

Grade 8 Informational Mini-Assessment

Forensic Science: Evidence, Clues, and Investigation excerpt

This grade 8 mini-assessment is based on an excerpt from Chapter 1 of *Forensic Science: Evidence, Clues, and Investigation* by Andrea Campbell. This text is considered to be worthy of students' time to read and also meets the expectations for text complexity at grade 8. Assessments aligned to the Common Core State Standards (CCSS) will employ quality, complex texts such as this one. Because the topic of the text is scientific, the mini-assessment will measure both Reading Standards for Informational Text and Reading Standards for Literacy in Science and Technical Subjects.

Questions aligned to the CCSS should be worthy of students' time to answer and therefore do not focus on minor points of the texts. Questions also may address several standards within the same question because complex texts tend to yield rich assessment questions that call for deep analysis. In this mini-assessment there are five selected-response questions and two paper/pencil equivalent of technology enhanced items that address the Reading Standards listed below. There is also one constructed response question that addresses Reading for Information, Writing, and Language standards.

We encourage educators to give students the time that they need to read closely and write to the source. While we know that it is helpful to have students complete the mini-assessment in one class period, we encourage educators to allow additional time as necessary.

The questions align to the following standards:

RI.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RI.8.2	Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
RI.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RI.8.5	Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
RI.8.6	Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
W.8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
W.8.9	Draw evidence from literary or informational texts to support analysis, reflection, and research
L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.8.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.8.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.

Contents

Grade 8 Mini-Assessment – excerpt from <i>Forensic Science</i> <u>Print for students</u>	3
Information for Teachers: Quantitative and Qualitative Analyses of the Text.....	10
Question Annotations: Correct Answers and Distractor Rationales.....	12
Additional Resources for Assessment and CCSS Implementation	16

The assessment questions in this document align with the CCSS and reflect the instructional shifts implied by the standards. To learn more about these topics, please go to the following link:

www.achievethecore.org

Grade 8 Mini-Assessment – *Forensic Science*

Today you will read a passage about how forensic science is used to solve crimes. You will then answer several questions based on the text. I will be happy to answer questions about the directions, but I will not help you with the answers to any questions. You will notice as you answer the questions that some of the questions have two parts. You should answer Part A of the question before you answer Part B, but you may go back and change your answer to Part A if you want to.

Take as long as you need to read and answer the questions. If you do not finish when class ends, come see me to discuss when you may have additional time.

Now read the passage and answer the questions. I encourage you to write notes in the margin as you read the passage.

Forensic Science: Evidence, Clues, and Investigation

by Andrea Campbell

- 1 Today, more than a century after Sherlock Holmes first astonished and delighted readers with his brilliance, most crimes are still solved the way they were in the Victorian era: through confessions or eyewitness accounts. Increasingly, however, police and prosecutors rely on evidence of the type Holmes often used to get at the truth: scientific, or forensic, evidence. Today that evidence typically comes from sources such as fingerprints, body fluids, and bullets.
- 2 In contrast to the romantic image of one Holmes-like supersleuth single-handedly uncovering the facts of a case, truth seeking in law enforcement and criminal justice is actually a collaborative effort, involving the police, a medical examiner or coroner, investigators, and lab technicians. Each applies his or her own expertise to the problem. But modern criminal investigations still begin in a manner Sherlock Holmes would find familiar—with careful examination of the crime scene. After police have secured the site, criminal investigators collect physical evidence. This evidence will be sent to crime labs, where expert technicians and forensic scientists will analyze it. Their findings, in turn, will affect the course of the police investigation and, if a suspect is charged, will be presented to the jury at trial.
- 3 In our title, we have referred rather informally to forensic science. However, distinction should be made between the terms *forensic science* and *criminalistics*, which are often used interchangeably. Forensic science is a science applied to answering legal questions. It draws together principles and knowledge from one field, or a combination of fields—such as medicine, mathematics, physics, chemistry, biology, and anthropology—and applies them to legal proceedings. For example, *serology* is the study of blood and other body fluids; *forensic serology* is the study of blood and body-fluid evidence to help reconstruct a crime or an accident. Criminalistics, on the other hand, is a branch of forensic science that deals specifically with the scientific collection and examination of physical evidence as it relates to a crime. Any references in this text to forensic science are actually references to the entire field of discovery.
- 4 But what exactly is forensic evidence? How is it used, and what does it mean in court?

