

Simple Machines Worksheet

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Part 1: Building a Foundation

What is the primary purpose of a simple machine?

Hint: Think about how simple machines help us with tasks.

- To create energy
- To make work easier by changing the force or direction of the force
- To increase the speed of an object
- To reduce the weight of an object

What is the primary purpose of a simple machine?

Hint: Think about how simple machines assist in performing work.

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What is the primary purpose of a simple machine?

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- To make work easier by changing the force or direction of the force
- To increase the speed of an object
- To reduce the weight of an object

Which of the following are types of simple machines? (Select all that apply)

Hint: Consider the basic types of machines that help us do work.

- Lever

- Engine
- Pulley
- Screw

Which of the following are types of simple machines? (Select all that apply)

Hint: Recall the different categories of simple machines.

- Lever
- Engine
- Pulley
- Screw

Which of the following are types of simple machines? (Select all that apply)

Hint: Recall the different categories of simple machines.

- Lever
- Engine
- Pulley
- Screw

Describe what a lever is and provide an example of its use in everyday life.

Hint: Think about how levers help lift or move objects.

Describe what a lever is and provide an example of its use in everyday life.

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Describe what a lever is and provide an example of its use in everyday life.

Hint: Think about how levers help lift or move objects.

Part 2: Understanding and Interpretation

Which simple machine is used to lift a flag on a flagpole?

Hint: Think about how flags are raised and lowered.

- Lever
- Pulley
- Inclined Plane
- Wheel and Axle

Which simple machine is used to lift a flag on a flagpole?

Hint: Consider the mechanism that raises and lowers the flag.

- Lever
- Pulley
- Inclined Plane
- Wheel and Axle

Which simple machine is used to lift a flag on a flagpole?

Hint: Consider the mechanism that raises and lowers the flag.

- Lever
- Pulley
- Inclined Plane
- Wheel and Axle

How does an inclined plane make work easier? (Select all that apply)

Hint: Consider the advantages of using a ramp.

- By reducing the amount of force needed
- By increasing the speed of an object
- By increasing the distance over which the force acts
- By changing the direction of the force

How does an inclined plane make work easier? (Select all that apply)

Hint: Think about the advantages of using an inclined plane.

- By reducing the amount of force needed
- By increasing the speed of an object
- By increasing the distance over which the force acts
- By changing the direction of the force

How does an inclined plane make work easier? (Select all that apply)

Hint: Think about the mechanics of moving objects.

- By reducing the amount of force needed
- By increasing the speed of an object
- By increasing the distance over which the force acts
- By changing the direction of the force

Explain how a screw is similar to an inclined plane.

Hint: Think about the shape and function of both machines.

Explain how a screw is similar to an inclined plane.

Hint: Consider the shape and function of both simple machines.

Explain how a screw is similar to an inclined plane.

Hint: Consider the shape and function of both machines.

Part 3: Application and Analysis

Which simple machine would be most effective for splitting wood?

Hint: Consider the tools used for chopping wood.

- Lever
- Wedge
- Pulley

- Wheel and Axle

Which simple machine would be most effective for splitting wood?

Hint: Think about the tools used for cutting or splitting.

- Lever
 Wedge
 Pulley
 Wheel and Axle

Which simple machine would be most effective for splitting wood?

Hint: Think about the tools used for cutting.

- Lever
 Wedge
 Pulley
 Wheel and Axle

In which scenarios would you use a wheel and axle? (Select all that apply)

Hint: Think about how wheels help in movement.

- To open a door with a doorknob
 To lift a heavy box straight up
 To move a cart across a room
 To cut through a log

In which scenarios would you use a wheel and axle? (Select all that apply)

Hint: Consider the functions of a wheel and axle in movement.

- To open a door with a doorknob
 To lift a heavy box straight up
 To move a cart across a room
 To cut through a log

In which scenarios would you use a wheel and axle? (Select all that apply)

Hint: Consider the applications of wheels and axles.

- To open a door with a doorknob
 To lift a heavy box straight up
 To move a cart across a room

- To cut through a log

Describe a situation where using a pulley system would be advantageous.

