



Year 8 Atoms & Elements, Heating & Cooling HW Questions



36 minutes



48 marks

- M1.** (a) (i) any **one** from
- gold
 - iron
 - magnesium
- 1 (L3)
- (ii) any **one** from
- sulphur
 - phosphorus
- 1 (L4)
- (iii) iron
- 1 (L3)
- (iv) iron sulphide
- 1 (L5)
- (b) magnesium sulphide
- do **not** accept 'magnesium sulphite'*
- or** 'magnesium sulphate'*
- 1 (L5)

[5]

- M2.** (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) •

<i>number of atoms of iron</i>	<i>numbers of atoms of oxygen</i>
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]

M3. (a) hydrogen

1 (L6)

(b) (i) region 3

1 (L6)

(ii) region 1

1 (L6)

(iii) region 2

1 (L6)

(c) any **one** from

- it is a compound
 - it is not an element
 - it is made up of more than one element
- do **not** accept 'it is **not** a single substance'

1 (L5)

(d) (i) copper + iron sulphate
answers may be in either order
both are required for the mark

1 (L6)

(ii) the nail becomes brown **or** pink **or** copper coloured
accept 'it is covered in copper'
accept 'it is rust coloured'
do **not** accept 'it goes rusty'

1 (L6)

[7]

##

- (a)
- X-axis: mass of magnesium (g)
 - Y-axis: mass of magnesium oxide (g)
*both labels are required for the mark
units are required for the mark
pupils can gain credit for correct responses to other parts if the axes are wrongly labelled or magnesium is on the Y-axis and magnesium oxide is on the X-axis*
1 (L7)
 - reasonable scales
*accept a scale of 1 g or 2 g per 5 small squares
scale need not begin at zero*
1 (L7)
 - reasonably accurate plotting of all points
all points plotted to ± 1 small square
1 (L7)
 - a line of best fit drawn
1 (L7)
- (b) (i) E
1 (L7)
- (ii) any **one** from
- ignore it in drawing the line of best fit
accept 'ignore it'
 - they could predict the figure from the line of best fit
accept 'they could use the graph line'
 - they should repeat the reading
*accept 'check it'
pupils can gain credit for a response which suggests they should predict the correct value from the pattern
or ignore the anomalous results or repeat the reading*
1 (L7)
- (c) a number from 11 to 13
*accept a value consistent with the line of best fit
the unit is not required for the mark*
1 (L6)

(d) any **one** from

- the greater the mass of magnesium burned the greater the mass of oxide formed
- the magnesium and oxygen react in fixed proportions
- the mass of magnesium oxide formed is proportional to the mass of magnesium burned
- the greater the mass of magnesium the greater the mass of oxygen that combines with it

1 (L6)

[8]

M5. (a) (i) B

if more than one letter is given award no mark

1

(ii) C

if more than one letter is given award no mark

1

(b) are faster **or** quicker

1

(c) (i) goes down **or** decreases

accept 'goes back to where it started'

***or** 'goes back to diagram 1'*

***or** 'goes to same level'*

1

(ii) more gas molecules were going out of the porous pot than going in **or** fewer molecules were going in than coming out

accept 'hydrogen can escape quicker than air can get in'

*do **not** accept 'pressures equalised'*

1

(d)

substance	it is an element	it is a compound	it is a mixture	number of atoms in one molecule
carbon dioxide		√		3
oxygen	√			2

if more than one box is ticked in either row award no mark for that part, although the mark for the number of atoms may still be awarded

4

[9]

- M6.** (a) (i) any **one** from
- they vibrate further
*accept 'they vibrate more **or** faster'*
 - they move faster
accept 'they go faster'
do not accept 'they move about more'
***or** 'they collide more'*
- 1 (L6)
- (ii) it increases
*accept 'it gets bigger' **or** 'they move further apart'*
- 1 (L6)
- (b) (i) 220
- 1 (L5)
- (ii) 299.9
- 1 (L5)

[4]

- M7.** (a) conduction
- 1 (L7)
- (b) (i) it rises
*accept 'it forms a convection current' **or** 'it floats to the top'*
- 1 (L7)
- any **one** from
- it expands
accept 'the molecules move further apart'
 - it becomes less dense
accept 'the particles move more quickly'
- 1 (L7)
- (ii) any **one** from
- the atoms or particles in a solid cannot move
*accept 'the atoms cannot move around **or** are fixed'*
 - the atoms or particles are bonded tightly
accept 'particles are bonded'
 - iron is not fluid
accept 'iron has a fixed shape'
*do **not** accept 'iron is a solid'*
- 1 (L7)

- (c) (i) evaporation
accept 'evaporating' 1 (L6)
- (ii) any **one** from
- it gets colder
 - it decreases
accept 'it loses heat' 1 (L7)

[6]

M8. markers should read the answers to parts a and b before marking this question

parts a and b should be marked together

- (a) • temperature of the water
accept 'temperature'
accept 'room temperature'
*do **not** accept responses that describe rates of heating.* 1 (L7)

any **one** from

- rate of evaporation
accept 'the time for it to evaporate'
answers must refer to both time taken and amount of water lost
- time taken for all the water to evaporate
accept 'measure how much water is left after a certain time'
'time taken' is insufficient
- volume **or** mass **or** amount of water lost in a fixed time 1 (L7)

any **one** from

- starting volume of water
accept 'the amount of water'
accept a specified volume of water
'same heater' and 'same starting measurement' are insufficient
- shape of container
- same ambient conditions
accept 'room temperature' if the independent variable is 'water temperature' 1 (L7)

- (b) a column **or** row indicating temperature **and** a column **or** row indicating time **or** volume lost **or** volume remaining

*accept a column **or** row indicating 'rate of evaporation'
accept 'amount lost' **or** 'amount remaining'*

***both** headings are required for the mark
the units of measurement are not necessary for the mark
the second column **or** row should be consistent with the
dependent variable identified in part **a**
ignore other columns in the table*

1 (L7)

[4]

