1. Observe the class demo. How much energy did the object impact with?

Watch the demonstration with the object and calculate its speed. Find its mass. Calcuate from the Energy Formula. Write out how you figured this out!

2. What if the object dropped straight down, and it took 1/10th of a second to reach the ground. How much Energy would it impact with?

Write the formula, fill in the numbers and share how this is done!

Mass = .0445 kg

Velocity = (9.8)(.1) = .98

$9.8 \frac{m}{s} \times .1 \, s$

$\frac{1}{2} m v^2$

$\frac{(.0445)(.98)^2}{2}$

$1/2\ MV^2$ (5)

Mass - .0445 Kg

Dis - 6m

Time - 2.66 sec

Veloc. - 2.255

$\frac{(.0445)(5)}{2}$

.11 J

potential energy - Stored energy

gravitational - weight x height

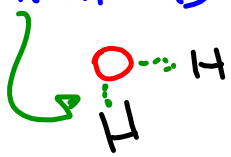
Mechanical energy - potential + kinetic energy of an object that moves

Energy Forms

Thermal Energy - total potential + kinetic energy of ptcls.

electrical Energy - electrons moving e-

chemical Energy - potential energy of atomic & molecular bonds.

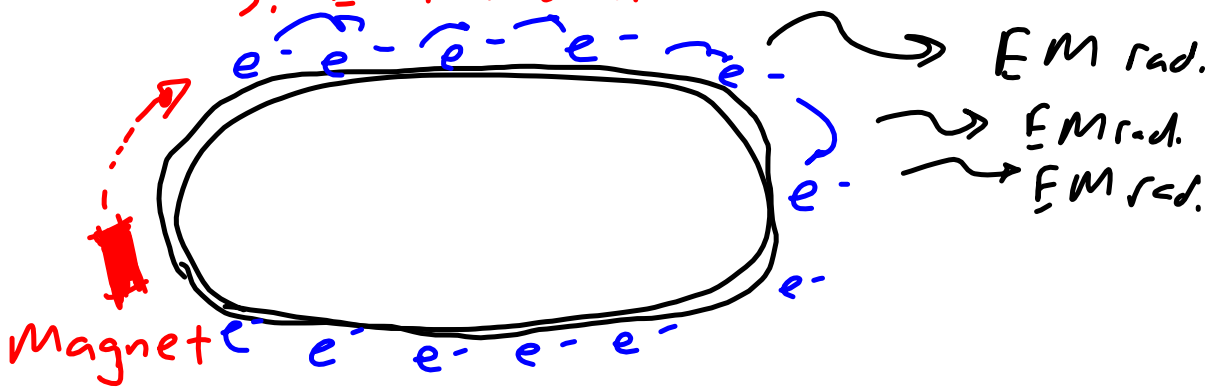


Nuclear Energy - Fission: breaking heavy atoms

Fusion: fusing small atoms

EM radiation - Michael Faraday

Triad - 1. electricity 2. magnetism
3. EM radiation



celeritas

Law of Conservation of Energy

Energy is neither created nor destroyed

$E = mc^2$ - Einstein

energy = mass → celeritas

Speed of light 300,000 $\frac{km}{s}$ (7x around Earth in second)

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

Energy + Matter can neither be created nor destroyed, but can change into each other.

Temperature - Avg. Kinetic Energy ptcls.

	Freezing H_2O	Boiling H_2O
Fahrenheit -	32° F	212° F
Celsius -	0° C	100° C
Kelvin -	273° K	373° K

p. 39 balloon

start 0°C
↓ 1°C → ↓ 1/273 rd.
- 273/273 =

Absolutely NO movement
1 molecule
Absolutely NO temp.
Absolute zero!

Heat - thermal Energy transferred from warm → cool

Specific Heat - Energy required to ↑↓ temp. 1° K for 1 kg of mass.

Δ energy = M x S.H. x Δt