Simple Machines Quiz

Part 1. Write the name of the simple machine that is described questions 1-4 below.

Word Bank:

Wheel & Axle | Screw | Pulley | Inclined Plane | Lever

1. These two parts act as one simple machine. They roll and are found on cars, bikes and wheelbarrows.

1. _____

2. This simple machine can be used to lift a weight. It has a fulcrum, or pivot point, which can be located in the center, near the end or at the end.

2. _____

3. Examples of this simple machine are used to hold things together. It is made up of an inclined plane wrapped around a cylinder.

3. _____

4. A heavy object could be rolled up this simple machine, instead of lifting it straight up. Using this simple machine can save effort, although the object must usually cover more distance if this simple machine is used.

4. _____

_____5. This is necessary to get something moving.

A. resistance

B. force

C. wedge

D. screw

_____6. A rod attached to the center of a wheel is called:

A. a magnet

B. a wedge

C. a top

D. an axle

_____7. What should you do to reduce the amount of effort needed to lift something using a first class lever?

A. move the fulcrum to the middle of the lever

B. move the fulcrum closer to the load

C. move the fulcrum closer to the effort

Title I ESO – Simple Machines Quiz

_____8. The efficiency of a simple machine is _____.

A. is always less than 100%

B. is equal to 100%

C. is always 50%

D. is always more than 100%.

_____9. If the mechanical advantage of a simple machine is 4, then the

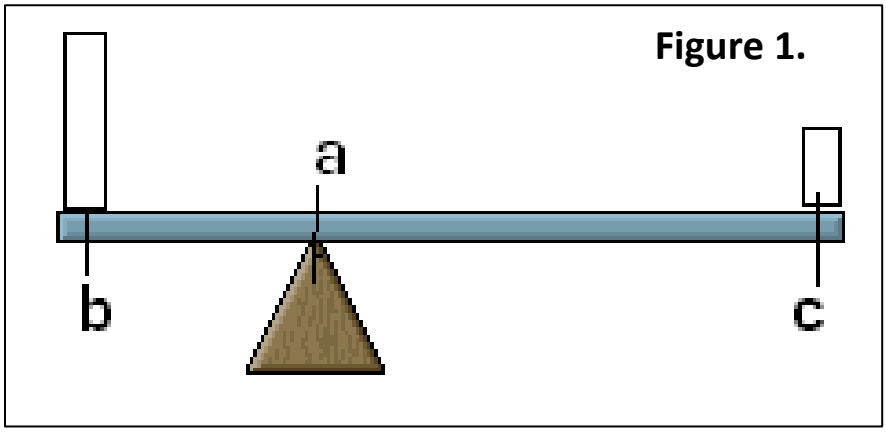
A. output force is 4 times the effort

B. effort is 4 times the output force

C. efficiency is 4%

D. the work output is 4 times the input

Use Figure 1 to answer questions 10-11.



10 Which of the following statements is true for Figure 1.

A. B – is the fulcrum, C- is the resistance, A – is the effort

B. B – is the resistance, C – is the fulcrum, A – is the effort

C. B – is the fulcrum, A – is the effort, C- is the resistance

D. B – is the resistance, A – is the fulcrum, C – is the effort

11. In Figure 1, if the distance from a to b is 20 cm, and the distance from a to c is 80 cm, then the mechanical advantage of the system is

