Puck Problem

Plan, test, and improve a change in friction.

P.2.6.3 "Develop a plan to change the force (push or pull) of friction to solve a human problem (e.g., improve the ride on a playground slide or make a toy car or truck go faster). Use an engineering design process to define the problem, design..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle the problem, underline Maya's change to the board, and write 1 beside her test and 2 beside the change she plans to try next.

Maya's Game Board

1. At the school fair, a paper puck must slide across a felt game board to reach a star. It stops too soon. Friction is a force that slows the puck when it rubs against the felt. Maya wants to make the puck slide farther.

2. Maya plans to cover part of the felt with wax paper. She thinks the puck will rub less against the wax paper. She tapes the paper flat, then gives the puck the same gentle push on felt and on wax paper.

3. The puck stops short on felt but reaches the star on wax paper. One edge of the wax paper curls up after a few turns. Maya decides to tape down that edge, then test again with the same gentle push.

2 ANSWER WITH EVIDENCE

Use the passage

1. What problem does Maya want to solve, and what force slows the puck?

2. What does Maya put on the board to change the friction? How does she test it?

3. What does Maya learn from her test? What change will she try next?

3 YOUR TURN

Your own words

Pick a different object that slides too far or not far enough. In four sentences, tell the problem, how you would make a change to friction, how you would test it, and what you could change if your first try fails.

ANSWER KEY

Puck Problem

GRADE 2 · P.2.6.3

PART 1 · READ AND MARK

Circle the problem, underline Maya's change to the board, and write 1 beside her test and 2 beside the change she plans to try next. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What problem does Maya want to solve, and what force slows the puck?	**The puck stops before it reaches the star. Friction between the puck and felt slows it.**
2	What does Maya put on the board to change the friction? How does she test it?	**She tapes wax paper over part of the felt. She gives the puck the same gentle push on felt and on wax paper.**
3	What does Maya learn from her test? What change will she try next?	**The puck reaches the star on wax paper but not on felt. She will tape down the curled edge and test again.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

My pencil box slides off my tilted desk. I would stick rubber pads under it to add friction. I would set it on the tilted desk and see if it stays put. If it still slides, I would add more pads and test again.

Accept a different sliding problem and a change that could increase or decrease friction as needed. The response should include a way to test the change and a possible improvement.