Roof Debate

Trace a claim, its evidence, and its limits in a scientific argument.

8.RI "The student will use textual evidence to demonstrate comprehension and build knowledge from grade-level complex informational texts read. Key Ideas and Confirming Details Create a main idea statement and provide an accurate summary..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the planners' claim, circle two details that support it, and number the limits or qualifications the author includes. These marks will help you evaluate how the argument is built.

Can Bright Roofs Cool Cities?

1. On summer afternoons, dark roofs can become far hotter than the air around them. Because they absorb sunlight, they also warm rooms below, increasing the need for air conditioning. For this reason, some city planners argue that new flat roofs should use bright, reflective materials. Their claim is not that reflective roofs solve every heat problem. Instead, they say this practical change can lower building temperatures and reduce the electricity used for cooling, especially in neighborhoods with many large roofs.

2. Researchers have measured cooler roof surfaces on bright roofs than on dark ones under the same sun. Field studies of buildings have also found that white roofs can reduce cooling energy use, although the amount saved depends on the season and the building. Such measurements directly support the planners' point about cooling demand. The argument also connects individual buildings to a citywide concern: when many air conditioners run at once, power systems face heavier demand during heat waves.

3. However, reflective roofs are not equally useful everywhere. In cold climates, a roof that reflects summer sunlight can also reflect winter warmth that might otherwise help heat a building. Reflective materials may cost more at installation, and they do not provide shade for people walking on hot streets. The planners acknowledge these limits and recommend reflective roofs as one part of a larger plan, alongside insulation, shade trees, and cooling centers. This qualification makes their proposal more credible because it avoids promising a single cure.

2 ANSWER WITH EVIDENCE

Use the passage

1. Write a one-sentence main idea statement that summarizes the passage's argument and its limits.

2. How does the author develop the argument across the three paragraphs? Describe what each paragraph adds.

3. Which evidence in paragraph 2 is most directly relevant to the claim that reflective roofs can lower cooling demand? Explain why it is relevant.

4. Is the evidence in the passage sufficient to prove that reflective roofs will solve every city heat problem? Use a detail from the passage to explain your answer.

3 YOUR TURN

Your own words

A school is deciding whether to install a reflective roof. Write exactly three sentences that make a recommendation, use at least two details from the passage as evidence, and explain one limit the school should consider.

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PART 1 · READ AND MARK

Underline the planners' claim, circle two details that support it, and number the limits or qualifications the author includes. These marks will help you evaluate how the argument is built. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Write a one-sentence main idea statement that summarizes the passage's argument and its limits.	**Reflective roofs can reduce building cooling needs, but planners present them as one useful part of a larger heat-reduction plan because costs, climate, and other needs must be considered.**
2	How does the author develop the argument across the three paragraphs? Describe what each paragraph adds.	**The first paragraph states the planners' claim, the second provides measurements and explains the connection to citywide electricity demand, and the third gives limits and presents reflective roofs as part of a larger plan.**
3	Which evidence in paragraph 2 is most directly relevant to the claim that reflective roofs can lower cooling demand? Explain why it is relevant.	**The evidence that bright roofs have cooler surfaces and that white roofs can reduce cooling energy use is most relevant because it directly connects reflective materials to lower cooling needs.**
4	Is the evidence in the passage sufficient to prove that reflective roofs will solve every city heat problem? Use a detail from the passage to explain your answer.	**No. The evidence supports lower cooling demand, but the passage explains that reflective roofs may cost more, can be less useful in cold climates, and do not shade people on streets.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Our school should consider a reflective roof because bright surfaces stay cooler in sunlight and can reduce the electricity needed for air conditioning. This choice could also help lower peak demand when many buildings run air conditioners during a heat wave. However, the school should compare installation costs and local winter heating needs before deciding.

Accept equivalent main ideas and evaluations that accurately use passage evidence. For the open task, accept varied recommendations if students include two accurate details, one relevant limitation, and exactly three sentences.