

The Roof Argument

Study how a model explanation builds a claim with evidence and limits.

CCSS.ELA-Literacy.W.11-12.2 "Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the first sentence. Write 1 beside the next four sentences in paragraph 1 for explanation, 2 beside the four sentences from "For example" through the end of paragraph 2 for evidence, and 3 beside the four sentences before "Therefore" in paragraph 3 for limits or conditions.

Can Cool Roofs Help Cities?

- ① Cool roofs can reduce heat gain in buildings and help cities manage high temperatures. Traditional dark roofs absorb sunlight and transfer some of that energy into buildings and the air above them. A cool roof is coated or surfaced with materials that reflect more solar energy and emit absorbed heat more readily. This design can lower roof temperatures on sunny days, reducing heat that enters the building. In dense neighborhoods, widespread use may also reduce the urban heat island effect, the tendency for developed areas to be warmer than nearby less-built places.
- ② Field comparisons provide concrete evidence for this explanation. For example, researchers have compared white and black roof sections over similar spaces in the same building. During sunny summer conditions, white surfaces are typically substantially cooler, and spaces beneath them can require less cooling energy. The comparison is useful because it reduces differences in building type and location that could otherwise distort the result. By connecting a physical process to measured results, such studies support the claim that reflective roofs can reduce heat gain inside buildings.
- ③ Cool roofs are not a complete response to high urban temperatures. Their performance depends on climate, roof slope, insulation, building use, and whether nearby trees shade the roof. In cold seasons, a highly reflective roof can also reduce helpful solar warming, although local energy costs and design choices affect the overall result. Roof coatings may weather or become dirty, changing how much sunlight they reflect. Therefore, a clear proposal should identify the intended benefit, use local data, and compare cool roofs with other measures, such as shade trees or improved insulation.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What two outcomes does the central claim connect to cool roofs?

2 Why does the field comparison use white and black roof sections over similar spaces in the same building?

3 How does paragraph 3 qualify the passage’s claim about cool roofs? Give two conditions or limits from the paragraph.

4 How does the organization of the three paragraphs help the writer explain a complex idea clearly?

3 YOUR TURN _____ Your own words

Write a 90-110-word explanatory recommendation to a school facilities committee about whether it should examine cool roofs. State a qualified claim, use at least two passage details including one evidence detail and one limit or condition, then end by naming one comparison the committee should make.

PART 1 • READ AND MARK

Underline the first sentence. Write 1 beside the next four sentences in paragraph 1 for explanation, 2 beside the four sentences from “For example” through the end of paragraph 2 for evidence, and 3 beside the four sentences before “Therefore” in paragraph 3 for limits or conditions. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What two outcomes does the central claim connect to cool roofs?	Cool roofs can reduce heat gain in buildings and help cities manage high temperatures.
2	Why does the field comparison use white and black roof sections over similar spaces in the same building?	Using similar spaces in one building reduces differences in building type and location that could distort the result.
3	How does paragraph 3 qualify the passage’s claim about cool roofs? Give two conditions or limits from the paragraph.	It explains that cool roofs are not a complete solution and that their value can depend on factors such as climate, insulation, roof slope, shading, winter solar warming, or weathered coatings.
4	How does the organization of the three paragraphs help the writer explain a complex idea clearly?	Paragraph 1 states the claim and explains the process, paragraph 2 supplies field-comparison evidence, and paragraph 3 addresses limits and recommends using local data and comparing options.

PART 3 • YOUR TURN (SAMPLE ANSWER)

A school facilities committee should examine cool roofs as one way to lower heat gain, especially on sunny roofs. Field comparisons of white and black roof sections over similar spaces show that white surfaces can remain cooler and that the spaces below can need less cooling energy. However, the committee should not treat a reflective roof as a complete solution. Climate, insulation, roof slope, and winter solar warming can affect its value. Before choosing a coating, the committee should use local data and compare the roof plan with options such as shade trees or improved insulation.

Accept equivalent descriptions of the passage’s claim, evidence, limits, and organization. For the open response, require a qualified recommendation, accurate use of passage evidence, at least one stated condition or limit, and a comparison with another measure.