

Kinetic & Potential Energy Study Guide

Define potential energy: **STORED ENERGY DUE TO ITS POSITION OR CHEMICAL MAKEUP**

Define kinetic energy: **ENERGY AN OBJECT HAS DUE TO ITS MOTION**

The unit for potential energy is **JOULES**; the unit for kinetic energy is **JOULES**

List 4 examples of kinetic energy: **RUNNING, DANCING, RIDING A BIKE, FALLING DOWN**

Define energy: **ABILITY TO DO WORK OR CAUSE CHANGE**

Chemical potential energy is found in **THE BONDS OF COMPOUNDS**

GRAVITY attracts objects to each other

A rubber band, bow and arrow and springs are all examples of **ELASTIC POTENTIAL ENERGY**

Food, fuel and batteries are all examples of **CHEMICAL POTENTIAL ENERGY**

Kinetic energy increases as **MASS & VELOCITY** increases

A car at the top of a hill has potential energy because of its **POSITION**

Fuel oil has potential energy because of its **CHEMICAL MAKEUP**

A cheeseburger has **CHEMICAL POTENTIAL** energy

A book on a shelf has **GRAVITATIONAL POTENTIAL** energy

Throwing a rock has **KINETIC** energy

Fuel for a car has **CHEMICAL POTENTIAL** energy

Running has **KINETIC** energy

A jack in the box has **ELASTIC POTENTIAL** energy

A car on the top of a hill has **GRAVITATIONAL POTENTIAL** energy

A battery has **CHEMICAL POTENTIAL** energy

An explorer holding their map in the air has **GRAVITATIONAL POTENTIAL** energy

Calculate

What is the kinetic energy of a ball that has a mass of 3kg and is moving at 5m/s?

$$KE = \frac{\text{Mass} \times \text{Velocity}^2}{2} \qquad KE = \frac{3 \times 5^2}{2} \qquad KE = \frac{75}{2} \qquad \mathbf{KE = 37.5J}$$

How much potential energy does a 6.5kg bowling ball have when it is raised to a height of 2.6 meters?

$$PE = \text{Weight} \times \text{Height} \qquad PE = 6.5 \times 9.8 \times 2.6 \qquad \mathbf{PE = 165.62J}$$

(Wt. in N = Mass x 9.8)