Hint: Think about lifting heavy objects.

Describe a situation where using a pulley system would be advantageous.

Hint: Think about scenarios that involve lifting heavy objects.

Describe a situation where using a pulley system would be advantageous.

Hint: Think about lifting heavy objects or moving things vertically.

Which component of a lever determines the mechanical advantage?

Hint: Consider the factors that influence how a lever works.

- The weight of the load
- The length of the lever arm

- The material of the lever
- The speed of movement

Analyze the following scenario: A person uses a crowbar to lift a heavy rock. Which factors affect the effectiveness of the crowbar? (Select all that apply)

Hint: Consider the elements that influence the use of a crowbar.

- The length of the crowbar
- The weight of the rock
- The position of the fulcum
- The color of the crowbar

Compare and contrast a wedge and an inclined plane in terms of their functions and uses.

Hint: Think about how both simple machines are used in different scenarios.

Part 4: Evaluation and Creation

Which component of a lever determines the mechanical advantage?

Hint: Consider the parts of a lever and their roles.

- The weight of the load
- The length of the lever arm
- The material of the lever
- The speed of movement

Which component of a lever determines the mechanical advantage?

Hint: Consider the factors that affect leverage.

- The weight of the load
- The length of the lever arm

- The material of the lever
- The speed of movement

Analyze the following scenario: A person uses a crowbar to lift a heavy rock. Which factors affect the effectiveness of the crowbar? (Select all that apply)

Hint: Consider the elements that influence how well a crowbar works.

- The length of the crowbar
- The weight of the rock
- The position of the fulcum
- The color of the crowbar

Analyze the following scenario: A person uses a crowbar to lift a heavy rock. Which factors affect the effectiveness of the crowbar? (Select all that apply)

Hint: Think about the mechanics of using a crowbar.

- The length of the crowbar
- The weight of the rock
- The position of the fulcum
- The color of the crowbar

Compare and contrast a wedge and an inclined plane in terms of their functions and uses.

Hint: Think about how both machines help in performing work.

Compare and contrast a wedge and an inclined plane in terms of their functions and uses.

Hint: Think about how both machines help in doing work.

Which simple machine would you recommend for lifting a piano onto a stage, and why?

Hint: Consider the weight and size of the object.

- Lever
- Pulley
- Inclined Plane
- Wheel and Axle

Which simple machine would you recommend for lifting a piano onto a stage, and why?

Hint: Consider the weight and size of the object.

- Lever
- Pulley
- Inclined Plane
- Wheel and Axle

Which simple machine would you recommend for lifting a piano onto a stage, and why?

Hint: Consider the best method for lifting heavy objects.

- Lever
- Pulley
- Inclined Plane
- Wheel and Axle

Evaluate the effectiveness of using a lever versus a pulley for lifting a heavy object. Which factors should be considered? (Select all that apply)

Hint: Think about the mechanics of both systems.

- The distance the object needs to be moved
- The available space for equipment
- The weight of the object
- The speed at which the object needs to be moved

Evaluate the effectiveness of using a lever versus a pulley for lifting a heavy object. Which factors should be considered? (Select all that apply)

Hint: Think about the advantages and disadvantages of each machine.

- The distance the object needs to be moved
- The available space for equipment
- The weight of the object
- The speed at which the object needs to be moved

Evaluate the effectiveness of using a lever versus a pulley for lifting a heavy object. Which factors should be considered? (Select all that apply)

Hint: Think about the advantages and disadvantages of each simple machine.

- The distance the object needs to be moved
- The available space for equipment
- The weight of the object
- The speed at which the object needs to be moved

Design a simple machine system that could be used to move a large, heavy object across a flat surface. Describe the components and how they work together.

Hint: Think about the mechanics of moving heavy objects.

Design a simple machine system that could be used to move a large, heavy object across a flat surface. Describe the components and how they work together.

Hint: Think about how different simple machines can be combined.

Design a simple machine system that could be used to move a large, heavy object across a flat surface. Describe the components and how they work together.

Hint: Think about the different simple machines that could be combined.