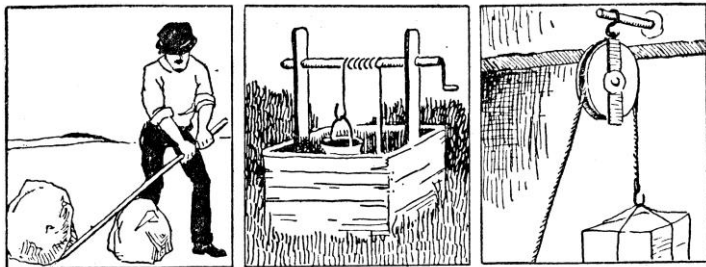


Simple machines 1

The six simple machines

Simple machines can be used to make work easier. They can change the direction of movement and can lessen the amount of work needed for moving things.

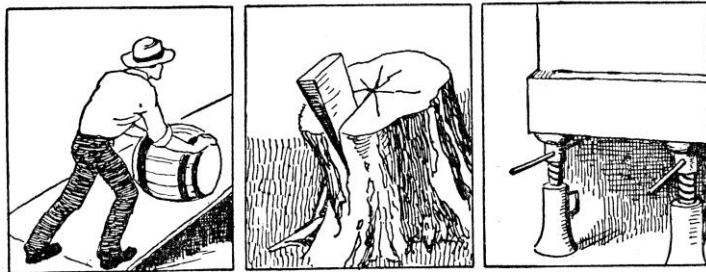
Although people had been using simple machines in earlier times, scientists like Galileo and Da Vinci identified the six simple machines we have today: pulley, screw, wheel & axle, lever, wedge, and inclined plane. Most modern machines use one or more of these six simple machines.



Lever

Wheel and axle

Pulley



Inclined plane

Wedge

Screw

Draw the six simple machines and explain how they are being used in each picture.

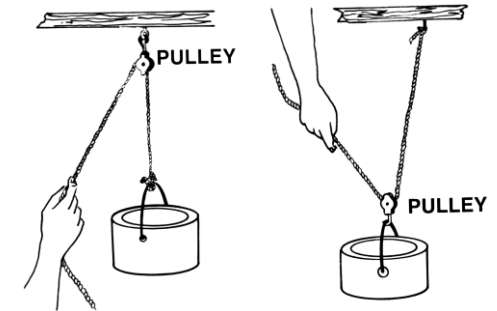
Simple machines 2

Pulleys

A pulley is a simple machine that uses a rope over a wheel, or a tree branch or similar. When one side of the rope is pulled down, the other side goes up. The direction of movement is changed, and the load is easier to lift.

Here are some examples:

- a flag pole
- an old fashioned well where a bucket was pulled up by a rope
- pulleys in construction work
- window blinds and sails on a ship that get hoisted up.



Draw and name two pulleys in action.

Simple machines 3

Wheel and axle

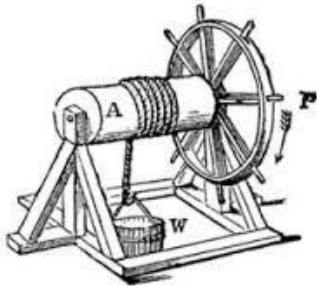
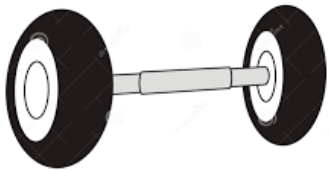
The wheel and axle is a machine used to help move heavy things. It is a large wheel with an axle connected at the center of it. When the wheel is spun the axle spins with it.

Examples of wheel and axle:

- a wheel barrow
- a car
- roller skates

Write a list of machines that use the wheel and axle. Add two things that are not on the list above.

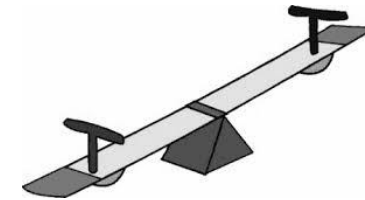
Draw two things that use the wheel and axle.



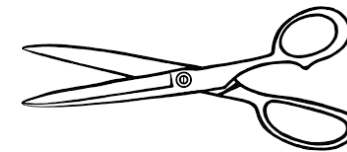
Simple machines 4

Lever

A lever is a machine with a board or bar that is fixed on a support called a fulcrum. The fulcrum is a pivot point. Find the pivot point on this see saw.



By changing how much of the board (or bar) is on each the side of the fulcrum it can be made more difficult or easier to lift a weight. If you push down on the long side it will be easier to lift something on the short side.

