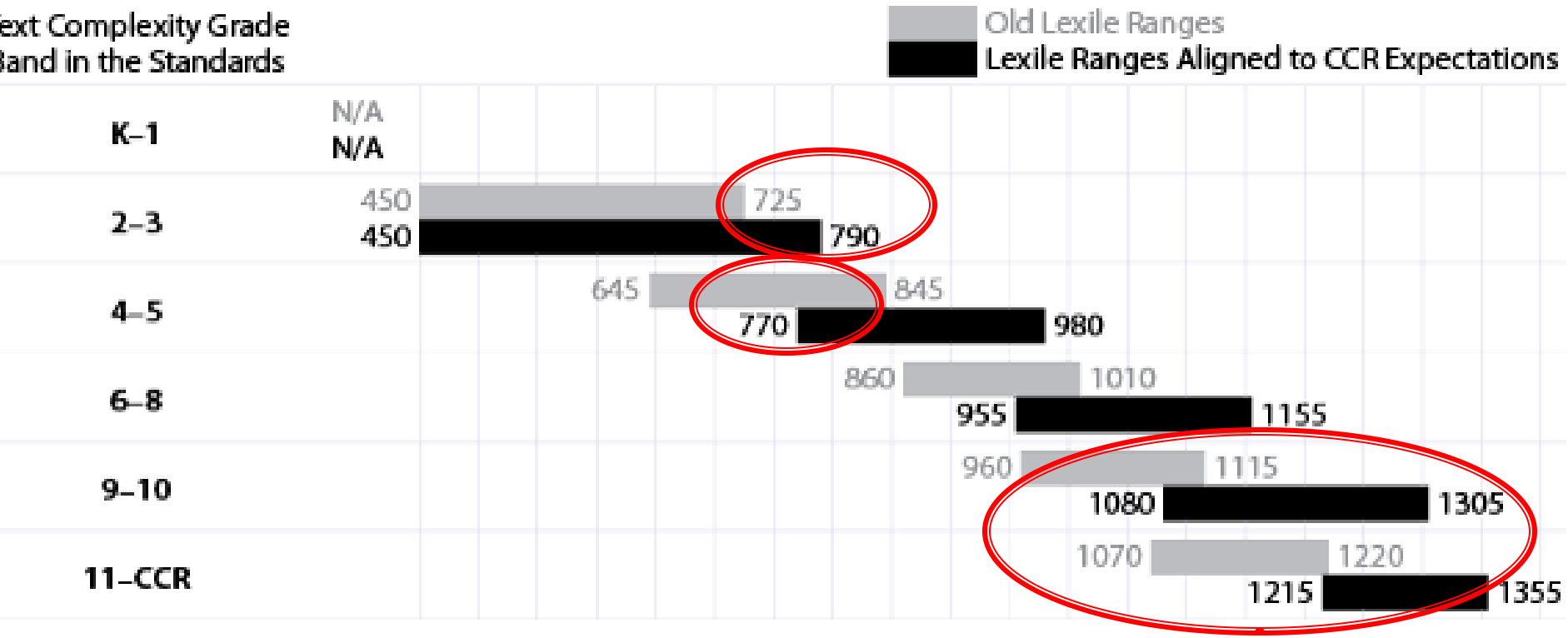
ACT – Reading Between the Lines

Why Complex Text?

- Gap between college and high school text is huge.
- What students can read, in terms of complexity is greatest predictor of success in college.
- Too many students reading at too low a level.
- Standards include a staircase of increasing text complexity from elementary through high school.

What are the expectations for text complexity in the Common Core Standards?

Implications for Instruction



Standard 10 and text complexity

Cluster: Range of Reading and Level of Text Complexity
CCR Anchor Standard #10 Read and comprehend complex literary and informational texts independently and proficiently
RST.6-8.10 By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

Lexile: 955-1155

How does Standard 10 define the grade by grade staircase of text complexity?

Directions:

- Analyze the staircase of text complexity in **K-12 Text Complexity Expectations (Standard 10) .**
- Discuss with a partner or your group, the "staircase of complexity" to reach CCR Anchor Standard by graduation.