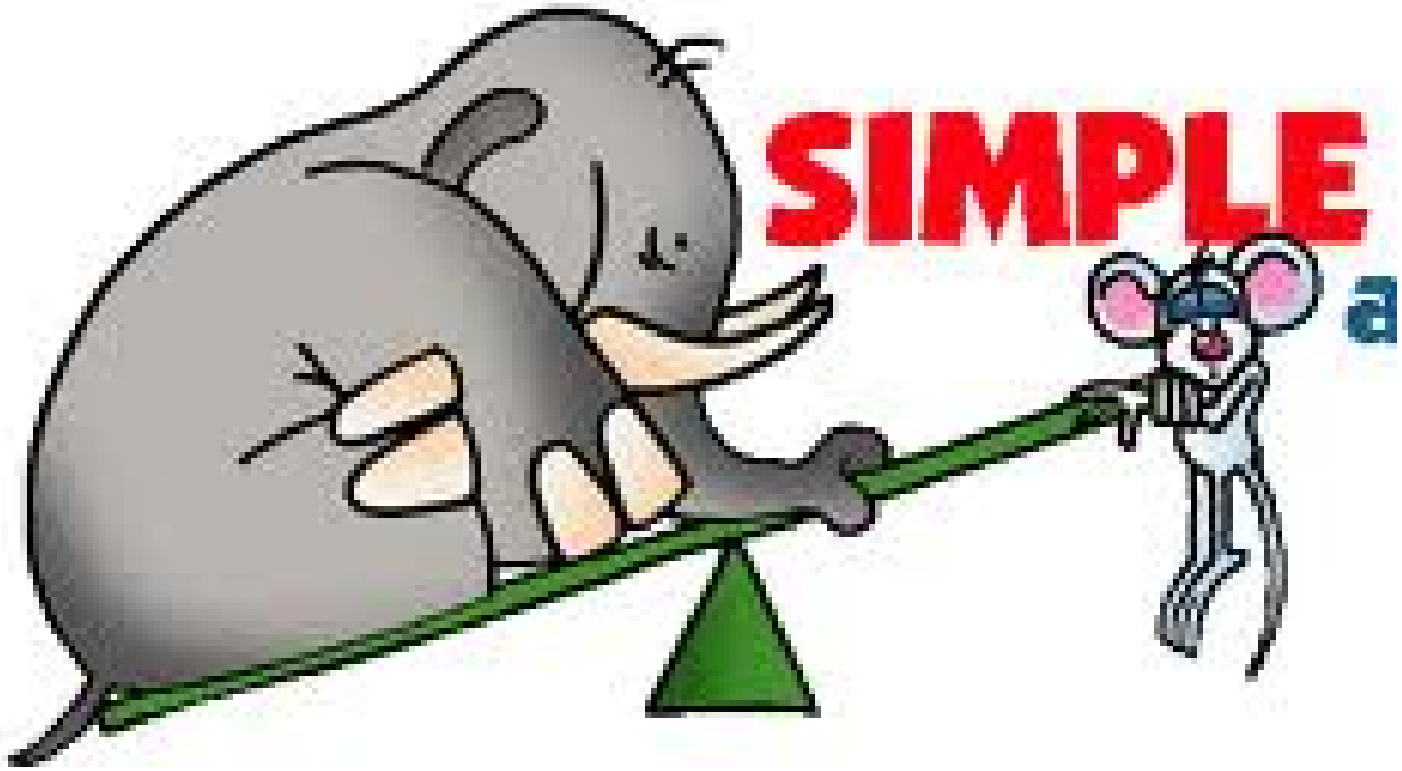
A. 20

B. 80

C. 4

D. ¼

Station 1



Station 1

Questions using Station 3 Diagram

12. What class of lever is this?

13. In order to balance these 2 objects how should you change the length of the board on the side of the elephant?

Station 2

Station 2

Questions using Station 4 Diagram

14. Is the simple machine pictured increasing, decreasing or not changing the mechanical advantage of the situation?

15. What kind of simple machine is this?

Station 3

Station 3

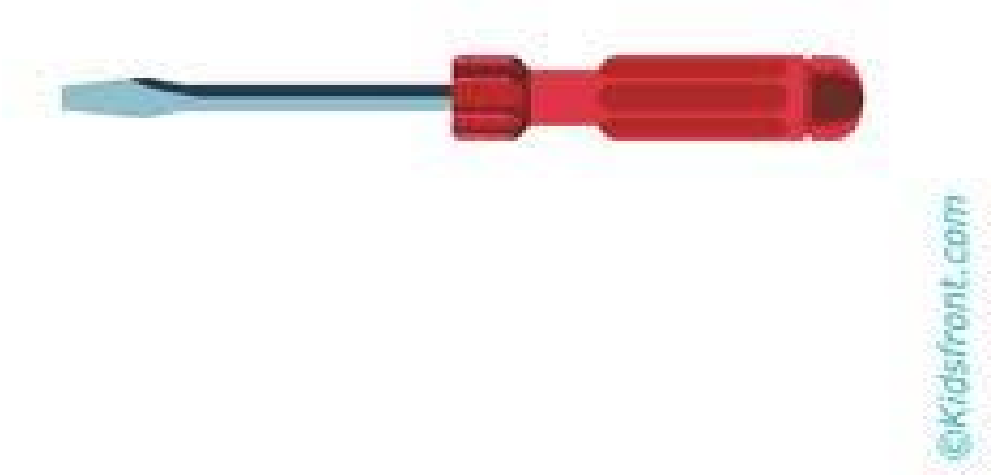
Questions using Station 3 Diagram

16. What kind of simple machine is this?

