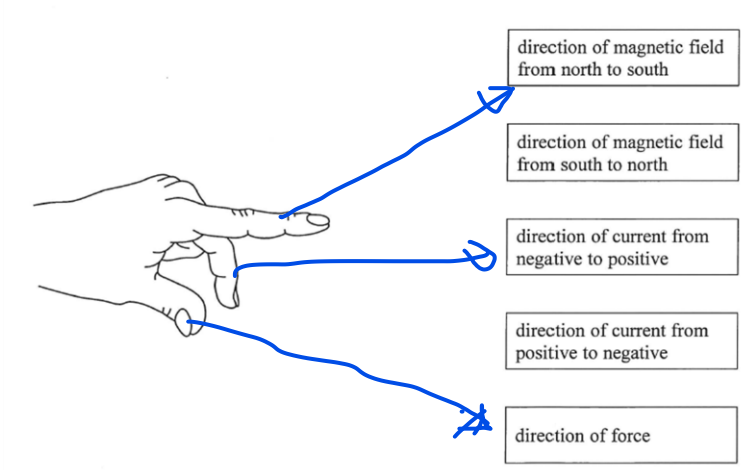
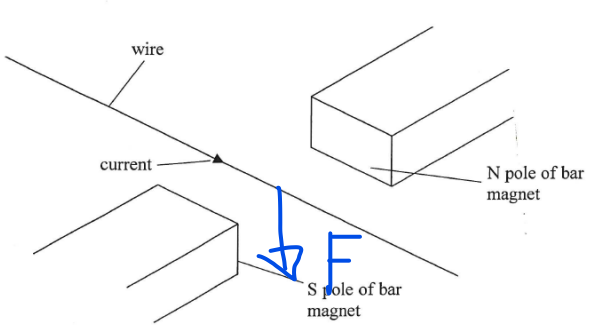
Fleming's Left Hand Rule Questions

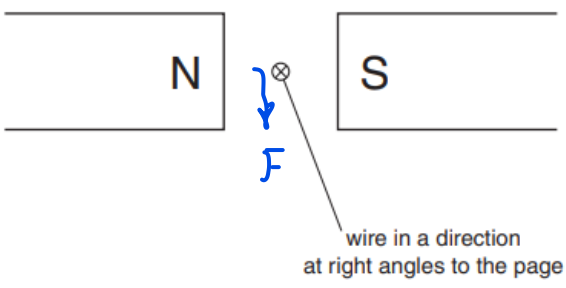
1. The diagram below shows a left hand with two fingers and a thumb extended. The hand can be used for Fleming's Left Hand Rule. Draw a straight line from each of the fingers to the correct box for this rule.



2. The diagram below shows a wire carrying a current in a uniform magnetic field. Use Fleming's Left Hand Rule to determine the direction of the force on the wire. Draw an arrow on the diagram to show the direction of the force.



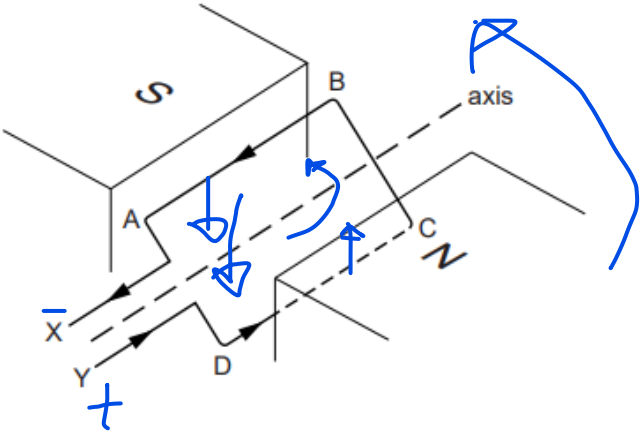
3. The diagram below shows a wire carrying a current in a uniform magnetic field. The current is going into the page. Use Fleming's Left Hand Rule to determine the direction of the force on the wire. Draw an arrow on the diagram to show the direction of the force.



