Schoolyard Heat Check

Compare temperatures across surfaces and times

FSL.3B.1 "Analyze select data from a simple and complex data presentation (e.g., charts, graphs, diagrams)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle the highest temperature in each row of the table, then underline the two readings you would use to find the largest increase from morning to afternoon.

A Hot Day Underfoot

1. On a clear summer day, a student team investigates how hot different schoolyard surfaces become. They measure surface temperature with an infrared thermometer, which takes a reading without touching the surface. At each time, they check asphalt in direct sun, asphalt under a tree, and grass in direct sun. All readings are in degrees Celsius.

2. The table follows the same three spots across one day. Read across a row to compare surfaces at a single time; read down a column to track one surface over time. A surface temperature is not the same as air temperature. The shaded asphalt sits under tree cover all day, while the grass remains in direct sunlight.

SCHOOLYARD SURFACE TEMPERATURES (°C)

Time	Asphalt in sun	Asphalt under tree	Grass in sun
9 a.m.	27	24	23
Noon	46	30	29
3 p.m.	51	33	31

3. By late afternoon, every measured surface is warmer than it was in the morning. Yet the sites do not warm equally, so a single number cannot tell the whole story. These readings show what happened at these spots on this day. They cannot prove that the same temperatures or differences would appear on a cloudy day.

2 ANSWER WITH EVIDENCE

Use the passage

1. At noon, which spot has the highest surface temperature? How much warmer is it than the grass in sun?

2. At 3 p.m., which two spots have the closest readings? What is the difference between them?

3. Which spot warms the most from 9 a.m. to 3 p.m.? Show the change in temperature.

4. Does the temperature gap between asphalt in sun and asphalt under the tree grow, shrink, or stay the same from 9 a.m. to noon? Use both gaps as evidence.

3 YOUR TURN

Your own words

Plan a follow-up check to see whether the warmest surface at 3 p.m. is also warmest on a cloudy day. Name the spots and time you would measure, then explain how you would compare the new readings with the table and why the current data cannot settle the question.

ANSWER KEY

Schoolyard Heat Check

HIGH SCHOOL · FSL.3B.1

PART 1 · READ AND MARK

Circle the highest temperature in each row of the table, then underline the two readings you would use to find the largest increase from morning to afternoon. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	At noon, which spot has the highest surface temperature? How much warmer is it than the grass in sun?	**Asphalt in sun is highest at 46°C, which is 17°C warmer than grass in sun at 29°C.**
2	At 3 p.m., which two spots have the closest readings? What is the difference between them?	**Asphalt under the tree and grass in sun are closest, at 33°C and 31°C. The difference is 2°C.**
3	Which spot warms the most from 9 a.m. to 3 p.m.? Show the change in temperature.	**Asphalt in sun warms the most: 51°C minus 27°C equals 24°C.**
4	Does the temperature gap between asphalt in sun and asphalt under the tree grow, shrink, or stay the same from 9 a.m. to noon? Use both gaps as evidence.	**The gap grows. It is 3°C at 9 a.m. (27°C minus 24°C) and 16°C at noon (46°C minus 30°C).**

PART 3 · YOUR TURN (SAMPLE ANSWER)

At 3 p.m. on a cloudy day, I would measure the asphalt without tree shade, the asphalt under the tree, and the grass at the same schoolyard spots. I would compare the new readings with the clear-day 3 p.m. values of 51°C, 33°C, and 31°C, and check which surface is warmest. The table covers only one clear day, so it cannot show which surface would be warmest under clouds.

For the follow-up plan, accept any clear comparison of the three original spots at 3 p.m. on a cloudy day that uses the table and recognizes its one-day limitation.