

Do Now 10-8

Can the speed of an object change if the net work on it is zero?

No

No work \rightarrow No F_{net}
 \rightarrow no \vec{a} \rightarrow no Δv

$$W_{net} = F_{net} \cdot d$$

$$F_{net} = Ma$$

$$a = \frac{\Delta v}{\Delta t}$$

Chemical, mechanical, potential
Kinetic

Energy - ability or capacity to do work

Potential energy (gravity)

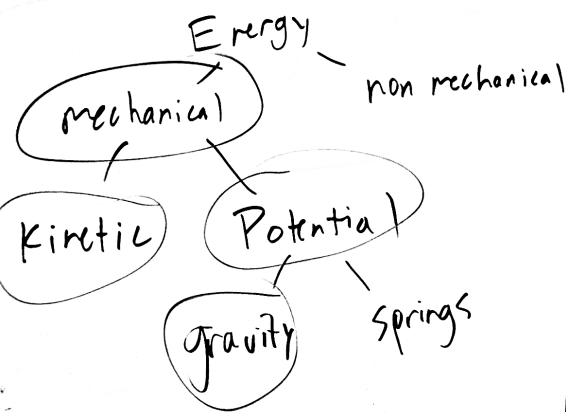
$$PE = \text{mass} \times \text{gravity} \times \text{height}$$
$$PE = mgh$$

Work & energy measured in Joules (J)

Kinetic energy = energy of motion

$$KE = \frac{1}{2} \text{mass} \times (\text{velocity})^2$$

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



Mechanical energy = Potential + kinetic

$$ME = KE + PE$$

Ob physics. weebly. com

Agenda

Notes Mechanical Energy.

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7 kg 3 m/s

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

bowling

$$\frac{1}{2} (7) (3)^2 = 31.5 \text{ J}$$

CW 10-8

Tennis

$$KE = 31.5 \text{ J}$$

$$m = 0.00245 \text{ kg}$$

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

$$v^2 = \frac{2 KE}{m}$$

$$v = \sqrt{\frac{2 KE}{m}}$$

$$= 160 \text{ m/s}$$