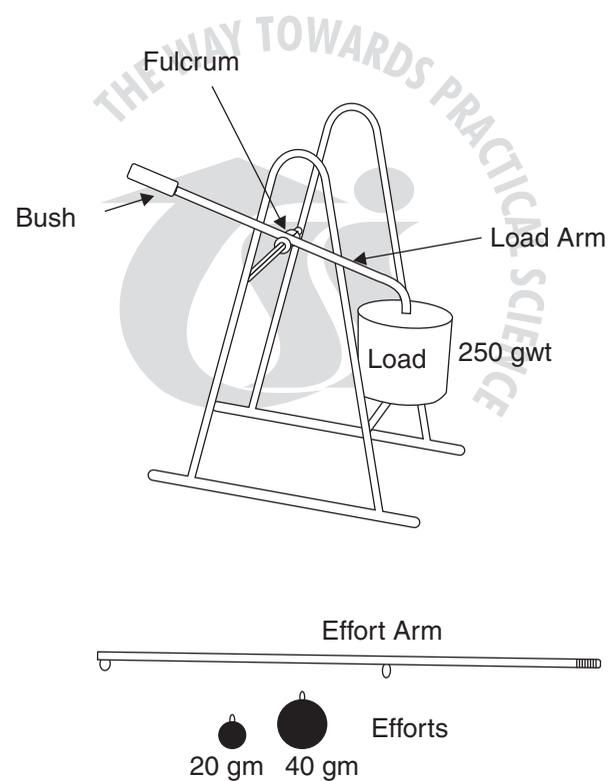


LEVER - A SIMPLE MACHINE

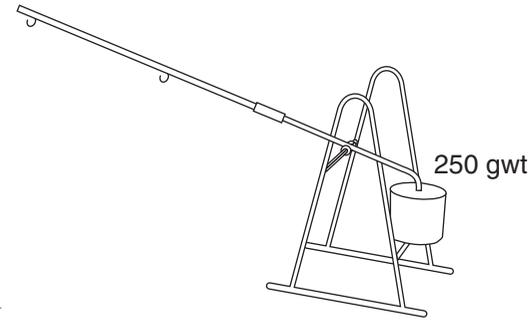
A smaller effort applied at a greater distance from fulcrum can move a larger load.

Assembly:

Consists of a rod (Load Arm) which can turn around at a fixed point (Fulcrum) in a frame. A heavy weight (load) is attached to one of its ends comparatively nearer to the fulcrum. The other end has threading for inserting bush. Bush has also threading so that effort arm can be fixed to it.

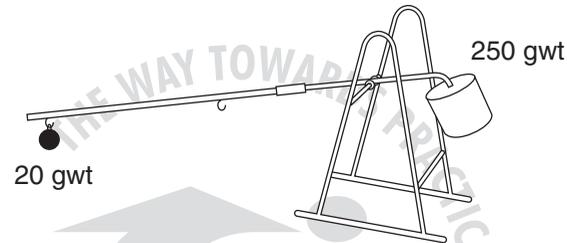


To do and observe:



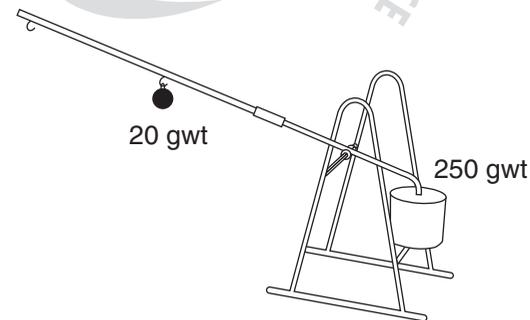
Step-I

Fix the effort arm in the bush provided at the end of the load arm.



Step-II

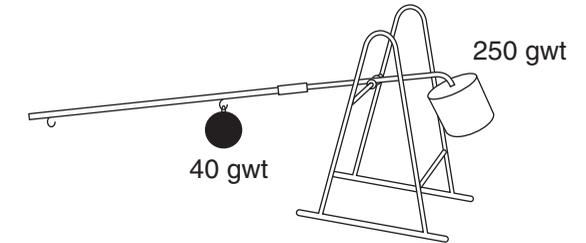
Place smaller ball (20 gm effort) inside the hook provided at the end of the effort arm. You will notice that the load is lifted easily



Step-III

Now place the effort of 20 gm in the hook which

is nearer to the fulcrum. You will notice that the load does not get lifted.



Step IV

Now place bigger ball (40 gm effort) inside the hook which is nearer to the fulcrum. You will notice that the load is lifted again.

What is going on?

A lever works on the principle of moment of a force.

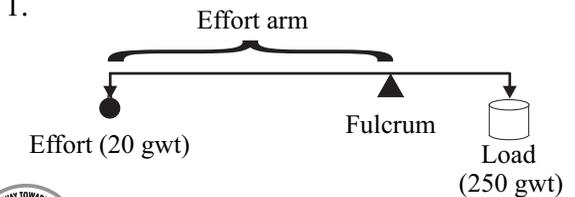


$$\text{Effort} \times \text{Effort Arm} = \text{Load Arm} \times \text{Load}$$

Here load and efforts are measured in terms of weights.

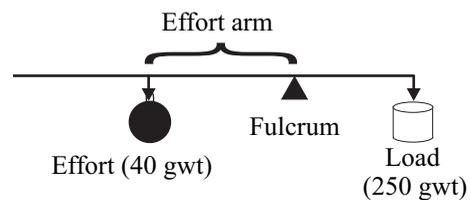
In this experiment load x load arm remains the same both times. However effort & effort arm changes. The following figures explain it clearly.

1.



Here effort arm is more. Therefore effort is less.

2.



Here effort arm is less. Therefore effort is more.

This is called as first kind of lever.

Followup :

Why is that a pair of garden scissors has long arms?

We use levers in one or the other form in daily life. Name them.

Observe which is the load and which is the effort in different situations.



Archimedes
(287 BC - 212 BC)



Lever

A Simple Machine

TARANG SCIENTIFIC INSTRUMENTS

DHARWAD

Phone : 0836-2775204

Cell : 94482 31960



TARANG SCIENTIFIC INSTRUMENTS



TARANG S CIENTIFIC INSTRUMENTS