



Enseignement secondaire		
Classes internationales		
	Régime anglophone	
Chimie		
Programme		
2IB et 1IB		

Leçons hebdomadaires : 3 at Standard Level (SL) and 5 at Higher Level (HL)
Langue véhiculaire : anglais
Nombre minimal de devoirs par semestre : 2 at SL and 3 at HL

Remarque: La présentation du sujet, l'approche de l'enseignement et le programme sont ceux donnés par IBO (International Baccalaureate Organization) en 2016.

Nature of the subject

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. It is called the central science, as chemical principles underpin both the physical environment in which we live and all biological systems. Apart from being a subject worthy of study in its own right, chemistry is a prerequisite for many other courses in higher education, such as medicine, biological science and environmental science, and serves as useful preparation for employment. The Diploma Program chemistry course includes the essential principles of the subject but also, through selection of options, allows teachers some flexibility to tailor the course to meet the needs of their students. The course is available at standard level (SL) and at high level (HL).

Teaching approach

There are a variety of approaches to the teaching of chemistry. By its very nature, chemistry lends itself to an experimental approach, and it is expected that this will be reflected throughout the course. The order in which the syllabus is arranged is not the order in which it must be taught, and it is up to individual teachers to decide on an arrangement that suits their circumstances. Option material may be taught within the core.



Syllabus overview

Topic 1: Stoichiometric relationships

- 1.1 Introduction to the particulate nature of matter and chemical change
- 1.2 The mole concept
- 1.3 Reacting masses and volumes

Topic 2: Atomic structure

- 2.1 The nuclear atom
- 2.2 Electron configuration

Topic 3: Periodicity

- 3.1 The periodic table
- 3.2 Periodic trends

Topic 4: Chemical bonding and structure

- 4.1 Ionic bonding and structure
- 4.2 Covalent bonding
- 4.3 Covalent structures
- 4.4 Intermolecular forces
- 4.5 Metallic bonding

Topic 5: Energetics/Thermochemistry

- 5.1 Measuring energy changes
- 5.2 Hess's law
- 5.3 Bond enthalpies

Topic 6: Chemical Kinetics

- 6.1 Collision theory and rates of reaction

Topic 7: Equilibrium

- 7.1 Equilibrium

Topic 8: Acids and bases

- 8.1 Theories of acids and bases
- 8.2 Properties of acids and bases
- 8.3 The pH scale
- 8.4 Strong and weak acids and bases
- 8.5 Acid deposition

Topic 9: Redox processes

- 9.1 Oxidation and reduction
- 9.2 Electrochemical cells



Topic 10: Organic chemistry

10.1 Fundamentals of organic chemistry

10.2 Functional group chemistry

Topic 11: Measurement and data processing

11.1 Uncertainty and error in measurement and results

11.2 Graphical techniques

11.3 Spectroscopic identification of organic compounds

AHL

Topic 12: Atomic structure

12.1 Electrons in atoms

Topic 13: The periodic table-transition metals

13.1 First-row d-block elements

13.2 coloured complexes

Topic 14: Chemical bonding and structure

14.1 Covalent bonding and electron domain and molecular geometries

14.2 Hybridization

Topic 15: Energetics/Thermochemistry

15.1 Energy cycles

15.2 Entropy and Spontaneity

Topic 16: Kinetics

16.1 Rate expression and reaction mechanism

16.2 Activation energy

Topic 17: Equilibrium

17.1 The equilibrium law

Topic 18: Acids and bases

18.1 Lewis acids and bases

18.2 Calculations involving acids and bases

18.3 pH-curves

Topic 19: Oxidation and reduction

19.1 Electrochemical cells



Topic 20: Organic chemistry

20.1 Types of organic reactions

20.2 Synthetic routes

20.3 Stereoisomerism

Topic 21: Measurement and analysis

20.1 Spectroscopic identification of organic compounds

Options SL/HL

Students at SL study the core of these options, every student must choose 1 options, each option should take 15 periods (SL) and 25 periods (HL)

Option A: Materials

Option B: Biochemistry

Option C: Energy

Option D: Medicinal chemistry

© International Baccalaureate Organization 2016