

Newton's Second Law of Motion



$$F = ma$$

Newton's Second Law

- An object acted upon by an unbalanced force will accelerate in the direction of the force.
- Force = Mass x Acceleration

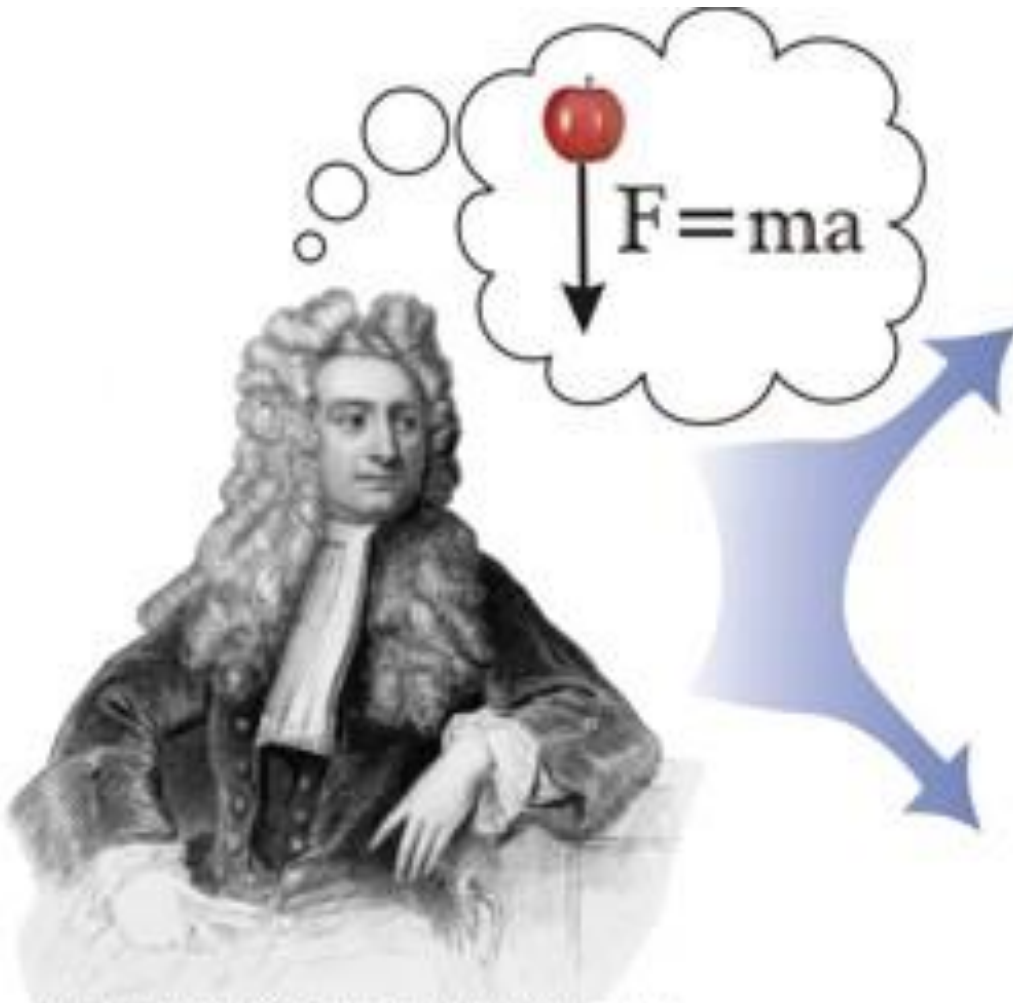
SI Units of Force

- 1 Newton (N) = 1kg * m/s²

Newton's Second Law

- Force equals mass times acceleration.

- $F = ma$



Weight

- WEIGHT is a measure of the force of GRAVITY on the mass of an object
- ACCELERATION of GRAVITY(Earth) = 9.81 m/s^2
Weight (force) = mass x gravity (Earth)
- Your weight on Earth is the gravitational force between you and Earth.

Gravity and Weight

- Weight is a force, like the push of your hand is a force, and is measured in newtons.
- Mass is the amount of matter in an object, and doesn't depend on location.
- Weight will vary with location, but mass will remain constant.

Moon's gravity is $\frac{1}{6}$ of the Earth's

- If you weigh 420 Newtons on earth, what will you weigh on the Moon?
- If your mass is 41.5Kg on Earth what is your mass on the Moon?

