Q1.(2018)

a)

top of each paper clip labelled N / north
and
bottom of each paper clip labelled S / south

b)

so the paper clips have the same weight / mass

which allows the results for different numbers of turns to be compared (fairly)

c)

as the number of turns increases so does the number of paper clips (held)

in a linear pattern

d)

some of the paper clips were already magnetised

e)

discount the result of 18

as the three new results are similar (and not close to 18)

and use 15 (the mean of the new results)

f)

keep number of turns constant

(use the variable resistor to) change the current (several times)

(for each current value) count how many paper clips the electromagnet will hold

Q2.(2019)

both arrows pointing horizontally and to the right

Q3.(2019)

(two south) poles would repel

so the coat would not be held together

Q4.(2019)

a)

C

b)

steel rod

Q5.(2020)

a)

(the north pole of the floating magnet is) repelled from the north pole (of the fixed magnet)

and attracted to the south pole (of the fixed magnet)

b)

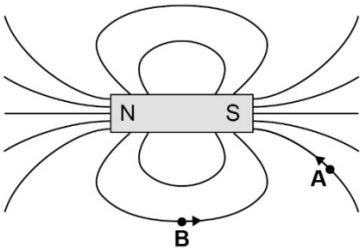
it was attracted (to the fixed magnet)

c)

- mark where the compass points on the paper
- move the compass to the marked point
- repeat until you go back to the magnet
- join up the points
- add an arrow pointing from the north pole to the south pole
- repeat for positions (above and below the bar magnet)

Q6.(2021)

a)



b)

A permanent magnet

c)

third box ticked

any **one** from

- (the only graph) that shows the magnetic field getting weaker (as distance increases)
- both other graphs show the magnetic field getting stronger (as the distance increases)

Q7.(2022)

all ticks correct

	Attract	Repel
	✓	
	✓	
		✓
		✓

Q8.(2022)

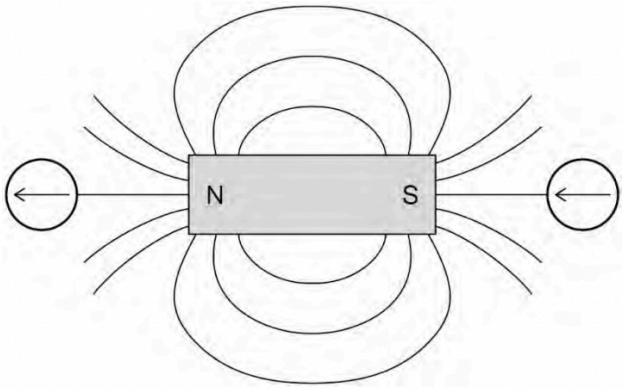
the magnetic field gets weaker further from the magnet

the magnetic field is strongest at the poles

Q9.(2024)

cobalt

Q10.(2024)



2 arrows pointing left

allow 1 mark for 1 correct arrow

Q11.(2024)

A

Q12.(2024)

S-S