

$\vec{A}$ - a letter with an arrowhead over it in an equation represents a vector quantity.

Acceleration- a vector quantity which is defined as “the rate at which an object changes its velocity”  $a = \frac{\Delta v}{\Delta t}$

Air resistance- type of frictional force which acts upon objects as they travel through the air.

Applied force- a force which is applied to an object by another object or by a person

Displacement- a vector quantity which refers to “the rate at which an object changes its position”

Distance- a scalar quantity which refers to “how much ground an object has covered” during its motion

Force- a push or pull on an object

Force of gravity- force with which the earth, moon, or other massive body attracts an object towards itself

Friction force- the resistive force exerted by a surface as an object moves across it or makes an effort to move across it

Inertia- is the resistance an object has to a change in its state of motion. It is proportional to the mass of the object.

Kinematics- the study of motion and the forces required to produce it

Motion- a change in the position of a body with respect to time

Newton’s 1<sup>st</sup> law- an object at rest tends to stay at rest and an object in motion tends to stay in motion unless acted upon by an unbalanced force

Newton’s 2<sup>nd</sup> law-  $\sum \vec{F} = m\vec{a}$ . The acceleration of an object is dependent upon two variables: the net force and mass of the object.

Newton’s 3<sup>rd</sup> law- for every action, there is an equal and opposite reaction

Normal force- the support force exerted upon an object which is in contact with another stable object

Scalar- a measure that only has a single magnitude(length)  
eg. time and temperature

Speed- a scalar quantity which refers to “the rate at which an object changes its position”  $s = \frac{\Delta d}{\Delta t}$

Tension- the force which is transmitted through a string, rope, or wire when it is pulled tight by forces acting at each end

Vector- a quantity or measure that has both magnitude and direction  
eg. acceleration and velocity

Velocity- a vector quantity which refers to “the rate at which an object changes its position”  $\vec{v} = \frac{\Delta \vec{d}}{\Delta t}$

Work- the energy transferred by a force to an object as the object moves.