***English Language School (PVT.)* DUBAI**

**3rd Term Syllabus and Scheme of Work 2019-2020**

**Subject: CHEMISTRY Distance Learning- Online Year 10**

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| **DATE** | **WEEK** | **TOPIC** | | **Task** | | **LEARNING OBJECTIVES** | **WEEKLY TASK** | |
| **Week 1** | | | | | | | | |
| **19th – 23rd April** | **1st week** | **Organic chemistry**   * **Hydrocarbon** * **Saturated and un saturated hydrocarbon** * **Homologous series** * **Functional group** * **Isomerism.** * **Representation of molecule** | | **1. Critical thinking.**  **2.Online activity**  **3. Group discussion on teams**  **4. Creative power point presentation.**  **5. Lab activity(Simulations and Videos)** | | **Students should be able to:**  know that a hydrocarbon is a compound of hydrogen and carbon only  know what is meant by the terms homologous series, functional group and isomerism  know the general formula for alkanes  explain why alkanes are classified as saturated hydrocarbons  understand how to draw the structural and displayed formulae for alkanes with up to  five carbon atoms in the molecule, and to name the unbranched-chain isomers  know that alkenes contain the functional group >C=C<  know the general formula for alkenes  explain why alkenes are classified as unsaturated hydrocarbons  understand how to draw the structural and displayed formulae for alkenes with up to  four carbon atoms in the molecule, and name the unbranched-chain isomers  Understand how to represent organic molecules using empirical formulae, molecular  formulae, general formulae, structural formulae and displayed formulae  understand how to name compounds relevant to this specification using the rules of  International Union of Pure and Applied Chemistry (IUPAC) nomenclature  *students will be expected to name compounds containing up to six carbon atoms*  understand how to write the possible structural and displayed formulae of an organic  molecule given its molecular formula | **Video based on Lab activity to identify to demonstrate different organic compound having different functional group.**  **Work sheet based on General formula**  **Prepare model of Isomers of a compound using displayed formula**  **Assessments**  **Quizzes** | |
| **Week 2** | | | | | | | | |
| **26th – 30th April** | **2nd week** | * **Physical properties of alkanes and alkene** * **Chemical properties of alkanes and alkene** * **Test to distinguish between alkene and alkane** | | * **PowerPoint** * **Lab activity(Simulations and Videos)** * **Group activity** | | **Students should be able to:**  describe the reactions of alkanes with halogens in the presence of ultraviolet  radiation, limited to mono-substitution  describe the reactions of alkenes with bromine to produce dibromoalkanes    describe how bromine water can be used to distinguish between an alkane and an alkene  understand how to classify reactions of organic compounds as substitution[]\n, addition  and combustion | **Video Based on Lab activity to distinguish between alkane and alkene.**  **Model making for alkanes and alkenes**  **Chart tabulating difference between alkane and alkene**  **Assessments**  **Quizzes** | |
| **Week 3** | | | | | | | | |
| **3rd to 7th May** | **3rd week** | * **Crude oil** * **Fractional distillation of crude oil** * **Fractions obtained from crude oil** * **Trends in viscosity and boiling point of main fraction** | | * **PowerPoint** * **Lab activity(Simulations and Videos)** * **Work sheet** | | **Students should be able to:**  know that crude oil is a mixture of hydrocarbons  describe how the industrial process of fractional distillation separates crude oil into  fractions  know the names and uses of the main fractions obtained from crude oil:  refinery gases, gasoline, kerosene, diesel, fuel oil and bitumen  know the trend in colour, boiling point and viscosity of the main fractions  know that a fuel is a substance that, when burned, releases heat energy | **Practice worksheets**  **Past paper questions**  **Assessments**  **Quizzes** | |
| **Week 4** | | | | | | | | |
