Magnetism MS

Q1 (1 mark)

North pole and South pole (1)

Q2 (1 mark)

They repel (1)

Q3 (1 mark)

Compass (1)

Q4 (1 mark)

Shows direction and shape of a magnetic field (1)

Q5 (2 marks)

Any two (1 + 1):
Iron (1)
Steel (1)
Nickel (1)
Cobalt (1)

Q6 (2 marks)

Any two:
Fridge magnets (1)
Electric motors (1)
Speakers (1)
Scrap metal cranes (1)
Door catches (1)

Q7 (3 marks)

Two from:

Opposite poles attract (1)
Force pulls magnets together (1)
Magnetic field causes interaction (1)

Q8 (3 marks)

Field lines show direction of force (1)
Lines go from north to south pole (1)
Closer lines = stronger field (1)

Q9 (3 marks)

Earth acts like a giant magnet (1)
Compass aligns with Earth's magnetic field (1)
Used for navigation (1)

Q10 (3 marks)

Paperclip becomes magnetised (1)
It is attracted to the magnet (1)
Magnetic force acts without contact (1)

Q11 (4 marks)

Current produces a magnetic field (1)
Field affects compass needle (1)
Needle deflects/moves (1)
Stronger current increases deflection (1)

Q12 (4 marks)

Current in coil produces magnetic field (1)
Iron core becomes magnetised (1)
Can be switched on and off (1)
Strength increased by more turns or current (1)

Q13 (6 marks)

Level 1 (1–2 marks)

Magnetism MS

Basic statements about current or magnets (1–2)
Mentions electromagnets or motors (1–2)

Level 2 (3–4 marks)

Current produces magnetic field around a wire (1)
Electromagnets use coils of wire and current (1)
Mentions DC motor idea (force/movement) (1)
Some correct links between ideas (1)

Level 3 (5–6 marks)

Electric current produces a magnetic field (1)
Coils increase magnetic strength in electromagnets (1)
Iron core strengthens the electromagnet (1)
DC motors use magnetic fields and current to create turning force (1)
Force acts on a current-carrying wire in a magnetic field (1)
This produces continuous rotation in a motor (1)

Model Answer:

An electric current produces a magnetic field around a wire. In an electromagnet, a coil of wire is used and often an iron core is added to make the field stronger. The strength can be increased by increasing the current or the number of turns of the coil. In a DC motor, a current-carrying coil is placed in a magnetic field. The interaction between the magnetic field and the current produces a turning force, causing the coil to rotate continuously.