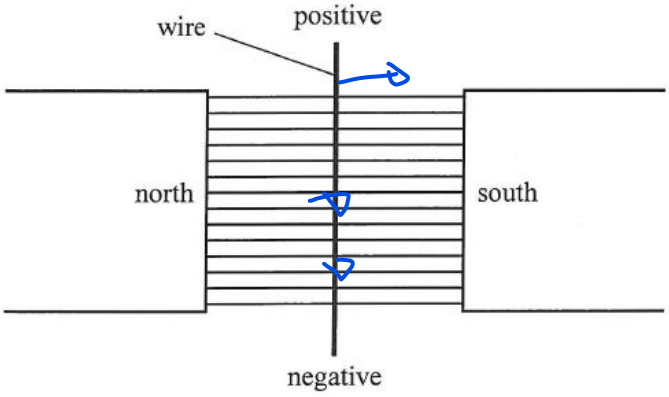
4. The diagram below shows a coil of wire carrying a current in a uniform magnetic field.

(i) Label the letters X and Y with a "+" and a "-" which refer to the terminals of the supply.

(ii) Use Fleming's Left Hand Rule to determine the direction of the force on side AB of the wire and therefore the direction of rotation of the coil. Draw an arrow on the diagram to show the direction of the rotation.



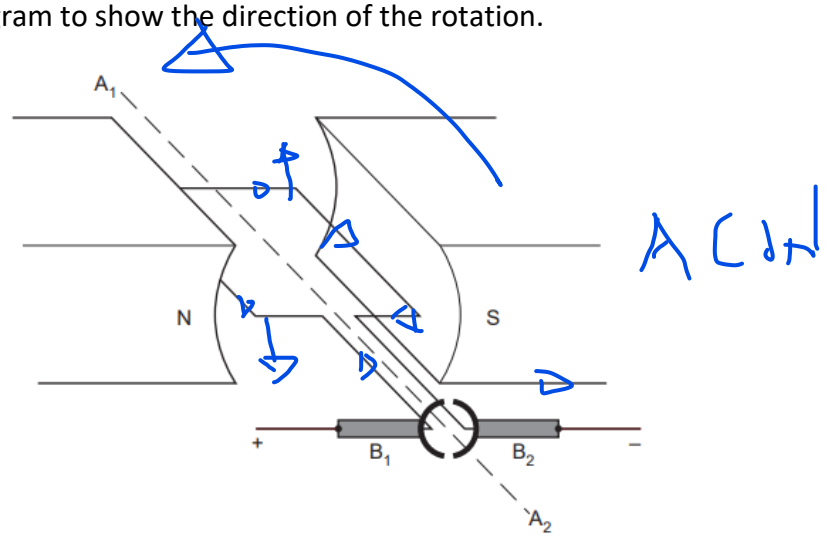
5. The diagram below shows a wire carrying a current in a uniform magnetic field. Use Fleming's Left Hand Rule to determine the direction of the force on the wire. State the direction of the force.



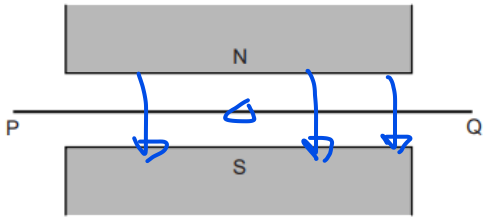
Direction = ……

6. The diagram below shows a coil of wire carrying a current in a uniform magnetic field.

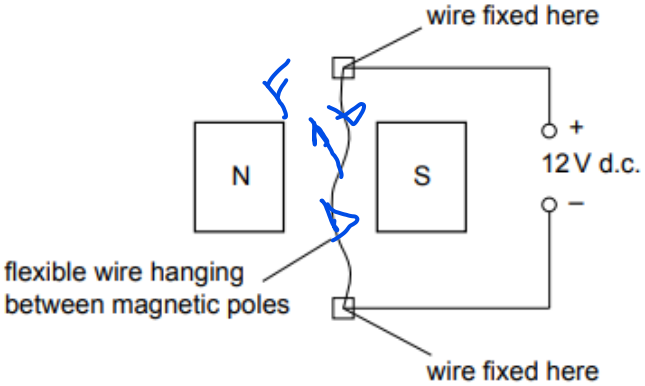
Use Fleming's Left Hand Rule to determine the direction of rotation of the coil. Draw an arrow on the diagram to show the direction of the rotation.