17. This machine works best if the length of the effort arm is

A. Short B. Long C. The length doesn't matter

Station 4



Station 4

Questions using Station 8 Diagram

18. If you are using a Screwdriver to twist out a screw, you are actually using 2 simple machines. What are they?

19. If you are using a screwdriver to pry open a paint can, you are using it as what type of simple machine?

Station 5

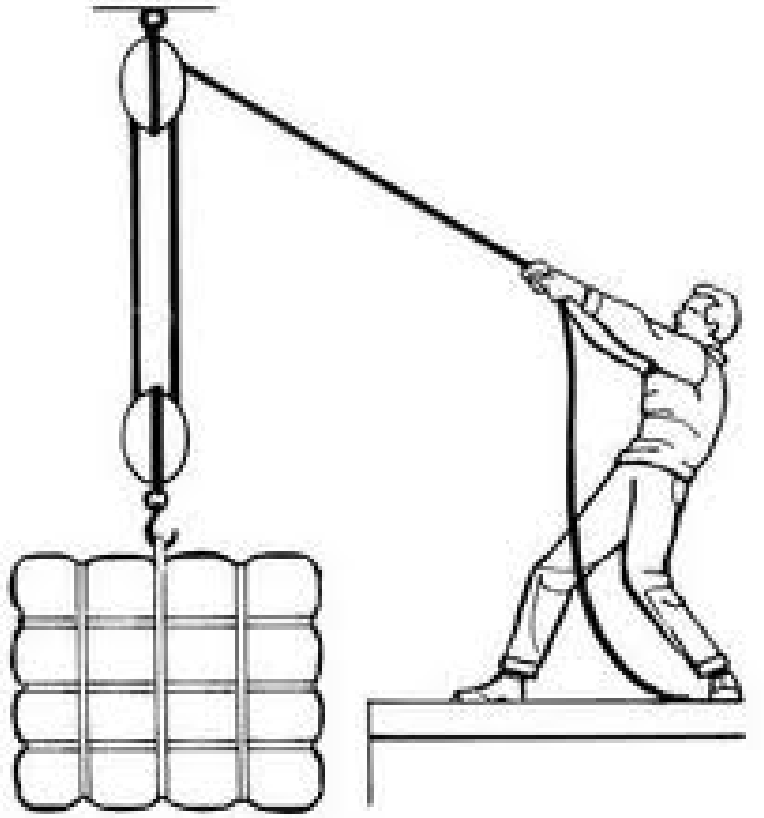
Station 5

Questions using Station 5 Diagram

20. How long is the effort arm of this simple machine?

21. If the effort applied to lift the book is applied closer to the pencil, will it get harder or easier to lift the book?

