



Achieve in Science

www.AchieveinScience.com

GCSE

COMBINED SCIENCE: TRILOGY

END OF TOPIC TEST



Q1a	Iron	1
	Cobalt	1
	Nickel	1
	Steel	1
	All 4 correct – 3 marks	
	3 correct – 2 marks	
	2 correct – 1 mark	
Q1b	<u>non-contact</u> force.	1
Q1c	Attract	1
	Repel	1
Q1d	Iron filings	1
	Plotting compass	1
Q1e	Correctly draw magnetic field	1
	Arrows show direction N to S	1
	Stronger field closer to magnet (lines closer)	1
Q1f	Magnet wrong way	1
	South should point towards magnetic North Pole	1
Q2a	Permanent – produce own magnetic fields and always have N and S poles.	1
	Induced – Becomes magnetic when placed in a magnetic field.	1
Q2b	Correctly drawn circular magnetic field around wire	1
	Direction shown - clockwise	1
Q2c	Reverse the direction of the magnetic field	1

Q2d	Any of the following for one mark. Maximum of two marks.	
	- Larger current	1
	- Coils closer together	1
	- Use an iron core in the middle.	1
Q2e	As the number coils increases the number of paper clips increase Include supporting data from table to back up conclusion.	1 1
Q2f	Check for anomalies	1
	Confirm pattern/trend	1
	As long as have same variables	1
Q2g	Repeat investigation	1
	Remove anomalies	1
	Calculate mean/average	1
Q3a	Lines drawn between magnets to show flux	1
	Direction correct N to S	1
	Lines closer for set 1	1
	Lines further apart for set 2	1
Q3b	Tesla	1
Q3c	$F = BIl$ Force = magnetic flux density x current x length	1
Q3d	$L = 0.15\text{m}$	1
	$0.3 \times 3.0 \times 0.15$	1
	$= 0.135$	1
	N	1
Q4a	Caused by the interaction of two magnetic fields One from the permanent magnets and one from the current passing through the wire	1 1
Q4b	Any of the following for one mark. Maximum of two marks	
	• Increase the magnetic flux density	1
	• Increase the current	1
	• Increase the length of the foil (between the magnets)	1
Q4c	Flemings left hand rule – diagram to show position of hand/fingers	1
	Thumb – point in the direction of the motion	1
	First finger – held in direction of field	1
	Second finger – held in direction of current	1
Q5	Any of the following for one mark. Maximum of six marks.	

- Uses Direct current (DC) 1
- Current flows and causes a force to be experienced 1
- On one side the force is upwards 1
- On other side the force is downwards 1
- Caused by the Split-ring commutator 1
- Rotates with coil 1
- Causes the direction of the current to be reversed 1
- Diagrams to show forces/motions 1