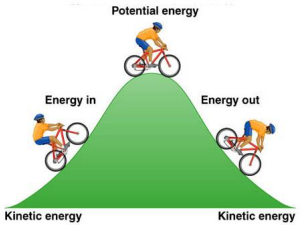
Conservation of Energy

Objectives

Understand work = energy

Calculate work done by friction on an object

Use work done to calculate the KE or PE of an object

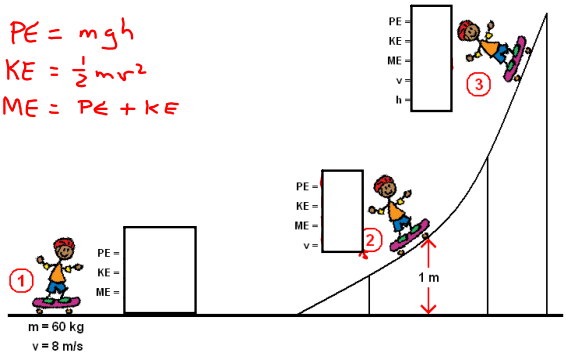


Conservation of Mechanaical Energy

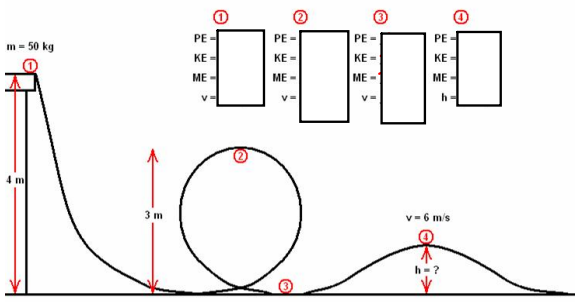
$PE = mgh$

$KE = \frac{1}{2}mv^2$

$ME = PE + KE$



Conservation of Mechanaical Energy

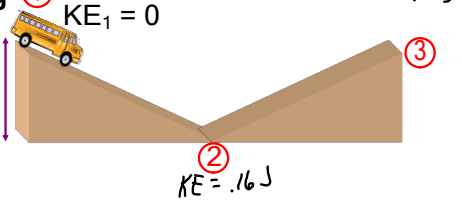


Conservation of Mechanical Energy

w/ Friction

m = .1 kg

h = .2 m



Conservation of Mechanaical Energy

total energy stays constant .....

BUT energy changes forms (PE ⟷ KE, thermal, sound, light, nuclear, etc.)

work is how energy changes form

$$PE_1 + KE_1 + W = PE_2 + KE_2$$

$.2J + 0 + W = .12J + 0$

$W = -.08J$

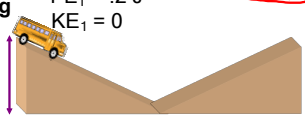
Work = Energy

* the amount of work that is done is the same as the amount of PE given or change in KE

when energy changes forms, it does so thru work!

m = .1 kg

h = .2 m

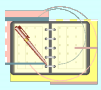


PE = Work $W = F \cdot d$

$W = .2J$ $mg \cdot d$

$= (.1kg)(10\frac{m}{s^2})(.2m)$

Assignments . . .



- Chapter 7 Homework # 18 - 20