

## Science, Grade 10 Academic SNC 2D Course Outline

Victoria Park Collegiate Institute, TDSB  
The Ontario Curriculum: The Ontario Curriculum: Science 2008  
Grade 10, Academic, Science and, 1.0 credit  
Prerequisites: Grade 9, Academic, Science

Assistant Curriculum Leaders:  
S. Reichling, K. Thorne, Science Office room 221; extension 20095

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### Course Description

This course enables students to enhance their understanding of concepts in biology, chemistry, earth and space science, and physics, and of the interrelationships between science, technology, society, and the environment. Students are also given opportunities to further develop their scientific investigation skills. Students will plan and conduct investigations and develop their understanding of scientific theories related to living systems; chemical reactions, with a particular focus on acid– base reactions; forces that affect climate and climate change; and the interaction of light and matter.

### Resources

*Nelson, Science Perspectives 10, online text*

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

**Replacement cost if lost is \$80.00**

### 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 a variety of careers related to the fields of science under study, and identify scientists, including Canadians, who have made contributions to those fields.

#### **Biology: Tissues, Organs and Systems**

**B1.** evaluate the importance of medical and other technological developments related to systems biology, and analyze their societal and ethical implications;

**B2.** investigate cell division, cell specialization, organs, and systems in animals and plants, using research and inquiry skills, including various laboratory techniques;

**B3.** demonstrate an understanding of the hierarchical organization of cells, from tissues, to organs, to systems in animals and plants.

#### **Chemistry: Chemical Reactions**

By the end of this course, students will:

**C1.** analyse a variety of safety and environmental issues associated with chemical reactions, including the ways in which chemical reactions can be applied to address environmental challenges;

**C2.** investigate, through inquiry, the characteristics of chemical reactions;

**C3.** demonstrate an understanding of the general principles of chemical reactions, and various ways to represent them.

### **Earth and Space Science: Climate Change**

By the end of this course, students will:

**D1.** analyse some of the effects of climate change around the world, and assess the effectiveness of initiatives that attempt to address the issue of climate change;

**D2.** investigate various natural and human factors that influence Earth 's climate and climate change;

**D3.** demonstrate an understanding of natural and human factors, including the greenhouse effect, that influence Earth 's climate and contribute to climate change.

### **Physics: Light and Optics**

By the end of this course, students will:

**E1.** evaluate the effectiveness of technological devices and procedures designed to make use of light, and assess their social benefits;

**E2.** investigate, through inquiry, the properties of light, and predict its behaviour, particularly with respect to reflection in plane and curved mirrors and refraction in converging lenses;

**E3.** demonstrate an understanding of various characteristics and properties of light, particularly with respect to reflection in mirrors and reflection and refraction in lenses.

## Course Content

Unit	Timeline
Biology: Tissues, Organs and Systems	20 hours
Chemistry: Chemical Reaction	28 hours
Earth and Space Science: Climate Change	26 hours
Physics: Light and Optics	28 hours
Heat (preIB only)	10 hours

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

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## 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 (25%)**

Assessment/Evaluation may include quizzes, homework checks, tests, problem sets, assignments, etc.

- **Communication – C (25%)**  
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 (25%)**  
Assessment/Evaluation may include scientific inquiry, technical skills, open ended test questions, concept maps, formulating questions, etc.
- **Application – A (25%)**  
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: Biology: Tissues, Organs and Systems

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

#### Unit 2: Chemistry: Chemical Reactions

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

#### Unit 3: Physics: Light and Optics

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Snell's Law & Critical Angle Lab		x			
Mirror/Lens Lab & Ray Diagrams	x	x	x	x	
Unit Test	x	x	x	x	

#### Unit 4: Earth and Space Science: Climate Change

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Climate Change Assignment		x	x		
Climate Change Quiz	x			x	

## Unit 5: preIB only: Heat

Task	Achievement Chart Focus				Time of Assessment
	K&U	T/I	C	A	
Heat Lab		X	X		
Heat Test	X			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.

\*\* Students in grade 10 Pre-IB will also complete a unit on heat which includes at least one evaluation.

### 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)

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**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.