

Second Grade “Simple Machines” Assessment

- 1a. The purpose of a tool is to:
- fill up a tool box.
 - make work easier.
- 1b. The purpose of a tool is:
- fill up a tool box.
 - make work easier.
 - make houses.
- 1c. The purpose of all tools is to _____.
- 2a. A tool becomes a simple machine when
- it is being used to make work easier.
 - it gets big enough.
- 2b. A tool becomes a simple machine when
- it is being used to make work easier.
 - it gets big enough.
 - when two tools are put together.
- 2c. Explain how a tool becomes a simple machine.
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- 3a. The definition of a complex machine is
- a machine that is made of two or more simple machines.
 - a simple machine that is hard to put together.
- 3b. The definition of a complex machine is
- a machine that is made of two or more simple machines.
 - a simple machine that is hard to put together.
 - something that is run with a battery.
- 3c. Choose the correct definition of a complex machine, then give an example of a complex machine.
- A complex machine is a machine that is made of two or more simple machines.
 - A complex machine is a simple machine that is hard to put together.
 - A complex machine is a machine that can do many jobs and runs on gasoline.
- An example of a complex machine is _____.
- 4a. Read sentences below and decide if work is being done. Write the word “work” if work is being done, and “no work” if work is not being done.
- Rachel stood on the sidewalk. _____
 - Elizabeth moved the sofa downstairs. _____

- 4b. Read the next sentence and decide if work is being done. Write the word “work” if work is being done, and “no work” if work is not being done.
- a. Rachel stood on the sidewalk. _____
 - b. Elizabeth moved the sofa downstairs. _____
 - c. James pulled his little brother in a wagon. _____
- 4c. Give an example of how work is being done.
- _____
- _____
- 5a. Force is the (up or down, push or pull) on an object.
- 5b. Force is the _____ on an object.
- a. push or pull
 - b. the direction
 - c. the work
- 5c. Force is the _____ on an object.
- 6a. Energy is
- a. something very powerful.
 - b. the ability to do work.
- 6b. Energy is
- a. something very powerful.
 - b. the ability to do work.
 - c. the fizz you get from a soft drink.
- 6c. Energy is the _____.
- 7a. Effort is
- a. the amount of force that you use working
 - b. how much work is being done.
- 7b. Effort is
- a. the amount of force that you use working
 - b. how much work is being done.
 - c. what you used while you did homework.
- 7c. Effort is _____.
- 8a. Elijah McCoy was an inventor
- a. who made a machine that would reduce friction
 - b. told stories about machines.

- 8b. Elijah McCoy was an inventor
- a. who made a machine that would reduce friction
 - b. told stories about machines.
 - c. sang songs about machines.

8c. Explain who Elijah McCoy was and what he invented.

- 9a. A lever has three parts, and they are
- a. a force arm, a lever, and a screw.
 - b. a fulcrum, force arm and a weight arm.

- 9b. A lever has three parts, and they are
- a. a force arm, a lever, and a screw.
 - b. a fulcrum, force arm, and a weight arm.
 - c. a top, bottom, and a middle.

- 9c. Name the three parts of a lever and draw an example of one.
- 1. _____
 - 2. _____
 - 3. _____

- 10a. A wheel-and-axle is
- a. a wheel that turns on a post.
 - b. a wheel that rolls up an incline plane.

- 10b. A wheel-and-axle is
- a. a wheel that turns on a post.
 - b. a wheel that rolls up an incline plane.
 - c. a pulley that moves things up and down.

10c. Give an example of a wheel-and-axle and explain how it moves.

- 11a. A pulley lets you
- a. push things.
 - b. move things up and down or from side to side.

- 11b. A pulley lets you
- a. push things
 - b. move things up and down or from side to side.
 - c. use gears to move things.

11c. A pulley lets you:

- 12a. A screw is
- a. two inclined planes put together.
 - b. an inclined plane wrapped around a cylinder.

- 12b. A screw is
- a. two inclined planes put together.
 - b. an inclined plane wrapped around a cylinder.
 - c. a wheel that turns on a post.

12c. Give the definition of a screw.

- 13a. What is the function of a screw?
- a. to hold pieces of wood or metal together
 - b. move things from side to side

- 13b. What is the function of a screw?
- a. to hold pieces of wood or metal together
 - b. move things from side to side
 - c. to pry things open

13c. What is the function of a screw?

- 14a. Gears are really
- a. wheels that turn on posts.
 - b. wheels with notches or teeth around their outer edges.

- 14b. Gears are really
- a. wheels that turn on posts.
 - b. wheels with notches or teeth around their outer edges.
 - c. two pulleys that are put together.

14c. Explain how a gear moves and give an example of a gear.

An example is _____.

Name the kind of simple machine for each sentence.