- 5 Like any competitive game, a criminal trial is governed by rules. The rules of evidence dictate how evidence can be presented in the courtroom. For example, the prosecution, or the attorney representing the state (and the people in that state), may present various legal proofs in order to convince the judge or jury of the defendant's guilt. These can be witnesses, records, documents, objects, or other materials.
- 6 Four kinds of evidence may be admitted at trial:
 1. *Testimony*, statements from competent, sworn witnesses.
 2. *Direct evidence*, which refers to observations of eyewitnesses.
 3. *Circumstantial evidence*, which is any information that tends to prove or disprove a point at issue.
 4. *Real, or physical, evidence*, sometimes also called hard evidence, which refers to any tangible article or object of any kind, such as fingerprints, weapons, and bloodstains. (Real evidence may also include facsimiles such as photographs and reproductions.)
- 7 Seldom is guilt proved or blame assessed with a single piece of evidence. But forensic evidence, which falls into the fourth category above, often serves as the added weight that helps tip the scales of justice. It may be used to reconstruct the crime, identify participants, or confirm or discredit an alibi. It also frequently helps to eliminate suspects. It establishes the facts of the crime—for example, that the bullet that lodged in the victim's heart and caused his death came from the defendant's gun. It can provide a step-by-step analysis of the events leading up to, including, and following the incident. In short, forensic science can be the glue that holds all the facts of a case together.
- 8 Sometimes prosecutors have little except forensic evidence from which to construct a case; other times they use forensic evidence merely to corroborate the other types of evidence they've developed. Forensic evidence does not serve all cases. Typically it plays a far more important role in the investigation of violent crimes than in the investigation of property crimes or accidents. But one thing is certain. Forensic evidence is static. It stands immobile. Because unless the criminal takes something away from the crime scene, hard evidence does not leave. Unlike crime scene bystanders, hard evidence will not get confused or become frightened. And unlike criminals, it will not make up stories or lie.
- 9 Yet hard evidence is only as reliable as the people who collect, analyze, and interpret it. At trial, different experts sometimes draw different conclusions from the same evidence. And defense attorneys frequently attack the validity of forensic evidence by pointing to lapses in the way the evidence was collected or handled. Thus it is essential that law enforcement officers, forensic scientists, and prosecutors understand and meticulously follow proper evidence-handling procedures. Otherwise the guilty may go free, or the innocent may be wrongly convicted.

Excerpt from *Forensic Science: Evidence, Clues, and Investigation*; pgs. 14-18; by Andrea Campbell; © 2000 by Chelsea House Publishers; ISBN 0-7910-4950-7

QUESTIONS:

1. According to the excerpt, how are Sherlock Holmes' methods similar to the methods of forensic scientists today?

- A. Holmes used hard evidence to solve crimes.
- B. Holmes found instincts rather than testimony more helpful in solving crimes.
- C. Holmes worked collaboratively with others in order to solve crimes.
- D. Holmes relied heavily on science to help gather evidence to solve crimes.

2. The following question has two parts. First answer Part A and then answer Part B.

Part A: In paragraph 2, what is the meaning of the word *collaborative*?

- A. skillful
- B. dull
- C. shared
- D. unreliable

Part B: Which antonym that appears in paragraph 2 best helps the reader to understand the meaning of *collaborative*?

- A. romantic
- B. Holmes-like
- C. single-handedly
- D. truth seeking

3. According to paragraph 3, which statement accurately represents the relationship between *forensic science* and *criminalistics*?

- A. *Criminalistics* combines concepts from many areas of study, but *forensic science* does not.
- B. *Forensic science* can be useful in court cases, while *criminalistics* cannot.
- C. *Criminalistics* is a subset of the larger field of *forensic science*.
- D. *Forensic science* involves more scientific collection than *criminalistics* does.

