

## power in electrical loops

current is always the dependent variable

potential difference

electrical current

resistance

analyse circuits in complete electrical loops

series connections: 1 loop

parallel connections: >1 loop

electrical circuits are good at controlled long range working

## electrical and electromagnetic devices

for many circuit elements think 'power rather than energy'

electrical loops linked to magnetic loops

magnetic field lines

magnetic force

devices switch power from one pathway to another pathway

## energy, power and calculations

energy flows (from store to store) restrict what is possible

chemical store

nuclear store

thermal store

electromagnetic store

kinetic store

vibration store

gravitational store

elastic store

energy augmenting target store

energy depleted from source store

energy accumulates in stores as a result of power in pathways

efficiency

electrical working

mechanical working

heating by particles

heating by radiation

power switched to target pathway

power switched from source pathway