

## Question 1

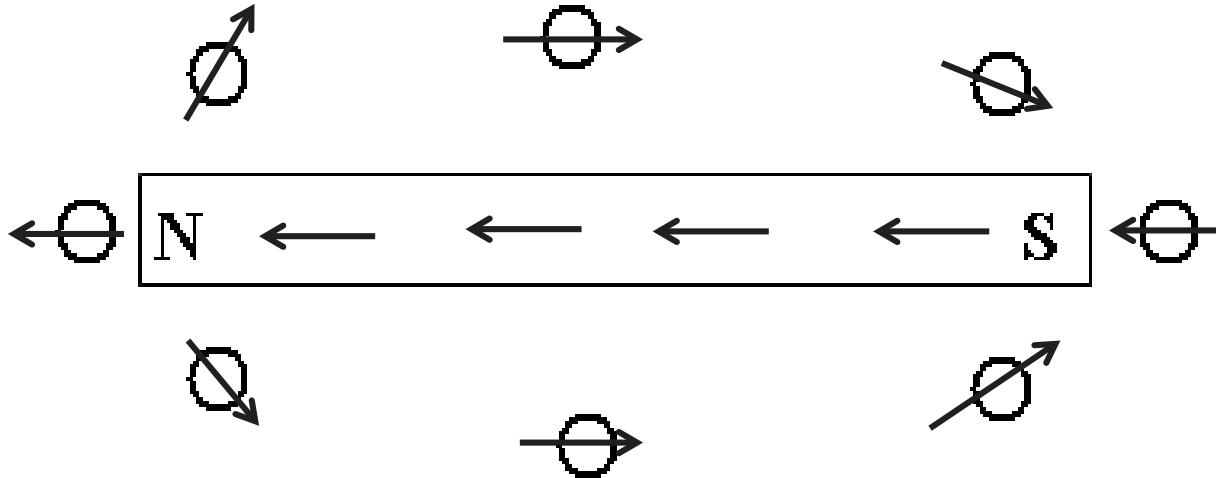
The source of all magnetic fields is Moving Charges.

Explain why a wire with a current passing through it creates a magnetic field.

Electrical current is the rate of flow of charge, therefore a wire with current passing through it has Moving Charges passing through it which create magnetic field.

## Question 2

In the diagram below, the circles represent small compasses placed around a bar magnet. Draw an arrow inside each circle indicating the direction that each compass will point



## Question 3

List the factors that affect the magnetic field strength of an electromagnet

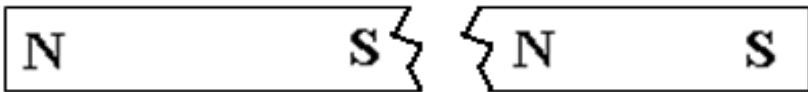
Current

Number of loops in the coil

An Iron Core

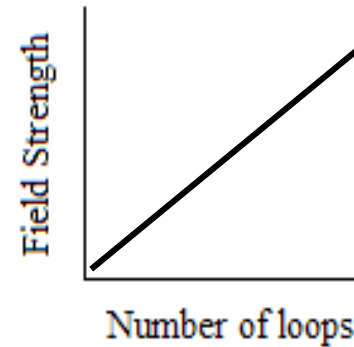
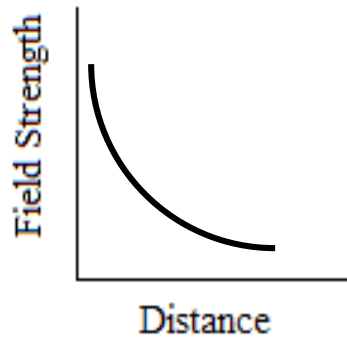
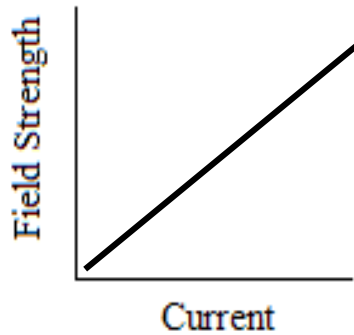
## Question 4

If you break the magnet below in half what will happen / why?  
(Describe, in a complete sentence, and make a drawing indicating the poles on each half)



## Question 5

Graph the following relationships or the strength of the magnetic field created by an electromagnet.