4. Mr. Moore was accused of stealing Mrs. Park’s laptop computer from her office. Four main pieces of evidence were used in the trial. Draw an arrow from each piece of evidence to match it to the kind of evidence described in paragraph 6 of the text.

Piece of Evidence	Kind of Evidence
<ul style="list-style-type: none"> • Police found a strand of hair the same color and length as Mr. Moore’s in Mrs. Park’s office. • A computer technician stated in court that the laptop found by the police had been regularly used by Mrs. Park. • Mr. Moore’s office mate, Mr. Fowler, heard Mr. Moore tell Mrs. Park’s that he would take her laptop because she owed him money. 	<p>Testimony</p> <p>Direct Evidence</p> <p>Circumstantial Evidence</p>
<ul style="list-style-type: none"> • A neighbor named Mrs. Blair stated that she opened Mrs. Park’s office door and saw Mr. Moore lifting the laptop off the top of the desk. 	<p>Real, or Physical, Evidence</p>

5. The following item has two parts. Answer Part A and then answer Part B.

Part A: Which statement most accurately summarizes the text?

- A. Criminal investigators still solve crimes in the same manner Sherlock Holmes solved crimes many years ago.
- B. Forensic science is a complicated process that relies too much on human perception and not enough on actual scientific evidence.
- C. From the several types of evidence that can be presented at trial, including eyewitness testimony, forensic evidence is the most reliable.
- D. Solving crimes involves law enforcement officials working together to gather many types of evidence to construct a clear picture of a crime.

Part B: Which paragraph best illustrates this summary?

- A. Paragraph 2
- B. Paragraph 5
- C. Paragraph 6
- D. Paragraph 9

6. In paragraph 7, the author includes these three sentences about forensic science:

It may be used to reconstruct the crime, identify participants, or confirm or discredit an alibi. It also frequently helps to eliminate suspects. It establishes the facts of the crime—for example, that the bullet that lodged in the victim’s heart and caused his death came from the defendant’s gun. It can provide a step-by-step analysis of the events leading up to, including, and following the incident.

What is the purpose of these sentences in paragraph 7?

- A. The sentences contrast the role of forensic evidence to the roles of the other kinds of evidence.
 - B. The sentences give specific examples to demonstrate how important forensic evidence can be.
 - C. The sentences warn that using a single piece of forensic evidence carries serious risk.
 - D. The sentences explain the argument that forensic evidence is not enough to prove a case.
7. Highlight three sentences in the text that reveal the author’s doubtfulness about the accuracy of the role of humans in the legal process.
8. (Optional writing prompt) Is forensic evidence the most important type of evidence to present at a trial? Write an essay that explains what information the author provides that answers this question. Remember to use information from the text as you delineate and evaluate the evidence the author provides to answer this question. Use the lines on the next pages for your response.

Your response will be scored on how well you:

- Demonstrate your understanding of the ideas of the text
- Use evidence from the text to help develop and support your ideas
- Organize your response in a logical manner
- Demonstrate an appropriate writing style through the use of precise word choice and varied sentences
- Use standard conventions for writing

Information for Teachers: Quantitative and Qualitative Analyses of the Text

Regular practice with complex texts is necessary to prepare students for college and career readiness, as outlined in Reading Standard 10. The text for this mini-assessment has been placed at grade 8, and the process used to determine this grade level placement is described below. “Appendix A of the Common Core” and the “Supplement to Appendix A: New Research on Text Complexity” lay out a research-based process for selecting complex texts.

1. Place a text or excerpt within a **grade band** based on at least one quantitative measure according to the research-based conversion table provided in the Supplement to Appendix A: New Research on Text Complexity (www.corestandards.org/resources).
2. Place a text or excerpt at a **grade level** based on a qualitative analysis.

