



Thames Valley District School Board

London Central Secondary School Course Outline 2019/2020



Course Name: Science, Grade 9	Course Code: SNC 1P	Course Pre-requisite: None
Course Type: Applied	Grade Level: 9	Credit Value: 1
Textbook: Science Perspectives 9	Publisher: Nelson	Textbook Value: \$ 91.94
Teachers: D. MacDonald		

Course Description:

This course enables students to develop their understanding of basic concepts in biology, chemistry, earth and space science, and physics, and to apply their knowledge of science to everyday situations. They are also given opportunities to develop practical skills related to scientific investigation. Students will plan and conduct investigations into practical problems and issues related to the impact of human activity on ecosystems; the structure and properties of elements and compounds; space exploration and the components of the universe; and static and current electricity.

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: Sustainable Ecosystems and Human Activity	<ul style="list-style-type: none"> ● analyse the impact of human activity on terrestrial or aquatic ecosystems, and assess the effectiveness of selected initiatives related to environmental sustainability; ● investigate some factors related to human activity that affect terrestrial or aquatic ecosystems, and describe the consequences that these factors have for the sustainability of these ecosystems; ● demonstrate an understanding of characteristics of terrestrial and aquatic ecosystems, the interdependence within and between ecosystems, and the impact humans have on the sustainability of these ecosystems.
Chemistry: Exploring Matter	<ul style="list-style-type: none"> ● analyse how properties of common elements and/or simple compounds affect their use, and assess the social and environmental impact associated with their production or use; ● investigate, through inquiry, physical and chemical properties of common elements and simple compounds; ● demonstrate an understanding of the properties of common elements and simple compounds, and general features of the organization of the periodic table.
Earth and Space Science: Space Exploration	<ul style="list-style-type: none"> ● analyse the major challenges and benefits of space exploration, and assess the contributions of Canadians to space exploration; ● investigate the properties of different types of celestial objects in the solar system and the universe; ● demonstrate an understanding of major astronomical phenomena and of the principal components of the solar system and the universe.
Physics: Electrical Applications	<ul style="list-style-type: none"> ● assess the major social, economic, and environmental costs and benefits of using electrical energy, distinguishing between renewable and non-renewable sources, and propose a plan of action to reduce energy costs; ● investigate, through inquiry, the properties of static and current electricity and the cost of the consumption of electrical energy; ● demonstrate an understanding of the concepts and 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 and Human Activity Topics</p> <ul style="list-style-type: none"> ● biotic/abiotic characteristics of sustainable/unsustainable and disturbed/undisturbed ecosystems, characteristics of and interdependence of the components within terrestrial and aquatic ecosystems to achieve sustainability, energy flow/processes, cycling of matter, limiting factors of ecosystems and impact on carrying capacity, impact of human activity on ecosystems and how these factors affect the equilibrium and survival of populations 	<ul style="list-style-type: none"> ● assignments, debates, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
<p>Chemistry: Exploring Matter Topics</p> <ul style="list-style-type: none"> ● characteristics of sub-atomic particles; characteristics that distinguish elements from compounds; general features of the periodic table; physical properties relating to periodic table position; physical and chemical properties of elements and compounds; symbols and chemical formulae to represent common elements and simple compounds; identification of elements and compounds in common household products; 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: Space Exploration Topics</p> <ul style="list-style-type: none"> ● major components of the universe, motion and distances between celestial objects, certain objects, using appropriate scientific terminology and units, characteristics/properties of solar system objects, characteristics of the sun and the effects of Earth, factors that make Earth well suited for the existence of life, causes of and methods to observe astronomical phenomena, challenges of space exploration, Canadian contributions to space exploration and the role of celestial objects in the traditions/beliefs of selected cultures/civilizations 	<ul style="list-style-type: none"> ● assignments, debates, group work, laboratory investigations, presentations, projects, quizzes, reports and tests
<p>Physics: Electrical Applications Topics</p> <ul style="list-style-type: none"> ● compare conductors and insulators; static charge build up/discharge; the law of electric charges; explain common electrostatic phenomena; functions of the components of a simple direct current (DC) electrical circuit; characteristics of electric current, potential difference, and resistance, in simple series/parallel circuits; qualitative interrelationships between resistance, potential difference, and electric current in a series circuit; use of different meters within an electrical circuit; electrical consumption/efficiency; electrical quantities and symbols; explain the practical use of resistance in a common household product 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*