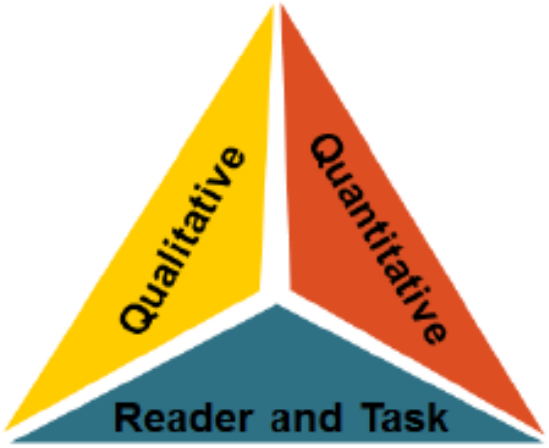
Review Standard 10 by grade and note implications for instruction.

Standard 10 – Text Complexity for Science/Technical Subjects and Social Studies/History Grade K-12 by Grade	
K.	Actively engage in group reading activities with purpose and understanding.
1.	With prompting and support, read prose and poetry of appropriate complexity for grade 1.
2.	By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
3.	By the end of the year, read and comprehend informational texts, ***including history/social studies, science, and technical texts***, at the high end of the grades 2–3 text complexity band independently and proficiently
4.	By the end of year, read and comprehend informational texts, ***including history/social studies, science, and technical texts***, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the grade band.
5.	By the end of year, read and comprehend informational texts, ***including history/social studies, science, and technical texts***, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the grade band.
6-7	By the end of grade 8, read and comprehend ***science/technical and hisotry/social studies text*** In the grades 6–8 text complexity band independently and proficiently.
9-10	By the end of grade 10, read and comprehend ***science/technical and history/social studies texts*** in the grades 9–10 text complexity band independently and proficiently.
11-12	By the end of grade 12, read and comprehend ***science/technical ans history/social studies texts*** in the grades 11–CCR text complexity band independently and proficiently.

How is text complexity determined?

Text complexity is determined by evaluating three instructional dimensions:

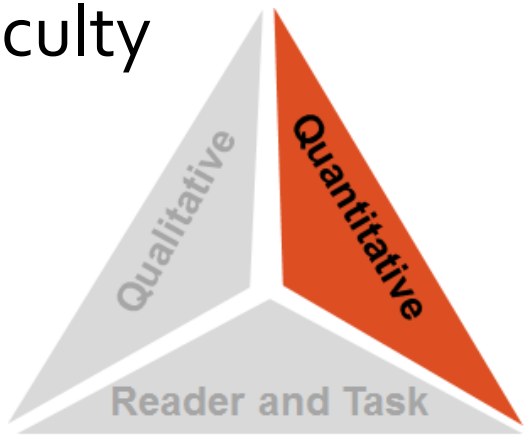
- Qualitative
- Quantitative
- Reader and Task Considerations



Qualitative Measure:

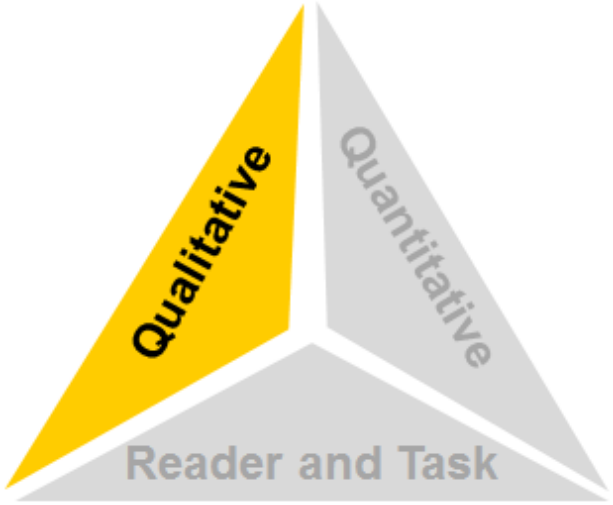
- includes readability and other scores of text complexity often best measured by computer software (Lexile, Flesh-Kincade, ATOS).

- are determined by:
  - word length, frequency, and difficulty
  - sentence length
  - text length
  - text cohesion.