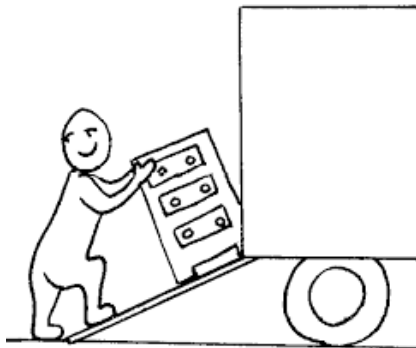
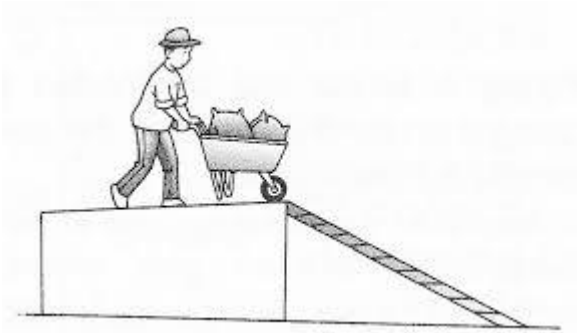


Draw three different types of levers and explain where the fulcrum is.

Simple machines 5

Inclined plane

An inclined plane, also known as a ramp, is a flat supporting surface tilted at an angle, with one end higher than the other. It is used to help raise or lower objects more easily by allowing them to move diagonally instead of up and down.



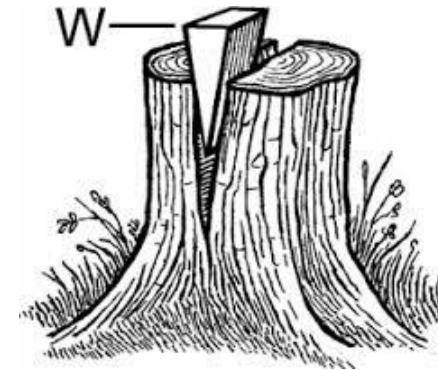
1. How would the man in the first picture get his sacks down if he didn't have the ramp?
2. How would the man in the second picture get his chest of drawers into the van if he didn't have the ramp?

Simple machines 6

The wedge

A wedge is triangle shaped. It can be used to stop or hold things in place. When a wedge is pushed under a door, the diagonal edge pushes up against the bottom of the door and holds it still.

An axe is an example of a double-wedge. It is also triangle shaped. It is used to split wood or separate things. When the triangle is pushed down, its two sides push out diagonally.



1. Give examples of two types of wedges and draw them doing work.
2. How do they make the work easier?

Simple machines 7

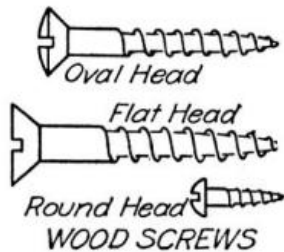
A screw

A screw is a nail-shaped rod with threads spiraling down it. A screw twists as it goes into wood, but it goes in straight. It stops turning because of the head.

Examples of screws:

A corkscrew

A bolt



1. Draw different kinds of screws.
2. Why is a screw sometimes stronger than a nail?

Simple machines 8

Machines in the Bible

1. Here are some machines used in Bible times:

A sling shot

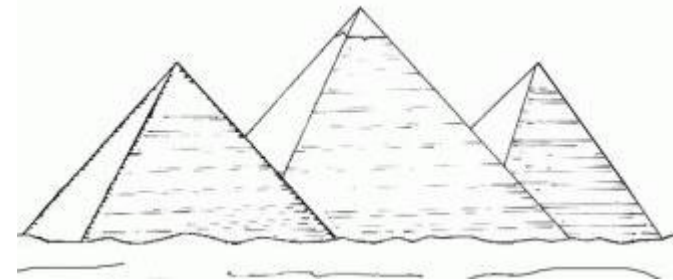
An axe

A bow and arrow

A chariot

Explain where in the Bible these machines were mentioned. Explain what type of machine they are and how they were used.

2. In the time of Moses, the Israelite slaves worked on building the Great Pyramids of Egypt. The slaves had to transport huge block of stone to the top of the pyramids. What kind of machines do you think they may have used? Draw a picture to explain, and label your drawing.



3. Machines can help us serve the Lord

God created us with intelligence. Over history, scientists have discovered the energy principles built into God's creation, and used these principles to develop machines.

Explain how machines can help us serve the Lord and spread the Gospel.