

PHYSICS (GRADE=7)

Energy, work, power and pressure

Lesson 14: Kinetic and potential energy

Mrs. Ruksana Akter

A handwritten signature and the date 27/02/2020 are written in the top right corner of the page.

1. Define kinetic energy.

Ans. Kinetic energy is the energy a body has because of its motion. For a body of mass m travelling with velocity v , its kinetic energy can be calculated by

$$\text{K.E.} = \frac{1}{2} mv^2$$

K.E. → kinetic energy of the body in joules (J)

m → mass of the body in kilogram (kg)

v → velocity of the body in meter per second (m/s)

2. Define potential energy.

Ans. Potential energy is the energy a body has because of its position or condition. To lift a body of mass m through a vertical height h at a place where the Earth's gravitational field strength is g , a force equal but opposite to the weight mg of the body is needed. So

$$\begin{aligned} \text{Work done by force} &= \text{force} \times \text{vertical height} \\ &= mg \times h \end{aligned}$$

$$\text{P.E.} = mgh$$

P.E. → potential energy of the body in joules (J)

m → mass of the body in kilogram (kg)

g → gravitational field strength

h → height of the body from the surface of the ground in meter (m)

3. Conservation of energy.

Ans. Energy cannot be created or destroyed. It can transfer from one form to another.

A handwritten signature is located at the bottom right of the page.