

Magnetic Fields

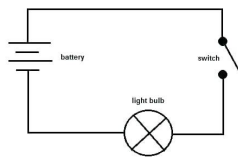
12PHYS - Electricity

Finn LeSueur

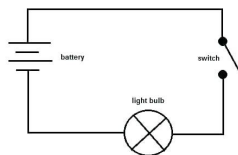
2019

Starter

The battery is 12V.



1. How many joules of energy does the cell supply to each coulomb of charge that flows out of the cell? **(A)**



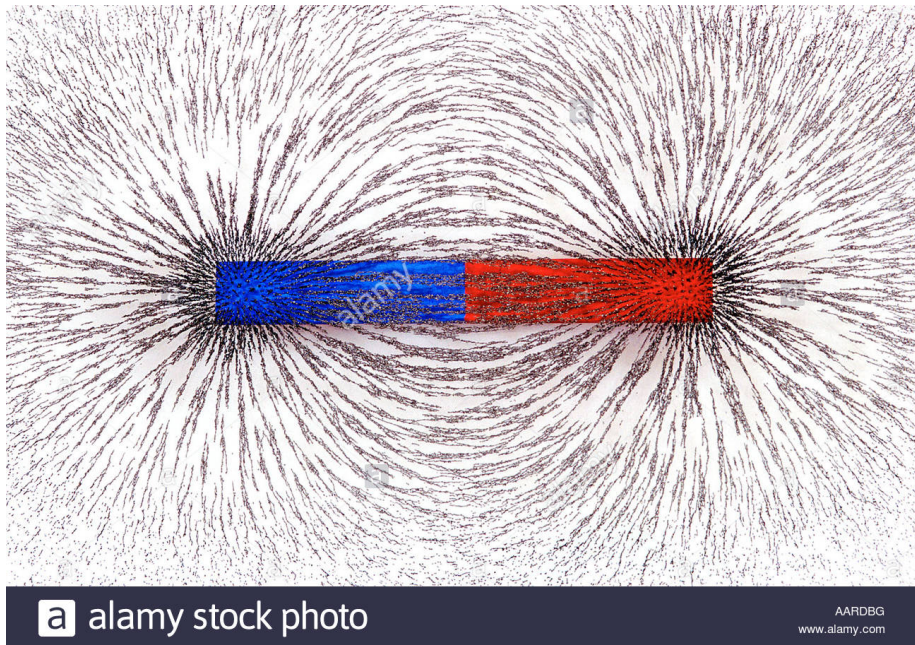
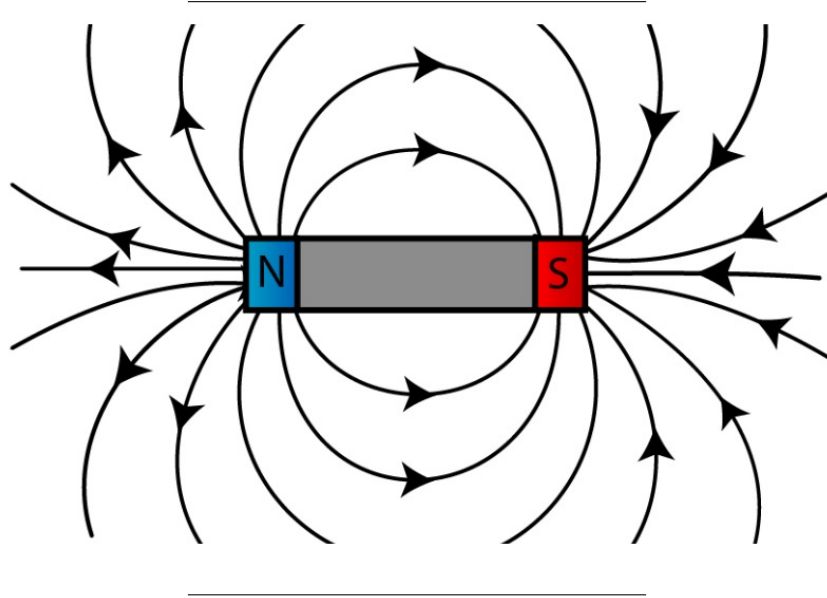
2. When the cell is switched on, the resistance of the lamp is 9Ω . Calculate the current flowing through the lamp. **(A)**
3. State the meaning of the term **resistance** in terms of electron flow. **(A)**

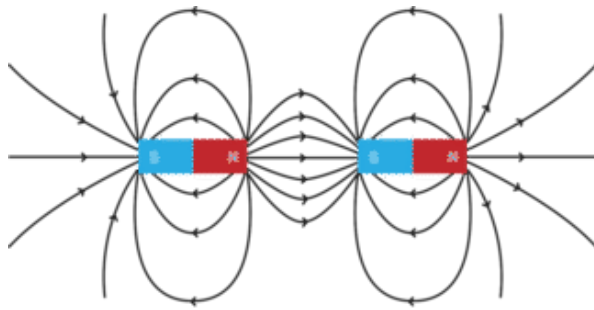
Magnetic Fields

Magnetic fields can be found in two places:

