Slide 1

Question: What is the difference between kinetic and potential energy?

THE NATURE OF ENERGY

Energy -

Forms of energy include:

* *

* *

Kinetic Energy -

KE depends on

Example of KE:

Potential Energy -

Example of PE: W

Elastic Potential Energy –

Chemical Potential Energy

Gravitational Potential Energy –

Slide 2

Question: What law states that the total amount of energy never changes?

CONSERVATION OF ENERGY

Energy can be transformed from one form to another.

Mechanical Energy -

Mechanical Energy = PE + KE

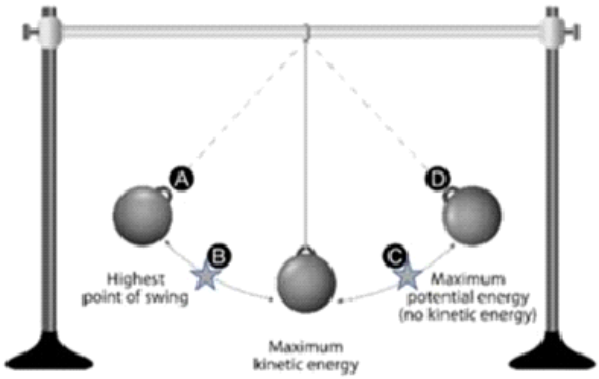
POINT A: PE MAXIMUM, KE = O

POINT B: KE ↑, PE ↓

POINT C: KE ↓, PE ↑

POINT D: PE MAXIMUM, KE = O

TOTAL MECHANICAL ENERGY



The Law of Conservation of Energy –

Ex. Swinging on a swing set

No energy is lost, just changes

Question: How are humans different from other populations?

WORK

Work -

For work to be done,

When work is done,

Calculating Work:

Work (joules) = Force (Newtons) x Distance (meters)

W =

Ex. You push a wheelbarrow with a force of 100N. You moved the wheelbarrow 5m. How much work did you do?

W = F x d
W =
W =

Power -

Calculating Power

Power (watts) = $\frac{\text{work(J)}}{\text{time (s)}}$ $P = \frac{W}{t}$

Ex. You do 900 J of work pushing a fridge. It took 5 seconds. What was your power?

$P = \frac{W}{t}$ =

Slide 4

Question: What are some machines we use every day to help make doing work easier?

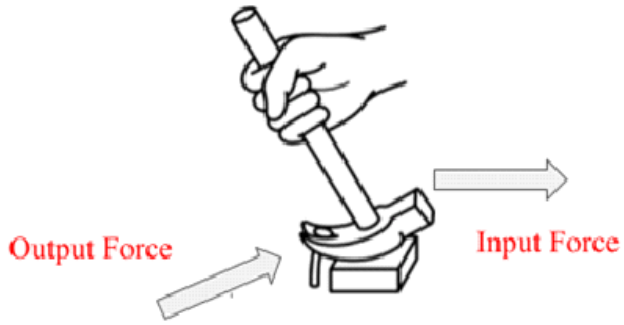
USING MACHINES

Machine

Machines make work easier by

Two forces are involved when a machine does work

(F IN) Input Force **Output Force (F OUT)**



Mechanical advantage –

$$\text{Mechanical advantage} = \frac{\text{Output force (newtons)}}{\text{Input force (newtons)}}$$

$$MA = \frac{F_{OUT}}{F_{IN}}$$

Efficiency –

Machines can be made more efficient by

Slide 5

Question: Where can one find simple machines?

SIMPLE MACHINES

Simple Machine -

LEVER	PULLEY
WHEEL AND AXLE	INCLINED PLANE
THE SCREW	THE WEDGE

Compound Machine -