

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, th 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
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iron		
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- B

N		S
----------	--	----------

N		S
----------	--	----------
- C

N		S
----------	--	----------

copper		
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- D

S		N
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S		N
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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.

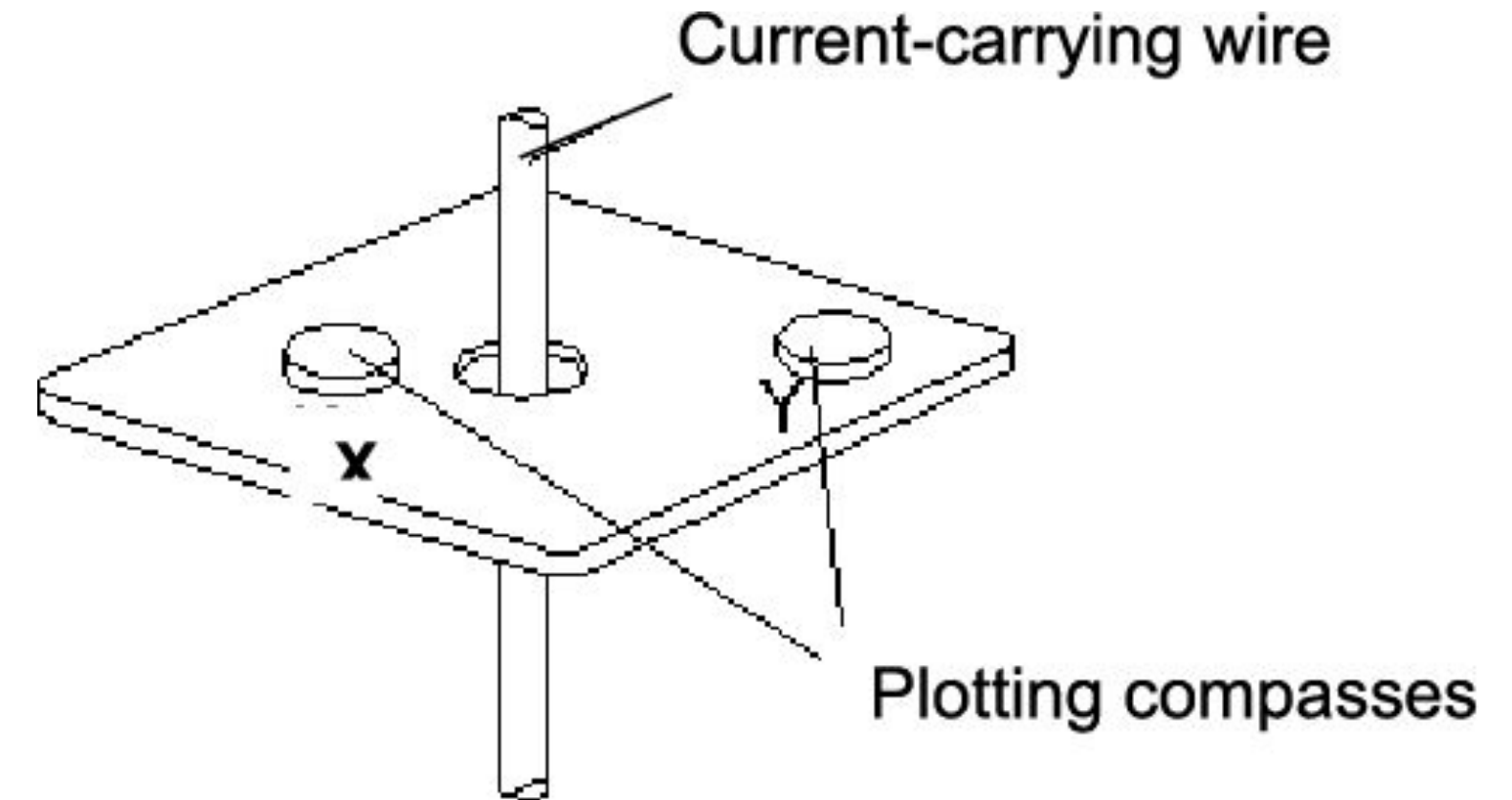


Exam question

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



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Additional answers and guidance not checked by OCR



Independent practice

1. Describe how the magnetic field and the current carrying conductor must be arranged for a force to be produced, and in which direction that force will be.
1. Calculate the force produced by a 45 mA current flowing through a 0.25 m conductor in a magnetic field strength of 580 μT



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.

