Gravitational pull

Mass, *m*, and weight, *P*

are confused with one another in

COMMON LANGUAGE

but they are

DIFFERENT PHYSICAL MAGNITUDES

which are linked through the equation

$$P = m \cdot g$$

WEIGHT:

- It is expressed in Newtons, N.
- This is the force that any celestial body has on us.
- Its value depends on the acceleration of gravity of the celestial body.

MASS:

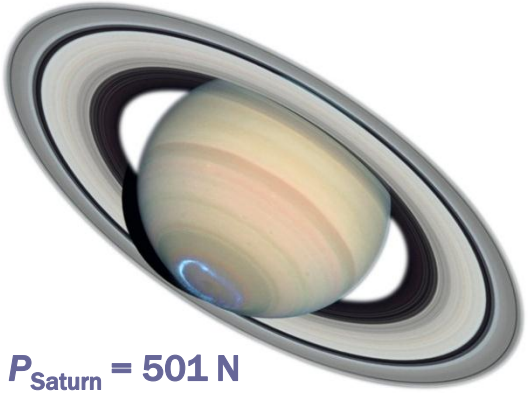
- It is expressed in kilograms, kg.
- Mass measures a body's inertia and tells us how much matter it contains.
- Its value is independent of where a body is. Your mass depends on your eating and exercise habits.

WEIGHT ON DIFFERENT PLANETS

Gravitational pull

P_{Mars} = 204 N

$P_{Jupiter}$ = 1271 N



P_{Saturn} = 501 N

P_{Earth} = 539 N

For example, if your mass is 50 kg, your weight, as you've learned, depends on which planet you're on. This is because $P = m \cdot g$, and the acceleration of gravity is different on each planet:

P_{Venus} = 490 N

Planet	g (m/s²)
Mercury	3.7
Venus	8.9
Earth	9.8
Mars	3.7
Jupiter	23.1
Saturn	9.1
Uranus	8.7
Neptune	11.2

P_{Uranus} = 479 N

$P_{Mercury}$ = 204 N

$P_{Neptune}$ = 616 N