## Question 6

Both Generators and Microphones convert mechanical energy into electrical energy, and Motors and Speakers convert electrical energy into mechanical energy

## Question 7

In terms of physics explain how each of the follow works:

Speakers, microphones, generators, and motors all have these two major components;

Magnets and Coils

a. An Electric Motor:

In an electric Motor, a coil with a current is in a magnetic field. The magnetic field places a force on the coil making the coil spin.

## Question 7

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Speakers, microphones, generators, and motors all have these two major components;

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a. An Electric Motor:

In an electric Motor, a coil with a current is in a magnetic field. The magnetic field places a force on the coil making the coil spin.



## Question 7B

### B) An Electric Generator:

A generator is a coil that is rotated in a magnetic field causing current to flow in the coil.

## Question 7 C

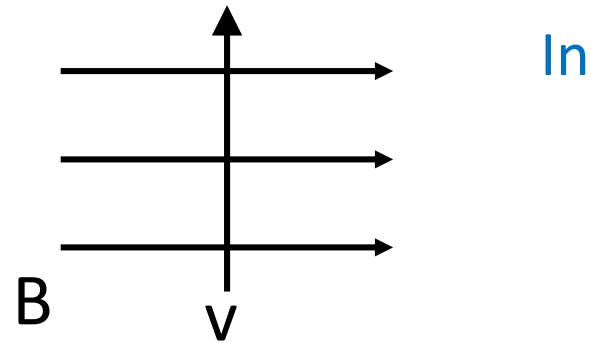
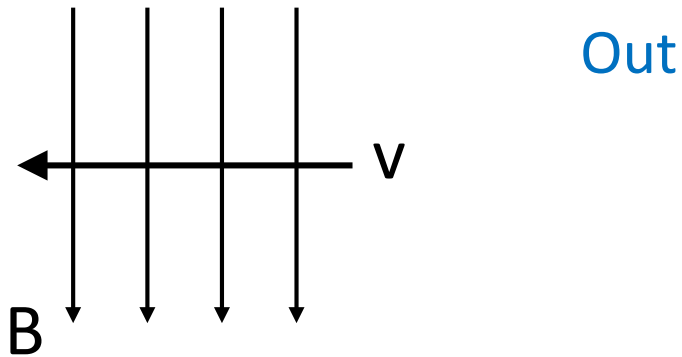
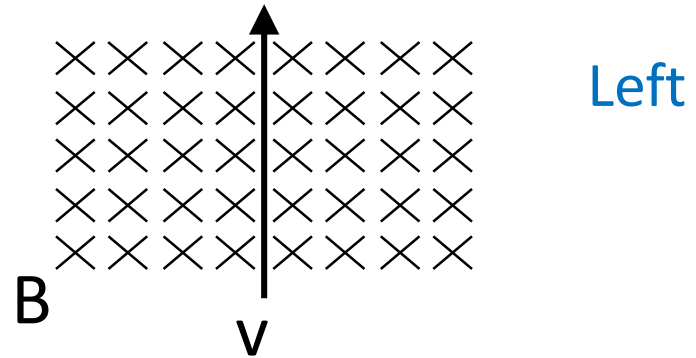
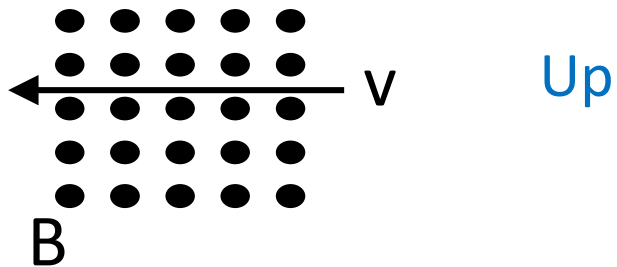
What two things can be done to increase the current produced by an electric generator?

Turn the generator faster

Increase the number of coils

## Question 8

Use the Right Hand Rule to determine the direction of force on the following moving charges.



# Exit Magnetism