Springwood High School

SUMMER TASK 2019

CHEMISTRY

Name:	
Marks Available:	**Section A** = 50 marks and **Section B** = 16 marks
Marks Achieved:	**/ 50** and **/ 16** **TOTAL** = **/66**
WWW:	1. 2. 3.
Action to be taken:	1. 2. 3.

Notes to candidate: **Answer all questions** in both sections A & B.

Use a **scientific calculator** and a **Periodic Table**.

Section A: Chemistry Skills

Answer ALL questions in the spaces provided at the end of Task 7

Task 1

Write word equations for each of the following formulae equations:

1 $HCl + NaOH \rightarrow NaCl + H_2O$

2 $Mg + 2HCl \rightarrow MgCl_2 + H_2$

3 $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

4 $H_2 + I_2 \rightarrow 2HI$

5 $2Ca + O_2 \rightarrow 2CaO$

Task 2

Choosing from displacement, thermal decomposition, neutralisation, polymerisation or combustion, identify which type of reaction is occurring for each of the following formulae equations:

1 $H_2SO_{4\,(aq)} + 2NaOH_{\,(aq)} \rightarrow Na_2SO_{4\,(aq)} + 2H_2O_{\,(l)}$

2 $CuCO_{3\,(s)} \rightarrow CuO_{\,(s)} + CO_{2\,(g)}$

3 $Mg_{\,(s)} + CuSO_{4\,(aq)} \rightarrow MgSO_{4\,(aq)} + Cu_{\,(s)}$

4 $CH_{4\,(g)} + 2O_{2\,(g)} \rightarrow CO_{2\,(g)} + 2H_2O_{\,(l)}$

5 $nC_2H_4 \rightarrow [C_2H_4]_n$

Task 3

Balance the following equations:

1 $HCl + Mg \rightarrow MgCl_2 + H_2$

2 $Li + H_2O \rightarrow LiOH + H_2$

3 $C_3H_8 + O_2 \rightarrow CO_2 + H_2O$

4 $K + H_2SO_4 \rightarrow K_2SO_4 + H_2$

5 $C_7H_{16} + O_2 \rightarrow CO_2 + H_2O$

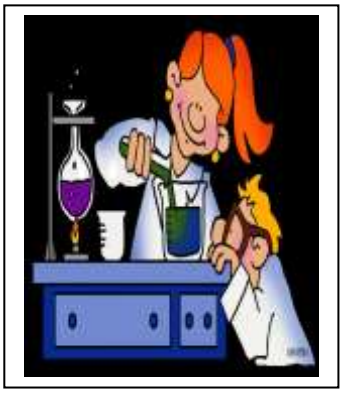
Task 4 - Handling Numbers

1. What is 0.4536234 to 2dp?
2. What is 64.038279 to 3dp?
3. What is 20.46 to the nearest whole number?
4. What is 0.0036893 to three significant figures?
5. How many significant figures are shown in 6000?
6. What is 0.000056 in scientific notation?
7. What is 6.3×10^4 in longhand notation?
8. What is 4.1×10^{-5} in longhand notation?
9. What is 42300000000000000000000 in scientific notation?
10. What is 234200 in scientific notation to three significant figures?

Task 5 - SI Units

Convert the following to SI units:

1. 37 cm
2. 30 minutes
3. 100 ^{0}C
4. – 27 ^{0}C
5. 0.1 g



Task 6 – Rearranging Equations

Rearrange the following equations:

1. Find **x** if $x^2 = y$
2. Find **MASS** if number of moles = mass / molar mass
3. Find **VOLUME** if number of moles = concentration x volume
4. Find **h** if $E = h\nu$
5. Find **R** if $pV = nRT$

Task 7 - Multiple Choice Questions

1 The atomic number tells you the number of:

a) electrons
b) protons
c) neutrons

2 An ion is a particle containing:

a) a different number of neutrons
b) an even number of electrons
c) a charge

3 The nucleus contains:

a) protons and neutrons
b) protons and electrons
c) neutrons only

4 The number of electrons found in an element's outer shell is the same as its:

a) atomic number
b) group number in the periodic table
c) row in the periodic table

