Cool Roof Claims

Evaluate the evidence behind a city heat proposal

9-10.RST.8 "Delineate (break down) and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid, and the evidence is relevant and sufficient."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each proposal about coating bus shelters, circle the measurements used to support it, and number any details that limit what the measurements can prove. Use your marks to judge which proposal the evidence supports.

Should Bus Shelters Get Cool Roofs?

(1) At a bus stop in July, waiting under a metal roof can feel like standing beside an oven. A city engineer argues that the city should test reflective roof coating on more bus shelters, but should not coat every shelter yet. The coating is designed to reflect more sunlight than dark paint, so its roof should absorb less solar energy. That physical explanation suggests a possible benefit, but it does not show how much cooler the air would be where riders stand. To investigate, the engineer and a student team compared a coated shelter with an uncoated shelter on four sunny afternoons in one neighborhood.

(2) Across the four afternoons, the coated roof's surface averaged 9°C cooler than the uncoated roof's surface. Shaded air at rider head height averaged 1°C cooler at the coated shelter. The team took each reading at the same time of day, using the same type of thermometer. Yet the shelters faced different directions, and one stood beside a tree. Either difference could change the amount of sunlight or breeze each shelter received. The team did not count riders or record how long anyone waited. Its measurements describe two shelters during a brief stretch of summer, not conditions across the city.

(3) The engineer concludes that a larger trial is worth funding because the coating has a plausible physical explanation and the first readings point toward cooler roofs. However, a council member argues that the same readings justify coating all 200 city shelters immediately. That proposal assumes a cooler roof will reliably reduce riders' heat exposure in many neighborhoods and weather conditions. Four afternoons at one pair of shelters cannot establish that outcome, and the team did not measure riders' heat exposure. A larger trial could compare several matched shelters over a full summer before the city spends money on every roof.

2 ANSWER WITH EVIDENCE

Use the passage

1. What does the engineer propose, and how does that proposal differ from the council member's claim?

2. Which measurement is more directly relevant to riders' experience, roof surface temperature or air temperature at rider head height? Explain your choice.

3. Does the comparison prove that the coating caused the temperature differences? Identify one detail that weakens that conclusion.

4. Are the readings sufficient to support a larger trial, coating all 200 shelters, both, or neither? Defend your judgment using the passage.

3 YOUR TURN

Your own words

Design a follow-up test that would give the city stronger evidence about the coating's effect on riders. In four sentences, describe how you would compare shelters, what you would measure, and how two possible results would affect your recommendation.

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PART 1 · READ AND MARK

Underline each proposal about coating bus shelters, circle the measurements used to support it, and number any details that limit what the measurements can prove. Use your marks to judge which proposal the evidence supports. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What does the engineer propose, and how does that proposal differ from the council member's claim?	**The engineer proposes a larger trial before coating every shelter. The council member wants to coat all 200 shelters immediately.**
2	Which measurement is more directly relevant to riders' experience, roof surface temperature or air temperature at rider head height? Explain your choice.	**Air temperature at rider head height is more directly relevant because it measures the air where riders stand. Roof surface temperature measures the roof, not the air around riders.**
3	Does the comparison prove that the coating caused the temperature differences? Identify one detail that weakens that conclusion.	**No. The shelters faced different directions, and one was beside a tree. Either difference could affect sunlight or breeze and help explain the readings.**
4	Are the readings sufficient to support a larger trial, coating all 200 shelters, both, or neither? Defend your judgment using the passage.	**They support a larger trial, not an immediate citywide rollout. The readings suggest cooler roofs, but they come from only two shelters on four afternoons and do not measure riders' heat exposure.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would randomly assign coating to one shelter in each of 12 pairs matched for roof direction and nearby trees. Over a full summer, I would measure air temperature at rider head height and record how long riders wait at each shelter. If coated shelters consistently have cooler rider-level air under similar conditions, I would recommend considering expansion. If the differences are small or inconsistent, I would recommend against coating every shelter.

Accept other defensible judgments about funding a trial if students distinguish evidence for further testing from evidence for a citywide rollout. For Part 3, look for a comparison that addresses possible confounding factors, a rider-relevant measure, and recommendations tied to the proposed results.