

Heat Evidence Check

Compare sources, findings, and limits in a local investigation.

CCSS.ELA-Literacy.RST.9-10.9 "Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each source's finding, circle language that shows agreement or a limit, and label the three sources 1, 2, and 3.

Trees and Hot Streets

- ① On summer afternoons, city blocks can be much hotter than nearby parks. This difference, called the urban heat island effect, happens because dark roofs and pavement absorb sunlight and release heat slowly. In a 2023 report, the National Oceanic and Atmospheric Administration explained that trees cool neighborhoods by shading surfaces and moving water into the air. The report predicted that streets with more tree cover would usually have lower surface temperatures than streets with little shade.
- ② The Environmental Protection Agency reaches a similar conclusion. Its guidance on heat islands says trees and vegetation lower surface and air temperatures through shade and evapotranspiration. However, the agency also notes that cooling varies with tree size, planting location, weather, and nearby materials. Unlike NOAA's broad prediction, this account warns that adding a few young trees may not quickly cool every hot block. Both sources explain cooling, but the EPA gives more limits on when the effect will be strong.
- ③ To test the two accounts, students measured surface temperatures at 3 p.m. on the same clear day. An infrared thermometer showed 128°F on an unshaded asphalt lot, 101°F on grass beneath mature mesquite trees, and 119°F on a sidewalk beside newly planted trees. The results support both sources: established shade was linked to cooler surfaces. They also support the EPA's caution, because the young trees produced less cooling than the mature trees. The investigation cannot prove that tree age alone caused the difference.

2 ANSWER WITH EVIDENCE Use the passage

1 How does the EPA account add a limit to NOAA's prediction?

2 Which measurement most strongly supports the shared finding that trees can cool surfaces? Explain.

3 What investigation finding supports the EPA's caution about young trees?

4 Why can the student investigation not prove that tree age alone caused the temperature difference?

3 YOUR TURN Your own words

Choose a claim from another science or health source. In 2 sentences, describe a simple observation or experiment and explain what result would support or contradict the source.

PART 1 • READ AND MARK

Underline each source's finding, circle language that shows agreement or a limit, and label the three sources 1, 2, and 3. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How does the EPA account add a limit to NOAA's prediction?	The EPA says cooling depends on conditions such as tree size and location, so young trees may not cool every block quickly.
2	Which measurement most strongly supports the shared finding that trees can cool surfaces? Explain.	The 101°F grass beneath mature trees was much cooler than the 128°F unshaded asphalt lot.
3	What investigation finding supports the EPA's caution about young trees?	The sidewalk beside young trees measured 119°F, much warmer than the grass beneath mature trees at 101°F.
4	Why can the student investigation not prove that tree age alone caused the temperature difference?	The sites had different surfaces and locations, so factors besides tree age could have affected temperature.

PART 3 • YOUR TURN (SAMPLE ANSWER)

A science article says dark paper warms faster in sunlight than white paper. I would place equal pieces of dark and white paper in sunlight; if the dark paper becomes warmer, the result supports the article, but if it does not, the result contradicts it.

Accept answers that accurately compare a finding with another source or with the student investigation. For Part 3, accept a clear source claim, a feasible test, and an explicit support-or-contradict explanation.