15a. George would like to cut down the cherry tree in his yard. He would need to use:

- a. an axe, a wedge.
- b. a hammer, an inclined plane

15b. George would like to cut down the cherry tree in his yard. He would need to use:

- a. an axe, a wedge.
- b. a hammer, an inclined plane
- c. a chisel, an incline plane

15c. George would like to cut down the cherry tree in his yard. He would need to use:

16a. Francis Scott Key wants to raise the flag to the top of the flagpole. He would need to use:

- a. a pulley
- b. a lever

16b. Francis Scott Key wants to raise the flag to the top of the flagpole. He would need to use:

- a. a pulley
- b. a lever
- c. a wheel-and-axle

16c. Francis Scott Key wants to raise the flag to the top of the flagpole. He would need to use:

17a. Beethoven needs to move his piano up a flight of stairs. He would need to use:

- a. an inclined plane
- b. a screw

17b. Beethoven needs to move his piano up a flight of stairs. He would need to use:

- a. an inclined plane
- b. a screw
- c. a gear

17c. Beethoven needs to move his piano up a flight of stairs. He would need to use:

18a. Johnny Appleseed wants to weigh the apples he picked. He would need to use:
a. a scale, a lever
b. a bag

18b. Johnny Appleseed wants to weigh the apples he picked. He would need to use:
a. a scale, a lever
b. a bag
c. a pulley

18c. Johnny Appleseed wants to weigh the apples he picked. He would need to use:

19a. Friction is caused when
a. two objects are rubbed together.
b. two objects are dropped from a high place.

19b. Friction is caused when
a. two objects are rubbed together.
b. two objects are dropped from a high place.
c. two objects are thrown through the air.

19c. What is the result of two objects being rubbed against each other?

20a. _____ can reduce friction between objects.
a. oil
b. plastic

20b. _____ can reduce friction between objects.
a. oil
b. plastic
c. cardboard

20c. _____ can reduce friction between objects.

The following Colorado Model Content Standards are covered in this assessment by the questions indicated:

The unit of study on simple machines covers the first standard because that is how the students investigate and draw conclusions about the simple machines. It is the conclusions that the students are tested on at the end of the unit.

STANDARD 1:

Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.

Questions 5a,5b,5c, 6a,6b,6c,7a,7b,7c,8a,8b,8c,19a,19b,19c,20a,20b,20c. 2.2 Students know that energy appears in different forms, and can move (be transferred) and change (be transformed). • recognizing that energy (*for example, heat and motion,*) can affect common objects and is involved in common events.

Answer Key

- 1a. b. make work easier
1b. b. make work easier
1c. make work easier
- 2a. a. it is being used to make work easier.
2b. a. it is being used to make work easier.
2c. Acceptable answers could include:
-A tool becomes a simple machine when it is used to make work easier.
- 3a. a. a machine that is made of two or more simple machines
3b. a. a machine that is made of two or more simple machines
3c. a. A complex machine is a machine that is made of two or more simple machines.
Examples: bicycle, a mixer, a blender
- 4a. a. no work
b. work
4b. a. no work
b. work
c. work
4c. Acceptable answers could include:
-I am trying to put the flag at the top of the flag pole. I will use a pulley that will pull the flag up the pole.
- 5a. push or pull
5b. a. push or pull
5c. push or pull
- 6a. b. the ability to do work
6b. b. the ability to do work
6c. the ability to do work
- 7a. a. the amount of force that you use working
7b. a. the amount of force that you use working
7c. the amount of force that you use working
- 8a. a. who made a machine that would reduce friction
8b. a. who made a machine that would reduce friction
8c. Acceptable answers could include:
-Elijah McCoy was a black inventor who lived during the 1800's and he invented an oil cup that was used on the steam locomotives. The oil cup was much more effective in reducing the friction on the wheels of the train because it oiled the wheels automatically.

- 9a. b. a fulcrum, force arm and a weight arm.
 9b. b. a fulcrum, force arm and a weight arm.
 9c. 1. a fulcrum
 2. a force arm
 3. a weight arm
 A teeter totter is an example of a fulcrum
- 10a. a. a wheel that turns on a post
 10b. a. a wheel that turns on a post
 10c. Acceptable answers could include:
 -A car's wheels are examples of a wheels and axles. The wheels turn on the shaft that runs through both of the wheels on the car.
- 11a. b. move things up and down or from side to side
 11b. b. move things up and down or from side to side
 11c. move things up and down and side to side
- 12a. b. an inclined plane wrapped around a cylinder
 12b. b. an inclined plane wrapped around a cylinder
 12c. Acceptable answers could include:
 -A screw in an inclined plane wrapped around a cylinder.
- 13a. a. To hold pieces of wood or metal together
 13b. a. To hold pieces of wood or metal together
 13c. Acceptable answers could include:
 -To hold pieces of wood or metal together
- 14a. b. wheels with notches or teeth around their outer edges.
 14b. b. wheels with notches or teeth around their outer edges.
 14c. Acceptable answers could include:
 -A gear is really wheels with notches or teeth around the outer edges. The notches fit inside each other. As you turn one gear the other moves in the opposite direction. A bicycle has gears to turn the wheels.
- 15a. a. an axe, a wedge
 15b. a. an axe, a wedge
 15c. George would need an axe to chop down the tree or a saw. The axe and saw are both wedges.
- 16a. a. a pulley
 16b. a. a pulley
 16c. A pulley would be needed to raise the flag on the flag pole.
- 17a. a. an incline plane
 17b. a. an incline plane
 17c. Beethoven would have to use an incline plane to move the piano.

- 18a. a. a scale, a lever
18b. a. a scale, a lever
18c. Johnny Appleseed would need a weight scale which is a lever to weigh the apples.
- 19a. a. two objects are rubbed together
19b. a. two objects are rubbed together
19c. Acceptable answers could include:
-When two objects are rubbed together friction occurs. The objects begin to get warm because heat is generated from the movement of the objects against each other.
- 20a. a. oil
20b. a. oil
20c. Oil or water