L. N. Coakley Science Department

Gravity Force, Mass and Weight Worksheet.

Name:_____ **Date:**_____ **Grade:**____.

Watch the video and answer the following questions.

1. Which of the following statements best define the concept of gravity force?

   A) ___ Gravity is not a vector quantity.

   B) ___ Gravity is the force of attraction between all objects.

   C) ___ Gravity is a noncontact force.

   D) ___ Gravity has magnitude and direction.

2. Complete the following statements.

I. The _____ of an object tells us how much _____ the object has in it. The S. I. unit is ____ and it is a _____ quantity because only has magnitude and not direction. The mass of an object _____ depend on where the object is. But, what does it meant to you? If the mass of rocket on the Earth is 1000 kg it's mass in the Moon, in Mars and in the empty space will _____.

II. The _____ of an object is the _____ acting on it due to _____. The S. I. unit is ____ and is a _____ quantity because it has both, magnitude and direction. The weight of an object _____ depend on where it is. But, what does it meant to you? If the gravity in planet "X" is the twice the one in planet "Y" the same 1000 kg rocket, will weights the same in both planets? _____. Why? _____.

III. The weight **(W)** of an object in Newton **(N)**, can be determine by this equation _____ with the mass **(m)** in **(kg)** and the gravitational field strength **(g)** in **(N/kg)** in the Earth is values is **9.8 N/kg.** The weight of an object is _____ proportional to the mass of the object. If we half the mass of the object, the weight also _____ and if we triple the mass of the object, the weight will _____ in the same amount.

Important Note: (g) is also called the acceleration of gravity **(g)** in **(m/s^2), which in the Earth is 9.8 m/s^2 So, 1N = 1kg x m/s^2.**

IV. The weight of an object can be considered to act at a single point the scientist called the _____. We can determine the weight of an object by using a _____.

Click on this link for more explanation: Link

3. Watch the video and answer the following questions:

I. A ball has a mass of 15 kilograms. find its weight in Newton.

Known: **Formula:** **Substitution:**

m =

g =

Unknown:

The weight of the ball is _____ N.

II. A bag of grocery has a weight of 44 N. find its approximate mass in kilograms.

Known: **Formula:** **Substitution:**

W =

g =

Unknown:

The approximate mass of the bag is _____ kg.