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(1) Newton's Second law of motion States that the acceleration of an object as Provided by a net force is directly Proportionally to the magnitude of the net force and inversely Proportional to the mass of the object.

Therefore, On entering the field, there is a Vertical downward force acting on the electron. This is because electric field and the electric force acts in the opposite direction as the electric field and the electric field Streghth and Q is the charge of the electron. No force acts horizontally Hence the magnitude of acceleration is gotten Using newton 2nd law.

$F = mq$ where m = mass, F = force
a = acceleration.

$$a = \frac{F}{m} = \frac{\Sigma Q}{m}$$

$$\Rightarrow \boxed{a = \frac{\Sigma Q}{m}}$$

The direction of a is downward Just like the way forces F is directed because according to Newton's 2nd law, force is directly Proportional to acceleration.

(2) Electric field is the region around a charge in which another Charge Can experience electric force. If the text Charge is Positive, the direction of electric field and electric force are the Same. When the test Charge is negative, the direction of is opposite electric Field is not a Single Vector Quantity associated with each Point in Space, this is Called the Vector field.

Therefore x an electric field exist within a Conclue tor the field exerts a force in every Charge in the

Conductor, Causing the force energes to more. This explains the theory of electric Current flow.

Electric Current is the flow of electric charge

$$\vec{E} = \frac{\vec{F}}{Q}$$

where $\vec{E}$ = Electric Field

F = force

Q = Charge