

SIMPLE MACHINES STUDY GUIDE



Simple Machines Study Guide

- A machine can be defined as any tool that makes work easier.
- They can be complex or simple.
- There are six kinds of simple machines.

Wedge:



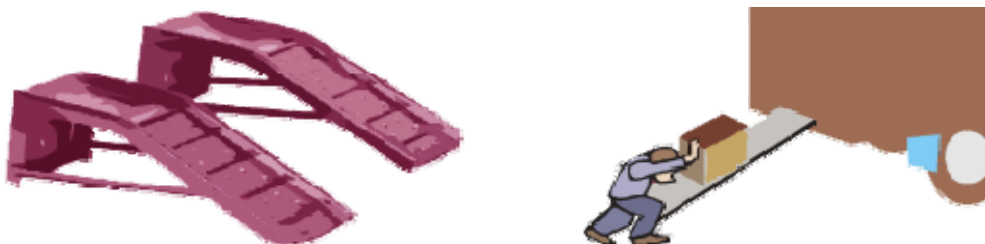
- A wedge is an object with at least one slanting side ending in a sharp edge, which cuts material apart.

Wheel and Axle:



- It is a simple machine that consists of a wheel with a rod through its center.
- If the wheel turns, so does the axle. If the axle turns, so does the wheel.

Inclined plane:



- An inclined plane is a slanted surface, like a ramp, that connects one level to a higher or lower level. It is used to move heavy items up or down.
- You must be knowing that it takes a lot of effort to lift a heavy object straight up, if that object is pushed up on the ramps much less force is required.



- Inclined planes do not always have a smooth surface. They can be a set of platforms that gradually get higher.
- Stairs are a kind of inclined plane, because they allow us to move along a slanted surface to go to a higher or lower level.

Pulley:



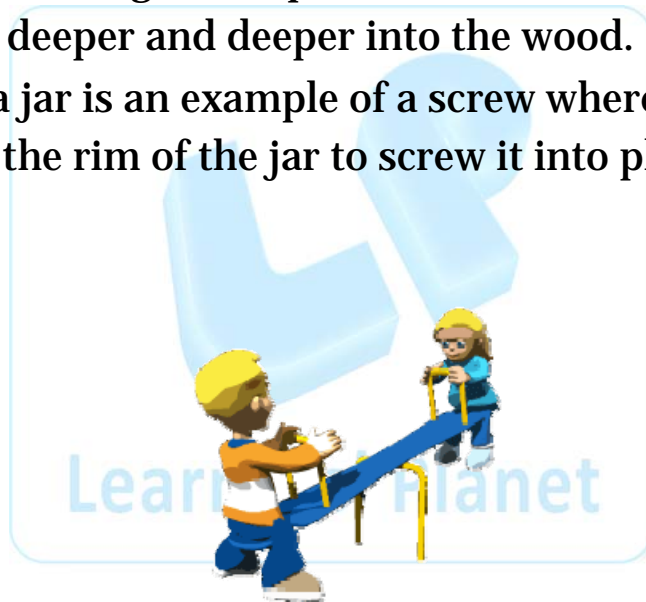
- A Pulley is a wheel that is grooved so a rope can fit around it.
- Pulleys allow us to move objects up, down, or sideways with very little effort.
- The more pulleys you add, the less work you have to do to move the object.

Screw:

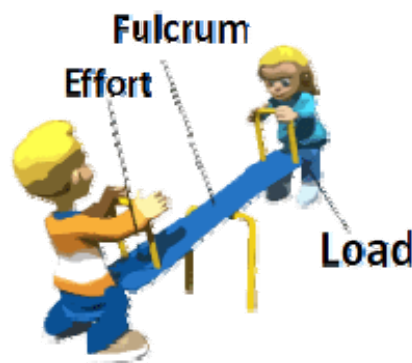


- A Screw is an inclined plane wrapped around a pole which holds things together or lifts materials.
- If a screw is placed against a piece of wood and turned, the inclined plane will dig deeper and deeper into the wood.
- Even a lid of a jar is an example of a screw where the grooves in the lid fit around the rim of the jar to screw it into place.

