

Citing Several Pieces of Evidence in Nonfiction

Name: _____

Date: _____

Score: _____ / 10



Quick Review

In Grade 7, a strong inference is supported by SEVERAL pieces of evidence — not just one. Look for two or more details that point at the same conclusion and would be hard to explain any other way.

PART 1 — READ

Read the passage. Then answer the questions.

The Engineer Who Outsmarted the Wind

In the summer of 1940, a four-month-old suspension bridge in Tacoma, Washington, twisted itself apart in a moderate wind and collapsed into Puget Sound. The disaster, captured on film, became one of the most studied engineering failures in history. Few of the people who watched the footage in their classrooms ever heard the name Othmar Ammann, but it was Ammann's quiet warnings, written years earlier, that the bridge's designers had decided to ignore. By the time the Tacoma Narrows Bridge fell, Ammann was already the most experienced long-span engineer in the United States, and he had spent two decades trying to convince his profession that wind, not weight, was the real enemy of a great bridge.

Ammann was born in Switzerland in 1879 and trained as a civil engineer in Zurich before moving to New York in 1904. His early American projects were modest, but in 1923 he began working on what would become the George Washington Bridge — a span twice as long as anything previously built. To save money and weight, Ammann left out the heavy stiffening trusses that earlier designers had assumed were necessary. Critics predicted disaster. Yet when the bridge opened in 1931, it performed exactly as he had calculated, and the savings made the project possible during the early years of the Great Depression. The success made his reputation — and, paradoxically, it also made the Tacoma collapse more likely. Other designers, copying his lighter style without copying his careful wind studies, built bridges that looked similar but behaved very differently in a storm.

After Tacoma, Ammann served on the federal investigation board that examined the wreckage. The board's report, published in 1941, concluded that the bridge had failed because its slender deck had been allowed to flex in ways no one had modeled. Ammann did not gloat. Instead, he spent the next twenty years quietly redesigning his own bridges, adding wind tunnels to the design process and insisting on stiffer decks even when clients complained about the cost. The Verrazzano-Narrows Bridge, which opened in New York in 1964 and was for a time the longest suspension bridge in the world, was Ammann's final major project. He was eighty-five years old at the ribbon cutting. In an interview given just before he died, he said, "A bridge teaches you that the wind is patient. The engineer must be more patient."

PART 2 — PRACTICE



Use the passage to answer each question. Most strong answers are supported by MORE THAN ONE detail in the text.

- Which TWO details together BEST support the inference that Ammann had warned the profession about wind BEFORE the Tacoma collapse?
 - He was born in Switzerland AND he trained in Zurich.
 - His warnings had been written years earlier AND he had spent two decades trying to convince his profession that wind was the real enemy.
 - He worked on the George Washington Bridge AND it opened in 1931.
 - He served on the federal investigation board AND the report was published in 1941.
- Which sentence BEST supports the inference that the success of the George Washington Bridge had an UNINTENDED negative effect on bridge safety?
 - "His early American projects were modest, but in 1923 he began working on what would become the George Washington Bridge."
 - "To save money and weight, Ammann left out the heavy stiffening trusses that earlier designers had assumed were necessary."
 - "Other designers, copying his lighter style without copying his careful wind studies, built bridges that looked similar but behaved very differently in a storm."
 - "The success made his reputation."
- Which TWO pieces of evidence BEST support the inference that Ammann was a careful, evidence-driven engineer rather than a showman?
 - He moved to New York in 1904 AND his early projects were modest.
 - Critics predicted disaster AND the bridge opened in 1931.
 - He added wind tunnels to the design process AND insisted on stiffer decks even when clients complained about cost.
 - He was eighty-five at the ribbon cutting AND the Verrazzano-Narrows opened in 1964.
- Based on paragraph 3, the reader can BEST infer that the federal investigation report was important to Ammann because —
 - it cleared him of all responsibility for the collapse.
 - it confirmed in writing the flexing-deck problem he had been warning about, giving him grounds to change practice.
 - it required all American bridges to be rebuilt within a year.
 - it named him chief engineer of the Verrazzano-Narrows Bridge.
- Which sentence BEST supports the inference that Ammann did NOT use the Tacoma disaster to attack other engineers?
 - "Ammann did not gloat."
 - "He was eighty-five years old at the ribbon cutting."
 - "His early American projects were modest."
 - "Critics predicted disaster."



