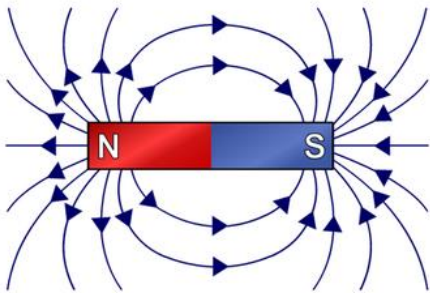
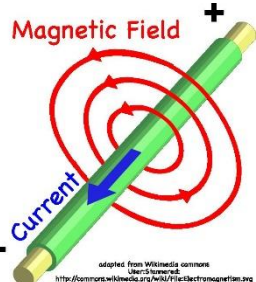
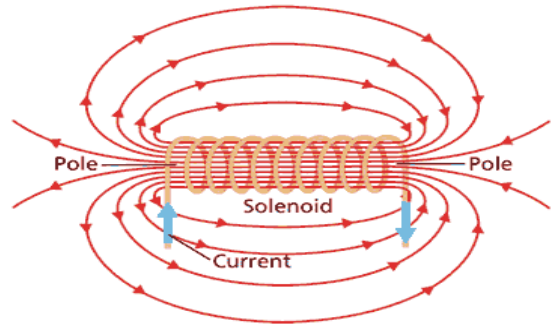


## P7 Magnets and Electromagnets Fact Sheet

Permanent and Induced Magnets	
1. What do we call the ends of a magnet?	Poles
2. Name the two poles of a magnet	North and South
3. List magnetic metals	<ul style="list-style-type: none"> <li>• Iron</li> <li>• Steel (because it is an alloy of iron)</li> <li>• Nickel</li> <li>• Cobalt</li> </ul>
4. What happens when a north pole of a magnet is put next to another north pole?	They repel
5. What happens when a south pole of a magnet is put next to another south pole?	They repel
6. What happens when a south pole of a magnet is put next to a north pole?	Attract
7. Do magnets cause contact or non-contact forces?	Non-contact
8. What do we call a magnet that has its own magnetic field?	Permanent magnet
9. What do we call an object that is only magnetic when it is put into a magnetic field?	Induced magnet
Magnetic Fields	
10. What can we use to show the direction of a magnetic field around a magnet?	Compass
11. In which direction does a needle in a compass point?	North
12. Draw the magnetic field pattern of a bar magnet. You should label north pole, south pole and show the direction of the field lines	
13. In which direction do the magnetic field lines go?	North to South
14. Where is the strength of a magnetic field greatest?	Near the poles
15. Which part of the Earth is magnetic?	Core

Electromagnetism	
16. How can we turn a wire into a magnet?	Put a current through it
17. Draw the magnetic field for a straight wire carrying a current	<p>NOTE – if the current went the other way, the magnetic field lines would point the other way</p>  <p>The diagram shows a green wire with a blue arrow labeled 'Current' pointing downwards. Red concentric circles with arrows represent the magnetic field lines, labeled 'Magnetic Field'. A '+' sign is at the top right. A small copyright notice at the bottom reads: 'adapted from Wikimedia commons user:3/ismac46 http://commons.wikimedia.org/wiki/File:Electromagnetism.png'</p>
18. How can the magnetic field around a straight wire be increased?	Increase the current
19. Where is the magnetic field around a wire carrying current the strongest?	Nearest the wire
20. What do we call a coil of wire which carries current?	Solenoid
21. Draw the magnetic field around a solenoid	 <p>The diagram shows a solenoid (a coil of wire) with red magnetic field lines looping through it. Blue arrows labeled 'Current' show the direction of current flow through the coils. The ends of the solenoid are labeled 'Pole'.</p>
22. What is an electromagnet?	Solenoid with an iron core
23. List 2 ways to increase the strength of an electromagnet	<ul style="list-style-type: none"> <li>• Increase the current</li> <li>• Increase the number of coils</li> </ul>

<b>The Motor Effect (HT)</b>	
24. What is current? [1]	The flow of charge in a circuit[1]
25. What is around a current carrying wire? [1]	A magnetic field[1]
26. What charged particles flow in a circuit? [1]	Electrons[1]
27. The coil in a motor does not experience a force if it is [1]	Parallel to the magnetic field. [1]
28. What angle must a current carrying wire be placed in a magnetic field to experience the full force?	90° to the magnetic field
29. What does induction mean? [1]	Creating an electric current or potential difference in a conductor when it is exposed to a magnetic field.
30. What are the parts of a motor? [2]	Coil of wire Inside 2 magnets (a magnetic field)
31. What is the Motor effect? [1]	When a current-carrying wire in the presence of a magnetic field experiences a force, making it move[1]
32. What is an electromagnet? [1]	A coil of wire wrapped around an iron core which both become magnetised when a current is flowing[1]
33. Give two uses of an electromagnet [2]	<ul style="list-style-type: none"> <li>• Door bell</li> <li>• RCCB</li> </ul>
34. What is the unit for Magnetic flux density? [1]	Tesla (T)
35. A bar magnet has a length of 0.15m and is connected to a circuit carrying a current of 10A. If the external magnetic field is 0.10T at a right angle to the current, calculate the force on the iron bar. [1]  The equation will be on the data sheet: Force = magnetic flux x density x length	1.5N
<b>Electric Motor (HT)</b>	
36. What rule that shows the direction of values in the motor effect? [1]	Fleming's Left hand rule
37. What do the fingers stand for in Flemings' left hand rule? [3]	First finger = magnetic Field seCond finger = Current thuMb = Motion

<p>38.If the current is revered what happens to the direction of the force? [1]</p>	<p>Reversed</p>
<p>39.How can you increase the speed of a motor? [2]</p>	<p>Increase the size of the current Increase the magnet flux density</p>
<p>40. How can you change the direction of a motor? [2]</p>	<p>Change the direction of the current Change the direction of the magnetic field</p>
<p>41. What is the function of the split-ring commutator? [1]</p>	<p>Swaps the contacts every half turn to keep the motor spinning in the same direction[1]</p>
<p>42.What 2 ways are there to make a motor spin in the opposite direction? [1]</p>	<p>Reverse the current Reverse the magnetic field[1]</p>