Lever:

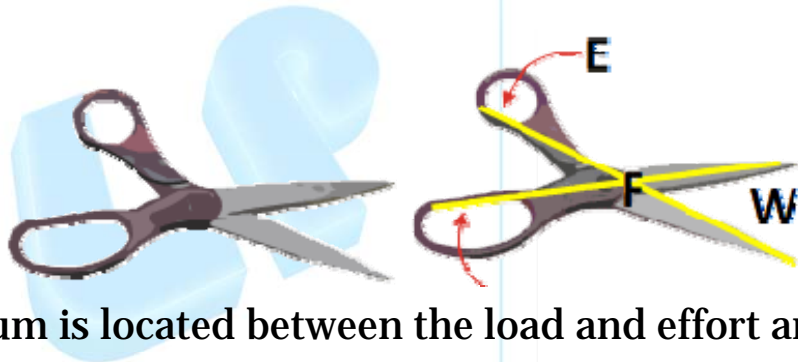
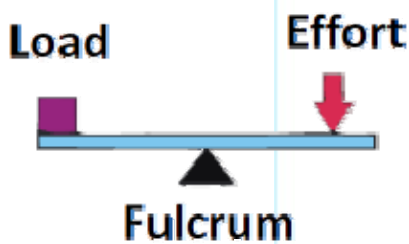


- A lever can be described as a straight rod that rests on a single point, like a see-saw.
- Levers are used to move or lift heavy loads.
- They have three parts: the load, the fulcrum, and the effort.



- The support that the lever rests on is called the fulcrum. You must have seen see-saw in the play ground. In a see-saw, the fulcrum is in the middle.
- The person pushing off the ground represents the effort. He is applying energy to make the see-saw move.
- The person being lifted on the other end of the see-saw is the load. He is the weight that is being lifted.

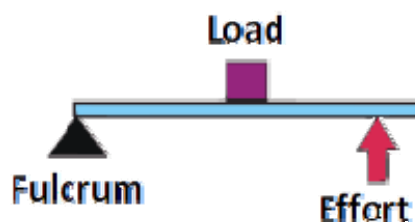
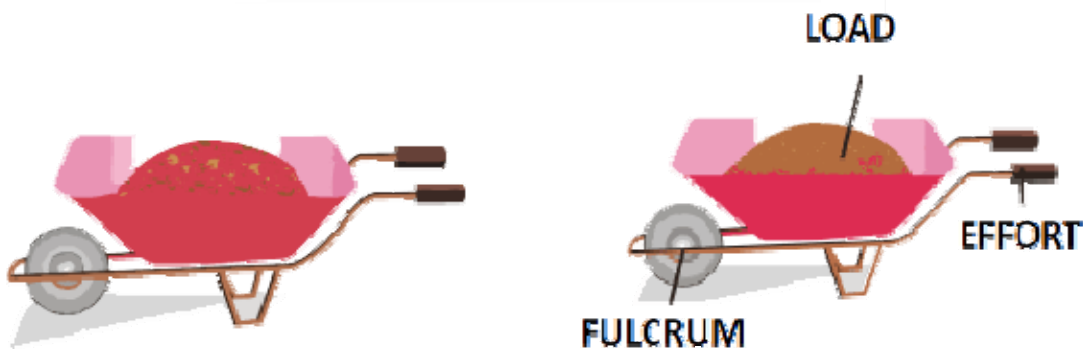
Class 1 levers:



- Levers in which fulcrum is located between the load and effort are called **Class 1 levers**.

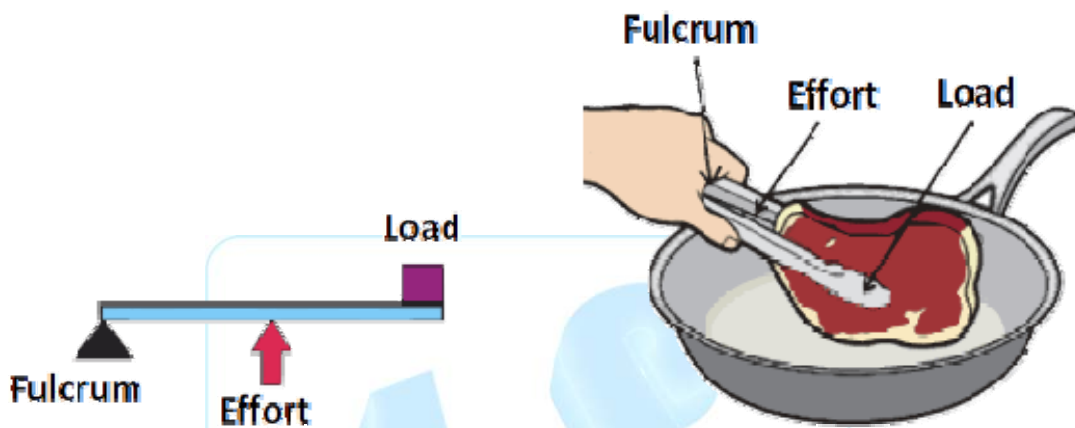
Learners' Planet

Class-2 Levers:



- Levers in which the load is located between the fulcrum and the effort are called **Class 2 levers**.

Class 3 Levers:



- Levers in which the effort is located between the fulcrum and the load are called **Class 3 levers**.