Shade, Heat, Evidence

Use details from an informational text to build a careful recommendation.

CCSS.ELA-Literacy.WHST.9-10.9 "Draw evidence from informational texts to support analysis, reflection, and research."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two details that could support a decision about planting trees. Circle two details that show why one source or one solution may have limits.

Trees and City Heat

1 On a summer afternoon, pavement can become much hotter than the air above it. In cities, dark roofs and roads absorb sunlight, then release heat slowly after sunset. This pattern helps create an urban heat island, a place where built-up areas are warmer than nearby rural land. Trees can reduce this effect in two ways. Their leaves block some sunlight from reaching sidewalks and buildings, and water released from leaves cools the surrounding air as it evaporates. The cooling is strongest where trees have healthy, broad canopies and enough soil water.

2 Researchers do not treat every planting project as equally useful. In studies of several U.S. cities, scientists have combined temperature measurements with maps of tree cover. Neighborhood blocks with more canopy generally had lower daytime surface temperatures than nearby blocks with less canopy. However, the researchers cautioned that surface temperature is not the same as the temperature people feel at every moment. Shade, wind, building materials, and access to air conditioning also affect heat exposure. The study supports planting trees as one strategy, but it does not prove that trees alone will solve every neighborhood's heat risk.

3 Evidence can guide a fair decision about where to plant trees first. A city might compare canopy maps with records of heat-related emergency calls, public transit stops, and the locations of apartments without central cooling. These sources answer different questions. A canopy map shows where shade is scarce, while emergency-call records may show where heat is harming residents. Still, records can be incomplete, and a map cannot reveal whether a tree is healthy or whether people can reach its shade. Decision makers should use several sources, explain their limits, and ask residents about local conditions before choosing a site.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which detail from paragraph 1 best supports the idea that trees can cool a city in a way besides providing shade? Explain how the detail supports that idea.

2. A student claims, “Tree planting should be part of a heat plan, not the entire plan.” Give one finding and one caution from paragraph 2 that support this claim.

3. Which two details in paragraph 3 challenge the idea that a city can choose planting sites by looking at only a canopy map?

4. Which two sources from paragraph 3 would best help a researcher identify places with both little shade and evidence of heat harm? Explain what each source can show.

3 YOUR TURN

Your own words

Write a three-sentence recommendation to a city council about how it should choose places for new trees. State a claim, use two paraphrased or quoted details from two different paragraphs, and include one limitation planners should consider.

ANSWER KEY

Shade, Heat, Evidence

HIGH SCHOOL · WHST.9-10.9

PART 1 · READ AND MARK

Underline two details that could support a decision about planting trees. Circle two details that show why one source or one solution may have limits. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which detail from paragraph 1 best supports the idea that trees can cool a city in a way besides providing shade? Explain how the detail supports that idea.	**"Water released from leaves cools the surrounding air as it evaporates." This supports the idea because evaporation can cool the air.**
2	A student claims, "Tree planting should be part of a heat plan, not the entire plan." Give one finding and one caution from paragraph 2 that support this claim.	**Finding: Blocks with more canopy generally had lower daytime surface temperatures. Caution: Surface temperature is not always the temperature people feel, and other factors such as wind, building materials, and air conditioning affect heat exposure.**
3	Which two details in paragraph 3 challenge the idea that a city can choose planting sites by looking at only a canopy map?	**Emergency-call records may show where heat is harming residents, and a canopy map cannot show whether a tree is healthy or whether people can reach its shade.**
4	Which two sources from paragraph 3 would best help a researcher identify places with both little shade and evidence of heat harm? Explain what each source can show.	**A canopy map can show where shade is scarce. Heat-related emergency-call records may show where heat is harming residents.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The city should plant and care for trees first near transit stops and apartments without central cooling. Paragraph 1 explains that leaves shade surfaces and evaporation cools air, while paragraph 3 says canopy maps and emergency-call records can identify scarce shade and heat harm. Because records may be incomplete and maps do not show tree health, planners should ask residents before selecting sites.

Accept recommendations that make a clear decision and support it with accurate evidence from two different paragraphs. The response should also name a relevant limit, such as incomplete records, missing map information, or other factors affecting heat exposure.