Evidence and Voice

Read a scientific explanation for precision, restraint, and clarity.

9-10.W.1.d "Establish and maintain a formal style and clear voice while attending to the norms and conventions of the discipline in which they are writing."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two precise scientific terms, circle two words or phrases that qualify a claim, and number one sentence that limits a conclusion. These choices help the writer maintain a formal scientific voice.

Why Pavement Holds Heat

1. On a summer afternoon, a paved schoolyard can feel hotter than a nearby lawn. This difference involves more than the air temperature. Dark pavement absorbs a substantial portion of incoming sunlight, while grass uses some of that energy to evaporate water from its leaves and surrounding soil. Evaporation transfers energy away from the surface, limiting its temperature rise. Pavement, by contrast, stores heat and can release it after sunset. Environmental scientists call the higher temperatures often found in built-up areas the urban heat island effect. The effect varies with weather, land cover, and the arrangement of buildings.

2. To investigate this effect at a school, researchers could compare surface temperatures on pavement and grass using an infrared thermometer. Measurements should be taken at the same time of day and under similar sunlight conditions. Researchers should also repeat the measurements on several days, since clouds and rain can change the results. An infrared thermometer measures the surface, not the air above it. Therefore, a warmer pavement reading would support a claim about surface heating, but it would not, by itself, establish how much the surrounding air warmed. This distinction keeps the conclusion within the evidence.

3. If repeated measurements show higher pavement temperatures, a school could test whether additional shade changes those readings. Trees and shade structures reduce the sunlight that reaches the ground, but their effects depend on location and time of day. A comparison of shaded and unshaded pavement would offer stronger evidence than an impression that one space feels cooler. Even then, the results from one school should not be treated as a prediction for every city. Reporting these limits makes the proposed response more useful to decision-makers.

2 ANSWER WITH EVIDENCE

Use the passage

1. Choose one scientific term in the first paragraph. How does it make the explanation more precise than saying that pavement gets hot?

2. Why does the second paragraph specify that an infrared thermometer measures the surface, not the air?

3. In the second paragraph, why is “would support” more appropriate than “would prove”?

4. Find a phrase in the third paragraph that limits a prediction. Explain why that limit belongs in a scientific report.

3 YOUR TURN

Your own words

Write a five-sentence environmental science paragraph about this observation: Two equal-sized puddles formed on the same sidewalk after rain, and the puddle in direct sunlight dried first. Use a formal voice, explain a plausible process, and name one limit on what the observation proves.

Evidence and Voice

PART 1 · READ AND MARK

Underline two precise scientific terms, circle two words or phrases that qualify a claim, and number one sentence that limits a conclusion. These choices help the writer maintain a formal scientific voice. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Choose one scientific term in the first paragraph. How does it make the explanation more precise than saying that pavement gets hot?	**"Evaporation" names a process that transfers energy away from grass, helping explain why its surface may heat less than pavement.**
2	Why does the second paragraph specify that an infrared thermometer measures the surface, not the air?	**The distinction prevents the writer from treating a surface reading as evidence of a change in air temperature.**
3	In the second paragraph, why is "would support" more appropriate than "would prove"?	**A warmer pavement reading could support a claim about surface heating, but one reading cannot establish how much the surrounding air warmed.**
4	Find a phrase in the third paragraph that limits a prediction. Explain why that limit belongs in a scientific report.	**"The results from one school should not be treated as a prediction for every city" limits how widely the findings can be applied because conditions may differ elsewhere.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

After rainfall, two equal-sized puddles formed on the same sidewalk, and the one in direct sunlight dried first. Sunlight can warm water, increasing the rate of evaporation. This process may explain the difference in drying time. However, the observation does not establish that sunlight was the only factor because airflow over the puddles was not measured. Repeated observations under comparable conditions would provide stronger evidence for the explanation.

Accept other accurately identified scientific terms and qualifying language when students explain how each choice improves precision or keeps a claim within the evidence. For the writing task, look for five sentences, a formal voice, a plausible explanation, and an explicit limit.