

Potential Energy and the Work-Energy Theorem

-'potential' means it has some future ability
-since energy is defined as the ability to do work potential energy is something an object possesses for future use

-there are several forms of potential energy
Gravitational, elastic, electrical, chemical
-we will discuss only gravitational so far

Imagine a golf ball and a bowling ball, both held waist high and then dropped. Which would you want to make certain did NOT hit your toes?

Now consider two golf balls, one at your waist and one at the top of the CN Tower, which would you want to avoid?

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Gravitational Potential Energy

Gravitational Potential energy is the product of an object's mass, acceleration due to gravity and the objects height above a reference position.

$$E_g = mgh$$

where;

E_g is the gravitational potential energy measured in Joules (J)
 m is the objects mass in kilograms (kg)
 g is the acceleration due to gravity (9.81m/s^2)
 h is the change in height above a reference pos'n in metres (m)

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Example;

Rivka is about to drop a 3kg rock onto a tent peg. Calculate the gravitational potential energy after she lifts it to a height of 0.68m above the peg.

As we found with Kinetic energy, the work done is equal to the change in gravitational potential energy and vice versa

Homework

p. 250 #27-29

p. 254 #30-34

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