Rolling and Rubbing

Find out how friction changes motion and makes heat.

P.2.6.2 "Generate and answer questions about the relationship between (1) friction and the motion of objects and (2) friction and the production of heat."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one sentence that shows how friction changes motion, and circle one sentence that shows how friction makes heat.

Mina's Rug Tests

1. Mina sends a toy car across a smooth floor. It rolls far before it stops. Next, she sends it across a rug with the same push. The car stops sooner on the rug. What changed?
2. The rug rubs against the car's wheels. This rubbing is called friction. Friction works against motion, so the car slows down. The rough rug makes more friction than the smooth floor. That is why the car stops sooner.
3. Mina rubs a wooden block back and forth on the rug. After a while, the bottom of the block feels warmer. Friction can turn some motion into heat. More rubbing can make more heat, even when there is no fire.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why does Mina's car stop sooner on the rug than on the smooth floor?

2. Why does the bottom of the block feel warmer after Mina rubs it on the rug?

3. Write your own question about what friction does in both of Mina's tests. Then answer it using the passage.

3 YOUR TURN

Your own words

Think of a shoe sliding across a floor. Write one question about how friction changes the shoe's motion and one question about how friction might make heat. Answer both questions.

ANSWER KEY

Rolling and Rubbing

GRADE 2 · P.2.6.2

PART 1 · READ AND MARK

Underline one sentence that shows how friction changes motion, and circle one sentence that shows how friction makes heat. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why does Mina's car stop sooner on the rug than on the smooth floor?	**The rough rug makes more friction, which slows the car.**
2	Why does the bottom of the block feel warmer after Mina rubs it on the rug?	**Rubbing makes friction, which turns some of the block's motion into heat.**
3	Write your own question about what friction does in both of Mina's tests. Then answer it using the passage.	**What does friction do in Mina's tests? It slows the car and warms the block.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

How does friction change the sliding shoe's motion? It slows the shoe until it stops. Can friction make the shoe's sole warmer? Yes, rubbing against the floor can warm the sole.

For the marking job, accept sentences that correctly link friction to slowing motion and friction to heat. For the student-written questions, accept other clear wording if the answers explain both effects accurately.