7. The diagram below shows a wire PQ carrying a current in a uniform magnetic field. The force on the wire is out of the page. Use Fleming's Left Hand Rule to determine the direction of the current in the wire. Draw the direction of the current in PQ.

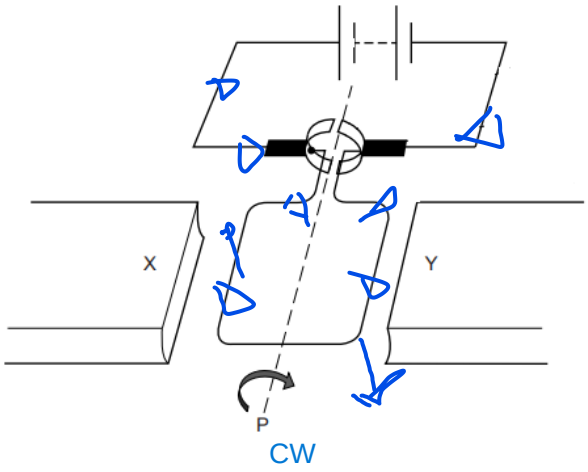


8. The diagram below shows a wire carrying a current in a uniform magnetic field. Draw on the flexible wire the direction of the current. Use Fleming's Left Hand Rule to determine the direction of the force on the flexible wire.



Direction = ……

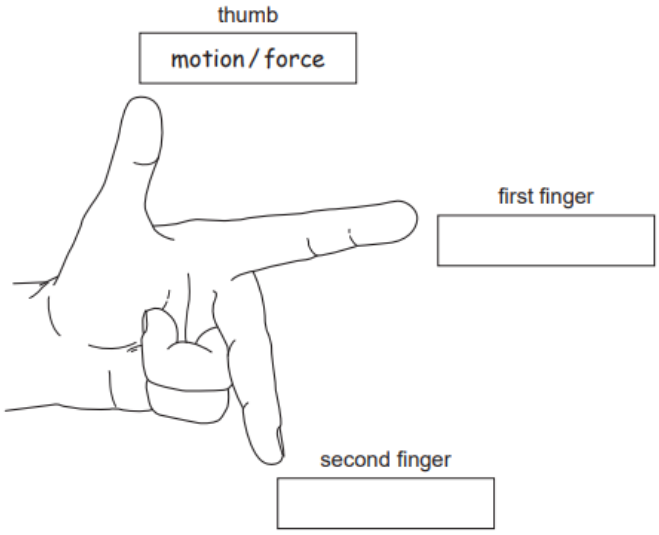
9. The diagram below shows a coil of wire carrying a current in a uniform magnetic field.



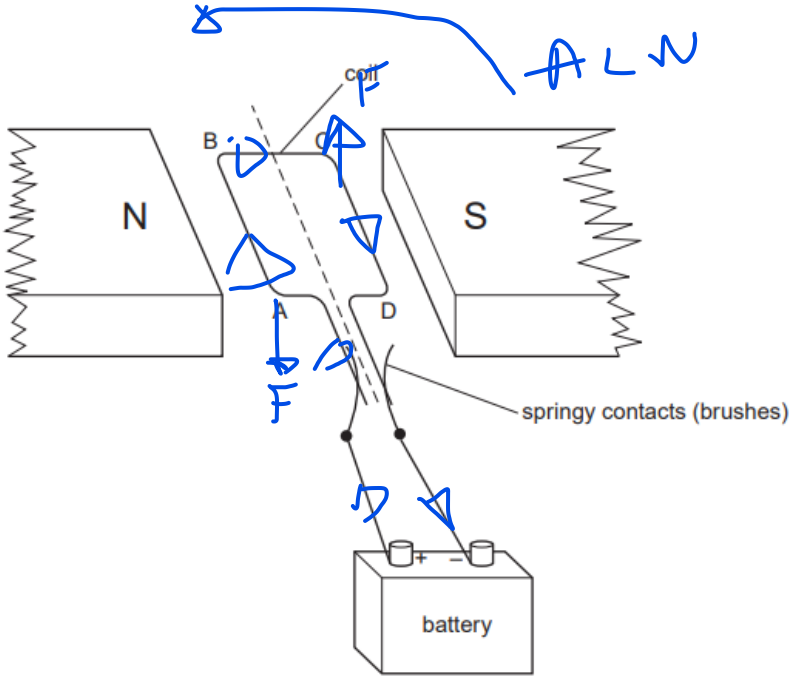
(i) Draw on the diagram the direction of the current in the left hand side of the coil.

