

Kinetic Energy

Kinetic Energy is the energy possessed by a moving object.

$$\text{Equation} = E_k = \frac{1}{2}mv^2$$

Potential Energy

Potential Energy is the energy of an object due to its height above the ground.

$$\text{Equation: } E_p = m \cdot g \cdot \Delta h$$

Latent Heat

The total thermal energy absorbed or released when a substance changes state, measured in joules

$$Q = m \cdot l$$

Work

Mechanical work is the application of a force on an object that displaces the object in the direction of the force or a component of the force.

$$W = F \cdot \Delta d$$

Thermal Energy

Thermal energy is energy due to the movement of particles inside a substance. The more movement, the more thermal energy.

$$\text{Equation: } Q = m \cdot c \cdot \Delta T$$

Nuclear Energy

Nuclear Energy is found in the nucleus of an atom and keeps the protons together.

Law of Conservation of Energy

Energy can neither be created nor destroyed.

$$E_{T1} = E_{T2}$$

Power

The rate of transforming energy or doing work

$$P = W/T$$

Nuclear Fission

Nuclear Fission occurs when a heavy atom is struck by a nucleus, causing it to break apart into smaller, more stable atoms. By doing this, it releases a lot of energy.

Decay

Alpha Decay

Helium Particle is emitted.

Beta Positive Decay

A proton becomes a neutron and a positron and the positron is emitted.

Beta Negative Decay

A neutron becomes a proton and an electron, and the electron is emitted.

Electron capture

An electron is captured by an atom, resulting in a proton and electron forming a neutron.

Gamma Decay

A photon is emitted.

Nuclear Fusion

Nuclear Fusion is the process of taking small, stable atoms, and fusing them to create larger, less stable atoms. By doing this, energy is produced. No nuclear waste results from this transformation.

Thermal Energy Transfer

Thermal energy moves from hotter objects to colder objects. The transfer of thermal energy is known as heat.

$$Q^{\text{Hot}} = -Q^{\text{Cold}}$$

