INSTITUTE OF CANADIAN EDUCATION

Course Title: Science: (SNC1W) Grade 9, De-Streamed

Course Name: Science

Course Code: SNC1W

Grade: 9

Course Type: De-Streamed / Open

Credit Value: 1.0

Prerequisite: None

Curriculum Policy Document: Science, The Ontario Curriculum, Grades 9 & 10, (Revised); Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools (2010)

Course Developer: Institute of Canadian Education.

Department: SCIENCE

Head of Department: Sadiya Manjra

Development Date: 2025

Most Recent Revision Date: 2026

This course enables students to develop their understanding of concepts related to biology, chemistry, physics, and Earth and space science, and to relate science to technology, society, and the environment. Throughout the course, students will develop and refine their STEM skills as they use scientific research, scientific experimentation, and engineering design processes to investigate concepts and apply their knowledge in situations that are relevant to their lives and communities. Students will continue to develop transferable skills as they become scientifically literate global citizens.

Prerequisite: None

COURSE EXPECTATION

UNIT ORDER	UNIT NAME	UNIT DESCRIPTION	Time Allocated
UNIT 1	**Biology: Sustainable Ecosystems and Climate Change**	Students learn about the environment through the concept of sustainable ecosystems and the interconnectedness of various ecological factors and processes, such as biodiversity, air and water quality and soil health recognize how human activities, including those that contribute to climate change, impact the environment, and explore ways to restore the balance in ecosystems investigate natural processes, such as the flow of energy and the cycling of matter, and their importance in maintaining balanced ecosystems	26 Hours
UNIT 2	**Chemistry: The Nature of Matter**	Students will learn about the importance of chemistry in their daily lives, including the use and safe disposal of elements and compounds found in familiar products such as smartphones examine the impacts of chemical processes and technologies on society and the environment increase their understanding of the nature of matter, the structure of atoms and properties of elements and compounds, by exploring the periodic table of elements and through hands-on investigations	30 Hours
-	**Midterm Exam**		2 Hours
UNIT 3	**Earth and Space Science: Space Exploration**	Students will expand their knowledge of the impacts of space exploration on society and the environment learn about the importance and effect of technological innovations derived from space exploration continue learning about the components of the solar system and the universe.	25 Hours
UNIT 4	**Physics: Principles and Applications of Electricity**	Students will understand the impacts of electrical energy production and consumption on society and the environment, and explore initiatives to achieve sustainable practices learn about the nature of electric charges, including their behaviour in static electricity and electric current, through investigations (for example, building a circuit) examine the relationships between various characteristics of electricity	25 Hours
FINAL	**FINAL EXAM**	The final exam assesses students' understanding of atoms, chemical compounds, ecosystems, electricity, and astronomy. It includes multiple-choice, short-answer, and extended-response questions to evaluate knowledge, reasoning, and application of scientific concepts.	2 Hours
TOTAL			**110 Hours**

Overall Curriculum Expectations:

By the end of this course, students will:

A: Scientific Investigation Skills and Career Exploration
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.

In the subsequent strands, students integrate learning from Strand A into Strand B, C, D and E as they investigate concepts, develop and apply skills, and make meaningful connections to their lives, their communities, and the environment.

B. Sustainable Ecosystems and Climate Change (Biology)
By the end of this course, students will:
● B1. Relating Science to Our Changing World - assess impacts of climate change on ecosystem sustainability and on various communities, and describe ways to mitigate these impacts
● B2. Investigating and Understanding Concepts - demonstrate an understanding of the dynamic and interconnected nature of ecosystems, including how matter cycles and energy flows through ecosystems

C. The Nature of Matter (Chemistry) By the end of this course, students will:
● C1. Relating Science to Our Changing World - assess social, environmental, and economic impacts of the use of elements, compounds, and associated technologies
● C2. Investigating and Understanding Concepts - demonstrate an understanding of the nature of matter, including the structure of the atom, physical and chemical properties of common elements and compounds, and the organization of elements in the periodic table

D. Principles and Applications of Electricity (Physics) By the end of this course, students will:
● D1. Relating Science to Our Changing World - assess social, environmental, and economic impacts of electrical energy production and consumption, and describe ways to achieve sustainable practices
● D2. Investigating and Understanding Concepts - demonstrate an understanding of the nature of electric charges, including properties of static and current electricity

E. Space Exploration (Earth and Space Science) By the end of this course, students will:
● E1. Relating Science to Our Changing World - evaluate social, environmental, and economic impacts of space exploration and of technological innovations derived from space exploration
● E2. Investigating and Understanding Concepts - demonstrate an understanding of the components, characteristics, and associated phenomena of the solar system and the universe, and the importance of the Sun to processes on Earth

TEACHING AND LEARNING STRATEGIES

Students will experience a variety of instructional approaches, including:

- **Presentations & Multimedia:** Teacher presentations, videos, examples, quizzes, and online resources.
- **Virtual Simulations:** Interactive simulations to explore concepts, variables, hypotheses, and real-world applications.
- **Articles & Current Events:** Reading and analyzing scientific issues and their connections to society.
- **Case Studies:** Real-world problems that require students to apply scientific concepts and problem-solving skills.
- **Diagrams & Visuals:** Process diagrams, drawings, and schematics to represent and organize scientific ideas.
- **Charts, Tables & Maps:** Visual tools used to interpret data, identify trends, and make connections.
- **Discussions:** Teacher-led discussions and video conferences to encourage questions, collaboration, and communication.
- **Research Projects:** Inquiry-based research involving information gathering, source evaluation, analysis, and conclusions.
- **Reflection:** Opportunities for students to connect learning to real-world experiences and personal perspectives.
- **Individual Activities:** Assignments and practice activities that reinforce learning and allow for differentiated instruction and ongoing feedback.

