

Force Helper Hunt

Read how simple machines help people use force.

3.2.c “simple machines increase or change the direction of a force; and”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Circle each simple machine in the passage. Underline the sentences that tell how a machine increases a force or changes the direction of a force.

Maya Moves Soil

- ① At the school garden, Maya needs to lift a heavy bag of soil into a wagon. She slides one end of a board onto the wagon and pushes down on the other end. The board acts as a lever. It helps her use a smaller push to lift the bag. This simple machine can increase a force.
- ② Later, Maya uses a rope and fixed pulley to raise a bucket from a deep rain barrel. She pulls the rope down. The pulley changes the direction of her force, so the bucket moves up. Pulling down is easier than reaching over the barrel and pulling the bucket straight up. The pulley does not make the bucket lighter.
- ③ At cleanup, Maya rolls the soil bag up a ramp into the storage shed. The ramp lets her use a smaller force over a longer distance instead of lifting the bag straight up. A ramp can increase the effect of her force. Simple machines do not create force. They help people use force in useful ways, such as increasing it or changing its direction.

2 ANSWER WITH EVIDENCE Use the passage

1 What simple machine does Maya use to lift the soil bag into the wagon, and how does it help?

2 In the barrel task, which way does Maya pull the rope, and which way does the bucket move?

3 What does the fixed pulley not do to the bucket?

4 How does the ramp help Maya move the soil bag into the shed?

3 YOUR TURN Your own words

Make a two-panel sketch of simple machines at work. In Panel 1, show a machine increasing a force. In Panel 2, show a machine changing the direction of a force. Label each machine and draw arrows to show the forces or movement.

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PART 1 • READ AND MARK

Circle each simple machine in the passage. Underline the sentences that tell how a machine increases a force or changes the direction of a force. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What simple machine does Maya use to lift the soil bag into the wagon, and how does it help?	She uses a board as a lever. It lets her use a smaller push to lift the bag and can increase a force.
2	In the barrel task, which way does Maya pull the rope, and which way does the bucket move?	Maya pulls the rope down, and the bucket moves up.
3	What does the fixed pulley not do to the bucket?	It does not make the bucket lighter.
4	How does the ramp help Maya move the soil bag into the shed?	It lets her use a smaller force over a longer distance instead of lifting the bag straight up.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Panel 1: A long-handled crowbar lever lifts a rock. An arrow points down at the long end, and an arrow points up at the rock. The lever increases the force. Panel 2: A fixed pulley raises a flag. An arrow shows a pull down on the rope, and another arrow shows the flag moving up. The pulley changes the direction of the force.

Accept equivalent descriptions that match the passage. For the sketch, accept any accurate simple machine example if the labels and arrows clearly show either increased force or a changed force direction.