



KS3 Science

Elements and Compounds

Mark Scheme

Time available: 32 minutes

Marks available: 47 marks

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Mark schemes

1.

- (a) (i) • C and E

both answers are required for the mark
answers may be in either order

1 (L5)

- (ii) • A

1 (L5)

- (b) • Cu ✓

if more than one box is ticked, award no mark

1 (L6)

- (c) •

number of atoms of iron	numbers of atoms of oxygen
1	1
2	3

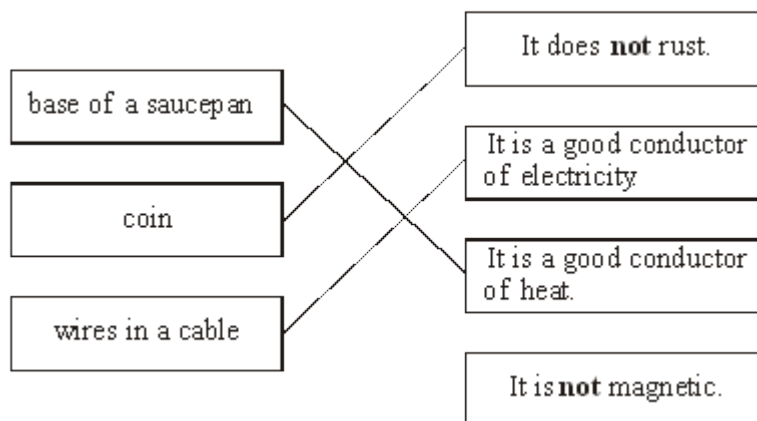
for all **four** numbers correct, award two marks
for **two** or **three** numbers correct, award one mark
for **one** number correct, award no marks

2 (L5)

[5]

2.

- (a)



if more than one line is drawn from an object,
award no mark for that object

3 (L3)

- (b) • Brass does not bend as easily as copper. ✓

if more than two boxes are ticked,
deduct one mark for each incorrect tick

1 (L3)

- Brass is harder than copper ✓

minimum mark zero

1 (L3)

- (c) • liquid zinc and solid copper ✓
if more than one box is ticked, award no mark

1 (L4)

[6]

3.

- (a) metal

1 (L3)

any **one** from

- heat
- thermal energy

1 (L3)

- (b) any **one** from

- nail

accept 'iron'

- paper-clip

accept 'steel' or 'clip'

1 (L4)

- (c) (i) any **one** from

- plastic

accept a named plastic

- rubber
- PVC

1 (L3)

- (ii) any **one** from

- to stop you getting a shock

accept 'to stop you being electrocuted'

'to insulate them' is insufficient as it is given in the question

accept 'to make it safe'

- so the wires do not touch

accept 'to prevent them short circuiting'

accept 'it does not conduct electricity'

1 (L4)

- (d) iron nail and steel paper-clip ✓

if more than one box is ticked, award no mark

1 (L3)

[6]

4. (a) (i) B 1 (L7)
- (ii) D 1 (L7)
- (b) (i) any **one** from
- a compound or a new substance has been formed
accept 'the ratio is always 1P to 2Qs'
*accept 'the atoms **or** particles have joined'*
 - R **or** the product is a new substance
accept 'the elements have joined' 1 (L7)
- (ii) substance Q: oxygen
- substance R: carbon dioxide
- both** answers are required for the mark 1 (L7)
- (iii) the same numbers of each type of atom are present
accept 'the same number of atoms is present'
*accept 'the same particles **or** same number of particles are present'*
accept 'there is the same amount of each element'
*do **not** accept 'the same number of molecules is there'*
'the same amount of elements' is insufficient 1 (L7)

[5]

5. (a) (i) a mixture ✓
if more than one box is ticked, award no mark 1 (L5)
- (ii) a compound ✓
if more than one box is ticked, award no mark 1 (L5)

(iii) any **one** from

- they are denser than the liquid
*accept 'it is heavier than the liquid **or** the paint'*
*accept 'the solid particles are more dense **or** heavier **or** too heavy'*
accept 'the solid is denser'
*do **not** accept 'solid particles are heavy' without a comparison **or** qualifier eg 'too heavy'*
- the liquid is less dense than the solid
*accept 'the liquid is less dense' **or** 'the liquid is lighter'*

1 (L5)

