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. Source 1 : NOAA's Science On a Sphere page "ClimateBits: Urban Heat Islands" hosts a NASA-developed explanation of city heat. Pavement and buildings change how heat and water move through a landscape. Plants retain water and cool through evaporation. The page also explains that weather, surfaces, and season affect temperature. This is an explanatory resource, not a report of the classroom investigation below.

2. Source 2 : EPA's "Benefits of Trees and Vegetation" explains that shade and evapotranspiration can lower surface and air temperatures. Its focus is how vegetation helps reduce heat. Both sources describe cooling processes. NOAA gives broader context for urban temperature differences, while EPA focuses on benefits of vegetation; their different emphases do not establish a disagreement.

3. Source 3 : Simulated classroom investigation: at 3 p.m. on one clear day, an infrared thermometer reads 128°F on an unshaded asphalt lot, 101°F on grass beneath mature trees, and 119°F on a sidewalk near young trees. These invented results are consistent with cooler shaded surfaces, but surface type, location and shade differ together. They cannot show how much cooling is caused by tree age alone.

2 ANSWER WITH EVIDENCE

Use the passage

1. How do the NOAA and EPA accounts differ in emphasis, and where do they agree?

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

3. Does 119°F near young trees versus 101°F beneath mature trees establish a tree-age effect? Explain.

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.

ANSWER KEY

Heat Evidence Check

HIGH SCHOOL · RST.9-10.9

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 do the NOAA and EPA accounts differ in emphasis, and where do they agree?	**NOAA explains several factors in urban heat; EPA focuses on vegetation's cooling benefits. Both describe cooling associated with plants and water.**
2	Which measurement most strongly supports the shared finding that trees can cool surfaces? Explain.	**The shaded grass reading, 101°F, is below the unshaded asphalt reading, 128°F. This is consistent with the cooling claim, but the materials and locations also differ.**
3	Does 119°F near young trees versus 101°F beneath mature trees establish a tree-age effect? Explain.	**No. The sites also differ in surface material, shade and location. These measurements do not isolate age.**
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 source claims dark paper warms more in sunlight than white paper. I would compare equal pieces with matching starting temperatures, sunlight, exposure time and thermometers; repeated warmer dark-paper readings would support the claim under those conditions, while equal or cooler readings would challenge 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. Sources: NOAA Science On a Sphere, "ClimateBits: Urban Heat Islands," sos.noaa.gov/catalog/datasets/climatebits-urban-heat-islands/; EPA, "Benefits of Trees and Vegetation," epa.gov/heatislands/benefits-trees-and-vegetation. No invented report date or specific agency warning about young trees is implied.