

Common Core State Standards for English Language Arts: K-12 Close Reading Task

Text grade band placement:	
9-12	
Text	Text Complexity Analysis
<p>Title: <i>A Short History of Nearly Everything</i> (Chapter 9: “The Mighty Atom”)</p> <p>Author: Bill Bryson</p> <p>Note: The reading is a chapter from Bryson’s book. You can learn more about the book here: http://www.amazon.com/A-Short-History-Nearly-Everything/dp/076790818X</p>	<p>Quantitative:</p> <p>Samples of the text have a Lexile range of 1000L to 1200L.</p>
	<p>Qualitative:</p> <p>The purpose is subtle, implied, difficult to determine; intricate, with theoretical elements.</p> <p>The connections between an extensive range of ideas or events are deep, intricate and often implicit or subtle; organization of the text is intricate or specialized for a particular discipline</p> <p>The complexity of the task is qualitatively increased by the non-linear manner in which the historical timeline of the development of the atom is discussed.</p>
	<p>Reader and Task:</p> <p>This text will be very challenging for many students. Most readers will be stretched to visualize the abstract subject matter and content-rich descriptions of scientific experiments.</p>

ELA/Literacy Common Core Standards addressed by task

CCSS.ELA-Literacy.CCRA.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

CCSS.ELA-Literacy.CCRA.R.5 Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

CCSS.ELA-Literacy.CCRA.R.6 Assess how point of view or purpose shapes the content and style of a text.

CCSS.ELA-Literacy.CCRA.R.7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

CCSS.ELA-Literacy.CCRA.W.1 Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-Literacy.CCRA.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

What key insights should students take from this text?*

1. All matter is composed of atoms that are in constant motion.
2. Atoms interact with each other to form molecules.
3. Students should understand the three basic parts of the atom (protons, neutrons, and electrons), including their charge and relative location inside the atom.
4. Scientific understanding is tentative and the models we use to represent our understanding can change.

Text-Dependent Questions

1. Consider the statement physicist Richard Feynman made about atoms. What was the author's purpose for including this statement in his text?
2. What aspect of atoms makes the author believe we each probably contain up to a billion atoms of Shakespeare?
3. Draw and label a picture that summarizes Ernest Rutherford's and James Chadwick's model of the atom.
4. How did the author use biographical information about the scientist to explore our evolving understanding of atomic structure and function?

Writing Mode	Writing Prompt
Argument	Write an essay that develops an argument in response to this scientific question: How certain is our current understanding of atoms? Provide details from the text to support your claim. Be sure to address a counterclaim.

*Because these tasks apply across multiple grades, they are aligned to the College and Career Readiness Anchor Standards (CCRA). R stands for Reading, W for Writing, SL for Speaking and Listening, and L for language.

Scaffolding and support for special education students, English language learners, and struggling readers:

- Have a clear reading purpose to help students focus more efficiently on the information they need to extract.
- Make sure students have the necessary background information before they are asked to read long texts.
- Pre-teach vocabulary
- Encourage students to read up about the topic beforehand, or discuss it at home with their parents.
- Have students predict the information they will find out in the text.
- Have students predict the vocabulary they will meet in the text
- Remind students of the importance of looking at headings, diagrams, and illustrations and their captions.

How this task supports the content standards for relevant subject area courses in this grade band:

This text (10 pages long) is best suited to students of Chemistry and Physics.

CHEMISTRY

CLE 3221.1.1 Compare and contrast historical models of the atom.

CLE 3221.1.2 Analyze the organization of the modern periodic table.

CLE 3221.1.3 Describe an atom in terms of its composition and electron characteristics.

PHYSICS

CLE 3231.Inq.1 Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted

CLE 3231.Inq.5 Compare experimental evidence and conclusions with those drawn by others about the same testable question.

CLE 3231.Inq.6 Communicate and defend scientific findings

CLE 3231.T/E.4 Describe the dynamic interplay among science, technology, and engineering within living, earth-space, and physical systems

CLE 3231.6.1 Investigate the properties and structure of the atom.

CLE 3231.6.2 Investigate properties of the quantum theory.