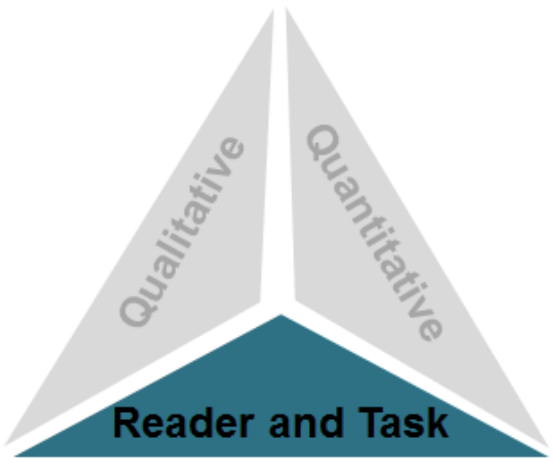
Quantitative Measure:

- includes the levels of meaning or purpose, text structure, language conventionality and clarity, and knowledge demands.



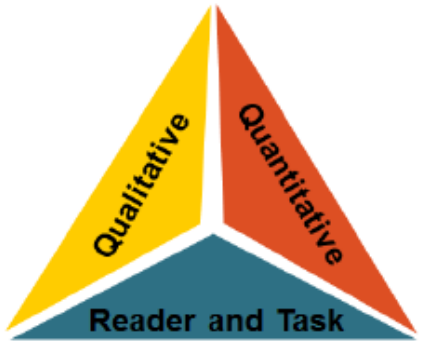
Reader and Task Considerations:

- Teacher judgment based on knowledge of students.
- Includes background knowledge of reader, motivation, interests, and complexity generated by tasks assigned .
- Often best made by educators employing their professional judgment.



The four step process for determining text complexity

1. Determine the quantitative measure of the text.
2. Analyze the qualitative measure of the text.
3. Reflect on the reader and task considerations.
4. Review all data collected about the text and recommend placement in the appropriate text complexity band.

