

Printout

May 6, 2019 2:01 PM

Name: _____

Date: _____

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Energy: Lesson 0 – Converting Units

Useful Conversions:

100 cm = 1 m	Conversion Factors	60 s = 1 min
1000 m = 1 km		60 min = 1 h
1 mile = 1.6 km		3600 sec = 1 h

$$\frac{60s}{1min} \text{ or } \frac{1min}{60s}$$

Ex. _____ sec = 3.5 h

$$3.5 \cancel{h} \times \frac{3600s}{1\cancel{h}} = 12600s$$

Ex. _____ cm = 1.5 m

$$1.5 \cancel{m} \times \frac{100cm}{1\cancel{m}} = 150cm$$

Ex. _____ h = 25 min

$$25 \cancel{min} \times \frac{1h}{60\cancel{min}} = \frac{25h}{60} = 0.42h$$

Ex. _____ miles = 3 km

$$3 \cancel{km} \times \frac{1mile}{1.6\cancel{km}} = \frac{3}{1.6} = 1.88miles$$

Ex. _____ km = 349 cm

$$349 \cancel{cm} \times \frac{1\cancel{m}}{100\cancel{cm}} \times \frac{1km}{1000\cancel{m}} = \frac{349}{100000} = 0.00349km$$

Ex. _____ m = 2 miles

$$2 \cancel{miles} \times \frac{1.6km}{1\cancel{miles}} \times \frac{1000m}{1\cancel{km}} = 3200m$$

Ex. _____ m/s = 50 km/h

$$50 \frac{\text{km}}{\text{hr}} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ hr}}{3600 \text{ s}} = \frac{50000 \text{ m}}{3600 \text{ s}} = 13.8 \frac{\text{m}}{\text{s}}$$

Ex. _____ km/h = 25 m/s

$$25 \frac{\text{m}}{\text{s}} \times \frac{\text{km}}{1000 \text{ m}} \times \frac{3600 \text{ s}}{1 \text{ hr}} = \frac{90000}{1000} = 90 \text{ km/hr}$$



Ex. _____ km/h = 65 mph $\frac{\text{mi}}{\text{hr}}$

$$65 \frac{\text{miles}}{\text{hr}} \times \frac{1.6 \text{ km}}{1 \text{ mile}} = 104 \text{ km/hr}$$

