Weights on Other Worlds: Newton's Second Law of Motion

Geology   Mr. Traeger

Name: _____   Period: ____   Date: _____

1. What does Newton's Second Law of Motion Say?

2. Which changes when going to another planet? Mass or Weight? Why?

3. Fill in the following table. Show your work on the back side of this sheet.

Body	Mass of Body (kg)	Gravity Ratio (Earth = 1)	Your Mass (kg)	Acceleration Due to Gravity (m/s^2)	Your Weight (Newtons)
Earth	5.97 e^{24}	1		9.8	
Moon	7.35 e^{22}	0.17		1.6	
Mercury	3.30 e^{23}	0.39			
Venus	4.87 e^{24}	0.91			
Mars	6.42 e^{23}	0.38			
Jupiter	1.90 e^{27}	2.50			
Saturn	5.69 e^{26}	1.10			
Uranus	8.66 e^{25}	0.90			
Neptune	1.03 e^{26}	1.10			
Pluto	1.30 e^{22}	0.07			

4. In general, what happens to your weight as the mass of the body increases?

5. What else, besides the mass of the planet, would account for your weight difference between planets?