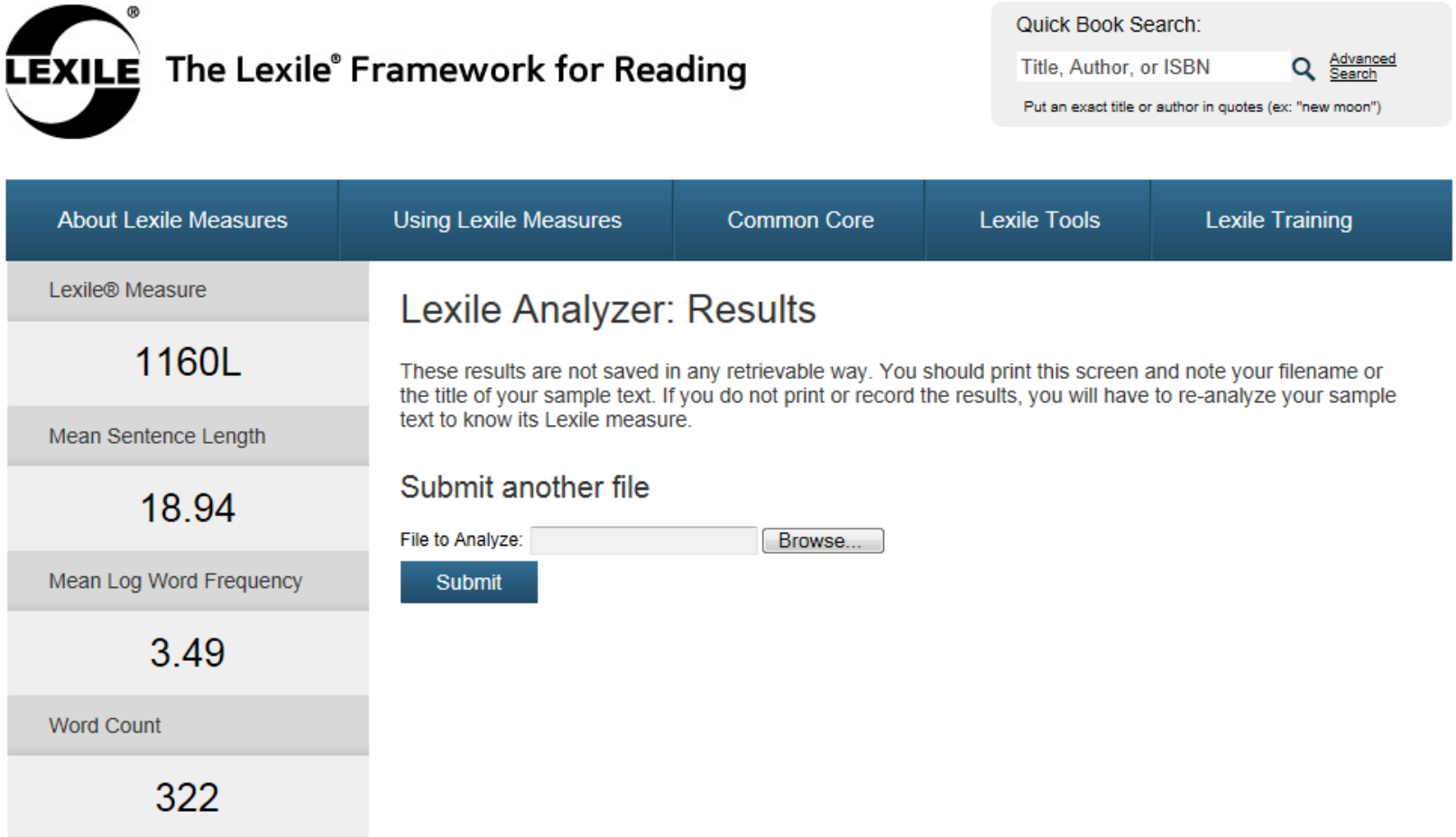


How are the text complexity tools used to analyze text?

Handouts needed for a text analysis of Amusement Park Physics:

- Text Complexity Tool
- Reader and Task Considerations
- Text – Amusement Park Physics
- Annotated Text – Amusement Park Physics

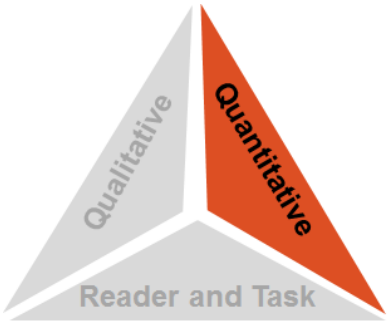
Step 1: Quantitative Measure



Determine the Text Complexity Grade Band

Results from the Lexile Analyzer the lexile range of Amusement Park Physics is 1190

Text Complexity Grade Bands	Suggested Lexile Range
K-1	100L – 500L*
2-3	450L – 790L
4-5	770L – 980L
6-8	955L – 1155L
9-10	1080L – 1305L
11-CCR	1215L – 1355L



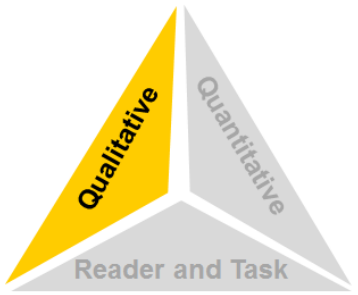
Step 2:
Qualitative Measure

Analyze the qualitative dimensions of the text.

Qualitative Dimensions of Text Complexity: Science and Technical Subjects Grades 6-12

	Complex Text	Mostly Complex Text	Mostly Simple Text	Simple Text
Purpose	**Purpose** • is subtle, implied and difficult to determine • may present multiple purposes revealed over the entirety of the text	**Purpose** • is implied, but easy to infer • is revealed over the entirety of the text	**Purpose** • is explicitly stated • tends to be revealed later in the text	**Purpose** • is simple and explicitly stated • usually revealed at the beginning of the text or in the title
Text Structure	**Text Structure** • is subtle or absent • if used, is essential in understanding the content	**Text Structure** • is implicit or difficult to determine • use of signal words is minimal • if used, intended to enhance the understanding of the text	**Text Structure** • includes a range of explicit structures • contains signal words • supports the reader's understanding of the text	**Text Structure** • is explicit and simple • contains signal words • helps the reader navigate and understand content
	Text Features • are sophisticated, essential and integrated with the text • provide information not provided elsewhere	**Text Features** • are integrated with the text • are necessary to make meaning of the text	**Text Features** • enhance and supplement the reader's understanding of the text	**Text Features** • are unnecessary or merely supplemental to understanding the text
Knowledge Demands	**Knowledge Demands** • contain unfamiliar concepts • require specialized and extensive scientific or technical knowledge • include abstract scientific or technical (discipline-specific) concepts	**Knowledge Demands** • include a range of challenging familiar and unfamiliar discipline-specific concepts	**Knowledge Demands** • include familiar discipline-specific concepts	**Knowledge Demands** • present familiar concrete concepts • are related to students experiences
	Inter-textuality • contains multiple references or citations to a variety of texts or ideas and theories	**Inter-textuality** • contains multiple references or citations to a variety of texts on the same idea or theory	**Inter-textuality** • contains a reference to another text on the same idea or theory	**Inter-textuality** • contains no references or citations to other text, ideas or theories
Language	**Sentence Structure** • is dense containing mainly complex, compound sentences of varied structure • contains sentences often include multiple concepts embedded in phrases	**Sentence Structure** • contains a range of complex compound and simple sentences • may contain more than one concept embedded in a sentence	**Sentence Structure** • contains simple and compound sentences	**Sentence Structure** • contains mainly simple sentences
	Vocabulary • includes sophisticated, complex academic and/or discipline- specific vocabulary crucial to understanding the text • is not specifically defined within the text, and assumes prior knowledge	**Vocabulary** • includes unfamiliar discipline-specific or academic words • may be defined contextually at the paragraph or passage level	**Vocabulary** • includes a range of familiar and unfamiliar discipline-specific or academic words • is defined contextually or in a footnote	**Vocabulary** • includes familiar discipline specific or academic words • is usually defined within the same sentence