| **10th to 14th May** | **4th week** | **Complete and incomplete combustion of**  **hydrocarbons** | | **1.Critical thinking.**  **2.Online activity**  **3. Group discussion on teams**  **4. Creative power point presentation.**  **5. Lab activity(Simulations and Videos** | | **Students should be able to:**  know the possible products of complete and incomplete combustion of  hydrocarbons  with oxygen in the air  understand why carbon monoxide is poisonous, in terms of its effect on the capacity  of blood to transport oxygen  *references to haemoglobin are not required*  know that, in car engines, the temperature reached is high enough to allow nitrogen  and oxygen from air to react, forming oxides of nitrogen  explain how the combustion of some impurities in hydrocarbon fuels results in the  formation of sulfur dioxide  understand how sulfur dioxide and oxides of nitrogen contribute to acid rain | **Worksheets based on complete and incomplete combustion**  **Assessments**  **Quizzes** | |
| **Week 5** | | | | | | | | |
| **17th-21st May** | **5th week** | **Catalytic Cracking** | **1.Critical thinking.**  **2.Online activity**  **3. Group discussion on teams**  **4. Creative power point presentation.**  **5. Lab activity(Simulations and Videos** | | | **Students should be able to:**  describe how long-chain alkanes are converted to alkenes and shorter-chain alkanes  by catalytic cracking (using silica or alumina as the catalyst and a temperature in the  range of 600–700 ºC)  explain why cracking is necessary, in terms of the balance between supply and  demand for different fractions | **Practice worksheets**  **Past paper questions** | |
| **Week 6** | | | | | | | | |
| **24th to 28th May** | **6th week** | **Manufacture of ethanol**  **Physical and chemical properties of ethanol** | * **PowerPoint** * **Lab activity** * **Work sheet** | | **Students should be able to:**  Know that alcohols contain the functional group −OH  Understand how to draw structural and displayed formulae for methanol,  ethanol, propanol (*propan-1-ol only*) and butanol (*butan-1-ol only*), and  name each compound  *the names propanol and butanol are acceptable*  Know that ethanol can be oxidised by:  • burning in air or oxygen (complete combustion)  • reaction with oxygen in the air to form ethanoic acid  (microbial oxidation)  • heating with potassium dichromate(VI) in dilute sulfuric acid to form  ethanoic acid  Know that ethanol can be manufactured by:  • reacting ethene with steam in the presence of a phosphoric acid catalyst  at a temperature of about 300 ºC and a pressure of about 60–70 atm | | | **Lab activity based on the fractional distillation of alcohol and water.**  **Chart to tabulate trend in physical properties of different fractions**  **Assessments**  **Quizzes** |
| **Week 7** | | | | | | | | |
| **31st  May – 4th June** | **7th week** | **Fermentation**  **Factors relevant to the choice of method used in the manufacture of alcohol** | **1.Critical thinking.**  **2.Online activity**  **3. Group discussion on teams**  **4. Creative power point presentation.**  **5. Lab activity(Simulations and Videos** | | | **Students should be able to:**  The fermentation of glucose, in the absence of air, at an optimum  temperature of about 30 ºC and using the enzymes in yeast  Understand the reasons for fermentation, in the absence of air, and at an optimum temperature | 1. **Lab activity based on the identification of alcohol and reaction of alcohol.** 2. **Assaignment bassed on**   **fermentation reaction**  **Assessments**  **Quizzes** | |
| **Week 8** | | | | | | | | |
| **7th june to 11th june** | **8th week** | **Carboxylic acids** | **1.Critical thinking.**  **2.Online activity**  **3. Group discussion on teams**  **4. Creative power point presentation.**  **5. Lab activity(Simulations and Videos** | | | **Students should be able to:**  Know that carboxylic acids contain the functional group  Understand how to draw structural and displayed formulae for  unbranched-chain carboxylic acids with up to four carbon atoms in the molecule, and name each compound  Describe the reactions of aqueous solutions of carboxylic acids with metals  and metal carbonates  Know that vinegar is an aqueous solution containing ethanoic acid | **Practice worksheets**  **Past paper questions**  **Assessments**  **Quizzes** | |
| **Week 9 Revision** | | | | | | | | |
| **14th – 18 th june** |  | **Revision Organic Chemistry** | | | | | | |