5 A bond involving a shared pair of electrons is called:

a) covalent
b) ionic
c) metallic

6 Metals will bond with non-metals using:

a) metallic bonding
b) covalent bonding
c) ionic bonding

7 The relative formula mass of nitric acid, HNO_3, is:

a) 61
b) 62
c) 63

8 The formula for magnesium chloride is:

a) MgCl
b) Mg_2Cl
c) $MgCl_2$

9 In ionic equations, aluminium ions would be written as:

a) Al^{2+}
b) Al^{3+}
c) Al^{4+}

10 During an endothermic reaction the temperature:

a) decreases
b) increases
c) stays constant

11 The formula for limestone is:

a) CaO
b) $CaCO_3$
c) $Ca(OH)_2$

12 In terms of crude oil fractions, what effect will a longer carbon chain have on the boiling point?

a) increase the boiling point
b) decrease the boiling point
c) have no effect

13 As you move down group 7 from fluorine to iodine, the reactivity:

a) decreases
b) increases
c) stays the same

14 An alkali is a type of base that is:

a) insoluble in water
b) soluble in water
c) produces solutions above pH 10

15 A catalyst increases the rate of reaction by:

a) providing energy
b) blocking reversible reactions
c) lowering the activation energy

Task 1 – Writing WORD Equations

1. _____ + _____ → _____ + _____

2. _____ + _____ → _____ + _____

3. _____ + _____ → _____ + _____

4. _____ + _____ → _____

5. _____ + _____ → _____

Task 2 – Classifying Reactions

1.
2.
3.
4.
5.

Task 3 – Writing BALANCED CHEMICAL EQUATIONS

1. ___ HCl + ___ Mg → ___ $MgCl_2$ + ___ H_2

2. ___ Li + ___ H_2O → ___ LiOH + ___ H_2

3. ___ C_3H_8 + ___ O_2 → ___ CO_2 + ___ H_2O

4. ___ K + ___ H_2SO_4 → ___ K_2SO_4 + ___ H_2

5. ___ C_7H_{16} + ___ O_2 → ___ CO_2 + ___ H_2O

Task 4 - Handling Numbers

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Task 5 - SI Units

Task 6 – Rearranging Equations

1.		1.
2.		2.
3.		3.
4.		4.
5.		5.

Task 7 - Multiple Choice Questions

1.	4.	7.	10.	13.
2.	5.	8.	11.	14.
3.	6.	9.	12.	15.

Section B: Practical Skills

Proof read the following piece of work:

Exp: Sodium Carbonate & Hydrochloric Acid

Word equation:

hydrochloric acid + sodium carbonate → sodium chloride + carbon dioxide + water

Balanced symbol equation:

$$HCl + Na2CO3 \rightarrow 2NaCl + CO2$$

Equipment:

50ml burette	white tile
25ml glass pipette	phenolphthalein
pipette filler	hydrochloric acid
100ml beakers (x9)	25ml of our solution from the dilution in each run
Burette clamp & stand	

Risk Assessment:

- Acid – clean up spills

Method:

1. We used a 25cm^3 glass pipette and a filler to get 25cm^3 of our diluted solution and then we put it into a beaker.
2. We added three drops of phenolphthalein to the beaker so our solution turned pink.
3. Then we used a funnel to pour the hydrochloric acid into the burette until it reached 0cm^3 and used a clamp stand to hold the burette over the beaker.

4. We then slowly, 1cm^3 at a time, let the sulfuric acid pour into our solution and continued this until it became colourless.
5. When this happened after each run we recorded down at which point it had changed in a results table.
6. Repeat steps 1- 6 to make sure we are accurate and to ensure we had at least three results within 0.1 of each other.

Results:

Titration run	Start volume	Final volume	Titre volume
1	0	28.1	28.1
2	12.0	40.0	40.0
3	0	28.3	28.3
4	0	27.8	27.8
5	0	28	28
6	0	28.2	28.0
7	0	27.6	27.6

Having read the above experiment report, you now need to **identify the eight errors or omissions** for the student to correct.

Highlight or **circle** each error and any repeating errors.
(8)

NOW give **written feedback** on how to modify and correct the experimental report for **each error** identified.
(8)

1. .....

   .....

2. .....

   .....

3. .....

.....

4. .....

.....

5. .....

.....

6. .....

.....

7. .....

.....

8. .....

.....