DRAFT 11/15/12 Maryland State Department of Education Adapted from Common Core State Standards for Appendix A,



Amusement Park Physics.

- Read the text Amusement Park Physics.
- As you read, note the qualitative features identified in the last slide.

Thinking about Physics While Scared to Death (on a Falling Roller Coaster)

by Jearl Walker October, 1983

THE RIDES IN AN AMUSEMENT park not only are fun but also demonstrate principles of physics. Among them are rotational dynamics and energy conversion. I have been exploring the rides at Geauga Lake Amusement Park near Cleveland and have found that nearly every ride offers a memorable lesson.

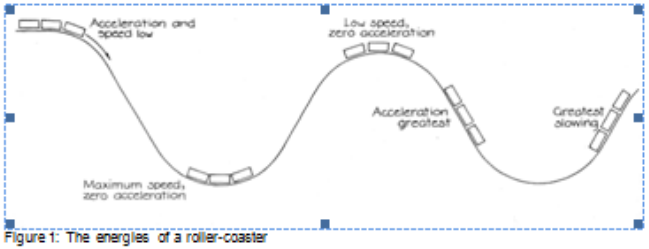


Figure 1: The energies of a roller-coaster

To me the scariest rides at the park are the roller coasters. The Big Dipper is similar to many of the roller coasters that have thrilled passengers for most of this century. The cars are pulled by chain to the top of the highest hill along the track. Released from the chain as the front car begins its descent, the unpowered cars have almost no speed and only a small acceleration. As more cars get onto the downward slope the acceleration increases. It peaks when all the cars are headed downward. The peak value is the product of the acceleration generated by gravity and the sine of the slope of the track. A steeper descent generates a greater acceleration, but packing the coaster with heavier passengers does not.

When the coaster reaches the bottom of the valley and starts up the next hill, there is an instant when their cars are symmetrically distributed in the valley. The acceleration is zero. As more cars ascend, the coaster begins to slow, reaching its lowest speed just as it is symmetrically positioned at the top of the hill.

A roller coaster functions by means of transfers of energy. When the chain hauls the cars to the top of the first hill, it does work on the cars, endowing them with gravitational potential energy, the energy of a body in a gravitational field with respect to the distance of the body from some reference level such as the ground. As the cars descend into the first valley much of the stored energy is transferred into kinetic energy, the energy of motion.

If the loss of energy to friction and air drag is small, the total of the potential and kinetic energies must remain constant throughout the descent and even throughout the rest of the ride. The coaster gains kinetic energy and speed at the expense of potential energy. If the first valley is at ground level, the transfer is complete, and for a moment the coaster has all its energy in the form of kinetic energy.

Notes on Qualitative Measure

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Purpose is clearly stated.

Figure 1: The energies of a roller-coaster

Text feature supports the explanation in text. The reader must navigate between text and diagram for complete understanding.

To me the scariest rides at the park are the roller coasters. The Big Dipper is similar to many of the roller coasters that have thrilled passengers for most of this century. The cars are pulled by chain to the highest hill along the track. Released from the chain as the front car begins its descent, the cars have almost no speed and only a small acceleration. As more cars get onto the slope the acceleration increases. It peaks when all the cars are headed downward. The force is the product of the acceleration generated by gravity and the sine of the slope of the track. A steeper descent generates a greater acceleration, but packing the coaster with heavier passengers does not.

No signal words used to identify structure. Text shows combination of chronological and cause/effect.

