

Cooling From Above

Analyze how an explanatory model selects, organizes, and qualifies information.

9-10W2 "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 In each paragraph, underline the one sentence that states the paragraph's broad central point, rather than a supporting example, cause, or limit. Write 1 beside your underlined sentence in paragraph 1, 2 beside it in paragraph 2, and 3 beside it in paragraph 3 to show how the writer organizes the explanation.

Why Reflective Roofs Matter

- ① Reflective roofs can reduce heat inside buildings by sending more sunlight back into the atmosphere. Dark roofing absorbs solar energy and transfers some of that energy into a building as heat. A light-colored or specially coated roof has a higher solar reflectance, so its surface stays cooler in direct sun. This change matters most in places with long, hot summers and many low, flat roofs. By lowering roof temperature, reflective materials can reduce the work required from air-conditioning systems. They do not eliminate the need for insulation, shade, or efficient equipment.
- ② The energy savings occur because a cooler roof slows the flow of heat from outdoors to indoors. On a sunny day, a conventional dark roof may become much hotter than the surrounding air, while a reflective roof absorbs less radiation. Less absorbed energy means less heat moves through the roof structure, especially when insulation is present. As indoor temperatures rise more slowly, an air conditioner may run for fewer or shorter cycles. The benefit varies with local weather, roof design, electricity prices, and building use. Therefore, a reflective roof should be evaluated as one part of a larger cooling plan.
- ③ Reflective roofs also affect neighborhoods, not just individual buildings. When many roofs absorb less sunlight, they can help limit the urban heat island effect, the tendency for built-up areas to be warmer than nearby rural land. Cooler surfaces may improve comfort during heat waves and lower peak electricity demand. However, a roof coating must be maintained, and its cost may be harder to justify in cool climates where winter heating is a major concern. City planners can use local climate data and building inventories to decide where reflective-roof programs will have the strongest effect.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What is the central point of paragraph 2? Name two details the writer uses to develop that point.

2 How does paragraph 2 organize its explanation of energy savings? Describe the cause-and-effect sequence.

3 How does paragraph 3 add complexity to the explanation instead of only repeating the benefits from earlier paragraphs?

4 Why is the final sentence of paragraph 2 an effective concluding sentence for that paragraph?

3 YOUR TURN _____ Your own words

Write a 90-110-word explanatory paragraph about one practical change your school could make to reduce waste, save energy, or improve student health. Begin with a clear central point, include two relevant factual details, explain how the details support your point, and include one reasonable limitation or condition.

PART 1 • READ AND MARK

In each paragraph, underline the one sentence that states the paragraph's broad central point, rather than a supporting example, cause, or limit. Write 1 beside your underlined sentence in paragraph 1, 2 beside it in paragraph 2, and 3 beside it in paragraph 3 to show how the writer organizes the explanation. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What is the central point of paragraph 2? Name two details the writer uses to develop that point.	Paragraph 2 explains that cooler roofs save energy by slowing heat flow into a building. It explains that reflective roofs absorb less radiation and that an air conditioner may run for fewer or shorter cycles.
2	How does paragraph 2 organize its explanation of energy savings? Describe the cause-and-effect sequence.	It moves from less solar radiation absorbed by the roof, to less heat moving through the roof, to indoor temperatures rising more slowly, to the air conditioner running less.
3	How does paragraph 3 add complexity to the explanation instead of only repeating the benefits from earlier paragraphs?	It expands the focus from individual buildings to neighborhoods, gives community benefits, and adds maintenance and climate-related limits.
4	Why is the final sentence of paragraph 2 an effective concluding sentence for that paragraph?	It sums up the idea that reflective roofs can save energy while qualifying that the benefit depends on several conditions and should be part of a larger plan.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Installing bottle-filling stations can reduce the amount of single-use plastic a school sends to trash bins. A station gives students cold, filtered water and displays how many bottles it has saved, making the alternative easy to notice and use. Because students can refill a reusable bottle between classes, they may buy fewer drinks packaged in plastic. The school may also need fewer custodial hours to collect bottles from crowded hallways and lunch areas. Although the stations require installation and filter replacements, the change can support waste reduction when the school also provides access to reusable bottles.

Accept equivalent wording that accurately identifies the passage's central points, supporting details, organization, and qualifications. For the open response, look for a focused topic sentence, relevant details, explanation of their significance, and a realistic limit or condition.