

8J Magnets and electromagnets

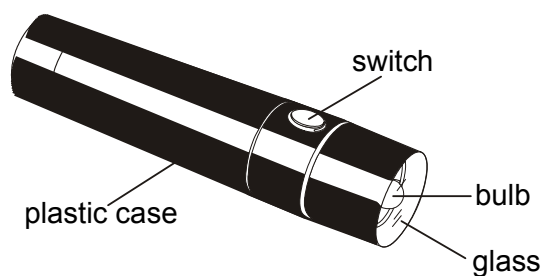
Assessment for learning...year 8 (level 3-6)

Answer all questions:

Total marks	24
Time allowed	25 mins.

Question 1:

The drawing shows a torch.



(a) The torch is switched on but does not work.
Tick three things which could be wrong.

there is no battery

the glass is broken

the plastic case is broken

the switch is broken

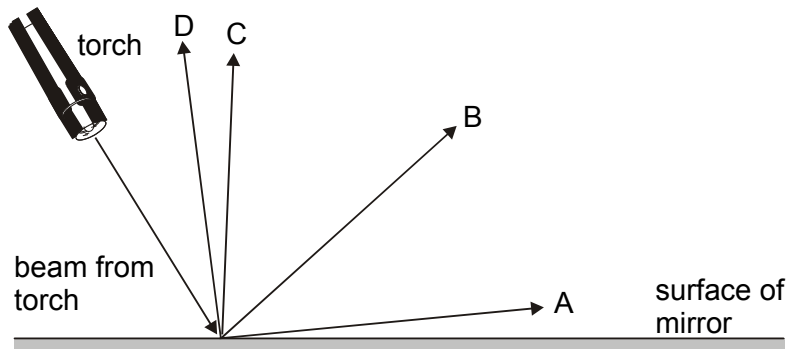
the bulb is broken

the battery is cold

3 marks

The beam of light from another torch is shone onto a mirror.

The drawing below shows this.



(b) The light beam is reflected from the mirror.

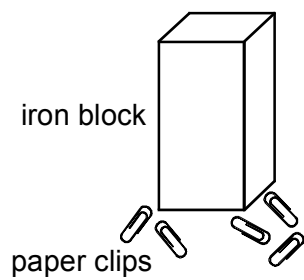
Which line, A, B, C or D, shows its direction?

1 mark

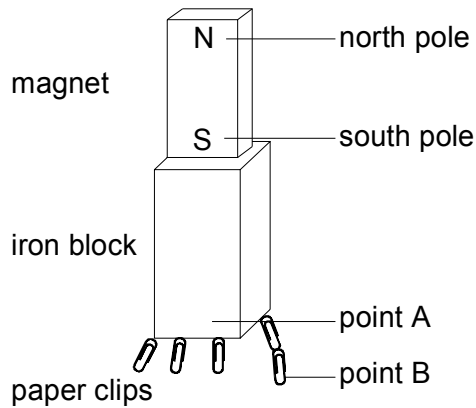
Maximum 4 marks

Question 2:

An iron block is near some steel paper clips. The paper clips do not stick to the iron block.



A pupil puts a magnet on top of the iron block. The paper clips stick to the iron block and to each other.



(a) What are the magnetic poles at points **A** and **B** in the diagram? Put **one** tick in each row in the table.

	north pole	south pole	no magnetic pole
point A			
point B			

2 marks

(b) (i) The sentences below are about the force which the magnet exerts on the iron block.

Tick the box by the **one** correct sentence.

The magnet attracts the iron block.

The magnet repels the iron block.

There is no magnetic force on the iron block.

1 mark

(ii) The sentences below are about the force which the magnetised iron block exerts on the magnet.

Tick the box by the **one** correct sentence.

The iron block attracts the magnet.

The iron block repels the magnet.

There is no magnetic force on the magnet.



1 mark

Maximum 4 marks

(a) The diagram shows two bar magnets.



The north pole and south pole are shown on magnet A. The poles are not shown on magnet B.

