

Distinguish, differentiate, compare, state and explain what are the main difference between Kinetic and Potential Energy in Physics with Examples. Comparison and Differences.

Kinetic Energy

What makes it possible for a force to do work? The answer is energy. Energy may be thought of as the property of something which enables it to do work. When we say that something has energy, we suggest that it is capable of exerting a force on something else and performing work on it. When work is done something, energy has been added to it. Energy is measured in Joules, the same units as work.

Energy takes on many forms. One type is the energy a moving body possesses by virtue of its motion. Every moving object has the capacity to do work. By striking another object that is free to move, the moving object can exert a force and cause the second object to shift its position. While the object is moving, it has the capacity for doing work. Energy means the ability to do work, so all moving things have energy by virtue of their motion. This type of energy is called kinetic energy.

The energy that an object possesses because it is moving, its kinetic energy, is defined as: $KE = \frac{1}{2} mv^2$

Potential Energy

Many objects possess energy because of their position; potential energy is energy due to an objects position or configuration - stored energy. Book on a table has potential energy since it can fall to the floor; skier poised at top of a slide, water at brink of a cataract, car at top of hill, anything capable of moving toward the Earth under the influence of gravity has energy because of its position.; planet has potential energy with respect to the sun since it can do work in falling toward the sun, nail placed near a magnet has potential because it can do work in moving to the magnet.

$W = mgh = PE$ -> work required to raise a body of mass m to height h above its original position. When we specify weight w of a body instead of mass :

$PE = wh$ since mass is related by $w = mg$

Difference between Kinetic and Potential Energy in Physics

There are many forms of energy, but they all fall into two categories namely Kinetic Energy and Potential Energy.

1. Kinetic energy is energy in use or the energy of motion. Potential energy is stored energy or energy not in use.
2. The examples of Kinetic Energy are: the motion of waves, electrons, atoms, molecules, substances, and objects. The examples of Potential Energy are: Energy stored in chemicals, in position, food etc.