**Chemistry (0620) - Extended**

**Curriculum: IGCSE**

**Grade level: 9**

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School Year: 2022 - 2023

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## **COURSE DESCRIPTION**

Cambridge IGCSE Chemistry syllabus enables learners to recognize that science is evidence based and helps to understand the usefulness, and the limitations, of scientific methods. It provides a better understanding of the technological world, with an informed interest in scientific matters. It recognizes the usefulness (and limitations) of scientific method, and how to apply this to other disciplines and in everyday life develop relevant attitudes, such as a concern for accuracy and precision, objectivity, integrity, enquiry, initiative, and inventiveness develop an interest in, and care for, the environment. It promotes a better understanding of the influence and limitations placed on scientific study by society, economy, technology, ethics, the community, and the environment develop an understanding of the scientific skills essential for both further study and everyday life.

**LEARNING OBJECTIVES**

● Candidates should be able to demonstrate knowledge and understanding of:

● scientific phenomena, facts, laws, definitions, concepts, and theories

● scientific vocabulary, terminology, and conventions (including symbols, quantities, and units)

● scientific instruments and apparatus, including techniques of operation and aspects of safety

● scientific and technological applications with their social, economic, and environmental implications

● use scientific ideas, facts, and laws

● know definitions and the meaning of scientific terms

● know about chemical apparatus and how it works

● know chemical symbols, quantities (e.g., volume) and units (e.g., dm3)

● understand the importance of science in everyday life.

● locate, select, organize, and present information from a variety of sources

● translate information from one form to another

● manipulate numerical and other data

● use information to identify patterns, report trends and draw inferences

● present reasoned explanations for phenomena, patterns, and relationships

● make predictions and hypotheses

● solve problems, including some of a quantitative nature.

● select and organize information from graphs, tables, and written text

● change information from one form to another, e.g., draw graphs from data, construct symbol equations from word equations

● arrange data and carry out calculations

● identify trends and patterns from information given and draw conclusions

● explain scientific relationships

● make predictions and develop scientific ideas

● solve problems.

**REFERENCE MATERIAL:**

**Textbook:** Complete Chemistry for Cambridge IGCSE (Fourth Edition) by Rose Marie Gallagher & Paul Ingram

**Reference:** Chemistry syllabus guide and learner’s guide.

**Online resource**s: **phet simulations,** [**www.docbrown.info**](http://www.docbrown.info)**,**  [**www.ck-12.org**](http://www.ck-12.org) **,**<http://www.bbc.co.uk/schools/gcsebitesize/science/>

**COURSE EXPECTATIONS:**

**What to expect from the teacher?**

1. Pace & pattern: Expect to move through the year’s content following the cycle schedule.

2. In-class work: Expect to use class time efficiently and productively.

3. Homework: Expect to have regular assignments, supplemented by other worksheets

**What is expected from the student?**

1. Keep up to date with the work. Seek help whenever required.

2. Autonomous learning: To become or continue being a proactive self-motivated learner.

3. Always have and to use your Scientific Calculator.

4. Explore different ways of approaching a scientific problem.

5. Develop independence in their subject learning through solving application-based questions and engaging in scientific investigation and modeling.

**COURSE REQUIREMENTS:**

1. Books – note-taking: Students must use their notebook to copy examples, take notes and key information.
2. Revision: The students should become familiar with the difficulty and style of IGCSE past paper questions.
3. Assignments: All assignments graded/non-graded should be taken seriously to enhance one’s learning
4. Late / make up assignment policy: Work must be submitted on or before the due date. Any difficulty in doing so should be brought to the notice of the teacher before the date of submission. If a student is absent, the assignment must be turned in on the first day back to be considered on-time. The students are responsible to check with their teacher to make up for missed work.
5. Assessments: Preparation for assessments of all types should be done to the best of the student’s ability. All assessment tasks are of equal importance.
6. Tardiness: Students should be on time for class. All delays or absences will be noted.
7. Academic honesty: Plagiarism will lead to serious consequences. Correct paraphrasing, direct quotation, and citation formats should be kept in mind.
8. Respect: Students must respect each other’s voice.

