



Thames Valley District School Board

London Central Secondary School Course Outline 2019/2020



Course Name: Science, Grade 9	Course Code: SNC 1D	Course Pre-requisite: None
Course Type: Academic	Grade Level: 9	Credit Value: 1
Textbook: Science Perspectives 9	Publisher: Nelson	Textbook Value: \$ 91.94
Teachers: C. Janzen, A. Jarrett, D. MacDonald, P. Pigeon, A. Robinson and P. Webb		

Course Description:

This course enables students to develop their understanding of basic concepts in biology, chemistry, earth and space science, and physics, and to relate science to technology, society, and the environment. Throughout the course, students will develop their skills in the processes of scientific investigation. Students will acquire an understanding of scientific theories and conduct investigations related to sustainable ecosystems; atomic and molecular structures and the properties of elements and compounds; the study of the universe and its properties and components; and the principles of electricity.

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

Course Overall Expectations:

Strand	Overall Expectations
	As a component of every strand:
Scientific Investigation Skills and Career Exploration	<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: Sustainable Ecosystems	<ul style="list-style-type: none"> ● assess the impact of human activities on the sustainability of terrestrial and/or aquatic ecosystems, and evaluate the effectiveness of courses of action intended to remedy or mitigate negative impacts; ● investigate factors related to human activity that affect terrestrial and aquatic ecosystems, and explain how they affect the sustainability of these ecosystems; ● demonstrate an understanding of the dynamic nature of ecosystems, particularly in terms of ecological balance and the impact of human activity on the sustainability of terrestrial and aquatic ecosystems.
Chemistry: Atoms, Elements and Compounds	<ul style="list-style-type: none"> ● assess social, environmental, and economic impacts of the use of common elements and compounds, with reference to their physical and chemical properties; ● investigate, through inquiry, the physical and chemical properties of common elements and compounds; ● demonstrate an understanding of the properties of common elements and compounds, and of the organization of elements in the periodic table.
Earth and Space Science: The Study of the Universe	<ul style="list-style-type: none"> ● assess some of the costs, hazards, and benefits of space exploration and the contributions of Canadians to space research and technology; ● investigate the characteristics and properties of a variety of celestial objects visible from Earth in the night sky; ● demonstrate an understanding of the major scientific theories about the structure, formation, and evolution of the universe and its components and of the evidence that supports these theories.
Physics: Characteristics of Electricity	<ul style="list-style-type: none"> ● assess some of the costs and benefits associated with the production of electrical energy from renewable and non-renewable sources, and analyse how electrical efficiencies and savings can be achieved, through both the design of technological devices and practices in the home; ● investigate, through inquiry, various aspects of electricity, including the properties of static and current electricity, and the quantitative relationships between potential difference, current, and resistance in electrical circuits; ● demonstrate an understanding of the principles of static and current electricity.

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).

<p style="text-align: center;">Unit Overview</p> <p style="text-align: center;">Students will work with related scientific investigation skills and explore scientific careers as part of each unit.</p>	<p style="text-align: center;">Assessment and Evaluation Methods</p> <p style="text-align: center;">(May include major evaluations)</p>
<p>Biology: Sustainable Ecosystems Topics</p> <ul style="list-style-type: none"> ● biotic/abiotic characteristics of sustainable/unsustainable and disturbed/undisturbed ecosystems, energy flow/processes, cycling of matter, limiting factors of ecosystems and impact on carrying capacity, the relationship amongst Earth's spheres, maintaining diversity and sustainability and human impact on ecosystem equilibrium and survival 	<ul style="list-style-type: none"> ● assignments, debates, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
<p>Chemistry: Atoms, Elements and Compounds Topics</p> <ul style="list-style-type: none"> ● evolution of atomic models up to the Bohr-Rutherford model; characteristics of sub-atomic particles; physical and chemical properties of elements and compounds; atomic structure; physical properties relating to periodic table position; symbols of common elements; models to represent simple compounds; identification of common gases and societal, environmental and economical impacts of common elements/compounds 	<ul style="list-style-type: none"> ● assignments, debates, exam, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
<p>Earth and Space Science: The Study of the Universe Topics</p> <ul style="list-style-type: none"> ● evidence relating to universe origin/evolution; formation of the solar system; major components of the solar system and the universe; properties, position and motion of celestial objects; using appropriate scientific terminology and units; the sun's composition and energy source, how the sun's energy warms Earth and supports life; causes of and methods to observe astronomical phenomena; reasons, hazards, benefits and Canadian contributions to space exploration; and conceptions of the universe held by various cultures/civilizations 	<ul style="list-style-type: none"> ● assignments, debates, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
<p>Physics: Characteristics of Electricity Topics</p> <ul style="list-style-type: none"> ● characteristics of conductors/insulators; static charge build up/discharge; alternating current (AC) and direct current (DC); functions of the components of a simple DC circuit; characteristics/quantities of electric current, potential difference and resistance in simple series/parallel circuits; qualitative interrelationships between resistance, potential difference, and electric current; use of different meters within an electrical circuit; electrical consumption/efficiency; electrical quantities, symbols and SI units; and societal, environmental and economical impacts of Canadian renewable and nonrenewable electricity production 	<ul style="list-style-type: none"> ● assignments, debates, exam, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
<p>Course Culminating Activity/Independent Study</p> <ul style="list-style-type: none"> ● Ecosystem Investigation/Performance Task ● Chemical Properties Investigation/Performance Task ● Circuit Investigation/Performance Task 	<ul style="list-style-type: none"> ● in-class, at the conclusion of the corresponding strand
<p>Exam</p>	<ul style="list-style-type: none"> ● written exam in January

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*