WORK

POSITIVE	NEGATIVE	ZERO
force acts in the direction of motion of the body	force acts opposite to the direction of motion of the body	force acts perpendicular to the direction of motion of the body
ex. work done by gravitational force on a freely falling object	ex. work done by gravitational force on a lifting object	ex. work done by sun on the planets moving around it

work is the product of force and displacement, SI unit: Joules.
1 Joule is the amount of work done on an object when a force of 1N displaces it by 1m along the line of action of the force.
work: scalar; work done: vector.
for work to be done, a force should act on the object and it must be displaced.
1kJ = 1000J

ENERGY

POTENTIAL ENERGY	KINETIC ENERGY
energy present in an object by virtue of its position/configuration	energy possessed by a moving body by virtue of its motion

an object having the capability to do work is said to possess energy.
SI unit: J
1J is the energy required to do 1J of work.
gravitational PE of an object at a point above ground is the work done in raising it from the ground to that point against gravity. PE of an object at a height depends on the ground level. depends on the difference in vertical heights of the initial and final positions of the object and not on the path along which the object is moved.

LAW OF CONSERVATION OF ENERGY

energy can only be converted from one form to another; it can neither be created nor destroyed. the total energy before and after transformation remains the same.

PE+KE of an object = its total mechanical energy

POWER

rate of doing work/rate of transfer of energy. SI unit: Watt [James Watt]
1 watt is the power of an agent, which does work at the rate of 1J/s; power is 1W when rate of consumption of energy is 1J/s.
1W = 1J/s
1kW = 1000W or 1000J/s

By **Ayesha Talib**
cheatography.com/ayesha-talib/

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