

Marble Guide Test

Use test results to judge a force design.

S2P2.c "Record and analyze data to decide if a design solution works as intended to change the speed or direction of an object with a force (a push or a pull)."

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline Mina's goal in paragraph 1, then circle the four table results that help her decide if the guide worked.

A Guide for the Marble

- ① Mina built a curved cardboard guide for a marble. Her goal was to use a push to send the marble to the left, toward a cup. Without the guide, the marble rolled straight ahead and missed the cup. The guide was her design solution for this test.
- ② Mina made each test fair. She started the marble at the same spot and used one gentle push each time. She recorded whether the marble reached the cup in her notebook. Then she compared results from tests with the guide and tests without it to find the answer.

MINA'S MARBLE TEST RESULTS

Test	Guide Used?	Reached Cup?
1	Yes	Yes
2	Yes	Yes
3	No	No
4	No	No

- ③ The results showed a pattern. In both tests with the guide, the marble reached the cup. In both tests without the guide, it did not. Mina decided the guide worked as intended because it changed the marble's direction toward the cup after her push each time on the floor during the tests.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What was Mina's goal for the cardboard guide?

2 How many tests reached the cup with the guide? How many reached the cup without the guide?

3 What pattern in the data helped Mina decide that the guide worked?

3 YOUR TURN _____ Your own words

Choose a toy and a design solution that uses a push or pull to change its speed or direction. Fill in three test rows, then use the last row to decide whether your design worked as intended.

MY DESIGN AND GOAL	TRIAL	WHAT HAPPENED?	WHAT THE DATA TELLS ME

PART 1 • READ AND MARK

Underline Mina's goal in paragraph 1, then circle the four table results that help her decide if the guide worked. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What was Mina's goal for the cardboard guide?	Her goal was to send the pushed marble to the left, toward the cup.
2	How many tests reached the cup with the guide? How many reached the cup without the guide?	Two tests reached the cup with the guide. Zero tests reached the cup without the guide.
3	What pattern in the data helped Mina decide that the guide worked?	The marble reached the cup in both tests with the guide and in neither test without the guide.

PART 3 • YOUR TURN (SAMPLE ANSWER)

MY DESIGN AND GOAL	TRIAL	WHAT HAPPENED?	WHAT THE DATA TELLS ME
Curved straw guide, make a toy car turn right	1	After a push, the car turned right.	It met the goal.
Same guide	2	After a push, the car turned right.	It met the goal.
Same guide	3	After a push, the car turned right.	It met the goal.
Conclusion	3 tests	The car turned right each time.	The guide worked as intended.

Accept any accurate statement that compares results with and without the guide. For Your Turn, accept a sensible force design, three recorded results, and a conclusion that uses the results to judge whether the design worked.