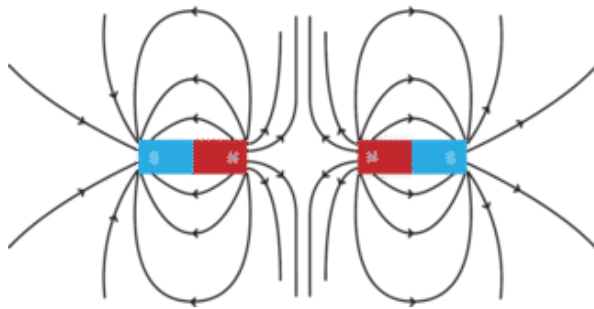
- Around magnetic objects

- Around current carrying wires



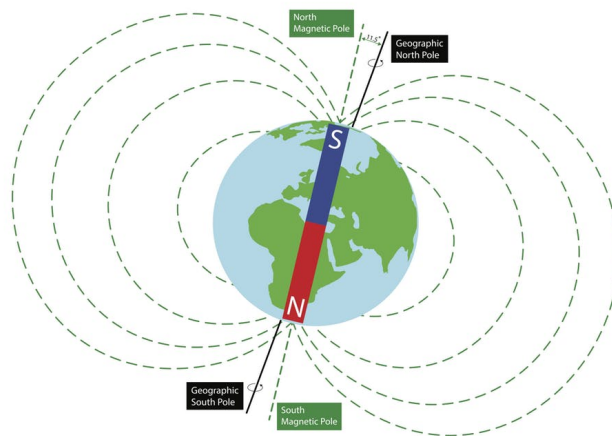


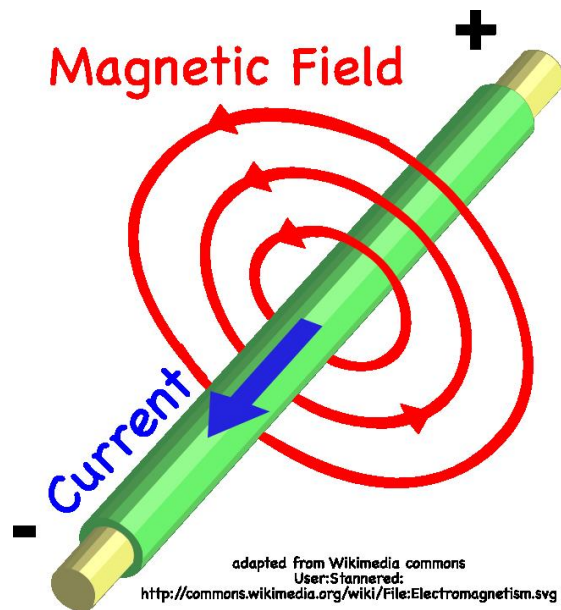
Lines of force around
a north and south
pole join together



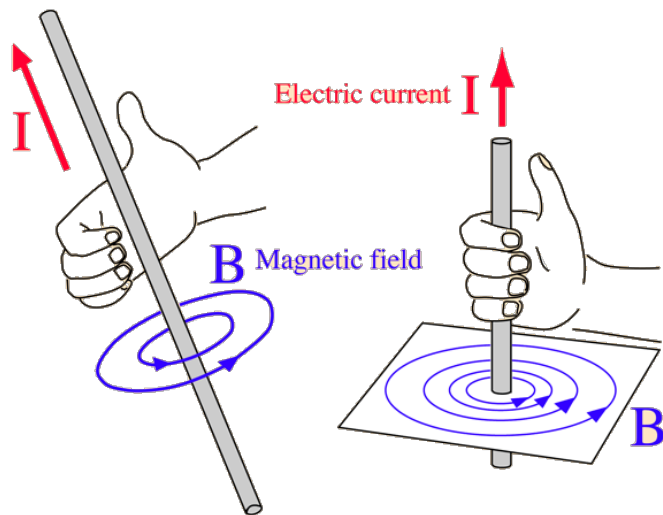
Lines of force around
two north poles push
apart

The Earth's Magnetic Field





Right Hand Grip Rule 1



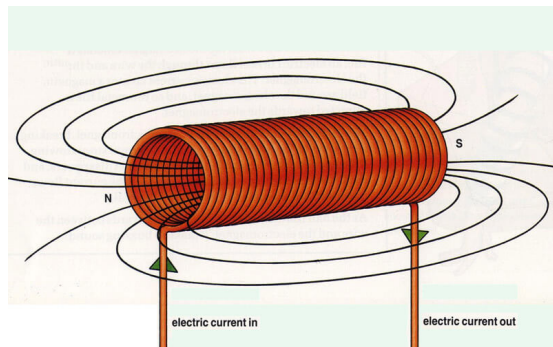


*Magnetic Field
Out of Page*



*Magnetic Field
Into Page*

Solenoids



$$B = \mu_0 n I$$

What is μ_0 ?

It is pronounced *mew nought* and goes by a variety of names: **vacuum permeability, permeability of free space, permability of vacuum, magnetic constant.**

I will endeavour to call it is the **permeability of free space** and it has the value:

