Hot Tile Evidence

Use measurements to test what a claim can support.

FSL.3D.1 "Select the hypothesis, prediction, or conclusion that is, or is not, supported by data presentation or pieces of informational text."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle two table readings you can compare, then underline one sentence in the passage that limits what you can conclude from them.

A Test on the School Grounds

1 At noon on a clear summer day, a science club tested four concrete tiles beside its school. Each tile was the same size and made from the same batch of concrete. Two were painted matte black, and two were painted matte white. The students wanted to compare surface temperatures in sunlight and shade.

2 They placed one tile of each color in direct sunlight and the other two beneath a tree. After sixty minutes, they measured the center of each tile with the same surface thermometer. They recorded one reading per tile, shown below. The air temperature was 30°C when they took the readings.

TILE SURFACE TEMPERATURES AFTER SIXTY MINUTES

Tile color	Location	Surface temperature (°C)
Black	Sunlight	44
White	Sunlight	36
Black	Shade	31
White	Shade	30

3 The tiles were tested on only one day, at one location. The club did not record temperatures before the sixty minutes began, and the thermometer readings were not repeated. The shaded tiles were beneath a tree, so their surroundings differed from those of the sunny tiles in more than one way.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which prediction fits the sunlight readings: the black tile would be warmer than the white tile, or the white tile would be warmer than the black tile? Use both readings.

2. Which hypothesis fits the black-tile readings better: placement in sunlight is linked to a higher surface temperature, or placement makes no difference? Give the readings.

3. Which conclusion is not supported: the black tile in sunlight ended warmer than the white tile in sunlight, or black tiles always heat up faster than white tiles? Explain.

4. A student predicts that shade would lower a tile's temperature by at least 10°C, regardless of color. Do both color comparisons support that prediction? Show the differences.

3 YOUR TURN

Your own words

Write a recommendation for a playground designer choosing a tile color for an unshaded area. Include one conclusion the data support, with numbers, and one claim about safety that the data do not establish, with a reason.

ANSWER KEY

Hot Tile Evidence

PART 1 · READ AND MARK

Circle two table readings you can compare, then underline one sentence in the passage that limits what you can conclude from them. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which prediction fits the sunlight readings: the black tile would be warmer than the white tile, or the white tile would be warmer than the black tile? Use both readings.	**The black tile would be warmer. In sunlight, it measured 44°C, while the white tile measured 36°C.**
2	Which hypothesis fits the black-tile readings better: placement in sunlight is linked to a higher surface temperature, or placement makes no difference? Give the readings.	**Placement in sunlight is linked to a higher temperature. The black tile measured 44°C in sunlight and 31°C in shade.**
3	Which conclusion is not supported: the black tile in sunlight ended warmer than the white tile in sunlight, or black tiles always heat up faster than white tiles? Explain.	**The claim that black tiles always heat up faster is not supported. The club did not record starting temperatures or measure how temperatures changed over time.**
4	A student predicts that shade would lower a tile's temperature by at least 10°C, regardless of color. Do both color comparisons support that prediction? Show the differences.	**No. The black tiles differed by 13°C, but the white tiles differed by only 6°C.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would choose white tiles for an unshaded area because the white tile measured 36°C in sunlight, compared with 44°C for the black tile. The data do not show that white tiles are safe for bare feet. The club did not test skin contact or provide a safety threshold.

Accept comparisons grounded in the recorded temperatures. Students should distinguish what happened in this test from claims about heating rates, other days, or safety.