(ii) The direction of the rotation is shown on the diagram. Use Fleming's Left Hand Rule to determine the polarity of the magnets and labels the poles X and Y with a north or south.

10. Fill in the labels of the fingers which show the quantities they correspond to for Fleming's Left Hand Rule.



11. The diagram below shows a coil of wire carrying a current in a uniform magnetic field.

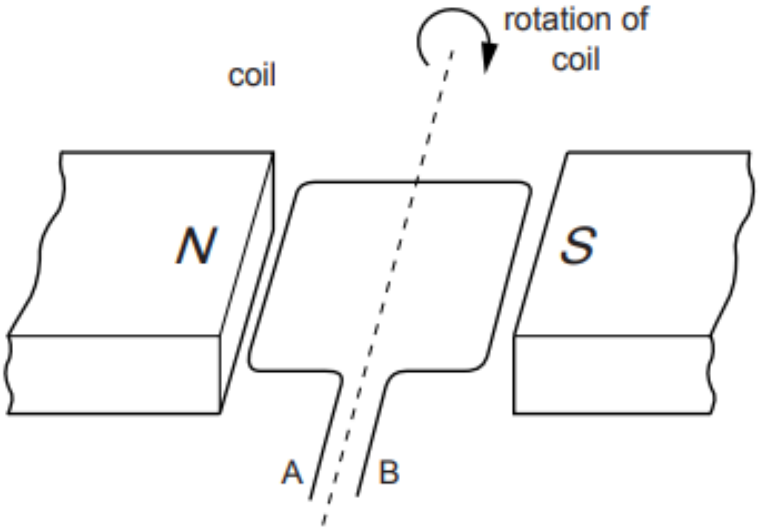


(i) Draw on the direction of the current in side CD.

(ii) Use Fleming's Left Hand Rule to determine the direction of force on wire CD. Draw this on the diagram.

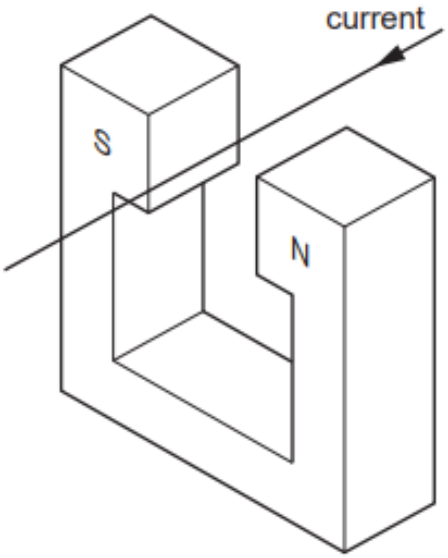
(iii) Draw the direction of rotation of the coil on the diagram.

12. The diagram below shows a coil of wire carrying a current in a uniform magnetic field. The direction of rotation is shown on the diagram. Label A and B with "+" and a "-" which refer to the terminals of the supply.

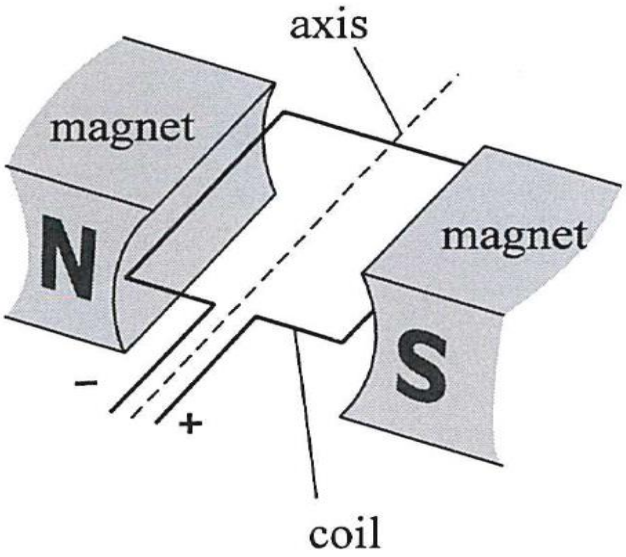


13. The diagram below shows a wire carrying a current in a uniform magnetic field.

(i) Draw on the diagram the direction of the magnetic field.
(ii) Use Fleming's Left Hand Rule to determine the direction of the force on the flexible wire.



