

Title of Experiment: The Inclined Plane

Object: Verify that as inclination is either halved or doubled and height kept the same, the mechanical work done is same. Work done is conserved and mechanical efficiency is equal to the ratio of the work done.

Question: What is work done? What is the work done in lifting a load of mass m through a height h by using a rope?

Experiment: What do you think will happen to the work done if you double the height? _____

Materials: Two inclined planes (one inclined plane standing upright, other inclined plane)

Procedure: How do you find the work done?

1. Let the height of the inclined plane be h and the length of the inclined plane be L . Then the work done is $W = mgh$.
2. Let the height of the inclined plane be $2h$ and the length of the inclined plane be $2L$. Then the work done is $W = mg(2h) = 2mgh$.
3. Let the height of the inclined plane be $h/2$ and the length of the inclined plane be $L/2$. Then the work done is $W = mg(h/2) = mgh/2$.

Result: What is the result?

1. Work done is $W = mgh$.

2. Work done is $W = 2mgh$.

Conclusion: What do you think?

1. The work done is $W = mgh$.
2. The work done is $W = 2mgh$.
3. The work done is $W = mgh/2$.

Experiment: How do you find the work done in lifting a load of mass m through a height h by using a rope?

There is a block of mass m on a smooth inclined plane of length L and height h . The work done in lifting the block through the inclined plane is $W = mgh$. The work done in lifting the block through the inclined plane is $W = mgh$.