Forensic Science excerpt	Qualitative Measure #1 Lexile: 1300	Qualitative Measure #2 ATOS: 10.4
---------------------------------	-----------------------------------------------	---------------------------------------------

After gathering the quantitative measures, the next step is to place the quantitative scores in the Conversion Table found in the Supplement to Appendix A (www.corestandards.org/resources) and determine the **grade band** of the text. **NOTE: With scientific texts, there are often many scientific terms that drive the readability ratings up. Careful attention should be paid to the complexity of the topic itself in these cases so that the scientific terms do not force the passage into a grade level that is too high for the concepts.** Figure 1 reproduces the conversion table from the Supplement to Appendix A, showing how the results from the Lexile and the ATOS measures were converted to grade bands.

Figure 1: Updated Text Complexity Grade Bands and Associated Ranges from Multiple Measures⁷

Common Core Band	ATOS	Degrees of Reading Power [®]	Flesch-Kincaid [§]	The Lexile Framework [®]	Reading Maturity	SourceRater
2 nd – 3 rd	2.75 – 5.14	42 – 54	1.98 – 5.34	420 – 820	3.53 – 6.13	0.05 – 2.48
4 th – 5 th	4.97 – 7.03	52 – 60	4.51 – 7.73	740 – 1010	5.42 – 7.92	0.84 – 5.75
6 th – 8 th	7.00 – 9.98	57 – 67	6.51 – 10.34	925 – 1185	7.04 – 9.57	4.11 – 10.66
9 th – 10 th	9.67 – 12.01	62 – 72	8.32 – 12.12	1050 – 1335	8.41 – 10.81	9.02 – 13.93
11 th – CCR	11.20 – 14.10	67 – 74	10.34 – 14.2	1185 – 1385	9.57 – 12.00	12.30 – 14.50

To find the **grade level** of the text within the designated grade band, engage in a systematic analysis of the characteristics of the text. The characteristics that should be analyzed during a qualitative analysis can be found in Appendix A of the CCSS. (www.corestandards.org)

Qualitative Analysis	Excerpt of Chapter 1, <i>Forensic Science: Evidence, Clues, and Investigation</i>	Where to place within the band?					
Category	Notes and comments on text, support for placement in this band	Too low for grade band	early to mid 6	mid 6 to early 7	mid 7 to early 8	mid to end 8	Too high for grade band
Structure (both story structure or form of piece)	The main ideas are organized with mostly implicit connections, with some explicit connections between the questions in paragraph 4 and following paragraphs. Text features like these questions and the list of evidence types enhance the reader’s understanding of the content.						
Language Clarity and Conventions	The text contains many tier 3 words that may be unfamiliar to readers (<i>criminalistics, serology, circumstantial evidence</i>), but the words are defined within the text, limiting negative impact on comprehension. Many complex sentences, often containing multiple concepts, may slow reading speed and require multiple readings for clarity.						
Knowledge Demands (life, content, cultural/literary)	To understand the text, it would be helpful for students to have a basic understanding of investigation procedures and criminal trials. Also prior knowledge of Sherlock Holmes as a famous fictional detective with brilliant forensic science skills would be beneficial. But even without that knowledge, the information needed to answer the questions lies within the four corners of the text.						
Levels of Meaning (chiefly literary)/ Purpose (chiefly informational)	The main purpose of the text is implied, but readily accessible: Forensic science and criminalistics play important roles in criminal investigations, and so require careful practices of collecting and handling evidence.						
Overall placement: Grade 8	This text is moderately complex in regard to sentence structure, vocabulary, and knowledge demands. The domain-specific vocabulary may be challenging, but is still likely to be accessible to the average 8th grader. This mini-assessment may be most appropriate for advanced 8th graders early in the year, all 8th graders later in the year, or even 9th graders in their first semester.						

