Kinetic Energy Calculations Reference Guide:

- The energy an object has due to its motion is called _____ _____.
- _____ is a measure of the amount of matter in an object. In Science, it is typically measured in _____ (kg).
- The _____ of an object is the distance the object travels in a unit of time. In Science, it is typically measured in _____ per _____ (m/s).
- Kinetic energy is measured in _____ (J).
- Kinetic Energy = ½ x _____ x _____^{2} = J

Example 1:

A boy is pulling a 10-kg wagon at the speed of 1 m/s.

Kinetic Energy = ½ x Mass x Speed^2 = J

KE of wagon = _____ x _____ x (_____)^2 = _____ J.

Example 2:

A girl, who weighs 40kg, was running at 3 m/s.

Kinetic Energy = ½ x Mass x Speed^2 = J

KE of girl = _____ x _____ x (_____)^2 = _____ J.

Example 3:

A girl and her dog are running. The dog has a mass of 20 kg. The girl has a mass of 60 kg. They are running at 2 m/s. Calculate both of their kinetic energies.

Kinetic Energy = ½ x Mass x Speed^2 = J

KE of girl = _____ x _____ x (_____)^2 = _____ J.

KE of dog = _____ x _____ x (_____)^2 = _____ J.

Who has the highest kinetic energy? Why?

Group Names: _____

Kinetic Energy Formula

$$KE = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times (\underline{\hspace{1cm}})^2$$

Racer #1: _____

    Racer #1 Mass: _____ Kg (most convert pounds to Kilograms)

    Racer #1 Speed:

Trial 1:	Trial 2:

Racer 1 Kinetic Energy Computation: Choose the greatest speed of the two trials. Show your work below.

    Racer 1's Kinetic Energy is: _____ J.

Racer #2: _____

    Racer #2 Mass: _____ Kg (most convert pounds to Kilograms)

    Racer #2 Speed:

Trial 1:	Trial 2:

Racer 2 Kinetic Energy Computation: Choose the greatest speed of the two trials. Show your work below.

    Racer 2's Kinetic Energy is: _____ J.

Graph the results of your kinetic energy computations. Round to your nearest ones place.

| 100 |
| 90 |
| 80 |
| 70 |
| 60 |
| 50 |
| 40 |
| 30 |
| 20 |
| 10 |
| 0 |

KE of Racer 1   KE of Racer 2

Which racer has the most kinetic energy? _____

Why does this racer have the most kinetic energy? _____

_____

What is the relationship between kinetic energy and the mass of an object and its speed? _____

_____

The more _____ an object/organism has and the _____ an object/organism is moving, the more _____ _____ the object/organism has.