



# ARAB UNITY SCHOOL

CURRICULUM OVERVIEW

YEAR 11

2019 – 2020

A guide for Parents and Students

# SUBJECT: CHEMISTRY

Year: 11

## Overview of the year:

The IGCSE curriculum aims to ensure that all pupils:

- Enable to balance knowledge, understanding and qualifications to become effective learners and to provide a solid foundation for their continuing educational Journey.
- Develop understanding of the nature, processes and methods of science through different types of scientific enquiries that help them to answer scientific questions about the world around them.
- Pupils are equipped with the scientific knowledge required to understand the uses and implications of chemistry, today and for the future.
- Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena.
- To develop skills: that are relevant to the study and practice of chemistry in everyday life and encourage a systematic approach to problem-solving, encourage effective communication through the language of science.
- To enable learners to appreciate that: science is subject to social, economic, technological, ethical and cultural influences and limitations, the applications of science may be both beneficial and detrimental to the individual, the community and the environment.

<b>TERM ONE</b>  Main topic, skills and content:  Electricity and Chemistry  Organic chemistry	Electricity and chemistry - Electrolysis of molten and Aqueous solutions, electroplating, electro-Refining-Cu, exaction of Al, Redox.  <ul style="list-style-type: none"><li>• Relate the products of electrolysis to the electrolyte and electrodes used, exemplified by the specific examples</li></ul>	<b>ASSESSMENTS:</b> <b>Assessment: Knowledge &amp; Content - Written Test with MCQ &amp; Structured Questions.</b>  <b>Research work:</b> An independent project application of electrolysis. Students should include, I, Refining of copper Ii, Electroplating Explain what items would you need to set up a cell to silver plate a metal key? How would
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<p>Electricity and Chemistry</p> <p>Organic chemistry</p>	<ul style="list-style-type: none"> <li>Describe electrolysis in terms of the ions present and reactions at the electrodes in the examples given</li> <li>Predict the products of electrolysis of a specified halide in dilute or concentrated aqueous solution</li> </ul> <p><b>23rd Sep science werkz Activity-Venue-outdoors.</b> Match different chemicals with the associated hazard symbols. <b>Self-manager</b></p> <p><b>8th Oct DEBATE ON - Is the climate change threat to the human species.</b></p> <p><b>Effective participation</b></p> <p><b>12 Nov - Read a love story on electrolysis with help of glossary and frame questions.</b></p> <p><b>Creative thinkers</b></p>	<p>the different parts be arranged? Suggest suitable soluble silver salt .2. Write electrode half-equations for</p> <p>a) copper electroplating. b) silver electroplating. student's <b>creative thinkers</b> with lot of innovation incorporated. The students remain to be <b>reflective learners</b> as the project done for the unit learned will be constantly used and knowledge applied.</p> <p>The <b>enquiry skills</b> of the student will help them analyze the process of electroplating.</p> <p>The students are required to submit the projects on or before <b>31<sup>st</sup> of Oct 2020</b>.</p> <p><b>Curricular test</b> A test will be conducted between the week of <b>20-24 October 2019</b> to ensure continuous learning among the students. The topics are as follows: <b>Stoichiometry</b> <b>Redox</b> <b>Electrolysis</b> <b>Equilibrium</b></p> <p><b>Homework –</b> Give reason for the following: <b>Self-Manager, Effective Organizer, Reflective Learner, BYOD)</b></p> <p>i, why can aluminum not be extracted by heating aluminum oxide with carbon? ii, how aluminum extracted from its ore. Include the electrolyte, the electrodes</p>
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		<p>and the reactions at the electrodes</p> <p>iii, Aluminum extensively used in the manufacturing of air craft.</p> <p>Iv, Aluminum used to make food containers.</p> <p>The simulations can be used for better understanding. Scope for <b>BYOD</b>.</p> <p><b>18th -9th Dec Y7-9 Winter Assessment</b> (Tentative)</p> <p>PORTIONS:          PERIODIC TABLE, REDOX, STOICHIOMETRY, EQUILIBRIUM, ELECTROLYSIS, RATES OF REACTION, IDENTIFICATION OF IONS AND GASES, ORGANIC CHEMISTRY TILL ALKENES</p>
<p><b>TERM TWO</b></p> <p>Main topic, skills and content:</p> <p>Acid and bases</p> <p>Polymerisation</p> <p>Extraction of metals</p>	<ul style="list-style-type: none"> <li>• Acids, Bases &amp; Salts - Acids &amp; Bases, properties and reactions.</li> <li>• Preparation of salts, identification of ions, types of oxides.</li> <li>• <b>Polymers</b></li> <li>• Explain the differences between condensation and addition Polymerisation</li> <li>• Deduce the structure of the polymer product from a given alkene</li> </ul>	<p><b>ASSESSMENTS:</b></p> <p><b>Knowledge &amp; Content - 1Written Test with MCQ &amp; Structured Questions.</b></p> <p><b>Objective:</b></p> <p><b>Planning &amp; Investigation - 1 Lab Activity. Objective: Identify the ions in an unknown solution.</b></p> <p><b>Research:</b></p> <p>An independent project by the student to Describe petroleum as a mixture of hydrocarbons and its separation into useful fractions by fractional distillation. Student <b>analyses</b> the uses of the fractions as:</p>

<p>Acid and bases</p> <p>Polymerisation</p> <p>Extraction of metals</p>	<ul style="list-style-type: none"> <li>Describe the formation of nylon (a polyamide) and <i>Terylene</i> (a polyester) by condensation polymerisation, the structure of</li> </ul> <p><b>7th Jan -Y10 ,11 spot answers- Reflective leaners</b></p> <p><b>10 Feb th problem solving Y10, 11 Class room- Creative thinkers</b></p> <p><b>March 17th Y10 and 11, show and tell game- Effective participation</b></p>	<p>– refinery gas for bottled gas for heating and Cooking as a self-<b>manager</b>. Students design a <b>creative</b> way to explain fractional distillation to someone else. The students remain to be <b>reflective learners</b> as the project done for the unit learned will be constantly used and knowledge applied. The students are required to submit the projects on or before 5<sup>th</sup>,Jan Dead line for project</p> <p><b>Curricular test</b> A test will be conducted between the week <b>9-13 February 2020</b> to ensure continuous learning among the students. The topics are as follows, <b>Organic chemistry –Alcohols. Identification of ions.</b></p> <p><b>Homework –</b> Describe, in outline, the usefulness of chromatography in separating and identifying the products of hydrolysis of carbohydrates and proteins</p> <p>Skills – <b>scientific enquiry and application of knowledge.</b> Scope of <b>BYOD</b>.</p>
<p><b>TERM THREE</b></p> <p>Main topic, skills and content:</p>	<p>Metals - Physical and Chemical Properties of metals and their alloys Extraction of Iron Zinc Alloy and its uses, Steel making</p>	<p><b>Progression tests –</b> PT is scheduled to be conducted between 3<sup>rd</sup> of May to 4<sup>th</sup> of June.</p>

<p><b>Extraction of metals</b></p>	<ul style="list-style-type: none"><li>• Describe the idea of changing the properties of iron by the controlled use of additives to form steel alloys.</li></ul> <p>School reopens -12th April</p>	<p><b>Assessment: Knowledge &amp; Content - 1Written Test with MCQ &amp; Structured Questions.</b></p> <p><b>Objective: Describe different types of alloys and applications.</b></p>
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