

Combined science - Physics

Key stage 4 - Magnetism

# Magnetism Review 1

Mr van Hoek



# Independent practice

1. List the names of the magnetic materials.
1. What is the difference between a permanent magnet and an induced magnet?
1. Compare what you will observe when you bring a magnet near a magnetic material or near a non-magnetic material.



# Exam style question

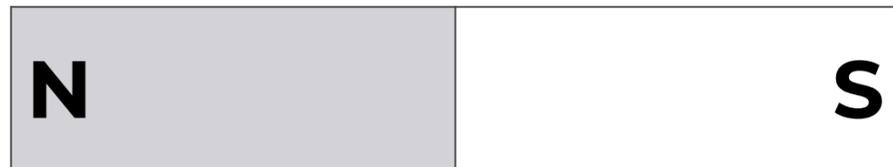
During the 2020 lockdown, the school science laboratory technician sorted out a long forgotten cupboard. Inside the cupboard she found some metal blocks. She thought they might be iron blocks.

Suggest how the technician could determine if the blocks are iron.



# Independent practice

1. What will happen to two magnets if similar poles are brought near to each other?
1. Draw the shape of a magnetic field around a bar magnet and identify the area of greatest field strength.
1. Draw the shape of the magnetic field around these bar magnets.



# Exam style question

Which of the following arrangements would cause the magnets to attract, and which to repel?

A **N** **S**      **iron**

B **N** **S**      **N** **S**

C **N** **S**      **copper**

D **S** **N**      **S** **N**



# Exam style question

Describe how you could find the pattern of the magnetic field around a bar magnet.



# Independent practice

1. Describe, with the aid of a diagram the shape and direction of the magnetic field around a straight current carrying conductor.
1. Describe, with the aid of a diagram the shape and direction of the magnetic field around a coil of wire.
1. Describe how the strength of an electromagnet can be increased and why electromagnets are useful.



# Exam style question

In a scrapyard, a crane uses an electromagnet to pick up and move old cars.

Explain how the electromagnet on the crane is able to pick up and move the cars.

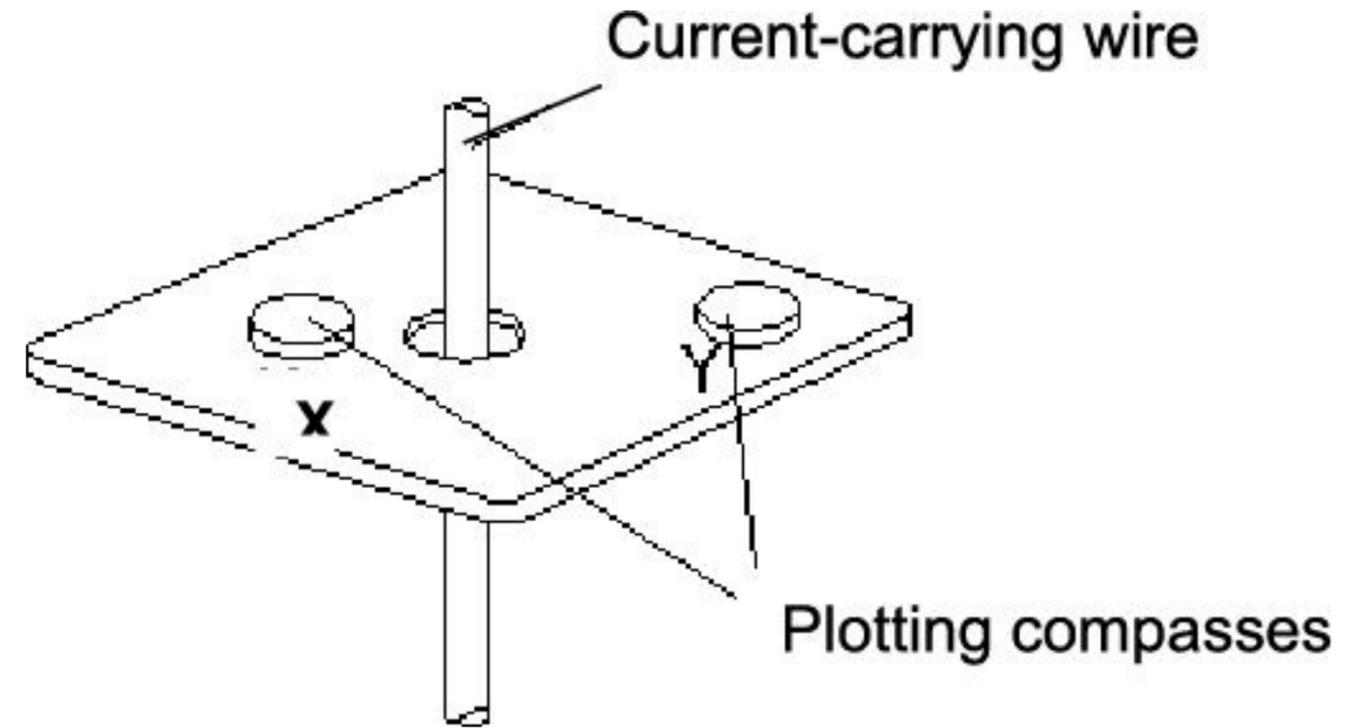


# Exam question

Plotting compasses are positioned at X and Y near to a current-carrying wire.

Compared to Y, the strength and direction shown on the compass, of the magnetic field at X is:

- A. the same strength and direction
- B. the same strength and the opposite direction
- C. weaker and the opposite direction
- D. weaker and the same direction



*OCR, Specimen, J250/11*

*Additional answers and guidance not checked by OCR*





# Exam style question

In an experiment, a teacher determined that the force on the wire was 8.74 mN.

The current in the wire was 0.64 A

The length of wire within the magnetic field was 0.022 m

Calculate the magnetic flux density between the two magnets.

Use the equation **force = magnetic flux density × current × length of conductor**

Give your answer to 2 significant figures.

