

Motion of charged particles in Electric fields

To be able to describe and explain the motion of a charged particle in an electric field

Motion in an Electric Field

A charged particle moving through an electric field will feel a force towards the oppositely charged plate.

We see that the electron moves in a parabola towards the positive plate and the positron moves towards the negative plate.

The field strength is constant so the force is the same at all points in the field and is given by $F = qE$. The direction of the force depends on the charge of the particle entering the field

Like the projectiles we looked at in Mechanics, the vertical velocity is independent from the horizontal velocity.

The acceleration in the vertical plane will 'freefall' like a mass in a gravitational field.

