

THE PLANET DIET REVISION ASSIGNMENT

LESSON 3: GRAVITY, MASS & WEIGHT

EXPLAIN THE PICTURE

Answer the following questions:

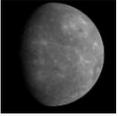
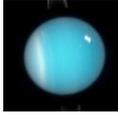
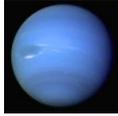
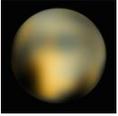
1. Will the astronauts have a different mass in space and on Earth? Explain your answer.



2. Explain why the fruit are floating in the space shuttle.
3. Will the astronauts have the same or a different weight in space and on Earth? Explain your answer.
4. The space shuttle lands on Mars. Tabatha, the astronaut, has a mass of 62kg. The gravitational field strength on the surface of Mars is 3.711 N/Kg. How much will Tabatha weigh on Mars?
5. You and the other astronauts discover a new planet. NASA asks you to work out the gravitational field strength of the planet, but all your computers have broken. You do have a mechanical balance and scales. How could you calculate the gravitational field strength of the new planet?

PRACTICE MAKES PERFECT

The Gravity on different planets (and Pluto) are given in the table below.

Gravity (g) on the surface of the planet, in Newtons per Kilogram (N/kg)								
Mercury	Venus	Moon	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
								
3.8	8.8	1.6	3.7	23.1	9.0	8.7	11.0	0.6

Use the formula $w = m \times g$ to answer the questions below.

- How much would a 10 kg suitcase weigh on the surface of...?
 - The Moon
 - Mars
 - Saturn
 - Pluto
- How much would a 25 kg suitcase weigh on the surface of...?
 - Mercury
 - Jupiter

c. Venus

3. What would be the mass of a 5N suitcase be on...?

a. Mercury

b. Venus

c. Neptune

4. On which planet would you have...?

a. The greatest weight

b. The greatest mass

PTO

14. Fill in the table.

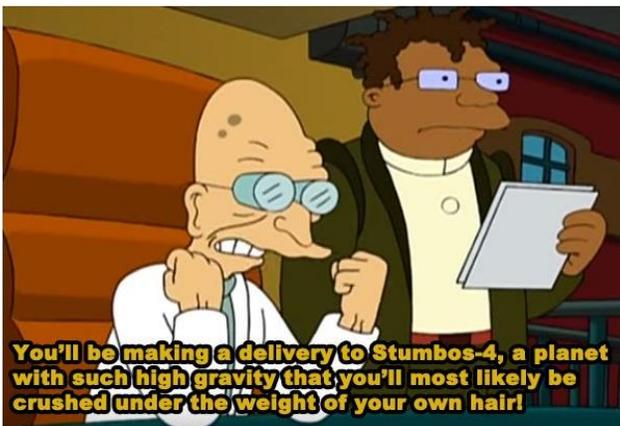
	Unit symbol
Mass	
Weight	
Gravitational field strength	
Force due to gravity	
Tension	

EXPLAIN THE COMIC



Answer the following questions about the Futurama comic:

1. Explain how a high gravitational field strength could cause your hair to crush you.



2. Why may planet Stumbos-4 have such a high gravitational field strength?

3. Would the Futurama team have the same mass and weight on Stumbos-4 as Earth? Explain your answer.

