Blast Without Answers

Weigh evidence, compare explanations, and name what remains unknown.

CCSS.ELA-Literacy.RH.11-12.3 "Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline evidence that could support an explanation, circle evidence that challenges an explanation, and number each place the passage names an uncertainty. Use your marks to decide which explanation fits the evidence most closely.

The Tunguska Mystery

1 In the early morning of June 30, 1908, residents near Siberia's Stony Tunguska River reported a brilliant object crossing the sky. Some described a flash, heat, and several booms. Instruments far from the event recorded atmospheric pressure waves and ground tremors. Geologist Leonid Kulik reached the blast site in 1927 and saw widespread fallen trees, with scorched, stripped trunks still standing near the center. Later aerial and ground surveys mapped about 2,150 square kilometers of damaged forest. Many trunks lay outward from the central area. No scientific team photographed the object or collected material immediately after the event.

2 Researchers have proposed several causes. One is an explosion high in the atmosphere, caused by a small asteroid or comet. Another is a solid object striking the ground. Kulik and later expeditions searched for a crater and sizable meteorite pieces but did not find either. They did recover tiny particles in soil, although scientists disagree about whether those particles came from space or from ordinary contamination. A few writers suggested a volcanic eruption or an underground release of natural gas. Geological surveys of the site have not identified a volcano, and the eyewitness accounts describe a light moving across the sky before the blast.

③ The evidence has limits. Most eyewitness accounts were recorded after the event and differ in details such as the object's direction and color. The region was remote, so no weather station measured the fireball directly. Fires, rain, plant growth, and later visitors changed the ground before systematic study began. Computer models can estimate the energy and height of an explosion from the fallen trees, but results depend on assumptions about the trees and the blast. Scientists therefore continue to debate whether the object was mainly rocky or icy, its size, and the altitude at which it broke apart.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which two observations most challenge the explanation that a solid object struck the ground? Explain briefly why they challenge it.

2. Evaluate the volcanic-eruption explanation. Which passage evidence makes this explanation less convincing?

3. Of the explanations in the passage, which currently best accords with the evidence? Use two details to defend your choice, then name one uncertainty that prevents certainty.

4. Why are the tiny particles found in the soil not enough to prove that an asteroid or comet caused the event?

3 YOUR TURN

Your own words

Write a 90 to 110 word investigation note that identifies the explanation that best accords with the evidence. Cite at least three details from the passage, explain why one rival explanation is less convincing, and identify one unresolved issue.

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PART 1 · READ AND MARK

Underline evidence that could support an explanation, circle evidence that challenges an explanation, and number each place the passage names an uncertainty. Use your marks to decide which explanation fits the evidence most closely. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which two observations most challenge the explanation that a solid object struck the ground? Explain briefly why they challenge it.	**Searches found no crater and no sizable meteorite pieces. A ground strike would more likely be expected to leave a clear impact site or large material.**
2	Evaluate the volcanic-eruption explanation. Which passage evidence makes this explanation less convincing?	**Geological surveys found no volcano at the site, and eyewitnesses described a light moving across the sky before the blast.**
3	Of the explanations in the passage, which currently best accords with the evidence? Use two details to defend your choice, then name one uncertainty that prevents certainty.	**An explosion high in the atmosphere best fits the evidence. The event included a moving light and widespread air-pressure waves, while searches found no crater or sizable pieces. The object's composition, size, and breakup altitude remain uncertain.**
4	Why are the tiny particles found in the soil not enough to prove that an asteroid or comet caused the event?	**Scientists disagree about whether the particles came from space or from ordinary contamination, so the particles are not decisive evidence.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

An explosion above the ground currently best accords with the record. Witnesses reported a bright moving object before the blast, and instruments detected air-pressure waves as well as tremors. The outward-fallen trees and standing scorched trees near the center fit an event whose force came from above more readily than a solid ground strike, especially because searches found no crater or large pieces. A volcanic eruption is less convincing because surveys found no volcano. Still, the soil particles are disputed, and the available evidence cannot establish whether the object was rocky or icy or exactly how high it broke apart.

Accept other conclusions when students accurately use passage evidence and distinguish a supported inference from certainty. For the open task, require three relevant details, a comparison with a rival explanation, and a genuine uncertainty from the text. Historical reference: NASA, '115 Years Ago: The Tunguska Asteroid Impact Event' (2023), distinguishes Kulik's 1927 visit from later surveys. Treat the airburst as the best-supported explanation, while distinguishing uncertain composition and exact parameters from equally likely causes.