

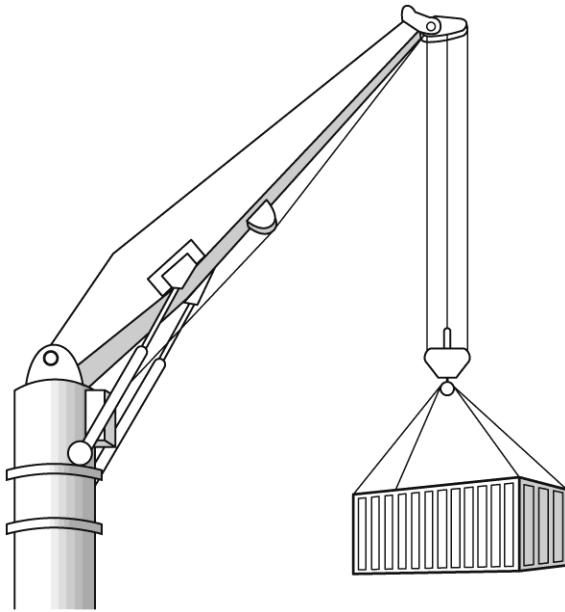
Unit 8, Lesson 1 & 2 Review Quiz

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Reese bends a plastic ruler backward and then releases it to hit a button. Force from the ruler causes the button to slide across a table. Reese bends the ruler back 1 cm for starting point one, 3 cm for starting point two, and 5 cm for starting point three. Reese measure how far the button travels each time. What are the **most likely** results of his experiment?
- A starting point one = 16 cm, starting point two = 26 cm, starting point three = 36 cm
 - B starting point one = 36 cm, starting point two = 26 cm, starting point three = 16 cm
 - C starting point one = 16 cm, starting point two = 16 cm, starting point three = 16 cm
 - D starting point one = 36 cm, starting point two = 26 cm, starting point three = 0 cm
- _____ 2. Theo loads three books onto a cart. Then he pushes the cart on a track so it just reaches the track's end. Next he puts six books onto the cart. What must he do when pushing the cart so it will reach the end of the track?
- A use less force
 - B use more force
 - C use the same amount of force
 - D use the same amount of force, but add three more books
- _____ 3. Waring is hitting a baseball. The faster he swings the bat, the farther the baseball travels. Which statement **best** explains why?
- A Friction acting against the baseball is smaller.
 - B Friction acting against the baseball is greater.
 - C The forward force applied to the baseball is smaller.
 - D The forward force applied to the baseball is greater.
- _____ 4. Brandewyn pushes an empty box across a flat surface with little effort. She then fills the box up with books and tries to push it. What will **most likely** happen?
- A The box will be easier to move because Brandewyn's push will have less effect on the heavier box.
 - B The box will be easier to move because Brandewyn's push will have a greater effect on the heavier box.
 - C The box will be harder to move because Brandewyn's push will have less effect on the heavier box.
 - D The box will be harder to move because Brandewyn's push will have a greater effect on the heavier box.

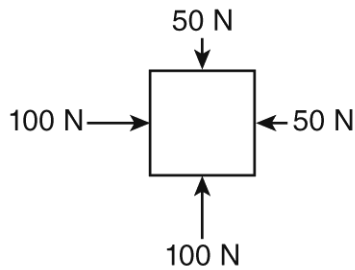
- _____ 5. A crane raises and lowers objects and also moves them back and forth. The following illustration shows a crane lifting a heavy container.



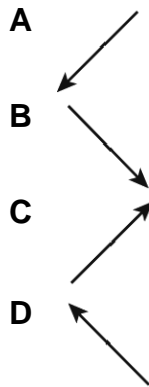
What must the crane work against in order to lift the container upward?

- A** cable tension
- B** friction
- C** gravity
- D** Wind

6. Examine all the forces acting on this box.



In what direction will the box move?



7. Ty is watching the blades of a windmill spin. He decides to measure the speed of the spinning blades. Which of the following would cause the windmill's blades to spin at a slower speed?

