Parachute Data Detectives

Use two teams' results to find patterns and improve a design.

5.1.c "interpreting, analyzing, and evaluating data represent and analyze data using tables and graphs organize simple data sets to reveal patterns that suggest relationships compare and contrast data collected by different groups and discuss..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each parachute design, circle the longest and shortest values for each team in the table, and number the sentences that explain how the data guided a redesign.

Testing Paper Parachutes

1 Two fifth-grade teams tested paper parachutes for a supply-drop challenge. Each team dropped each design five times from the same stair landing. They used the same paper, paper clip mass, and drop height. The table shows each team's average fall time. Longer times meant a gentler landing.

AVERAGE FALL TIME FOR PAPER PARACHUTES

Parachute design	Team River, seconds	Team Hill, seconds
Flat canopy	0.9	1.0
Wide canopy	1.6	1.5
Folded-edge canopy	1.3	1.4
Canopy with vent hole	1.2	1.1

2 Both groups found that the wide canopy stayed in the air longest. The flat canopy had the shortest average time for both teams. This shared pattern suggests canopy area affects air resistance. The groups' exact times were not identical, which could come from small differences in releasing the parachute or timing the drops.

3 The teams chose the wide canopy as their starting design because both sets of data supported it. Next, they planned to test wide canopies with one small center hole. A new table could show whether the hole improves stability without making the fall much faster. Keeping the mass and height the same would make that comparison fair.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which design had the longest average fall time for both teams? Give both times.

2. Compare the folded-edge canopy results. How were Team River's and Team Hill's averages alike and different?

3. What pattern did both teams find, and what relationship did that pattern suggest?

4. What design change did the teams plan next? Name two things they would keep the same to make the comparison fair.

3 YOUR TURN

Your own words

Imagine two groups test three paper bridge designs. Fill the table with possible numbers of pennies each design held, then use the last column to name a next design change supported by the results.

PAPER BRIDGE DESIGN	TEAM A, PENNIES HELD	TEAM B, PENNIES HELD	NEXT DESIGN CHANGE

ANSWER KEY

Parachute Data Detectives

GRADE 5 · 5.1.c

PART 1 · READ AND MARK

Underline each parachute design, circle the longest and shortest values for each team in the table, and number the sentences that explain how the data guided a redesign. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which design had the longest average fall time for both teams? Give both times.	**The wide canopy. Team River averaged 1.6 seconds, and Team Hill averaged 1.5 seconds.**
2	Compare the folded-edge canopy results. How were Team River's and Team Hill's averages alike and different?	**Both averages were close to 1.4 seconds. Team Hill's average was 1.4 seconds, which was 0.1 second longer than Team River's 1.3 seconds.**
3	What pattern did both teams find, and what relationship did that pattern suggest?	**Both teams found that the wide canopy fell longest and the flat canopy fell shortest. This suggested that a larger canopy area affects air resistance and can slow the fall.**
4	What design change did the teams plan next? Name two things they would keep the same to make the comparison fair.	**They planned to test a wide canopy with one small center hole. They would keep the paper clip mass and drop height the same.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

PAPER BRIDGE DESIGN	TEAM A, PENNIES HELD	TEAM B, PENNIES HELD	NEXT DESIGN CHANGE
Flat strip	8	7	Fold the paper into beams
Folded beams	18	19	Make the beams wider
Triangle truss	24	23	Test a taller triangle truss

Accept equivalent comparisons that use the table values correctly. For the open task, accept reasonable invented data if both groups' results can be compared and the next change logically builds on the data.