



Name: _____
 Period: 1 2 3 4 5 6 7

Mass vs. Weight on Different Planets Worksheet

Determine your weight (approximately) on each planet. To begin, write your mass in the column labeled mass. Multiply your mass by the gravity given for each planet and write your answer under the column labeled weight.

YOUR weight in pounds _____ x 0.45359237 = _____ kg

Planet	Your Mass (kg)	Gravity (m/s ²)	Weight (N)
Mercury		3.61	
Venus		8.83	
Earth		9.8	
Moon		1.6	
Mars		3.75	
Jupiter		24.8	
Saturn		11.2	
Uranus		10.5	
Neptune		13.3	
Pluto		0.61	

How Much Do I Weigh?



In space without gravity pulling down on them, astronauts are essentially weightless. It is important to explore the difference between mass and weight. While astronauts may not weigh anything in space and can float around freely, their body shape and size do not change. They still take up just as much space as they do here on Earth. This is the important difference between mass and weight. They may be weightless, but they still take up space!

Weight measures the attraction of two objects to each other. When you step on a scale, it is actually measuring the attraction between you and the Earth and gives you a number in pounds or kilograms. Our mass is the amount of matter that we consist of. This mass does not change when we change planets. However, if we went from Earth to Mars, our weight would change because Mars has less gravity than Earth. Gravity is a force pulling matter together. Earth's gravity wants to keep everything pulled toward the center of the planet keeping us from falling off the Earth. Every object in space has gravity. Stars, moons, and planets all have gravity. The amount of gravity they have depends on their mass. So a small planet has less gravity and a larger planet has more gravity. Just like the planets, a person with more mass has more gravity and therefore weighs more.



When astronauts visited the Moon, which has one-sixth of Earth's gravity, they bounced around on the surface as if they were floating with each step!