After the Sun

Trace causes, solutions, and limits in an informational text.

7.RI.10.a "Demonstrate proficiency in reading and comprehending grade-appropriate texts."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one detail in each paragraph that explains how sunlight affects heat. Circle a detail that limits where a cooling solution will work, then use your marks to connect the ideas.

Why the Sidewalk Stays Warm

1 On a summer evening, Maya steps off a bus and feels warmth rising from the sidewalk. The sun has set, so why is the pavement still hot? During the day, asphalt and concrete absorb sunlight and store some of that energy as heat. After sunset, they release it slowly. This helps explain why a city block can stay warmer than a nearby grassy field at night. The field has fewer hard surfaces that hold heat, while streets and buildings have many surfaces that warmed throughout the day.

2 Trees can interrupt this cycle before the sidewalk gets hot. Their leaves block some sunlight, shading pavement and people beneath them. Trees also take up water through their roots. As water leaves their leaves and enters the air, it carries away some heat. This process can cool the nearby air, not just the ground in the shade. Yet a tree needs room for roots and enough water to survive. Planting one beside every narrow sidewalk may not be possible, even where shade would help.

3 Some cities also use lighter-colored roofs to reflect more sunlight. A roof that reflects light absorbs less heat during the day, which can lower the need to cool the building below it. But a cooler roof does not automatically protect someone waiting at a bus stop: it offers no shade at street level. The best response depends on where heat is causing trouble. Trees can help people on the sidewalk, while reflective roofs can help buildings. Both address daytime heating, which affects how much warmth surfaces release later.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why can the sidewalk feel warm after sunset even though the sun is gone? Connect two details from the first paragraph.

2. How do trees cool an area in two different ways? What might limit where a city can plant them?

3. A city adds a lighter-colored roof to a building beside a bus stop. Why might riders still feel hot while they wait?

4. What main idea connects the examples of pavement, trees, and roofs? Support your answer with two examples from the passage.

3 YOUR TURN

Your own words

Imagine a sunny, paved school pickup area with little space for trees. Propose a change not named in the passage to make waiting there cooler, and explain how two facts from the passage support it. Include one possible limit of your plan.

After the Sun

PART 1 · READ AND MARK

Underline one detail in each paragraph that explains how sunlight affects heat. Circle a detail that limits where a cooling solution will work, then use your marks to connect the ideas. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why can the sidewalk feel warm after sunset even though the sun is gone? Connect two details from the first paragraph.	**Pavement absorbs sunlight and stores energy as heat during the day, then releases that heat slowly after sunset.**
2	How do trees cool an area in two different ways? What might limit where a city can plant them?	**Leaves shade pavement and people, and water leaving the leaves helps cool nearby air. Trees need room for roots and enough water.**
3	A city adds a lighter-colored roof to a building beside a bus stop. Why might riders still feel hot while they wait?	**The roof reflects sunlight and absorbs less heat, but it does not shade riders or the pavement at street level.**
4	What main idea connects the examples of pavement, trees, and roofs? Support your answer with two examples from the passage.	**Reducing heat depends on how a place warms and where cooling is needed. Pavement stores heat from sunlight, while trees shade people at street level and reflective roofs reduce heat absorbed by buildings.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would put a shade canopy over the waiting area. The passage says pavement absorbs sunlight and holds heat, so blocking that sunlight could keep the ground from warming as much. It also explains that tree leaves shade people, so a canopy could give people similar protection without room for roots. The canopy posts might crowd the walkway.

Accept other main-idea statements and cooling proposals when students connect them accurately to passage evidence. For Part 3, the change must not be a tree or reflective roof, and the response must identify a plausible limit.