Assessment Strategies

A number of assessments are used throughout the unit, typically one per lesson. Students are urged to complete each assessment fully to truly test their knowledge and understanding of concepts. This provides the teacher with an opportunity to provide feedback that can improve a student's learning (AFL/AOL) and evaluate it (AOL). Students are encouraged to ask the teacher if they have questions relating to an assessment, especially an AOL to ensure that the student receives the best mark possible. Assessment practices can nurture a student's sense of progress and provide a motivation for continued learning. A variety of assessment designs are incorporated in each unit, to ensure that students are learning and assessing their learning in a variety of ways. Rubrics and marking schemes are outlined where appropriate, and students are encouraged to self-evaluate their work using these tools.

Assessment FOR Learning	Assessment AS Learning	Assessment OF Learning
Quizzes and tests	Self- and peer-assessment	Unit tests
Assignments and worksheets	Reflections and learning journals	Research projects
Ongoing teacher feedback	Learning checklists and goal setting	Case studies
Simulations and practical activities	Peer feedback	Presentations
Teacher questioning and discussions	Self-reflection	Midterm examination
	Student learning reflections	Final examination

Evaluation

Final Grade

The final grade will be determined as follows (in accordance with Ministry of Education standards):

Term Work Based on evaluations conducted throughout the course.	65%
Final Evaluation A final evaluation in the form of a written exam.	20%
Attendance and Participation	15%

Final evaluation breakdown:

- 20% written exam

CONSIDERATION FOR PROGRAM PLANNING

Students with Special Education Needs: Instruction and assessment will provide appropriate accommodations, differentiation, scaffolding, and multiple ways for students to demonstrate learning, in accordance with individual needs and IEPs where applicable.

English Language Learners: Visual supports, scientific vocabulary, glossaries, graphic organizers, multimedia, and opportunities for oral and written communication will support students in developing scientific language and understanding.

Environmental Education: Students will examine sustainability, climate change, biodiversity, natural resources, pollution, and the environmental impacts of science and technology.

Equity and Inclusive Education: Learning activities will respect diverse identities, perspectives, cultures, abilities, and lived experiences and will promote a safe, respectful, and inclusive learning environment.

First Nations, Métis, and Inuit Education: Where appropriate, students will explore Indigenous perspectives, knowledge, relationships with the environment, and contributions to science and technology.

Information and Communications Technology (ICT): Digital tools, simulations, online research, spreadsheets, presentations, and other technologies will be used to support investigation, data analysis, collaboration, and communication.

Career Education: Students will explore careers related to science, technology, engineering, health, environmental science, and other STEM fields, including relevant skills and pathways.

Health and Safety: Students will develop safe practices when conducting scientific investigations, using equipment, handling materials, working with electricity, and participating in online learning and research.

Financial Literacy: Where appropriate, students will consider the economic costs, benefits, and impacts of scientific technologies, energy use, environmental decisions, and resource management.

Required Software, Equipment, Textbooks

Required Textbooks and Resources:

- *Nelson Science 9* – Student Textbook (covers Biology, Chemistry, Physics, and Earth & Space Science)
- Supplementary reading materials: articles, videos, and online resources for current scientific topics
- Teacher-provided worksheets and practice exercises

Digital Resources and Software:

- **Google Drive** – For storing, sharing, and submitting assignments, worksheets, and projects
- Internet access for research, interactive simulations, and digital learning tools
- Microsoft Office Suite (Word, Excel, PowerPoint) or equivalent for assignments and presentations

Teacher Considerations:

- Students may use assistive technology such as text-to-speech or speech-to-text tools.
- Teachers should allow flexibility in submission formats (Google Docs, PDFs, or other standard formats).

Tips for Success – SNC1W

Welcome to SNC1W: Grade 9 Science, Workplace Preparation!
Get ready to explore foundational scientific concepts, workplace applications, and practical problem-solving while developing your critical thinking, research, and digital skills. By the end of this course, you will have strengthened your time management, organization, and online learning skills.

Here are some reminders to help you succeed in SNC1W:

- **Check Announcements, "What's New," and your mailbox every day** for updates and important information.
- **Check the calendar for due dates!** It is your responsibility to meet deadlines. If you have any difficulty, contact your teacher promptly.
- **Review assignment and evaluation criteria regularly.** Create a checklist to ensure your assignments and activities include all required elements and are submitted correctly by the due date.

Ask for help when needed! Don't hesitate to reach out for guidance or clarification.
For technical issues, contact the **Help Desk**.

For course-related questions or problems, email your teacher. Expect a response within 24 hours. If urgent, include "**URGENT**" in the email subject line.

Key Elements to Success in SNC1W:

- **Time Commitment** – Plan for 1–2 hours of focused study each day to complete modules, research, and assignments.
- **Communication** – Maintain regular contact with your teacher for guidance, feedback, and clarification on tasks.
- **Engagement** – Stay curious and proactive! Online learning may have challenges, but with effort and persistence, you will succeed.

Remember, this course is designed to help you understand scientific concepts and their workplace applications. Approach each activity with curiosity, critical thinking, and a problem-solving mindset!