PARKLAND SECONDARY SCHOOL

"An Innovative, Inspiring, Inclusive Learning Community"

Course: IB Chemistry Higher Level

Group 4 Chemistry HL aims

By studying chemistry students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes the subject.

The aims of the Chemistry HL course, through the overarching theme of the nature of science, are to enable students to :

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

Group 4 Chemistry HL Assessment objectives

Through the study of Chemistry, students will be expected to demonstrate the following.

Studying this course, students should be able to fulfill the following
assessment objectives:

1. Demonstrate knowledge and understanding of:
    - facts, concepts, and terminology
    - methodologies and techniques
    - communicating scientific information.
2. Apply:
    - facts, concepts, and terminology
    - methodologies and techniques
    - methods of communicating scientific information.

3. Formulate, analyse and evaluate:
    - hypotheses, research questions and predictions
    - methodologies and techniques
    - primary and secondary data
    - scientific explanations.

Group 4 Chemistry HL Syllabus

The syllabus contains both core topics (1-11) and additional higher level topics (12-20), as well as topics in one of four options. Higher level topics will be taught in conjunction with core topics throughout the three semesters of this course.

Syllabus Component	**Teaching Hours**	**Other Course Components**
Topic 1 Quantitative Chemistry Topic 11 Measurement & Data Processing Topic 2/12 Atomic Structure Topic 3/13 Periodicity Topic 4/14 Bonding Topic 5/15 Energetics Topic 10 Organic Chemistry	13.5 10 8 10 20.5 16 11	The Group 4 Project is an interdisciplinary, collaborative project in which all diploma program students must participate. The project will bring together students in all 4 sciences with the aim to allow students to develop an understanding of cross-disciplinary work in the sciences.
Topics 6/16 Kinetics Topics 7/17 Equilibrium Topic 8/18 Acids and Bases Topic 9/19 Oxidation and Reduction Topic 20 Organic Chemistry Topic 21 Measurement and Data Analysis Option One of Materials, Biochemistry, Energy, or Medicinal Chemistry	13 8.5 16.5 14 12 2 25	The Individual Investigation is an internal assessment task comprising a scientific investigation that is designed and carried out by each individual student in the course. The investigation should take about 10 hours to complete and the result will be a 6-12 page report of their investigation.

Significant emphasis will be placed on practical work in the course. Both the Group 4 project and the Individual Investigation will be assigned 10 hours, with another 40 hours of practical work being assigned throughout the course.

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Assessment in the IB program is comprised of two parts: External Assessment (Paper Examinations written in May of year 2) and Internal Assessment (the Group 4 Project and the Individual Investigation).

Students in this course will be assessed by:
- using the IB 7-point scale on formative and summative assessments relating to the syllabus
- using assessment criteria rubrics for formative and summative assessments relating to labwork

The course will be taught with the goal of students successfully completing the examinations at the end of year 2. Students will be assessed (with quizzes, unit tests, etc) throughout the course to provide feedback to the student on the demonstration of their learning.

Evaluation

Assessment Component	Weighting
External Assessment (3 hours) **Paper 1** Multiple-choice questions on core (and AHL) The use of calculators is not permitted. Students will be provided with a periodic table. No marks are deducted for incorrect answers.	**20%**
Paper 2 Short-answer and extended-response questions on the core (and AHL) The use of calculators is permitted. A chemistry data booklet is to be provided by the school.	**36%**
Paper 3 This paper will have questions on core, (AHL) and option material. Section A: one data-based question and several short-answer questions on experimental work. Section B: short-answer and extended-response questions from one option. The use of calculators is permitted. A chemistry data booklet is to be provided by the school.	**24%**
Internal Assessment Investigation and write-up of 6-12 pages	**20%**

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School District No. 63 (Saanich)

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Resources:
The textbook will be Pearson Baccalaureate: Higher Level Chemistry 2nd Edition.
Students will be provided with a data booklet for use during class, quizzes, tests and exams.
Students are required to bring paper, binder, pens, pencils, eraser, ruler and scientific calculator to class. A graphing calculator will be provided for use when necessary.

References:
"International Baccalaureate Diploma Programme Subject Brief Sciences: Chemistry - Higher Level".
www.ibo.org/diploma

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