FIRST CLASS LEVER

In the first class lever the load and the place where the force is applied are on two sides of the fulcrum.

In set number 1 it is easier to lift the load. The length of the arm from the fulcrum to the point of pressure is greater than in set number 2.

In this lever the force needed to lift the load is smaller when its arm is longer.

If we compare the path of load and the path that our hand covers, we can see, than thanks to the first class lever we reduce the force needed to lift the load, but we increase the path over which it is performed (our hand covers a longer path than the load).

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SECOND CLASS LEVER

In the second class lever the load and the point of application of the force are on the same side of the fulcrum.

Pulling on hook number 5 is the easiest way to lift the load. The distance of this point from the lever's fulcrum, called the lever arm, is greater than in the case of hooks numbered 4, 3, 2, and 1.

The force required to lift the load in this lever is smaller when its arm is longer.

If we compare the path of the load and the path that our hand covers, we can see that thanks to the lever we reduce the force needed to lift the load, but we increase the path over which it is performed (our hand covers a longer path than the load).

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PULLEY

In machine no. 1 there is one stationary pulley. It rotates around a axis, a sling is placed on it. At one end of the sling we place the load, at the other end we apply a force. Such a pulley only changes the direction of the force, but does not change its value. In practice, we have to act with a greater force, because there is friction. However, this is easier work - instead of pulling weight vertically up, we pull the sling down. The weight of our body helps us.

In machine no. 2 there is one stationary pulley and one movable pulley. The second one is suspended on a sling, one end of which is permanently attached to the beam, while a force is applied to the other. This pulley moves up and down during its operation.

In the case of using a movable pulley, we reduce the force needed to lift load by half compared to lifting it without this pulley. During the work, the length of the pulled sling is twice the distance covered by the lifted object.

As you can see, by using this simple machine, we reduce the force needed to do some work but we increase the distance to do this work.

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STATIONARY PULLEY

In machine no. 1 there is one stationary pulley. It rotates around a axis, a sling is placed on it. At one end of the sling we place the load, at the other end we apply a force. Such a pulley only changes the direction of the force, but does not change its value. In practice, we have to act with a greater force, because there is friction. However, this is easier work - instead of pulling weight vertically up, we pull the sling down. The weight of our body helps us.

As you can see, by using this simple machine, we reduce the force needed to do some work but we increase the distance to do this work.

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STATIONARY AND MOVABLE PULLEY

In machine no. 2 there is one stationary pulley and one movable pulley. The second one is suspended on a sling, one end of which is permanently attached to the beam, while a force is applied to the other. This pulley moves up and down during its operation.

In the case of using a movable pulley, we reduce the force needed to lift load by half compared to lifting it without this pulley. During the work, the length of the pulled sling is twice the distance covered by the lifted object.

As you can see, by using this simple machine, we reduce the force needed to do some work but we increase the distance to do this work.

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INCLINED PLANE

An inclined plane is a flat surface, tilted at an angle to the horizontal, on which various objects can lie, slide, roll, etc.

In the case of ramp C, you used the least force to pull the coconut up. The angle of the ramp C was less than that of ramp B. You used the greatest force to lift the coconut vertically upwards.

An inclined plane allows you to reduce the force needed to lift an object, but it increases the distance the object travels.

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