Roof Decision Test

Assess how evidence and reasoning support a technical recommendation.

CCSS.ELA-Literacy.RST.9-10.8 "Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the author's claim and final recommendation. Circle each piece of evidence, then number the reasoning links that explain how the evidence supports, limits, or tests the recommendation.

A Cooler Roof for Riverton High

1 At Riverton High, the science wing roof is scheduled for replacement next summer. Facilities manager Lena Ortiz recommends installing a white, reflective cool roof rather than the standard dark membrane. Her claim is that the reflective roof will lower the wing's summer cooling demand enough to justify its higher initial price. Cool roofs reflect more sunlight and absorb less heat than dark roofs. On sunny July afternoons, the current roof surface has reached 74°C, according to the district's maintenance log. Heat moving from that surface into the building makes air-conditioning equipment work harder. Ortiz proposes comparing costs over the roof's expected 20-year service life, not only at purchase.

2 To estimate savings, Ortiz used an energy model with three years of the wing's electricity bills, local weather records, and the planned insulation level. The model predicts that a white roof would cut summer electricity use by about 18,000 kilowatt-hours each year. At the school's current electricity price of 23 cents per kilowatt-hour, that equals about $4,140 annually. The reflective material would add $27,000 to the replacement contract. Under those assumptions, the added cost would be recovered in roughly seven years, and twenty years of modeled savings would exceed the premium.

3 Still, the proposal has limits. The model assumes electricity prices remain near the current rate and that classrooms will be cooled for similar hours each summer. If schedules change or prices fall, savings could be smaller. A cool roof can also slightly increase winter heating demand because it absorbs less solar heat. Ortiz does not provide a winter energy estimate or evidence about how often the roof will need cleaning to stay reflective. Even so, she recommends the cool roof if the board first asks for a full-year energy analysis and a maintenance estimate. That added information would test whether the projected savings remain strong.

2 ANSWER WITH EVIDENCE

Use the passage

1. What is Ortiz's central claim about the cool roof, and what recommendation does she make to the board?

2. Identify one piece of numerical evidence that supports Ortiz's claim. Explain how it supports her reasoning.

3. Which two limits in the passage make the projected savings less certain?

4. How strong is the support for Ortiz's final, qualified recommendation? Use evidence from the passage to explain your judgment.

3 YOUR TURN

Your own words

Choose a scientific or technical recommendation from a source you have read. In exactly three sentences, state the recommendation, assess whether one piece of evidence supports its reasoning, and name one additional piece of evidence needed before a decision is made.

ANSWER KEY

Roof Decision Test

HIGH SCHOOL · RST.9-10.8

PART 1 · READ AND MARK

Underline the author's claim and final recommendation. Circle each piece of evidence, then number the reasoning links that explain how the evidence supports, limits, or tests the recommendation. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What is Ortiz's central claim about the cool roof, and what recommendation does she make to the board?	**She claims that a reflective roof can lower summer cooling demand enough to justify its higher price. She recommends choosing it only after the board receives a full-year energy analysis and a maintenance estimate.**
2	Identify one piece of numerical evidence that supports Ortiz's claim. Explain how it supports her reasoning.	**The model predicts annual savings of about $4,140, while the added material cost is $27,000. This supports her reasoning because the projected savings could recover the added cost in roughly seven years and exceed it over twenty years.**
3	Which two limits in the passage make the projected savings less certain?	**The model assumes similar cooling schedules and electricity prices near the current rate. It also lacks a winter energy estimate and information about cleaning needs; any two of these limits are acceptable.**
4	How strong is the support for Ortiz's final, qualified recommendation? Use evidence from the passage to explain your judgment.	**The support is moderate because the model uses bills, weather records, insulation plans, and a cost comparison, but it leaves out winter heating effects and maintenance needs. Her condition that the board get more analysis makes the recommendation more reasonable.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A transit agency report recommends replacing diesel buses with electric buses. Its claim is partly supported by evidence that electric buses have no tailpipe emissions, but that evidence alone does not show the plan's total cost or reliability. The report should add local route, charging, and maintenance data before the city decides.

Accept reasoned judgments that accurately distinguish evidence from assumptions or missing evidence. For the open task, responses must contain exactly three sentences and assess support rather than merely summarize the recommendation.