

Oke - ~~and~~ Timothy

19/ENG06/045

Mechanical Engineering

1) Newton's second law of motion states that the acceleration of an object is produced by a net force is directly proportional to the magnitude of the object ( $\vec{F}_{net} = m\vec{a}$ ).

As the electrons enter the field there will be a vertical downward force acting on it. Reason being that electric force acts in the opposite direction as the electric field and the electric field is directed upwards.

$$F = ma$$

Magnitude of force is given as  $F = Gq$

$$a = Gq/m$$

2) Electric field and electric current with respect to charges

Electric field is a region of space around which an electrically charged particle or object in which electric charge are felt. In a case where the charge is positive, the direction of the electric field and electric force are the same while in a case where the test charge is negative the direction is opposite.

Electric field is not a single vector quantity and can be visualized as arrows going towards or away from charges. A magnetic field is a vector field that describes the ~~magnitude~~ magnetic influence on moving electric charges and electric currents. A ~~current~~ Electric current is flow of charges given as  $Q = It$  or  $I = Q/t$