

The following are the terms you should be familiar with in order to properly complete this unit. You are expected to be able to define each as well as apply these terms in any situation during this and subsequent units of study.

inertia - Property of matter describing an object's resistance to change in its current state of motion; quantified as mass.

mass - the amount of matter in an object or the measurement of its inertia; a scalar quantity; measured in kilograms.

force - described as a push or a pull; a vector quantity; measured in the units of kg m/s^2 (Newton)

gravity - It is the attractive force exerted on every object by another object and is due to the objects' masses and the distance between the objects.

weight - the force that results due the effect of gravity on an object's mass.

friction - type of force that acts to oppose the motion of objects or materials that are in contact with each other.

Newton's First law - an object at rest will remain at rest, and/or an object that is in motion will travel at a constant velocity in a straight path unless a net force acts upon it.

Newton's Second Law - the acceleration of an object is directly proportional to the magnitude of the net force, is in the same direction as the net force, and is inversely proportional to the mass of the object.

Newton's Third Law - if two objects interact, the force on object 1 by object 2 is equal to and opposite the force exerted on object 2 by object 1. Forces act in pairs and each pair is split between the two interacting objects.

net force - Sum of all the forces acting on an object.

balanced forces - Forces that are equal in magnitude and opposite in direction and act upon the same object.

equilibrium - A state of balance; net force on the object equals zero.

static equilibrium - Describes the state of motion of an object when the net force on the object is zero and it is not moving.

dynamic equilibrium - The state of motion of an object when the net force on the object is zero, it is not accelerating, but is moving at a constant velocity.

weightlessness - Condition of freefall toward or around the earth, in which an object experiences no support force (and exerts no force on a scale) due to the frame of reference and the object having the same acceleration.

air resistance - A frictional force that opposes something moving through air.

terminal velocity - the maximum velocity an object attains while falling through the air; air resistance prevents a greater velocity.