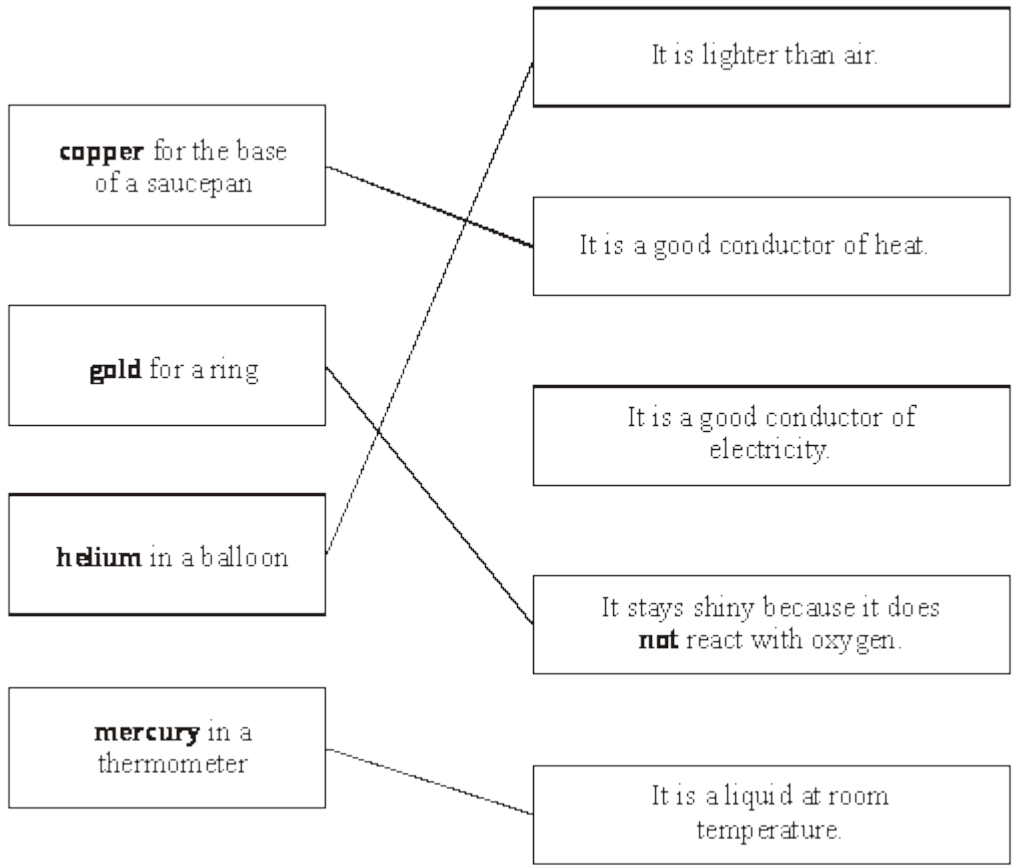
(b) any **one** from

- it is insoluble in water
- water is not a solvent for the paint
- it dissolves in white spirit
- white spirit is a solvent for the paint
'it is waterproof' is insufficient

1 (L5)

[4]

6. (a)



*if more than one line is drawn from any element,
award no mark for that element
minimum mark zero*

4 (L3)

(b) helium ✓

if more than one box is ticked, award no mark

1 (L4)

[5]

7. (a) (i) C

1 (L7)

(ii) D

1 (L7)

(iii) A and B

answers may be in either order

both answers are required for the mark

1 (L7)

(iv) A and D

answers may be in either order

both answers are required for the mark

1 (L7)

(v) C

1 (L7)

- (b) (i) the same
accept 'seven' 1 (L7)
- (ii) a random, mixed arrangement of both types of molecule should be drawn with the molecules not touching each other 1 (L7)

[7]

8.

- (a) (i) any **one** from
- gold
 - iron
 - magnesium
- (ii) any **one** from
- sulphur
 - phosphorus
- (iii) iron 1 (L3)
- (iv) iron sulphide 1 (L5)
- (b) magnesium sulphide
do not accept 'magnesium sulphite'
or 'magnesium sulphate' 1 (L5)

[5]

9.

- (i) graphite
do not accept 'C' 1 (L7)
- (ii) calcite
do not accept 'CaCO₃' 1 (L7)
- (iii) saltpetre
do not accept 'KNO₃' 1 (L7)
- (iv) gold **or** graphite
do not accept 'Au' or 'C' 1 (L7)

[4]