



Thames Valley District School Board

London Central Secondary School Course Outline 2019/2020



Course Name: Science, Grade 10	Course Code: SNC 2P	Course Pre-requisite: SNC 1D/1P
Course Type: Applied	Grade Level: 10	Credit Value: 1
Textbook: Science Perspectives 10	Publisher: Nelson	Textbook Value: \$ 91.94
Teachers: N. Kanellis		

Course Description:

This course enables students to develop a deeper understanding of concepts in biology, chemistry, earth and space science, and physics, and to apply their knowledge of science in real-world situations. Students are given opportunities to develop further practical skills in scientific investigation. Students will plan and conduct investigations into everyday problems and issues related to ecology and the maintenance of ecosystems; chemical reactions; factors affecting climate change; and the interaction of light and matter.

Link 9-10 Science - http://www.edu.gov.on.ca/eng/curriculum/secondary/science910_2008.pdf

Course Overall Expectations:

Strand	Overall Expectations
Scientific Investigation Skills and Career Exploration	<p>As a component of every strand:</p> <ul style="list-style-type: none"> 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); 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	<ul style="list-style-type: none"> analyse some current technologies or substances that have an impact on human tissues, organs, or systems, and evaluate their effects on human health; investigate cell division, cell specialization, and the organization of systems in animals, including humans, using various laboratory techniques; demonstrate an understanding of the hierarchical organization of cells, from tissues, to organs, to systems in animals, including humans.
Chemistry: Chemical Reactions and Their Practical Applications	<ul style="list-style-type: none"> analyse how chemical reactions are employed in common products and processes, and assess the safety and environmental hazards associated with them; investigate, through inquiry, the characteristics of simple chemical reactions; demonstrate an understanding of simple chemical reactions and the language and ways to represent them.
Earth and Space Science: Earth's Dynamic Climate	<ul style="list-style-type: none"> analyse effects of human activity on climate change, and effects of climate change on living things and natural systems; investigate various natural and human factors that have an impact on climate change and global warming; demonstrate an understanding of various natural and human factors that contribute to climate change and global warming.
Physics: Light and Application of Optics	<ul style="list-style-type: none"> analyse how properties of light and colour are applied in technology and the impact of these technologies on society; investigate, through inquiry, properties of light, and predict its behaviour in mirrors and as it passes through different media; demonstrate an understanding of characteristics and properties of light, particularly with respect to reflection and refraction and the addition and subtraction of colour.

Assessment and Evaluation Strategies:

The purpose of assessment and evaluation is to improve student learning. Assessment and evaluation is based on the provincial curriculum expectations and the achievement levels outlined in the curriculum document. In order to ensure that assessment and evaluation are valid and reliable, and that they lead to the improvement of student learning, teachers use a variety of strategies throughout the course, including: providing students with feedback about their work (known as assessment for learning), helping to set learning goals and monitor their own progress (known as assessment as learning), and evaluation and reporting of progress in the form of grades and marks (known as assessment of learning).