Question Annotations: Correct Answers and Distractor Rationales

Question Number	Correct Answer(s)	Standards	Rationales for Answer Options
1	A	RI.8.3, RI.8.1	<p>A. This is the correct answer. According to paragraph 1, “police and prosecutors rely on evidence of the type Holmes often used to get at the truth: scientific, or forensic, evidence.”</p> <p>B. Although Holmes is often associated with brilliant thinking, the article states that Holmes relied on scientific evidence, rather than instincts, to solve crimes.</p> <p>C. Although the article states that modern forensic scientists collaborate, Holmes is described as “single-handedly” solving crimes.</p> <p>D. Although Holmes relied on forensic evidence, he gathered evidence through careful examination rather than modern scientific methods.</p>
2 Part A	C	RI.8.4, RI.8.1	<p>A. “Skillful” describes the criminal investigators who use their expertise to solve crimes, rather than indicating that the investigation involves a team.</p> <p>B. Although the excerpt contrasts the “romantic image of one Holmes-like supersleuth,” it does not suggest that the process is dull, but rather that it relies on multiple parties to investigate the crime.</p> <p>C. This is the correct answer. “Shared” describes the investigation process “involving the police, a medical examiner or coroner, investigators, and lab technicians.”</p> <p>D. The investigators who work together to solve crimes are described as experts rather than unreliable.</p>
2 Part B	C		<p>A. “Romantic” describes a fictional detective, not modern criminal investigators. “Romantic” is not the opposite of “shared.”</p> <p>B. “Holmes-like” refers to the observation skills of a detective, not the ways experts work together. “Holmes-like” is not related to “shared.”</p> <p>C. This is the correct answer. “Single-handedly” is used as a contrast to the fact that modern criminal investigations require teamwork. “Single-handedly” is the opposite of “shared.”</p> <p>D. “Truth seeking” describes the motive for solving crimes, not investigators working together. “Truth seeking” is not the opposite of “shared.”</p>

Question Number	Correct Answer(s)	Standards	Rationales for Answer Options
3	C	RI.8.3, RI.8.1	<p>A. This statement is inaccurate. <i>Forensic science</i> combines information from multiple fields; <i>criminalistics</i> does not.</p> <p>B. Although <i>forensic science</i> is helpful in court cases, <i>criminalistics</i> is also helpful, as it relates to the collection and examination of evidence.</p> <p>C. This is a correct answer. <i>Forensic science</i> includes many fields, including <i>criminalistics</i>.</p> <p>D. Although both <i>forensic science</i> and <i>criminalistics</i> involve scientific collection, that is the main focus of <i>criminalistics</i>, not the main focus of <i>forensic science</i>.</p>
4	<p>A 4</p> <p>B 1</p> <p>C 3</p> <p>D 2</p>	RI.8.2, RI.8.1	<p>A. A strand of hair falls into the category of real, or physical, evidence, which is any tangible article or object such as fingerprints, weapons, and bloodstains.</p> <p>B. A computer technician would be a competent witness giving a sworn statement within his or her area of expertise.</p> <p>C. A conversation about a crime is circumstantial evidence because it tends to prove the crime but is not the same as an eyewitness observation of the crime.</p> <p>D. An eyewitness statement is direct evidence; someone testifies that he or she actually saw the crime being committed.</p>
5 Part A	D	RST.6–8.2, RST.6–8.1	<p>A. Although the author mentions that many techniques Holmes used are still used today, Holmes worked alone and today people work collaboratively to solve crimes.</p> <p>B. Although forensic science is described as including many different types of evidence and the author implies humans can corrupt the process, this statement does not capture the importance of collaboration and therefore does not completely summarize the text.</p> <p>C. Although many types of evidence are presented at trial, including eyewitness testimony, this statement alone does not accurately summarize the important points of the text.</p> <p>D. This is the correct answer. The main points of the article are that there are many types of evidence and investigators work together to use evidence to construct an accurate picture of the crime.</p>