Station 6



Station 6

Questions using Station 13 Diagram

22. What simple machine is pictured?

23. If the weight being lifted weighs 100 lbs, how much force must be used to lift it with the use of this simple machine?

A. 10 lbs B. 50 lbs C. 100 lbs D. 200 lbs

Station 7

Station 7

Questions using Station 7 Diagram

24. What kind of machine is pictured?

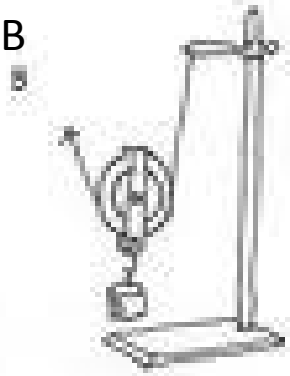
25. The nut represents what part of the simple machine?

A. Resistance Force
B. Effort Force

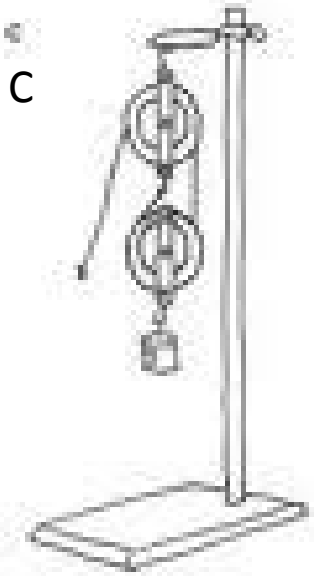
Station 8

A

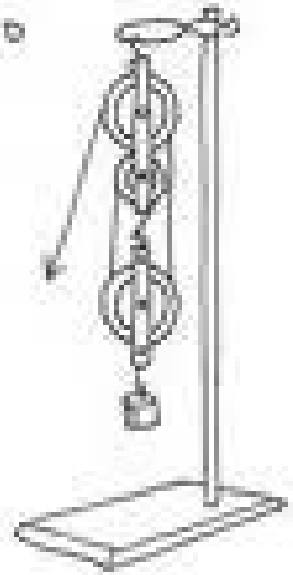
B



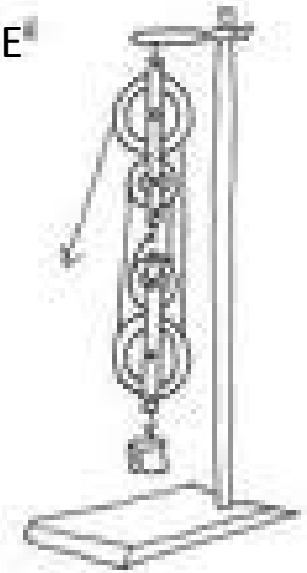
C



D



E



Station 8

Questions using Station 8 Diagram

26. Which of the pulley systems has the greatest mechanical advantage?

27. Of the pulleys on the top row, A and B diagrams, which one doesn't effect the amount of force required to lift the object?

Station 9

A

B

Station 9

Questions using Station 12 Diagram

28. What 2 simple machines make up the top item pictured?

29. What makes the knob at the top easier to use than the knob at the bottom right?

NAME: _____

2014 ESO Simple Machines Test Answer Sheet

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NAME: _____

2014 ESO Simple Machines Test Answer KEY

1	Wheel & Axel
2	Lever
3	Screw
4	Inclined Plane
5	B – Force
6	D – an Axel
7	B – Move the fulcrum closer to the load
8	A – is always less than 100%
9	A – output force is 4 times the effort
10	D – B=resistance; A=fulcrum; C=effort
11	C – 4
12	Class One
13	Shorten it or move elephant much closer to middle
14	Not changing
15	pulley
16	Lever
17	B. Long
18	Inclined plane and wheel and axle
19	lever
20	5 or 6 units, they may say inches
21	harder
22	pulley
23	B. 50 lbs
24	lever
25	A. Resistance force
26	E.
27	A.
28	Lever and wheel and axle
29	The lever part makes it easier to turn