

Motion Detectives

Describe movement by noticing direction and speed.

5.3.b “motion is described by an object’s direction and speed;”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline every direction word or phrase and circle every speed in the passage. Use your marks to find the two parts of each motion description.

Field Motion Test

- ① During a field test, Maya released a small battery cart on a smooth track. The cart traveled east at 2 meters each second. Its speed tells how much ground it covered in one second. Its direction tells which way it moved. Saying only “2 meters each second” would leave out an important part of the cart’s motion.
- ② Later, Maya watched a runner carry a message across the field. For the first 10 seconds, he ran north at 3 meters each second. Then he turned west and ran at 1 meter each second because he was tired. The runner changed direction when he turned. He also changed speed, since 1 meter each second is slower than 3 meters each second.
- ③ At the same time, a wind-up toy rolled south at 2 meters each second. The toy and Maya’s cart had the same speed because both moved 2 meters each second. However, their directions were different. The cart moved east, and the toy moved south. Scientists use both pieces of information to give a clear description of motion for other people.

2

ANSWER WITH EVIDENCE

Use the passage

1

Describe the battery cart’s motion. Include its direction and speed.

2

How did the runner’s motion change after the first 10 seconds?

3

How were the cart and the wind-up toy alike, and how were they different?

4

Which moved faster, the runner during the first 10 seconds or the cart? Use the speeds to explain.

3

YOUR TURN

Your own words

Create a motion plan for three objects at a playground. Give each object a direction and a speed in meters each second, and make two objects have the same speed but different directions.

OBJECT	DIRECTION	SPEED

PART 1 • READ AND MARK

Underline every direction word or phrase and circle every speed in the passage. Use your marks to find the two parts of each motion description. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Describe the battery cart's motion. Include its direction and speed.	The battery cart traveled east at 2 meters each second.
2	How did the runner's motion change after the first 10 seconds?	He changed direction from north to west. He changed speed from 3 meters each second to 1 meter each second.
3	How were the cart and the wind-up toy alike, and how were they different?	They had the same speed, 2 meters each second. Their directions were different: the cart moved east and the toy moved south.
4	Which moved faster, the runner during the first 10 seconds or the cart? Use the speeds to explain.	The runner moved faster. The runner moved at 3 meters each second, while the cart moved at 2 meters each second.

PART 3 • YOUR TURN (SAMPLE ANSWER)

OBJECT	DIRECTION	SPEED
Scooter	north	4 meters each second
Ball	west	4 meters each second
Robot	south	1 meter each second

Accept any realistic object, direction, and positive speed with units. Two entries must show the same speed and different directions.