PHYSICS

TOTAL MECHANICAL ENERGY

Recall: Types of Energy

Gravitational Potential Energy **Kinetic Energy**

Quick Examples:

1. **What is the gravitational potential energy of a 2 kg bird flying at a height of 25m**

2. **What is the kinetic energy of a 2 kg bird flying at a speed of 10 metres per second**

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TOTAL MECHANICAL ENERGY

Total Mechanical Energy

The total mechanical energy of an object is the sumation of all the types of energy that an object posesses.

Ex: What is the total mecanical energy of a 2 kg bird flying at a height of 25m at a speed of 10 meters per second

Ex: What is the total mecanical energy of a 1000kg roller coaster travelling at 2 metres per second when its at the top of the first hill that is 30m above the ground

PHYSICS

CONSERVATION OF ENERGY

CONSERVATION OF ENERGY

The Law of Conservation of Energy states that energy can neither be created nor destroyed but can be changed from one form to another.

In other words, the total energy of a system will remain constant as energy changes from one form to another.

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

Ex: 200 kg piano is hanging 30m up in the air from a crane. It is then released and allowed to fall.

a) How fast is it going when it reaches the ground?

b) How high off the ground will the piano be when it is travelling 10m/s?

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CONSERVATION OF ENERGY

Ex 2: Danger McStunt is a 75 kg motorcycle stuntman that specializes in jumping off ramps. He takes his 200 kg motorcycle and speeds it up to 100 km/h before launching it up in the air. After he hits the ramp he flies up into the air and his speed decreases to 80 km/h at the top of his motion.

How high off the ground is Danger when he is at his max height?

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CONSERVATION OF ENERGY

Homework

Pg. 241 #1 (practice question)

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