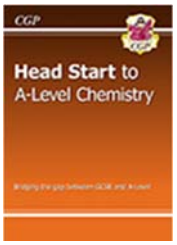
A level Chemistry Summer Preparation Work Name: .....

You need to complete this work as preparation for starting the course in September. It is expected that you complete this work and return it to your teacher at the start of the course.



If you are finding this difficult or want a bit more practice it is recommended that you purchase the '**Head Start to A-Level Chemistry**' book from CGP. The ISBN is: 978 1 78294 280 1. Cost: £4.95.

Please complete the following questions including filling in the blanks in any tables:

Particle	Relative Mass	Relative Charge
Proton		
Neutron		
Electron		

Balance the following equations:

$Mg + O_2 \rightarrow MgO$

$F_2 + KBr \rightarrow KF + Br_2$

$Al + O_2 \rightarrow Al_2O_3$

$Na + Cl_2 \rightarrow NaCl$

$CuCO_3 \rightarrow CuO + CO_2$

$K + O_2 \rightarrow K_2O$

$C_4H_8 + O_2 \rightarrow CO_2 + H_2O$

$Ba(OH)_2 + H_2SO4 \rightarrow BaSO_4 + H_2O$

$FeCl_3 + NaOH \rightarrow Fe(OH)_3 + NaCl$

$HCl + Ba(OH)_2 \rightarrow BaCl_2 + H_2O$

Complete the following table:

Element or Ion	Symbol	Relative Atomic Mass	Number of Protons	Number of Electrons	Number of Neutrons
Sodium					
		12.0	6		
			12		12
Chlorine		35.5			
Lithium				3	
Lithium Ion	Li^+				
Fluorine Ion	F^-		9		

What is an ion? .....

Complete the following word equations:

1. Lead oxide + nitric acid → _____ + _____
2. Magnesium carbonate + hydrochloric acid → _____ + _____+ _____
3. _____ + hydrochloric acid → potassium chloride + _____ +_____
4. _____ + _____→ lead sulphate + hydrogen
5. Hydrochloric acid + potassium → _____ + _____
6. Sulphuric acid + _____→ Iron sulphate + _____

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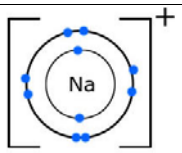
Atom	Number of Electrons in Atom	Number of Electrons in the Outer Shell	Number of electrons either gained or lost	Overall Charge of Ion	Ion Symbol	Ionic Structure
Sodium	11	1	1 lost	+	Na^+	
Chlorine						
Oxygen						
Potassium						
Calcium						
Aluminium						

Work out the ionic formulae of the following:

1. Silver nitrate .....
2. Iron (III) hydroxide .....
3. Ammonium chloride.....
4. Lithium oxide .....
5. Copper carbonate .....
6. Sodium sulphate .....
7. Iron (II) sulphate .....
8. Calcium hydroxide .....

Positive ions	Negative Ions
Silver, Ag^+	Nitrate, NO_3^-
Ammonium, NH_4^+	Hydroxide, OH^-
Lithium, Li^+	Chloride, Cl^-
Sodium, Na^+	Oxide, O^{2-}
Copper, Cu^{2+}	Carbonate, CO_3^{2-}
Calcium, Ca^{2+}	Sulphate, SO_4^{2-}
Iron (II), Fe^{2+}	
Iron (III), Fe^{3+}	

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1. Explain the differences in conductivity of sodium chloride when it is molten, in solution and solid.

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2. Explain the difference in structure and bonding in the following molecules.
    a. Chlorine, Cl_2
    b. Magnesium chloride, $MgCl_2$
    c. Carbon dioxide, CO_2
    d. Aluminium, Al
    e. Graphite

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