Bishop Vesey's Grammar School

Inspiration and Excellence

Chemistry Department – Sixth Form Entry Summer Work 2017

TASK A:

This task will hopefully get you inspired to learn more about Chemistry.

Pick an element, any element….ideally one you know nothing about. Produce a word processed project to include the following:

- The position on the periodic table (block) and the electronic configuration.
- Facts on the physical properties (e.g. melting and boiling point, density).
- Chemical properties – how does the element and/or its compounds react?
- Does the element have any unusual properties?
- Discovery and origin of the name.
- How the element is extracted / where it comes from.
- The structure and bonding of the element and/or any interesting compounds that contain the element.
- Any other interesting, fun facts that you can find.

TASK B:

Memorise the following general equations, acids and formula of ions. This will help you hit the ground running when you start A level Chemistry.

Acid + Metal	→	salt + hydrogen
Acid + Metal oxide	→	salt + water
Acid + Metal hydroxide	→	salt + water
Acid + Metal carbonate	→	salt + water + carbon dioxide
Acid + Metal hydrogen carbonate	→	salt + water + carbon dioxide

Common acids:

Hydrochloric acid = HCl

Sulfuric acid = H_2SO_4

Nitric acid = HNO_3

Phosphoric acid = H_3PO_4

Positive ions (cations)	Formula	Negative ions (anions)	Formula
Hydrogen	H^+	Chloride	Cl^-
Sodium	Na^+	Bromide	Br^-
Silver	Ag^+	Iodine	I^-
Potassium	K^+	Fluoride	F^-
Lithium	Li^+	Hydroxide	OH^-
Ammonium	NH_4^+	Oxide	O^{2-}
Barium	Ba^{2+}	Nitrate	NO_3^-
Calcium	Ca^{2+}	Sulfate	SO_4^{2-}
Copper (II)	Cu^{2+}	Sulfide	S^{2-}
Magnesium	Mg^{2+}	Carbonate	CO_3^{2-}
Zinc	Zn^{2+}	Phosphate	PO_4^{3-}
Lead	Pb^{2+}	Hydrogencarbonate	HCO_3^-
Iron (II)	Fe^{2+}	Nitride	N^{3-}
Iron (III)	Fe^{3+}	Manganate (VII)	MnO_4^-
Aluminium	Al^{3+}	Dichromate (VI)	$Cr_2O_7^{2-}$