Unit Overview Students will work with related scientific investigation skills and explore scientific careers as part of each unit.	Assessment and Evaluation Methods (May include major evaluations)
Biology: Tissues, Organs, and Systems Topics <ul style="list-style-type: none"> cell cycle its importance for the growth of cells and repair of tissues; microscopic identification of animal mitotic stages; structure, function, and importance of specialized cells and tissues in multicellular organisms; microscopic identification and drawing human cell types; cell division rates; cell organization/link between cells, tissues, organs, and systems in the human body; general function and interaction of some human systems; interrelationship amongst organ systems within a worm, frog or fish; diseases of human tissues, organs or organ systems; technological/medical development in biology and impact of environmental factors on tissues, organs or organ systems 	<ul style="list-style-type: none"> assignments, debates, exam, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
Chemistry: Chemical Reactions and Their Practical Applications Topics <ul style="list-style-type: none"> relationships between chemical formulae, composition, and names of simple compounds; the law of conservation of mass; write word equations and balanced chemical equations for simple chemical reactions; describe/identify reactants and products of a variety of types of chemical reactions and their properties; acid–base neutralization; use of the pH scale; identification of and writing formulas for simple compounds; and safety and environmental issues/benefits of chemical reactions 	<ul style="list-style-type: none"> assignments, debates, exam, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
Earth and Space Science: Earth’s Dynamic Climate Topics <ul style="list-style-type: none"> Earth’s climate system; heat transfer in the hydrosphere and atmosphere; natural and anthropogenic greenhouse effect; principal natural and anthropogenic sources of greenhouse gases; natural and human activities affecting global climate; Canada’s contribution to climate change; personal carbon footprint; tools/systems used to measure climate change and different perspectives/biases associated with climate change 	<ul style="list-style-type: none"> assignments, debates, exam, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
Physics: Light and Application of Optics Topics <ul style="list-style-type: none"> electromagnetic spectrum; types of light emissions; colour of white light and as a result of reflection, absorption, and transmission; additive colour theory; subtractive colour theory; laws of reflection; characteristics of images formed by plane/curved mirrors using labelled ray diagrams; characteristics of images formed by converging lenses using labelled ray diagrams; qualitative impact of refraction between various media; use properties of light to explain optical phenomena; and properties/benefits of light/colour applied used in the operation of an optical device 	<ul style="list-style-type: none"> assignments, debates, exam, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
Course Culminating Activity/Independent Study <ul style="list-style-type: none"> Cell/Tissue Analysis/Investigation/Performance Task Chemical Analysis/Investigation/Performance Task Properties of Optics Investigation/Performance Task 	<ul style="list-style-type: none"> in-class, at the conclusion of the corresponding strand
Exam	<ul style="list-style-type: none"> written exam in June

Assessment and Evaluation Categories and Weights:

Achievement Chart Categories	
Term Achievement Category	Comprises
Application/Making Connections	<ul style="list-style-type: none"> ● transfer of concepts between self and science ● transfer of concepts between science and other subjects ● transfer of concepts between subjects and the world outside ● access impacts of science
Communication	<ul style="list-style-type: none"> ● oral, writing, listening and visual skills ● mathematical/data communication, presentation and precision/accuracy ● journals, portfolios and models
Knowledge/Understanding	<ul style="list-style-type: none"> ● facts, terms and relationships between concepts ● transfer of concepts to new contexts ● solving math/formula problems
Thinking/Inquiry	<ul style="list-style-type: none"> ● design skills (formulate hypotheses, create and test procedures) ● thinking skills (inductive reasoning, deductive reasoning and data analysis, interpretation and evaluation)

Evaluation/Weight of Marks			
Evaluation	Components	Component Percentage	Overall Percentage
Term Evaluation	Application/Making Connections	25	70
	Communication	25	
	Knowledge/Understanding	25	
	Thinking/Inquiry	25	
Final Evaluation	Culminating Activity	10	30
	Exam	20	

Learning Skills and Work Habits Assessment:

The development of learning skills and work habits is an integral part of student learning. These skills are:

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

Learning skills and work habits influence student achievement and are included as a formal part of the assessment and evaluation process. Learning skills and work habits will be assessed through a variety of teacher strategies. (e.g. observation, student /teacher conference, self-reflection, checklists, exit cards, etc.) These important learning skills and work habits will be formally reported on the Provincial Report Card according to the following scale: E- Excellent, G- Good, S- Satisfactory, N- Needs Improvement.

Academic Dishonesty - Cheating and Plagiarism:

Learning tasks that students complete as well as the assignments, tests and exams that students submit for evaluation must be their own work. Cheating and plagiarism is a serious offence that will not be condoned. Academic consequences will result.

Late and Missed Assignments - Student Roles and Responsibilities - Students are expected to:

- be responsible for providing evidence of their achievement of the overall expectations within the time frame specified by the teacher, and in a form approved by the teacher;
- understand that there will be consequences for not completing assignments for evaluation and/or for submitting those assignments late;
- use class time productively;
- in extenuating circumstances, request an extension from the teacher before the due date.

Mark deductions for late and missed assignments may apply to **major assignments only**.

References: *TVDSB Assessment & Evaluation Policy, September 2011; Growing Success - Assessment and Evaluation, and Reporting in Ontario Schools, 2010. Student Planner and School Web site*