

Wagon Force Watch

Read how several pushes and pulls affect one wagon.

3.2.a "multiple forces may act on an object;"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each force acting on the wagon, and circle the words that tell which way the wagon moves or whether it stays still.

The Field Day Wagon

- ① At field day, Maya puts a small wagon on the grass. Her cousin pulls the wagon forward with a rope. At the same time, wet grass pushes against the wheels and slows them. These are two forces acting on one object, the wagon. The wagon still rolls forward because the pull is stronger than the slowing force.
- ② Later, Maya's brother places a hand on the wagon and pushes it forward. Maya's cousin keeps pulling the rope forward. The grass still slows the wheels. Now three forces act on the wagon. Two forces work in the forward direction, so the wagon speeds up. Forces can work together or can work in opposite directions.
- ③ Then the rope catches on a bench. The cousin pulls forward, but the bench pulls back on the rope. Maya's brother stops pushing. The grass also slows the wagon. The wagon does not move because the forward pull and the backward forces balance. One object may have several forces acting on it, even when it stays still.

2 ANSWER WITH EVIDENCE Use the passage

1 In the first paragraph, what are the two forces acting on the wagon?

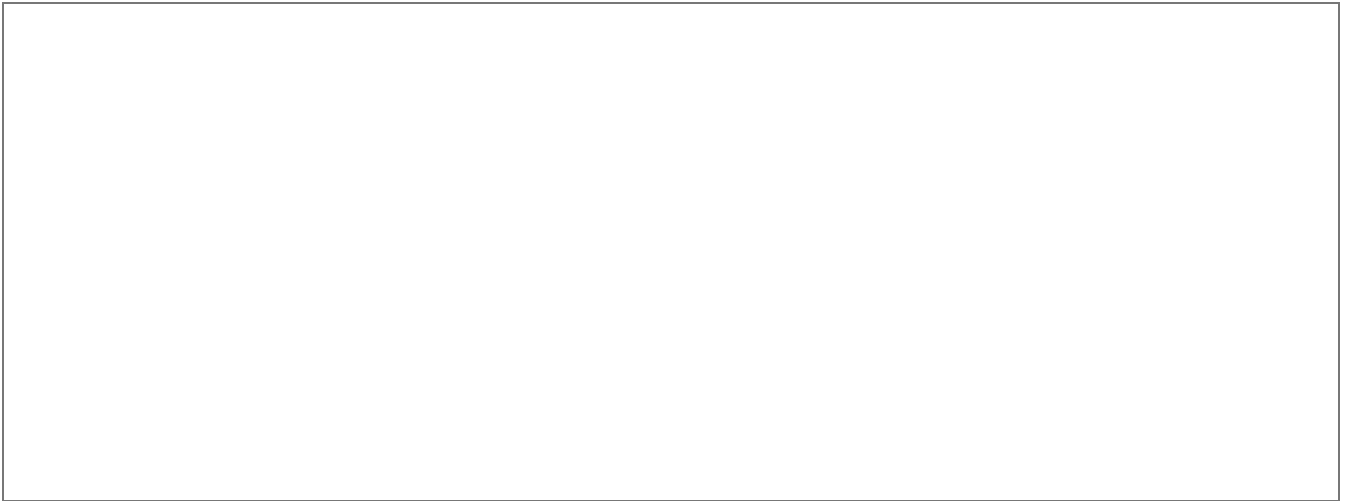
2 In the second paragraph, how many forces act on the wagon? Which forces work in the same direction?

3 Why does the wagon speed up in the second paragraph?

4 Why does the wagon stay still in the last paragraph?

3 YOUR TURN Your own words

Draw an object with at least two forces acting on it. Use arrows and labels to show each force, then write one sentence explaining what the object does.



PART 1 • READ AND MARK

Underline each force acting on the wagon, and circle the words that tell which way the wagon moves or whether it stays still. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	In the first paragraph, what are the two forces acting on the wagon?	The cousin pulls the wagon forward with a rope, and the wet grass pushes against the wheels and slows them.
2	In the second paragraph, how many forces act on the wagon? Which forces work in the same direction?	Three forces act on the wagon. The brother's push and the cousin's pull both work forward.
3	Why does the wagon speed up in the second paragraph?	Two forces work forward, while the grass slows the wagon.
4	Why does the wagon stay still in the last paragraph?	The forward pull and the backward forces balance.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Drawing: A soccer ball has an arrow pointing right labeled "kick" and an arrow pointing left labeled "grass slows ball." Sentence: The ball rolls right because the kick is stronger than the slowing force from the grass.

Accept any realistic object with two or more labeled pushes or pulls. The drawing and sentence should show that forces can work together, oppose each other, or balance.