Use of complex academic and discipline specific vocabulary

When the coaster reaches the bottom of the valley and starts up the next hill, there is an instant when their cars are symmetrically distributed in the valley. The acceleration is zero. As more cars ascend, the coaster begins to slow, reaching its lowest speed just as it is symmetrically positioned at the

Sentence structure is dense, containing mainly compound sentences of varying structures.

top. The cars interact by means of transfers of energy. When the chain hauls the cars to the top of the first hill, it does work on the cars, endowing them with gravitational potential energy, the energy of a body in a gravitational field with respect to the distance of the body from some reference level such as the ground. As the cars descend into the first valley much of the stored energy is transferred into kinetic energy, the energy of motion.

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Requires extensive knowledge of scientific concepts

Qualitative Analysis

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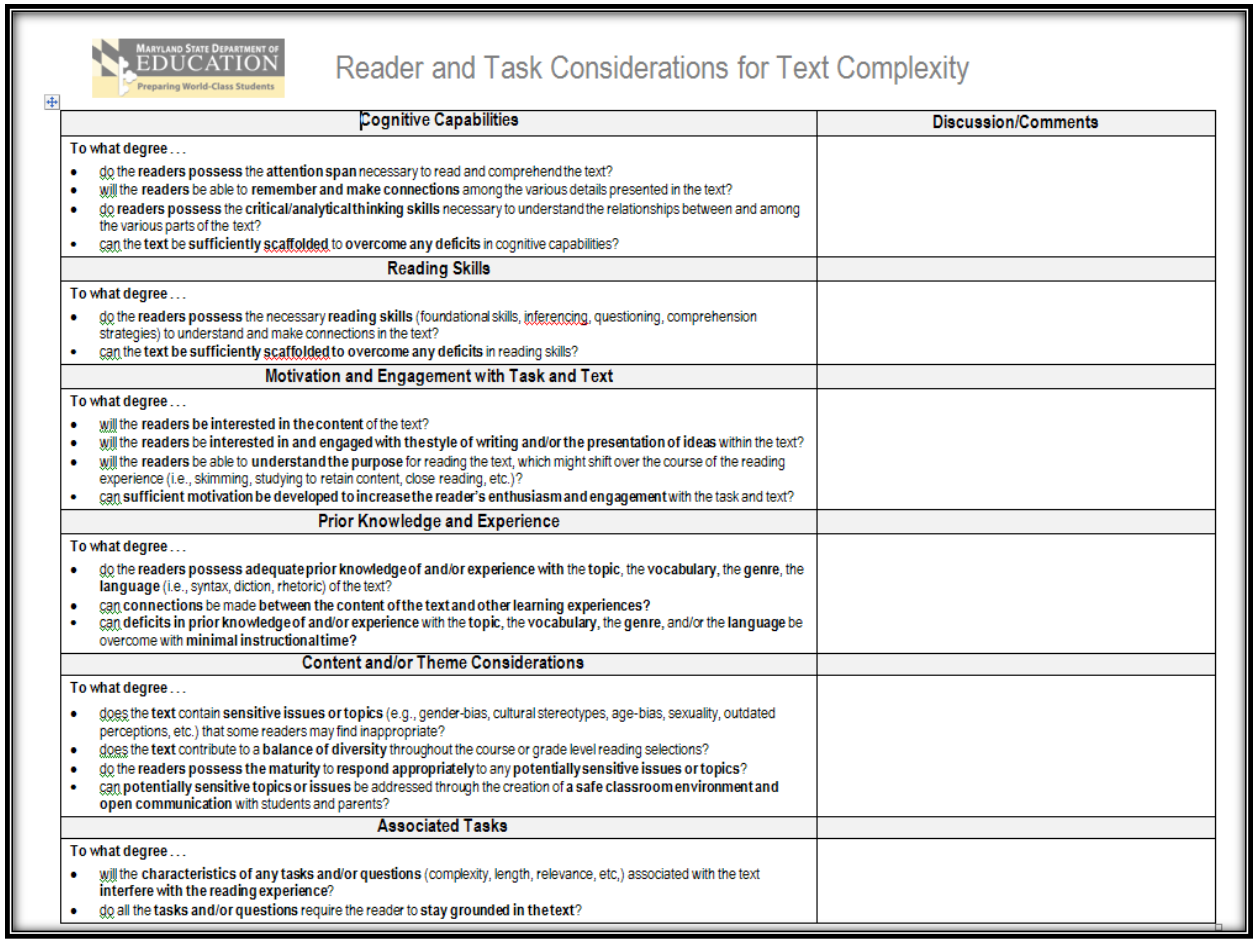
Qualitative Analysis