**ASSESSMENT OVERVIEW:**

Assessment type or category can be specific to the subject

|  |  |
| --- | --- |
| **Assessment type/category** | **Weighting (%)** |
| Homework/Worksheets / Tutorials | 25 |
| Short Quiz/Class tests: |
| Monthly tests/Summative test: | 25 |
| End Semester Exam/Year End Exam | 50 |

**GRADE BOUNDARY/THRESHOLD**

**FOR IGCSE CHEMISTRY (0620)**

***Grade boundaries are subjected to changes as per the IGCSE results, 2022***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **GRADE** | **A\*** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **U** |
| **% MARKS** | **78** | **64** | **51** | **38** | **32** | **37** | **22** | **17** |  |

**MONTHLY SYLLABUS COVERAGE PLAN: 2022 – 2023**

|  |  |  |
| --- | --- | --- |
| **MONTH** | **TOPIC** | **UNIT** |
| **July 2022**   |  | | --- | | · 20 July – 27 July | | · 28 July – 30 July | | Introduction  Overview of the syllabus  Read the syllabus guide    **1 States of matter**  1.1 Solids, liquids, and gases | 1 |
| **August 2022**   |  | | --- | | · 1 Aug – 4 Aug | | · 5 Aug – 16 Aug | | · 17 Aug – 25 Aug | | · 26 Aug – 2 Sep | | SA: 29 Aug - 9 Sep | | **1 States of matter**  1.2 Diffusion    **2** **Atoms, elements, and compounds**  2.1 Elements, compounds, and mixtures  2.2 Atomic structure and the Periodic Table  2.3 Isotopes    **8 The Periodic Table**  8.1 Arrangement of elements  8.2 Group I properties  8.3 Group VII properties  8.4 Transition elements  8.5 Noble Gases    **2 Atoms, elements, and compounds**  2.4 Ions and ionic bonds  2.5 Simple molecules and covalent bonds | 2              8 |
| **September 2022**   |  | | --- | | · 5 Sep – 12 Sep | | · 13 Sep – 20 Sep | | · 21 Sep – 28 Sep | |  | | SA – 29 Aug – 9 Sep | | **2 Atoms, elements, and compounds**  2.6 Giant covalent structures  2.7 Metallic Bonding    **9 Metals**  9.1 Properties of metals (Physical)  9.2 Uses of metals  9.2 Alloys and their properties    **3 Stoichiometry**  3.1 Formulae  3.2 Relative masses of atoms and molecules | 3 |
| **October 2022**   |  | | --- | | · 12 Oct – 20 Oct | | · 21 Oct – 2 Nov | |  | |  | | Mid Sem Break:  3 Oct - 5 Oct | | **3 Stoichiometry**  3.3 The mole and the Avogadro constant    **12 Experimental techniques and chemical analysis**  12.1 Experimental design  12.2 Acid–base titrations | 12 |
| **November**  **2022**   |  | | --- | | · 3 Nov – 11 Nov | | · 14 Nov – 21 Nov | | · 22 Nov – 29 Nov | | · 30 Nov – 7 Dec | | Diwali Break: 1 Nov - 5 Nov | | ESE: 22 Nov - 7 Dec | | **12 Experimental techniques and chemical analysis**  12.3 Chromatography  12.4 Separation and purification | 12 |
| **December**  **2022**   |  | | --- | | · 8 Dec – 15 Dec | | · 16 Dec – 20 Jan | |  | |  | | Winter Break: | | **7 Acids, bases, and salts**  7.1 The characteristic properties of acids and bases  7.2 Types of Oxides | 7 |
| **January 2023**   |  | | --- | | **Jan-23** | | · 16 Jan – 23 Jan  · 24 Jan – 1 Feb | | **7 Acids, bases, and salts**  7.3 Preparation of salts |  |
| **February 2023**   |  | | --- | | · 2 Feb – 9 Feb | | · 10 Feb – 17 Feb | | · 20 Feb – 27 Feb | | · 28 Feb – 7 Mar | | Mock: 15 Feb – 1 Mar | | **7 Acids, bases and salts**  7.3 Preparation of salts **(contd.)**    **4 Electricity and chemistry**  4.1 Electrolysis | 4 |
| **March 2023**   |  | | --- | | · 13 Mar – 20 Mar | | · 21 Mar – 28 Mar | | · 29 Mar – 6 Apr | |  | | SA: 15 Mar - 24 Mar | | Spring Break: | | **4 Electricity and chemistry (Contd.)**  4.1 Electrolysis (contd.)  4.2 Hydrogen–oxygen fuel cells |  |
| **April 2023**   |  | | --- | | · 10 Apr – 17 Apr | | · 18 Apr – 25 Apr | | · 26 Apr – 3 May | | **9 Metals**  9.4 Reactivity series  9.5 Corrosion of metals  9.6 Extraction of metals | 9 |
| **May 2023**   |  | | --- | | · 4 May – 11 May | | · 12 May – 19 May | | · 22 May – 26 May | |  | | YEE: 08 May - 23 May | | Revision & YEE |  |