Energy

In physics, energy is the quantitative property that must be transferred to an object in order to perform work on, or to heat, the object. Energy is a conserved quantity; the law of conservation of energy states that energy can be converted in form, but not created or destroyed. The SI unit of energy is the joule (J), which is the energy transferred to an object by the work of moving it a distance of 1 meter against a force of 1 newton.

Work

In physics, a force is said to do work if, when acting, there is a displacement of the point of application in the direction of the force. For example, when a ball is held above the ground and then dropped, the work done by the force of gravity is equal to the weight of the ball multiplied by the height from which it was dropped.
The work done by a constant force is calculated by the equation:
Work = Force x Distance
The SI unit of work is the joule (J).

Power

Power is the rate at which work is done. It is calculated by the equation:
Power = Work / Time
The SI unit of power is the watt (W).

Potential Energy

Potential energy is the energy that an object has due to its position. For example, a ball that is held above the ground has potential energy because it could fall and release that energy.
The potential energy of an object is calculated by the equation:
Potential Energy = Mass x Gravity x Height
The SI unit of potential energy is the joule (J).

Kinetic Energy

Kinetic energy is the energy that an object has due to its motion. For example, a ball that is rolling down a hill has kinetic energy.
The kinetic energy of an object is calculated by the equation:
Kinetic Energy = 1/2 x Mass x Velocity^2
The SI unit of kinetic energy is the joule (J).

Conservation of Energy

The law of conservation of energy states that energy can be converted in form, but not created or destroyed. This means that the total amount of energy in a system remains constant.

Types of Energy

There are many types of energy, but they can all be classified into two main categories: potential energy and kinetic energy.

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