Question Number	Correct Answer(s)	Standards	Rationales for Answer Options
5 Part B	A		<p>A. This is the correct answer. Paragraph 2 includes information about the many types of evidence and the collaboration necessary to combine them into useful material in the legal process.</p> <p>B. Paragraph 5 focuses mainly on the rules of the legal process.</p> <p>C. Paragraph 6 focuses on the types of evidence.</p> <p>D. Paragraph 9 focuses on the importance of proper handling of evidence.</p>
6	B	RI.8.5, RI.8.1	<p>A. Although the sentences give details about how forensic evidence can be used, they do not offer a contrast to other kinds of evidence.</p> <p>B. This is the correct answer. The sentences provide specific examples of how forensic evidence can be used in the legal process.</p> <p>C. Although the author later states that the use of forensic evidence can be problematic if not handled correctly, these sentences do not imply that risk.</p> <p>D. Although these sentences make a case that forensic evidence is useful in many ways, they do not imply that forensic evidence alone cannot prove a case.</p>
7	See quotations and rationales to the right.	RI.8.6, RI.8.1	<p>Possible answers:</p> <p>“Unlike crime scene bystanders, hard evidence will not get confused or become frightened.” (paragraph 9) <i>Rationale: The author highlights potential pitfalls of human witnesses that can lead to faulty observations.</i></p> <p>“And unlike criminals, it will not make up stories or lie.” (paragraph 9) <i>Rationale: The author notes the criminal’s desire to avoid prosecution that can lead to dishonest accounts.</i></p> <p>“Yet hard evidence is only as reliable as the people who collect, analyze, and interpret it.” (paragraph 10) <i>Rationale: The author explains the significance of human error in processing crime scene evidence.</i></p> <p>“At trial, different experts sometimes draw different conclusions from the same evidence.” (paragraph 10) <i>Rationale: The author explains that humans can interpret evidence differently, leading to conflicting conclusions.</i></p> <p>“And defense attorneys frequently attack the validity of forensic evidence by pointing to lapses in the way the evidence was collected or handled.” (paragraph 10) <i>Rationale: The author notes attorneys’ roles in discrediting evidence based on how they interpret the collection methods.</i></p>

Question Number	Correct Answer(s)	Standards	Rationales for Answer Options
8 (optional writing prompt)	See top-score bullets to the right.	W.8.2, W.8.4, W.8.9, RI.8.3, RI.8.5, RI.8.6, L.8.1, L.8.2, L.8.3	<p>Top-Score Bullets:</p> <ul style="list-style-type: none"> • The author supports the importance of forensic evidence by citing the many benefits of forensic evidence. This type of evidence can often clinch a case that would otherwise lack a clear verdict. Because forensic evidence is straightforward and unchanging, it can be quite reliable, especially in the case of violent crimes. The author includes the example of a case in which “the bullet that lodged in the victim’s heart and caused his death came from the defendant’s gun.” • The author shows that forensic evidence is not always important, however, by noting that it “does not serve all cases.” For this reason, the author would likely support the importance of forensic evidence to some cases but not all. The author goes on to further contradict the idea that forensic evidence is all-important by explaining one major way in which it can fail: Humans—who are not perfect and not always correct—are the ones who read and interpret this evidence. He writes that “hard evidence is only as reliable as the people who collect, analyze, and interpret it.” The author clearly enumerates both the pros and cons of the use of forensic evidence.

Additional Resources for Assessment and CCSS Implementation

Shift 1 – Complexity: *Regular practice with complex text and its academic language*

- See Appendix B for examples of informational and literary complex texts:
http://www.corestandards.org/assets/Appendix_B.pdf
- See the Text Complexity Collection on www.achievethecore.org

Shift 2 – Evidence: *Reading, writing, and speaking grounded in evidence from text, both literary and informational*

- See Close Reading Exemplars for ways to engage students in close reading on
<http://www.achievethecore.org/steal-these-tools/close-reading-exemplars>
- See the Basal Alignment Project for examples of text-dependent questions:
<http://www.achievethecore.org/basal-alignment-project>

Shift 3 – Knowledge: *Building knowledge through content-rich nonfiction*

- See Appendix B for examples of informational and literary complex texts:
http://www.corestandards.org/assets/Appendix_B.pdf

Sample Scoring Rubric for Text-Based Writing Prompts:

http://achievethecore.org/content/upload/Scoring_Rubric_for_Text-Based_Writing_Prompts.pdf