Describe an experiment you could do, using magnet A, to find which end of magnet B is the north pole **and** which is the south pole.

.....

.....

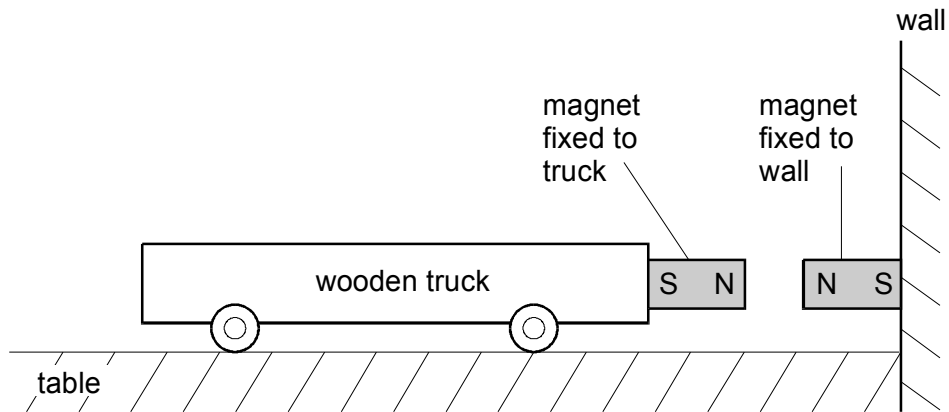
.....

.....

.....

3 marks

(b) The diagram shows a wooden truck near a wall. There is a strong magnet fixed to the wall and a strong magnet fixed to the front of the wooden truck.



James holds the wooden truck so that it does not move. Then he lets go of the wooden truck. In which direction will it move?

.....

1 mark

(c) James removes the magnet from the wooden truck. He gives the truck a push so that it rolls along the table.

What effect will friction have on the speed of the truck as it rolls along?

.....

.....



1 mark

Maximum 5 marks



Question 3:

A pupil does four experiments with bar magnets and small, unmagnetised iron bars. She places them as shown below. For each experiment, tick **one** box to show the effect of the magnetic force between the two objects.

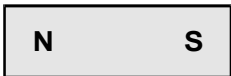
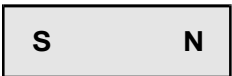
experiment A

		they attract	<input type="checkbox"/>
iron bar	iron bar	they repel	<input type="checkbox"/>
		no effect	<input type="checkbox"/>



experiment B

		they attract	<input type="checkbox"/>
iron bar	bar magnet	they repel	<input type="checkbox"/>
		no effect	<input type="checkbox"/>

experiment C

		they attract	<input type="checkbox"/>
bar magnet	bar magnet	they repel	<input type="checkbox"/>
		no effect	<input type="checkbox"/>

experiment D

		they attract	<input type="checkbox"/>
iron bar	bar magnet	they repel	<input type="checkbox"/>
		no effect	<input type="checkbox"/>

4 marks

Maximum marks 4

Question 5:

The words 'contains added iron' were printed on Colin's box of cereal.

(a) Colin decided to test the cereal to see if it contained tiny pieces of powdered iron metal.

First he crushed 500 g of cereal into a fine powder and mixed it with water.

He put a clean, white, plastic-coated magnet in the mixture.
Then he stirred it.

If the cereal contains tiny pieces of iron metal, what should Colin expect to see?

.....
.....

1 mark

(b) Colin finds that the cereal **does** contain pieces of powdered iron.
Give **two** differences between iron metal and compounds containing iron.

1.
.....
2.
.....

2 marks

(c) Colin eats some cereal. The tiny pieces of iron metal in the cereal react with the hydrochloric acid in his stomach.

Complete the word equation to show the reaction of iron with hydrochloric acid.

iron + hydrochloric acid → +

2 marks

(d) The body needs iron to make red blood cells. The red blood cells transport oxygen to all the cells of the body. People who do not have enough red blood cells may feel that they do **not** have much energy. Explain why.

.....
.....

2 marks

Maximum 7 marks

