

Chemistry, Grade 11 University SCH 3U Course Outline

Victoria Park Collegiate Institute, TDSB
The Ontario Curriculum: The Ontario Curriculum: Science 2008
Grade 11, University Preparation, 1.0 credit
Prerequisites: Grade 10, Academic, Science
Assistant Curriculum Leaders:
S. Reichling, K. Thorne, Science Office room 221; extension 20095

Course Description

This course enables students to deepen their understanding of chemistry through the study of the properties of chemicals and chemical bonds; chemical reactions and quantitative relationships in those reactions; solutions and solubility; and atmospheric chemistry and the behaviour of gases. Students will further develop their analytical skills and investigate the qualitative and quantitative properties of matter, as well as the impact of some common chemical reactions on society and the environment.

Resources

Text: McGraw Hill Chemistry 11, Chemistry Today, or Chemistry: a First Course

Note: Textbooks are lent to students and must be returned by the end of the semester.

Replacement cost if lost is \$100.00

Curriculum Expectations

Scientific Investigation and Career Exploration:

Throughout this course, students will:

- A1. demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analysing and interpreting, and communicating);
- A2. identify and describe careers related to the fields of science under study, and describe the contributions of scientists, including Canadians, to those fields.

B. Matter, Chemical Trends, and Chemical Bonding

By the end of this course, students will:

- B1. analyse the properties of commonly used chemical substances and their effects on human health and the environment, and propose ways to lessen their impact;
- B2. investigate physical and chemical properties of elements and compounds, and use various methods to visually represent them;
- B3. demonstrate an understanding of periodic trends in the periodic table and how elements combine to form chemical bonds.

C. Chemical Reactions

By the end of this course, students will:

- C1. analyse chemical reactions used in a variety of applications, and assess their impact on society and the environment;
- C2. investigate different types of chemical reactions;
- C3. demonstrate an understanding of the different types of chemical reactions.

D. Quantities in Chemical Reactions

By the end of this course, students will:

D1. analyse processes in the home, the workplace, and the environmental sector that use chemical quantities and calculations, and assess the importance of quantitative accuracy in industrial chemical processes;
D2. investigate quantitative relationships in chemical reactions, and solve related problems;
D3. demonstrate an understanding of the mole concept and its significance to the quantitative analysis of chemical reactions.

E. Solutions and Solubility

By the end of this course, students will:

E1. analyse the origins and effects of water pollution, and a variety of economic, social, and environmental issues related to drinking water;
E2. investigate qualitative and quantitative properties of solutions, and solve related problems;
E3. demonstrate an understanding of qualitative and quantitative properties of solutions.

F. Gases and Atmospheric Chemistry

By the end of this course, students will:

F1. analyse the cumulative effects of human activities and technologies on air quality, and describe some Canadian initiatives to reduce air pollution, including ways to reduce their own carbon footprint;
F2. investigate gas laws that explain the behaviour of gases, and solve related problems; F3. demonstrate an understanding of the laws that explain the behaviour of gases.

Course Content

Unit	Timeline
Matter, Chemical Trends, and Chemical Bonding	25 hours
Chemical Reactions	20 hours
Quantities in Chemical Reactions	25 hours
Solutions and Solubility	20 hours
Gases and Atmospheric Chemistry	20 hours

**Times listed are approximate. Order of instruction may vary.*

Course Evaluation

Learning Skills

Students will be assessed on the following Six Learning Skills;

Responsibility, Organization, Independent Work, Collaboration, Initiative, Self-Regulation

Teaching/Assessment and Evaluation Strategies

A range of instructional strategies will be used to address student needs. Some of these strategies include direct instruction, interactive instruction, experiential learning and independent study. Students are given opportunities to learn through assessment before evaluations.

Summative evaluation for this course is based on a final exam.

Achievement Chart

- **Knowledge and Understanding – K & U (30%)**
Assessment/Evaluation may include quizzes, homework checks, tests, problem sets, assignments, etc.
- **Communication – C (20%)**
Assessment/Evaluation may be based on laboratory reports, written reports, essays, oral presentations, in-class questions and answers, terminology, etc.
- **Thinking and Investigation – T& I (30%)**
Assessment/Evaluation may include scientific inquiry, technical skills, open ended test questions, concept maps, formulating questions, etc.
- **Application – A (20%)**
Assessment/Evaluation may include research, projects, debates, interviews, analyzing issues, assessing impacts and proposing courses of action, etc.

70% Grade on Course Work

Unit 1: Matter, Chemical Trends, and Chemical Bonding

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Bonding Investigation		x		x	
Periodic Properties Assignment		x	x		
Nomenclature Quiz	x				
Unit Test	x	x	x	x	

Unit 2: Chemical Reactions

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Chemical Reactions Lab		x			
Chemical Reactions Assignment	x	x	x	x	
Chemical Reactions Quiz	x		x		
Unit Test	x	x	x	x	

Unit 3: Quantities in Chemical Reactions

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Quantities Lab		x			
Stoichiometry Lab		x		x	
Quantities Quiz	x		x		
Unit Test	x	x	x	x	

Unit 4: Solutions and Solubility

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Acid-Base Titration Lab		X			
Solutions Assignment		X	X	X	
Solutions Quiz	X				
Unit Test	X	X	X	X	

Unit 5: Gases and Atmospheric Chemistry

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Gas Law Lab	X	X	X		
Gas Assignment		X	X	X	
Gas Stoichiometry Quiz	X				

** Above task list subject to changes. Many of the above tasks will include Higher Order Thinking Skills (HOTS).

**Lab and lab activities involve skills. Evaluation of labs and skills are done on those actually performed by the student. Lab materials are seldom available after the activity. Regular attendance is critical for participation in and evaluation of these labs and skills.

30% Grade Based on Common Course-Culminating Activities

All students will write a final exam during exam week at the end of the course. A doctor's note will be required for absences from culminating activities and exams. For more detail, please consult the Student Agenda.

Late Assignments/Missed Evaluations

5% per school day will be deducted for late assignments at the teacher's discretion. Missed tests or quizzes may result in a mark of zero if appropriate documentation is not provided. Chronic absences from evaluations may result in referral to administration.

Grade Reports throughout the Year

The grade for each term/reporting period is based on the evaluations that have been conducted to that point in the course. They will be based on the most consistent level of achievement to that time. The students' grades may change when all work is evaluated by the end of the course. An interim report will be sent home in October/March.

Midterm reports will be sent home with the students approximately half way through the semester.

Accommodations

Accommodations refer to the teaching strategies, supports, and/or services that are required in order for a student to access the curriculum and demonstrate learning. Students who have an IEP are entitled to the accommodations specified in their plans.

The following considerations apply to each of the units in this course: *Instructional and assessment activities must take into account the strengths, needs, learning expectations and accommodations as identified in the Individual Education Plan whether students are formally identified or not.* (Regulation 181/98)

Policies and Procedures

See the Victoria Park C.I. Student Agenda for additional details on School Policies on Homework, Attendance, Lateness, Missing and Late Assignments and Assessments, Course Modifications and Academic Honesty.