**Energy Notes**

**Gravitational potential energy** is energy that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ due to \_\_\_\_\_\_\_\_\_\_\_\_\_

The formula for Gravitational Potential Energy is: It can also be written

The variables stand for: m = \_\_\_\_\_\_\_\_\_, g = \_\_\_\_\_\_\_\_\_, and h = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Kinetic energy** is energy of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The formula for Kinetic Energy is:

The variables stand for: m = \_\_\_\_\_\_\_\_\_\_\_\_, v = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Unit: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

The **unit** for energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(symbol = \_\_\_\_).

Example:



Point A
Mass = 414 kg
h= 120 m

PE = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
KE =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Total Energy = \_\_\_\_\_\_\_\_\_\_\_

To find energy at other points, use the fact that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ so total energy is always the \_\_\_\_\_\_\_\_\_\_\_\_.

Points B & C
TE = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@B\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@C

PE = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@B \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@C
KE = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@B \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@C

Point D
v = 30.30 m/s

KE = ½mv2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PE = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
h = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Points E & F
PE = \_\_\_\_\_\_\_\_\_\_\_\_\_@E \_\_\_\_\_\_\_\_\_\_\_\_\_@F
KE = \_\_\_\_\_\_\_\_\_\_\_\_\_@E \_\_\_\_\_\_\_\_\_\_\_\_\_@F
v = \_\_\_\_\_\_\_\_\_\_\_\_\_@E \_\_\_\_\_\_\_\_\_\_\_\_\_@F

**Summary:**

On a roller coaster the greatest potential energy is at\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

On a roller coaster the greatest kinetic energy is at\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What force slows the roller coaster “steals” some energy throughout the ride?\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the effect of this force on the KE (and therefore speed)?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The **Law of Conservation of Energy** states that energy cannot be \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_. The total energy in a closed system\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

List different types of energy and list whether it is potential energy or kinetic energy and give examples of each:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Holds one atom at another atom/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Due to number of particles and their motion/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Ability to move electrons/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Energy of vibrations moving through matter/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Vibrating electrically charged particles/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Energy stored in a spring/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Holds protons and neutrons together in the atom’s nucleus/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Two types of Nuclear Energy:

1. Fusion:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Fission:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

There is no perfect energy conversion or transfer. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ always changes some energy into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in **EVERY** energy change.

**Mechanical Energy** is the energy of an object or a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ due to its \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

List energy that makes up mechanical energy:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write the equation for Total Mechanical Energy: \_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_

**Modelling Energy Transfers**



 A B C