

Still, Yet Pushed

Find the balanced forces that keep objects from moving.

SC.5.P.13.4 "Investigate and explain that when a force is applied to an object but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each force named in the passage, circle each object that stays still, and write matching numbers beside forces that oppose one another to show why each object does not move.

Forces That Hold Steady

- ① During cleanup, Maya tries to slide a full supply crate across the classroom floor. She pushes the crate toward the door, but the crate stays in the same spot. Her push is a force on the crate. The rough floor pushes back through friction, a force opposite the crate's possible motion. Because these forces are equal, the crate does not move.
- ② A science book rests on a table while students test magnets nearby. Earth pulls the book downward with gravity. At the same time, the table pushes upward on the book. The upward push from the table matches the downward pull of gravity. The book stays at rest because the forces are balanced, even though both forces are acting.
- ③ Balanced forces can come from different parts of the environment. A soccer player presses a ball against a brick wall. The player's foot pushes the ball toward the wall, and the wall pushes the ball away from itself. If the two pushes are equal, the ball remains still. A force does not have to disappear when an object is still. It can be balanced by an opposing force.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What force does Maya apply to the crate, and what opposing force does the floor apply?

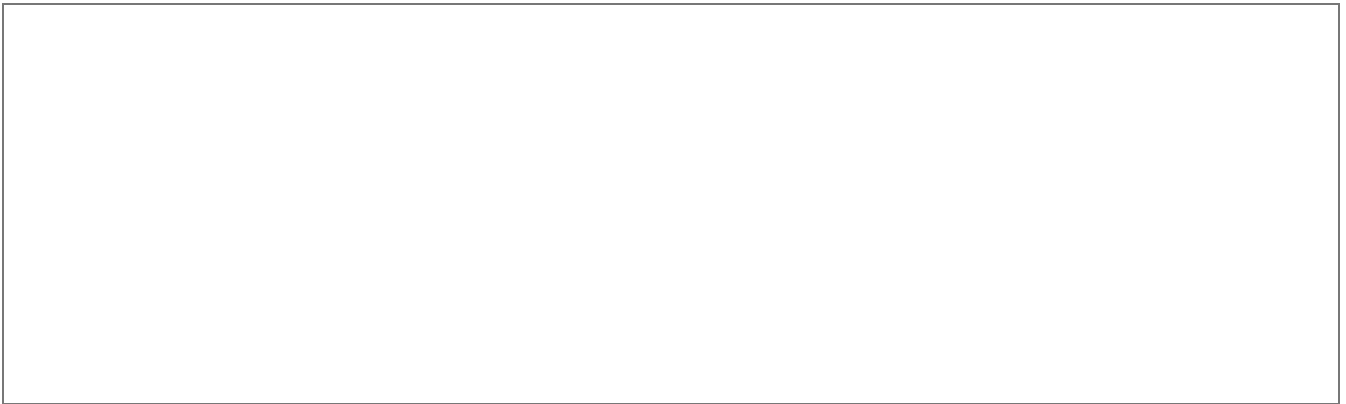
2 Why does the crate stay in the same spot?

3 What are the two forces acting on the science book? Include the direction of each force.

4 A player presses a ball against a wall. How can forces still act on the ball even when it does not move?

3 YOUR TURN _____ Your own words

Draw an object that is being pushed or pulled but stays still. Label arrows for the applied force and the equal opposing force from the environment, then write an explanation of why the object does not move.



PART 1 • READ AND MARK

Underline each force named in the passage, circle each object that stays still, and write matching numbers beside forces that oppose one another to show why each object does not move. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What force does Maya apply to the crate, and what opposing force does the floor apply?	Maya pushes the crate toward the door. The rough floor applies friction in the opposite direction.
2	Why does the crate stay in the same spot?	Maya's push and the floor's friction are equal and opposite, so the forces are balanced.
3	What are the two forces acting on the science book? Include the direction of each force.	Gravity pulls the book downward, and the table pushes the book upward.
4	A player presses a ball against a wall. How can forces still act on the ball even when it does not move?	The player's foot pushes the ball toward the wall, and the wall pushes back with an equal opposing force. The balanced forces keep the ball still.

PART 3 • YOUR TURN (SAMPLE ANSWER)

A hand pushes a chair toward a wall, and the wall pushes the chair back with an equal force. The chair stays still because the opposing forces are balanced.

Accept any realistic situation in which a force on a stationary object is matched by an equal force in the opposite direction from the environment. Student drawings should show one applied force, one opposing environmental force, and an explanation that the forces are balanced.