14. The diagram below shows a coil of wire carrying a current in a uniform magnetic field. By using Fleming's Left Hand Rule, draw on the direction of rotation of the coil.



15. The diagram below shows a coil of wire carrying a current in a uniform magnetic field. The direction of rotation is shown on the diagram.

(i) Draw on the diagram the direction of the current flow in the coil.

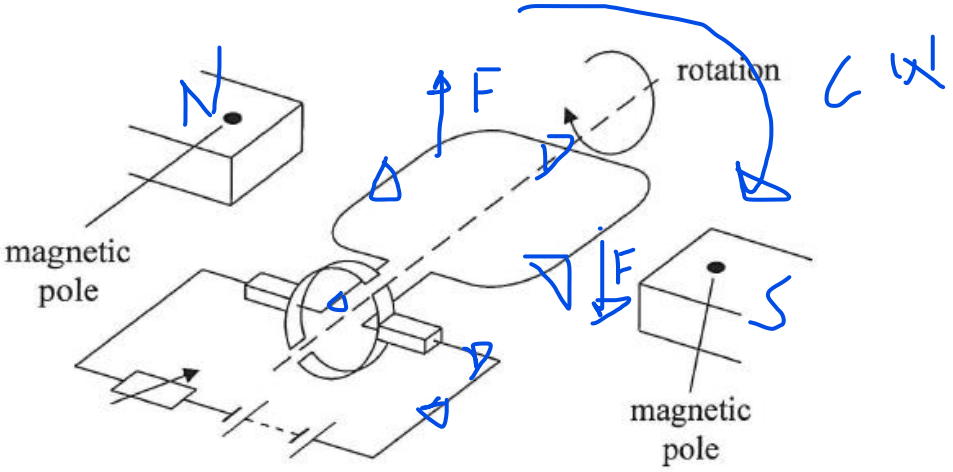
(ii) Label the poles of the magnets with a "N" and "S" referring to north and south which would produce the given direction of rotation.

Key Point:

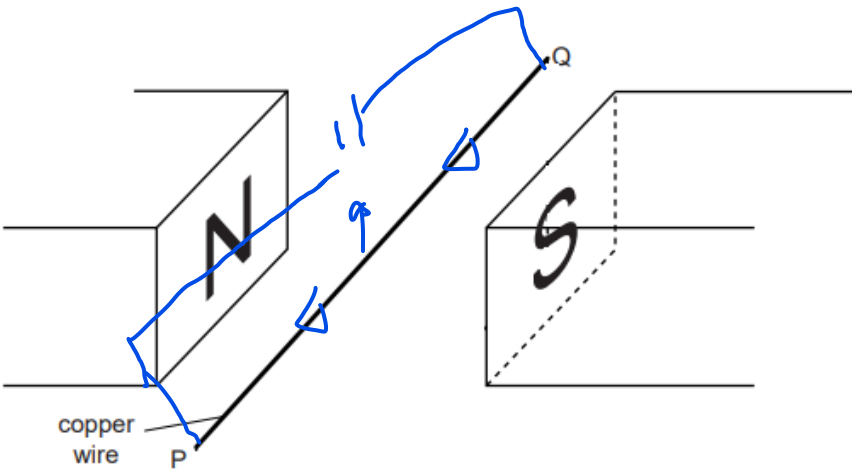
*The current in the coil is supplied by the battery.