- Amusement Park Physics is a complex text . The text is relatively straightforward; however, the complexity lies in discipline-specific vocabulary and concepts; complex sentences.
- Students are likely to find the following characteristics challenging:
  - domain specific vocabulary
  - the knowledge demands of the physics concepts of motion and force
  - difficulty of concepts being explained in relation to real world phenomena
  - complex sentences with densely packed print
  - minimal use of diagrams to help visualize the explanations

Step 3:
Reader and Task Considerations

- **Reflect on the Reader and Task Considerations**



Maryland State Department of Education
Preparing World-Class Students

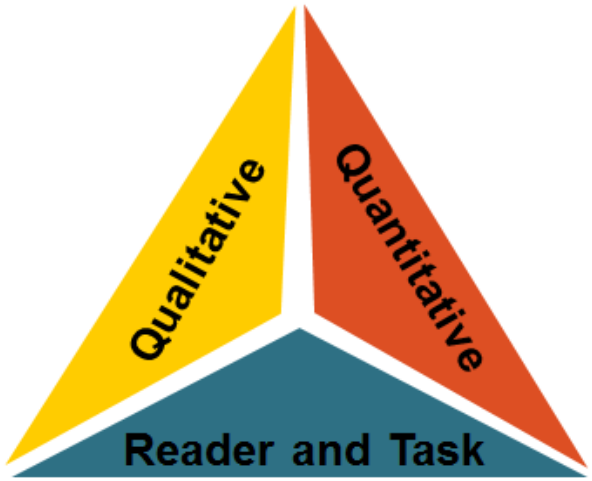
Reader and Task Considerations for Text Complexity

Cognitive Capabilities	Discussion/Comments
To what degree . . . • do the **readers possess** the **attention span** necessary to read and comprehend the text? • will the **readers** be able to **remember and make connections** among the various details presented in the text? • do **readers possess** the **critical/analytical thinking skills** necessary to understand the relationships between and among the various parts of the text? • can the **text** be **sufficiently scaffolded** to **overcome any deficits** in cognitive capabilities?	
Reading Skills	
To what degree . . . • do the **readers possess** the necessary **reading skills** (foundational skills, inferencing, questioning, comprehension strategies) to understand and make connections in the text? • can the **text be sufficiently scaffolded to overcome any deficits** in reading skills?	
Motivation and Engagement with Task and Text	
To what degree . . . • will the **readers be interested in the content** of the text? • will the **readers** be **interested in and engaged with the style of writing and/or the presentation of ideas** within the text? • will the **readers** be able to **understand the purpose** for reading the text, which might shift over the course of the reading experience (i.e., skimming, studying to retain content, close reading, etc.)? • can **sufficient motivation be developed to increase the reader's enthusiasm and engagement** with the task and text?	
Prior Knowledge and Experience	
To what degree . . . • do the **readers possess adequate prior knowledge of and/or experience with** the **topic**, the **vocabulary**, the **genre**, the **language** (i.e., syntax, diction, rhetoric) of the text? • can **connections** be made **between the content of the text and other learning experiences?** • can **deficits in prior knowledge of and/or experience** with the **topic**, the **vocabulary**, the **genre**, and/or the **language** be overcome with **minimal instructional time?**	
Content and/or Theme Considerations	
To what degree . . . • does the **text** contain **sensitive issues or topics** (e.g., gender-bias, cultural stereotypes, age-bias, sexuality, outdated perceptions, etc.) that some readers may find inappropriate? • does the **text** contribute to a **balance of diversity** throughout the course or grade level reading selections? • do the **readers possess the maturity** to **respond appropriately** to any **potentially sensitive issues or topics**? • can **potentially sensitive topics or issues** be addressed through the creation of **a safe classroom environment and open communication** with students and parents?	
Associated Tasks	
To what degree . . . • will the **characteristics of any tasks and/or questions** (complexity, length, relevance, etc,) associated with the text **interfere with the reading experience**? • do all the **tasks and/or questions** require the reader to **stay grounded in the text**?	

