Where Next?

Use measured positions to predict motion.

P.5.6.2 "Predict the future motion of various objects based on past observation and measurement of position, direction, and speed."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the direction each object travels, then circle both objects' positions at 2 and 3 seconds to see how far each moves in one second.

Across the Gym Floor

1. On a smooth gym floor, Nia sets a blue cart and a red toy car beside the same tape line. She releases them at the same moment. The cart rolls east, while the toy car rolls west. A partner records each object's distance from the tape line every second.

POSITIONS ON THE SMOOTH FLOOR

Time (seconds)	Cart: meters east of tape line	Toy car: meters west of tape line
0	0	0
1	2	1
2	4	2
3	6	3

2. The table records distances from the tape line, not the total distance traveled. To find an object's speed, compare how far its position changes during one second. Keep its direction in mind, too. A number alone will not tell you which side of the tape line the object reaches.

3. The floor stays smooth beyond the measured area, so a short prediction can use the pattern in the table. If either object reaches a rough patch or bumps something, its speed or direction may change. In that case, you would need fresh observations before making a reliable new prediction.

2 ANSWER WITH EVIDENCE

Use the passage

1. If the cart keeps moving in the same way, where will it be at 4 seconds?

2. If the toy car keeps moving in the same way, where will it be at 5 seconds?

3. If both objects keep moving in the same way, how far apart will they be at 4 seconds? Explain.

4. Between 3 and 6 seconds, which object will travel farther if both keep moving in the same way? How much farther?

3 YOUR TURN

Your own words

Invent a moving object and a starting point. Write its direction and measured positions at 0, 1, and 2 seconds, then predict its position at 3 seconds and explain how the measurements support your prediction.

ANSWER KEY

Where Next?

PART 1 · READ AND MARK

Underline the direction each object travels, then circle both objects' positions at 2 and 3 seconds to see how far each moves in one second. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	If the cart keeps moving in the same way, where will it be at 4 seconds?	**8 meters east of the tape line.**
2	If the toy car keeps moving in the same way, where will it be at 5 seconds?	**5 meters west of the tape line.**
3	If both objects keep moving in the same way, how far apart will they be at 4 seconds? Explain.	**12 meters apart. The cart will be 8 meters east of the line, and the toy car will be 4 meters west of it.**
4	Between 3 and 6 seconds, which object will travel farther if both keep moving in the same way? How much farther?	**The cart will travel 6 meters, and the toy car will travel 3 meters. The cart will travel 3 meters farther.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

My marble rolls north from a chalk line. At 0 seconds it is at the line, at 1 second it is 3 centimeters north, and at 2 seconds it is 6 centimeters north. It moves 3 centimeters each second, so I predict it will be 9 centimeters north at 3 seconds.

Accept predictions that continue the measured speeds and directions. For Your Turn, check that the predicted position follows the student's own measurements and stated direction.