



## Cathode Rays

### Checklist statement

✓

I can describe the production of cathode rays in a discharge tube.

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## Thermionic Emission of Electrons

### Checklist statement

✓

I can explain the principle of thermionic emission.

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I can apply  $\frac{1}{2}mv^2 = eV$ , define all terms and know their standard units.

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## Specific Charge of the Electron

### Checklist statement

✓

I can describe a method for determining the specific charge of the electron,  $\frac{e}{m_e}$ .

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I can explain the significance of Thomson's determination of  $\frac{e}{m_e}$ .

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I can compare the specific charge of the electron with that of the hydrogen ion.

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## Millikan's Determination of the Electronic Charge

### Checklist statement

✓

I can describe the condition for holding a charged oil droplet stationary between parallel plates.

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I can apply  $\frac{qV}{d} = mg$ , define all terms and know their standard units.

☐

I can describe the motion of a falling oil droplet with and without an electric field.

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I can explain how terminal speed is used to determine the mass and charge of an oil droplet.

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I can apply Stokes' law  $F = 6\pi\eta rv$ , define all terms and know their standard units.

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I can explain the significance of Millikan's results.

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I can explain the quantisation of electric charge.

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