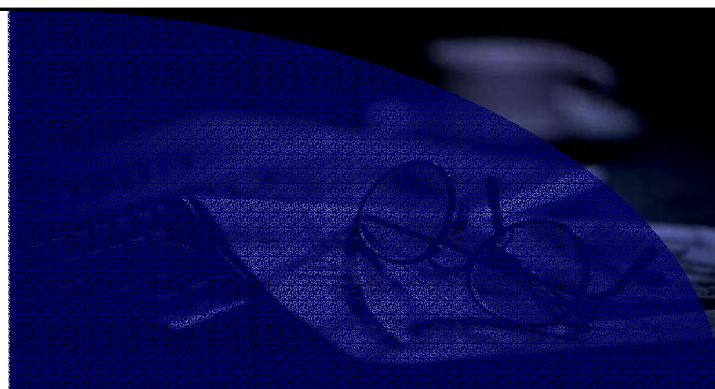


assessment for learning

year 8...mark scheme



Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT

web: [www: science-interactive.co.uk](http://www.science-interactive.co.uk)

8J Magnets and electromagnets...mark scheme

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

Question 1:

- | | | |
|-----|----------------------|---|
| (a) | there is no battery | 1 |
| | the switch is broken | 1 |
| | the bulb is broken | 1 |

if more than three boxes are ticked deduct one mark for each incorrectly ticked box; minimum mark zero

- | | | |
|-----|---|---|
| (b) | B | 1 |
|-----|---|---|

if more than one letter is given award no mark

[4]

Question 2:

- | | | |
|-----|-----------------------|---|
| (a) | point A: south pole ✓ | 1 |
|-----|-----------------------|---|

if more than one box in the row is ticked award no mark

- | | | |
|--|-----------------------|---|
| | point B: south pole ✓ | 1 |
|--|-----------------------|---|

if more than one box in the row is ticked award no mark

- | | | | |
|-----|-----|---------------------------------------|---|
| (b) | (i) | The magnet attracts the iron block. ✓ | 1 |
|-----|-----|---------------------------------------|---|

if more than one box in the row is ticked award no mark

- | | | | |
|--|------|---------------------------------------|---|
| | (ii) | The iron block attracts the magnet. ✓ | 1 |
|--|------|---------------------------------------|---|

*if more than one box in the row is ticked award
no mark*

[4]

Question 3:

- (a) **one mark is for moving a magnet so that one end of magnet A is close to one end of magnet B** 1

a second mark is for concluding, from the attraction or repulsion, which pole of magnet B is next to the known pole of magnet A 1

the third mark is for deducing or showing which pole is at the other end of B 1

either

- bring one end of B next to the S pole of A
- if it attracts it is the N pole or unlike poles attract
- so the other end is the S pole **or** will be repelled by the S pole of A
accept a similar line of argument in which the end of B is brought next to the north pole of A

or

- bring one end of B next to the S pole of A
- if it repels it is the S pole or like poles repel
- so the other end is the N pole **or** will be attracted by the S pole of A
accept a similar line of argument in which the end of B is brought next to the north pole of A

or

- put the magnets side by side
- if they repel or skid along each other, the N poles are next to each other
- and the S poles are next to each other
accept a similar line of argument in which the two magnets attract
*accept for **two** marks 'hang A on a thread: North is where the N pole of A points. Hang B on a thread; the end pointing North is the N pole. The other end is the S pole'*

- (b) any **one** from 1
- away from the wall
 - to the left
 - backwards

- (c) slow it down **or** reduce it **or** make it less 1
- accept 'it will stop it'*

[5]

Question 4:

- A no effect ✓ 1
B they attract ✓ 1
C they repel ✓ 1
D they attract ✓ 1

if more than one box is ticked award no mark

[4]

Question 5:

- (a) pieces of iron sticking to the magnet 1

*accept 'the iron powder
attracting the magnet' or
'pieces of a dark or grey
powder on the magnet'
do **not** accept 'dark pieces in
the powder'*

- (b) **A comparison must be made or implied for each mark to be awarded**

any **two** from

2

- the metal is magnetic **or** many iron compounds are not magnetic

*accept 'iron compounds are
non-magnetic'*

- the metal is an element or in iron compounds, iron is chemically joined to other elements

*accept 'iron is an element' or
'compounds contain different
elements joined together'
do **not** accept 'iron metal is
pure'
or 'the compounds contain
iron plus something else'
do **not** accept 'in compounds
the atoms are joined together
in molecules'*

- iron metal is grey **or** shiny **or** compounds containing iron are green **or** brown

- iron is a good electrical conductor or iron compounds are electrical insulators

*accept 'iron is a conductor'
or 'iron conducts electricity'
or 'iron compounds are
insulators'*

- iron is a good thermal conductor or iron compounds are poor thermal conductors

*accept 'iron conducts heat'
or 'iron compounds are thermal insulators'*

- the metal is not soluble in water or many iron compounds are soluble in water

accept 'iron compounds are soluble'

- iron can rust or iron compounds cannot rust
- in iron metal, all the atoms have the same number of protons

accept 'in iron metal, all the atoms are the same'

(c) iron chloride + hydrogen

2

products may be in either order accept 'FeCl₂' for iron chloride ignore references to oxidation states accept 'H₂' for hydrogen

(d) **Answers may be in either order**

less oxygen is carried to the cells

1

accept 'oxygen is needed for respiration' or 'cells cannot get enough oxygen' or 'not enough oxygen going around the body'

less energy released in respiration

1

accept 'not enough energy from respiration'

[7]