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1 Newton's second law of motion states that the acceleration of an object as produced by a net force is directly proportional to the magnitude of the net force and inversely proportional to the mass of the object. The magnitude of the force is given by; $F = Eq$, where E is the electric field strength and q is the charge of the electron. No force acts horizontally, hence, the magnitude of acceleration is gotten using Newton 2nd Law: $F = ma$ where; m = mass, f = force, a = acceleration

$$a = \frac{F}{m} = \frac{Eq}{m}$$

$$\Rightarrow a = \frac{Eq}{m}$$

The direction of 'a' is downward just like the way force, 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 forces. Electric field is not a single vector quantity. If the test charge is positive, direction of electric field and electric force are the same and when the test charge is negative, the direction is opposite. Charges move when electric field exerts a force on every charge in a conductor. Electric current is the flow of electric charge.

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

where, $\vec{E}$ = electric field

$\vec{F}$ = force

q = charge.