6. Which TWO details together BEST support the inference that Ammann's influence on bridge engineering lasted for decades AFTER Tacoma?
- A. He was born in 1879 AND trained in Zurich.
 - B. He spent the next twenty years redesigning his bridges AND the Verrazzano-Narrows opened in 1964, twenty-four years after Tacoma.
 - C. He served on the investigation board AND the report came out in 1941.
 - D. He was eighty-five at the ribbon cutting AND he gave an interview before he died.
7. Read this line from paragraph 3: "A bridge teaches you that the wind is patient. The engineer must be more patient." This quotation BEST supports the inference that Ammann —
- A. regretted spending so many years on bridges.
 - B. believed careful, long-term design was more important than quick solutions.
 - C. thought wind was unpredictable and could not be studied.
 - D. considered himself the only engineer who understood wind.
8. Based on the WHOLE passage, the reader can BEST infer that Ammann's career changed bridge design because —
- A. he was the first engineer ever to build a suspension bridge in America.
 - B. his early lighter design proved a new style was possible, and his later wind-aware revisions taught the profession how to use it safely.
 - C. he wrote a textbook that every engineering student was required to read.
 - D. he refused to work on any bridge that was longer than a thousand meters.
9. What can the reader infer about WHY Ammann insisted on wind tunnels and stiffer decks even when clients complained about cost? Support your inference with TWO details from the passage.

10. Find TWO sentences from the passage that, TOGETHER, BEST support the inference that Ammann's reputation rested on more than one successful project. Quote each sentence and explain in one sentence why both are needed.



Answer Keys

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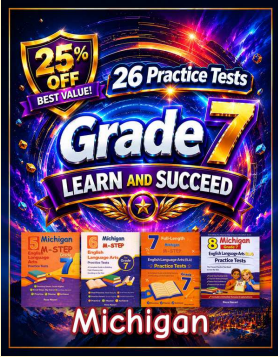
| Explanations | |
|--------------|---|
| 1. B | Both halves of B — "written years earlier" and "two decades trying to convince" — establish a pattern of pre-Tacoma warnings. A is biography. C is a project, not a warning. D names work AFTER the collapse, not before. |
| 2. C | C names the unintended effect directly: imitators copied the look but skipped the wind work. A sets up his career. B explains his design choice, not its misuse. D states the success without the negative consequence. |
| 3. C | Wind tunnels and resisting cost-cutting both prove rigor over flash — the inference the question asks about. A is biographical, not evidence of method. B describes critics and an opening date. D is age and date facts. |
| 4. B | The report named the flexing-deck cause; he then "spent the next twenty years" applying that finding. A invents an exoneration the passage avoids. C invents a national rebuild. D confuses the report with a project assignment. |
| 5. A | "Did not gloat" directly proves the restraint the inference names. B is about his age. C is about his early career. D names critics OF him, not him attacking others. |
| 6. B | A twenty-year redesign campaign PLUS a major bridge opening in 1964 covers the long span the question asks about. A is birth and training. C names one short post-Tacoma duty. D is personal milestones, not influence on practice. |
| 7. B | Patience over the wind = long, careful design — the very practice paragraph 3 describes him following. A reads regret into a calm summing-up. C contradicts the wind-tunnel work in the same paragraph. D inflates one engineer's role beyond what the text claims. |
| 8. B | B captures the two-stage influence the passage actually describes: pioneer the lighter style, then teach the safety practice. A overstates his place in history. C invents a textbook. D contradicts the Verrazzano-Narrows project. |
| 9. | Answer: Strong answer: He had watched a bridge fail because the wind problem was ignored, so he was unwilling to let cost arguments win the same way again. Supporting details: (1) The Tacoma report identified the flexing deck as the cause of failure. (2) He spent the next twenty years applying that lesson and insisting on stiffer decks. Acceptable variations: any pair that combines (a) what Tacoma taught (failure, the investigation finding, or 'the wind is patient') with (b) the response (wind tunnels, stiffer decks, twenty years of redesign). NOT acceptable: answers with only one detail; answers that say he wanted revenge on other designers (the text says he 'did not gloat'); answers that quote his Swiss training as proof of caution. A 2-point answer (1) explains WHY (Tacoma showed the cost of ignoring wind) AND (2) cites TWO different details, not one detail twice. |



10. **Answer:** Strong answer: Quote 1 — "His success [on the George Washington Bridge] made his reputation." Quote 2 — "The Verrazzano-Narrows Bridge, which opened in New York in 1964 and was for a time the longest suspension bridge in the world, was Ammann's final major project." Explanation: Together they show his reputation began with one record-setting bridge AND ended with another, more than thirty years apart — one project alone would not prove a sustained reputation. Acceptable variations: any pairing of one George Washington reference and one Verrazzano-Narrows (or 'twenty years of redesign') reference, with an explanation that the pair shows sustained, not one-time, recognition. NOT acceptable: two quotes from the same project; quotes about Tacoma (a failure he investigated, not his work); a quote with no explanation. Look for ONE quote about an EARLY project and ONE quote about a LATER project — the pair must span time.



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