

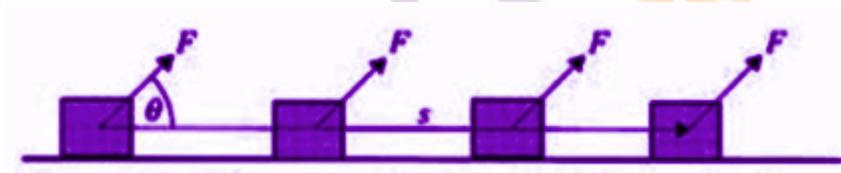
Work Done by a Force

Work is done whenever a force pushes something over a distance. By multiplying the force by the distance moved in the direction of the force, you may determine the amount of energy transferred or work done.

Define Work Done by a Force

"The work done by a force is defined as the product of an object's displacement and the component of the applied force that is directed in the direction of the object's displacement."

Every time a force pushes something over a distance, work is done. By multiplying the force by the distance moved in the force's direction, you may calculate the energy transferred, or work done. Energy transmitted equals work done, which is force times the distance traveled in the force's direction.



Work Done by a Force Formula

The formula for work done by force can be given as:

Work done = force x distance moved in the force's direction

The energy transferred when energy is transferred from chemically stored in muscles to energy in a higher load or elastically stored in a stretched spring is a measure of how much work has been done.

Energy transferred = $mg\Delta h$

This second equation is demonstrated by placing kilograms on various height shelves. You can demonstrate how the equation provides a clear overview of what occurs. It considers the mass, the height raised, and whether the kilogram is lifted on Earth or on the Moon.

The valuable thing you receive from burning fuels is a transfer of energy, which allows you to raise a burden or accelerate an object.

However, not all of the available energy is put to good use. You risk becoming too heated if you lift several bricks. A portion of the energy in your muscles warms you up in addition to being transferred to the raised bricks. Energy transfer is not completely efficient, and not all of the energy transmitted is represented as " mgh ". You also don't know how much overall energy is gravitationally stored. Only transmitted energy can be calculated.

SI Unit of Work

The SI unit for work is the joule (J), which is defined as the amount of effort required to move an item one unit meter in the force's direction using a force of one newton.

Any problem can be solved by using the work formula to calculate work done, force, or displacement. The unit of measurement is Newton meter, or Nm.

Examples of Work Done by a Force

To move an object, there must be a transfer of energy. Energy can be transferred via force. Work done refers to the amount of energy used by a force to move an object. There are several examples of work being done in our daily lives.

- A student holding a backpack on his back or his shoulder full of books.
- a horse pulling a plow across the field.
- a father pushing a supermarket cart in a mall.
- raising a thing against the gravity of the Earth.
- driving an automobile up a hill.
- dragging a captive helium balloon down.