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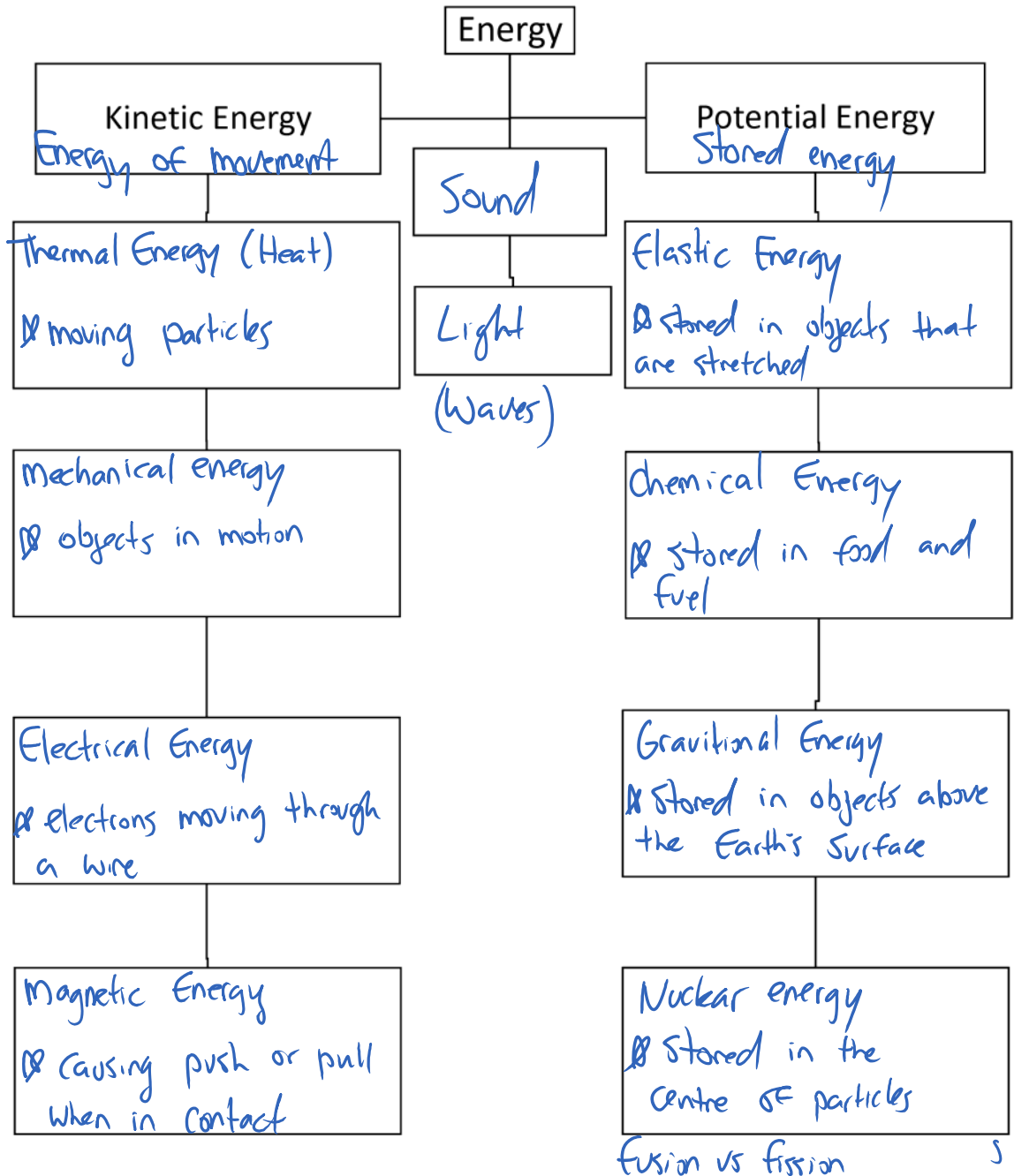
Block: _____

Energy:

Lesson 1 – Types of Energy

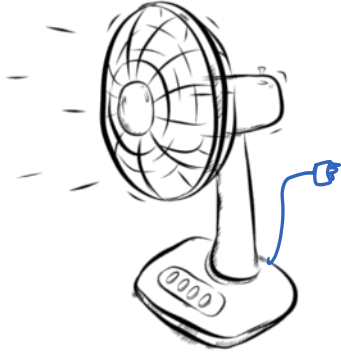
Energy: *The ability to do "work"*
- *Cannot be created nor destroyed, transformed from one form to another*

Types of Energy



Transformation of Energy

1)



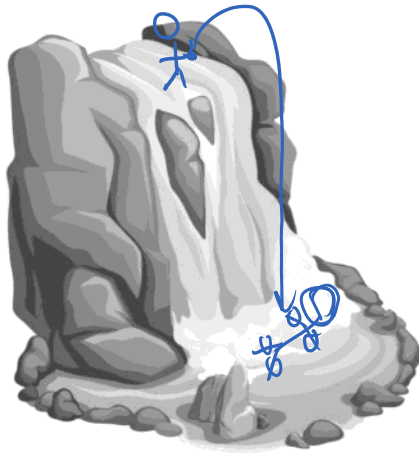
From: *Electrical (Potential)*
To: *Mechanical (kinetic)*

2)



From: *Chemical (potential)* → *Combustion*
To: *Thermal / Light*

3)



From: *Gravitational*
To: *Mechanical*

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Lesson 2 – Energy Formulas & Variables

Kinetic and Potential Energy Formulas

Potential Energy

$$E_p = mgh$$

Kinetic Energy

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

International System of Units: _____

m =

g =

h =

v =

E =

Ex. A 5 kg bowling ball rolls at 5 m/s down the lane.

Energy:

Variables:

- 1) Identify type of energy.
- 2) Identify variables in question.

Ex. A 5000 kg car is waiting at a light at the top of a 50 m hill.

Energy:

Variables:

Ex. A 2 kg ball has a kinetic energy of 34 J. What speed was it travelling?

Ex. An 8 lbs cat sits on a couch 2m above the ground.