Name:_____ Pd:____ Date:_____

Gravity Worksheet

If you go from the Earth to live on the Moon you would have the same **mass**, but your **weight** would be different. This is because the force of gravity changes depending on which planet you are on. On the Earth the force of gravity is 9.81 Newtons per kg. This means that for every kg of mass you would have a force downwards (your weight) of 10 N. On the Earth:-

Force (weight) = mass x 10.

Calculate the force on the Earth of an object of mass:

i) 10 kg

ii) 200 kg

iii) 500 g (convert to kg)

iv) 20 g (convert to kg)

v) 3.5 kg

vi) 750 g (convert to kg)

The **Force of Gravity** changes on different planets. This is because the planets have different masses. **The bigger the mass of the planet the bigger the Force of Gravity**.

Ex/

Surface gravitational force for Mars = 3.7 N/kg

On the Earth a 1 kg mass would have a weight of 10 N, but on Mars the same mass would have a weight of only 3.7 N.

Planet	Surface Gravitational Force (N)
Earth	9.8 (10)
Moon	1.7
Mercury	3.8
Venus	8.9
Mars	3.7
Jupiter	23.1
Saturn	9
Uranus	9
Neptune	11
Pluto (no longer a "planet")	0.6

What is the weight of:

1. A 20 kg mass on Mercury?

2. A 5 kg mass on Jupiter?

3. A 50 kg mass on Mars?

4. A 350 g mass on Uranus?

5. A 80 kg mass on Neptune?

6. A 3 kg mass on Pluto?

7. a. Takes your mass in pounds and convert it to kg. (1 lb ÷ 2.2 = 1 kg)

Your mass in lbs _____ divided by 2.2 = Your mass in kg _____

b. Find the force of gravity on you on each planet (using chart above)

Planet	Force of gravity (weight)
Moon	
Mercury	
Venus	
Mars	
Jupiter	
Saturn	
Uranus	
Neptune	
Pluto (no longer a "planet")	
Earth	