



## Coulomb's Law

### Checklist statement



I can describe the force between two point charges in a vacuum.

I can apply  $F = \frac{1}{4\pi\epsilon_0} \frac{Q_1 Q_2}{r^2}$ , define all terms and know their standard units.

I can explain the meaning of the permittivity of free space,  $\epsilon_0$ .

I can explain why air can be treated as a vacuum when calculating forces between charges.

I can explain why the charge on a charged sphere may be considered to act at its centre.

I can compare the magnitudes of gravitational and electrostatic forces between subatomic particles.

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## Electric Field Strength

### Checklist statement



I can describe electric fields using electric field lines.

I can define electric field strength.

I can apply  $E = \frac{F}{Q}$ , define all terms and know their standard units.

I can apply  $E = \frac{V}{d}$  for a uniform electric field, define all terms and know their standard units.

I can apply the relationship  $Fd = Q\Delta V$ , define all terms and know their standard units.

I can describe the trajectory of a charged particle entering a uniform electric field at right angles.

I can apply  $E = \frac{1}{4\pi\epsilon_0} \frac{Q}{r^2}$  for a radial electric field, define all terms and know their standard units.

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## Electric Potential

### Checklist statement



I can define absolute electric potential, including the reference of zero potential at infinity.

I can define electric potential difference.

I can apply  $\Delta W = Q\Delta V$ , define all terms and know their standard units.

I can explain equipotential surfaces.

I can explain why no work is done when a charge moves along an equipotential surface.

I can apply  $V = \frac{1}{4\pi\epsilon_0} \frac{Q}{r}$ , define all terms and know their standard units.

I can interpret graphs showing how electric field strength and electric potential vary with distance.

I can apply the relationship  $E = \frac{\Delta V}{\Delta r}$ , define all terms and know their standard units.

I can determine electric potential difference from the area under a graph of  $E$  against  $r$ .