- A a decrease in the speed of the wind
- B a decrease in the mass of the windmill's blades
- C a decrease in friction by greasing the windmill's gears
- D a decrease in the size and number of blades on the windmill

8. Two race cars with the same mass started moving on a race track at the same time. One car reached the finish line of the track in 15 sec, and the other reached the finish line in 20 sec. Why did the cars take different amounts of time to reach the finish line?

- A The force of gravity slowed one car, but not the other car.
- B The slower car did not experience any force, so it moved more slowly.
- C The forces on one car were balanced and on the other car unbalanced.
- D The engine of the faster car exerted more force than the engine of the other car.

9. The spring scale shown has a weight attached to it. In this arrangement, what is the spring scale being used to measure?



- A gravitational force
- B motion
- C unbalanced force
- D velocity

10. Nghi tried to pound a large nail into a board using a small hammer. Partway into the board, the nail stopped and would not move when she hit it. Nghi switched to using a heavier hammer, and the nail went into the board easily. Why did the larger hammer work when the small hammer did not?

- A The nail could not push the larger hammer out of the way.
- B There is more friction between a large hammer and the nail.
- C The flat part of the larger hammer was wider, so it hit the nail better.
- D The larger hammer had more mass, so it exerted more force when it hit the nail.

11. The following table shows the masses of several different objects. You want to toss each object a distance of 2 meters.

Object	Metal washer	Plastic disk	Rock	Wooden block
Mass (g)	1.5	34	16	22

Which object will require the **most** force to toss it 2 meters?

- A metal washer
- B plastic disk
- C rock
- D wooden block

- _____ 12. An object is traveling in a straight line in space. No forces are affecting it. What will happen to the object's motion?
- A The object will move faster and faster because there is no force to stop it.
 - B The object gradually will stop because there is no force to keep it moving.
 - C The object will stop immediately when the force that started its motion goes away.
 - D The object's motion will not change. It will continue in the same direction at the same speed.
- _____ 13. The amount of friction exerted when an object moves across a surface depends on how the object and the surface rub together. For which of these surfaces will friction be **greatest** when a block of wood slides across it?
- A wet ice
 - B glass mirror
 - C thick carpet
 - D waxed wood
- _____ 14. A car was stuck in the mud. Two people pushed the car, but it did not move. Why did the car not move even though a force was exerted on it?
- A Cars are too large to be affected by forces.
 - B A force in the opposite direction balanced the push.
 - C The people were not strong enough to exert a force on the car.
 - D The force of gravity is so strong that people cannot push hard enough to move a car.
- _____ 15. Martin is taking his nephew for a walk. The picture below shows how Martin moved his nephew's stroller.



Which term describes the force that caused the stroller to move?

- A gravity
- B magnetism
- C pull
- D push

Short Answer

1. Caden uses a stretched rubber band to propel different types of balls across a flat surface. Caden runs three trials for each type of ball using the same amount of force for each trial. Describe what Caden needs to do with the data from her trials so she can understand the results. Also explain why her procedure will produce reliable results.
2. The spring scale in the following illustration is used to measure force.



If you hold it by the ring on top, in the same position shown, what force do you measure?

3. Explain what happens to the motion of an object when it experiences a balanced force?

Unit 8, Lesson 1 & 2 Review Quiz

Answer Section

MULTIPLE CHOICE

1. A
2. B
3. D
4. C
5. C
6. C
7. A
8. D
9. A
10. D
11. B
12. D
13. C
14. B
15. D

SHORT ANSWER

1. Sample answer: Caden needs to calculate the average distance for each ball. By repeating the trials and calculating averages, Caden finds the typical distance each ball travels with a given force. This strategy reduces the impact of any trials that are particularly long or short.

Students' answers should include:

- information about calculating the average distance for each trial
- explanation that repeated trials and averages minimize trials that are outside the normal range

2. gravity

Students' answers should include:

- Gravity is the only correct answer because it is the only measurable force acting on the object hanging from the spring scale. Note that some spring scales give readings in grams as well as in Newtons. While it is possible to use these scales to measure an object's weight, weight is a physical property, not a force. Weight is a measure of the force of gravity on a mass.

3. The motion of the object does not change.

Students' answers should include:

- If the force is balanced, it does not change the motion.

Note: An answer stating that the object moves is incorrect because a change in its motion would require an unbalanced force.