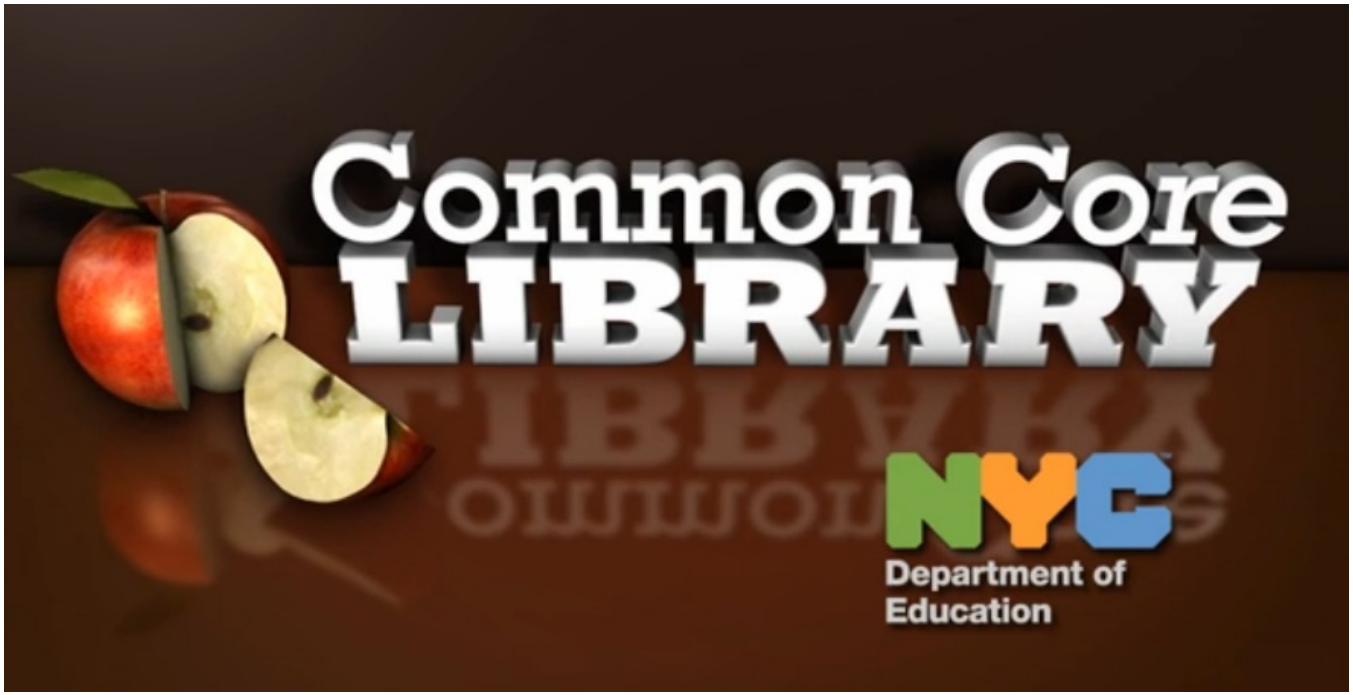
Step 4:
Deciding on the grade placement

- Considering all 3 measures of text complexity, what grade levels would be most appropriate for this text?

- Like any holistic scoring system, there is not a single correct answer.



View the following video to summarize text complexity



http://vimeo.com/27251914

- Such factors as students' motivation, knowledge, and experiences must also come into play in text selection. Students deeply interested in a given topic, for example, may engage with texts on that subject across a range of complexity.
- Particular tasks may also require students to read harder texts than they would normally be required to.
- Conversely, teachers who have had success using particular texts that are easier than those required for a given grade band should feel free to continue to use them so long as the general movement during a given school year is toward texts of higher levels of complexity that meet the complexity demands of text complexity in Standard 10.

Reading

- One of the key requirements of the Common Core State Standards for Reading is that all students must be able to comprehend texts of steadily increasing complexity as they progress through school.
- By the time they complete the core, students must be able to read and comprehend independently and proficiently the kinds of complex texts commonly found in college and careers.

Why use the 3 Dimensions of Text Complexity to evaluate tex?

- If educators have a clear understanding of how complex the text is, why it is complex, and the knowledge and capacities the readers already have for the assigned tasks, then they will make more careful choices about support strategies.

Summary:

- Identify the importance of text complexity in disciplinary literacy.
- Compare the CCSS grade level expectations for text complexity.
- Identify the three measures used to evaluate text complexity.
- Examine and apply text complexity tools to determine an appropriate reading selection for a science classroom.