What do you weigh on other planets?

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What you weigh depends on 2 things: your **mass** and the **strength of gravity**. Weight is measured in units called '**Newtons**'.

We call the strength of gravity on a planet's surface, surface gravity. Each planet has a different surface gravity.

Planet Data Sheet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
Radius (km)	2,440	6,052	6,378	3,397	71,492	60,268	25,559	24,746
Mass (Earth masses)	0.055	0.82	1.0	0.11	318	95.2	14.5	17.1
Surface Gravity (g)	0.38	0.91	1.0	0.38	2.34	0.93	0.92	1.12
Number of moons	0	0	1	2	90+	80+	27	13

Note: 1 Earth mass = 5,980,000,000,000,000,000,000,000 kg and 1 g = 9.8 metres per second squared (m/s^2)

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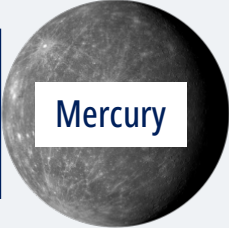
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Task: Use the Planet Data Sheet and the equation below to work out the weight in **Newtons** on each of the planets of the Solar System.

$$weight = mass \times surface\ gravity$$

First, make a note of your mass (or the mass of your chosen object) in kg.

Next, Work out the weight **in Newtons** on each planet and write it in the correct box.

Mercury

Venus

Mars

Jupiter

Saturn

Uranus

Neptune

Challenge: Look at your answers and the Planet Data Sheet. Can you spot a pattern? What is causing it?

Answer: The larger the mass of the planet, the larger the weight.