**The magnetic field causes a force on this current, resulting in the rotation of the coil.

***In this case, we are dealing with a motor effect, not a generator effect.

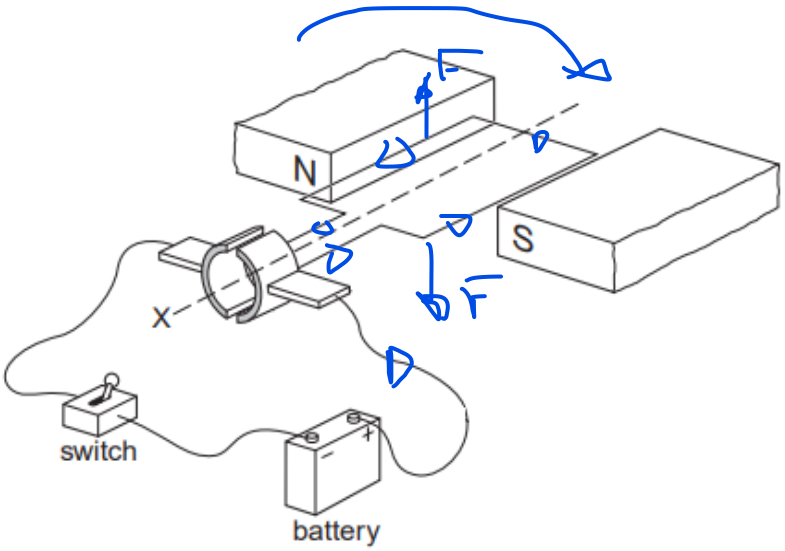


16. The diagram below shows a wire carrying a current in a uniform magnetic field. Draw on the flexible wire the direction of the current and draw on the diagram a cell connected to wire PQ, which would result in an upwards force on the wire.

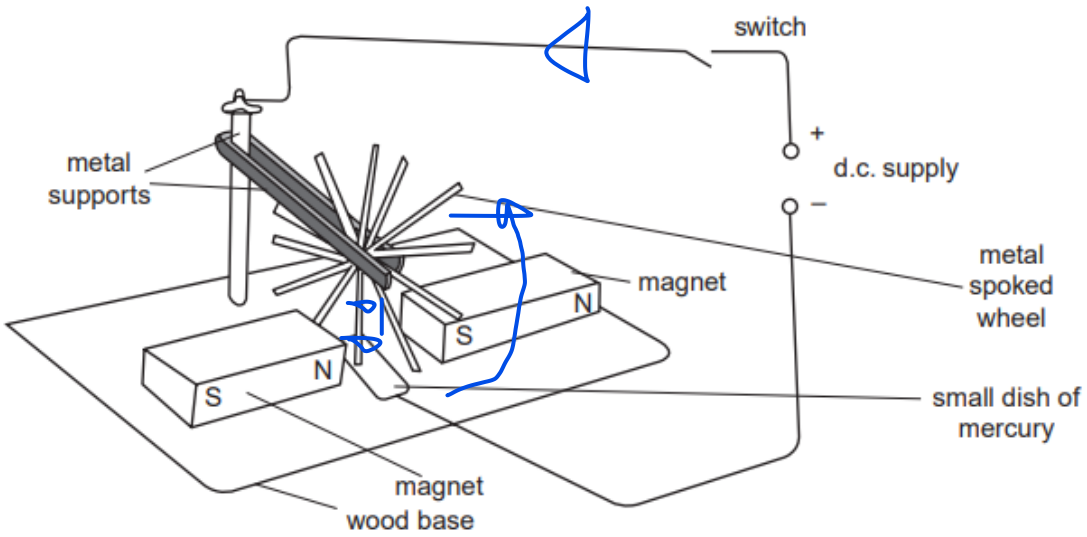


17. The diagram below shows a coil of wire carrying a current in a uniform magnetic field.

(i) Draw on the diagram the direction of the current flow in the coil.
(ii) Use Fleming's Left Hand Rule to determine the direction of rotation of the coil and draw this on the diagram. CW



18. The diagram shows a metal spoked wheel, the lower half of which is in a uniform magnetic field. The circuit is complete as the bottom spoke lies in a dish of mercury.



(i) Draw on the bottom spoke the direction of the current through it. downwards into the mercury dish
(ii) Draw on the direction of rotation of the coil, as determined by Fleming's Left Hand Rule. ACW