



NSRIC International School in Toronto

London, ON, Canada

### 1. Course Outline: 2022 – 2023

Name of School	: NSRIC International School in Toronto
Department	: Science
Course Title	: Science ,Grade :7 Middle School Preparation
Course Name	: SCI07: Science
Ministry Course Code	: N/A
Course Type	: Middle school
Credit Value	: N/A
Prerequisites	: Grade6
Course Developer	: Renu Abbi
Course Development Date	: December 2023

### 2. Curriculum Policy Documents

1. The Ontario Curriculum, Grades 7, Science, 2008 (Revised)
2. Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools, 2010
3. Ontario Schools Kg to Gr 12 – Policy and Program Requirement, 2011

### 3. Course Description

The Course, Physics (Grade7) for Middle School is planned to equip students with the knowledge and skills they need to meet the entrance precondition for School programs This course progresses students' comprehension of the unembellished perceptions of science. Students will inquire into the fields of **Understanding Life system** with an emphasis on Ecosystem. They will explore various kinds of **Ecosystems** and their Functions. **Structure and Functions** will be another area for them to scrutinize. Moreover, the acquaintance of the **Matter and Energy** will enrich their ability to exercise the knowledge in practical life. Lastly Studying the knowledge about **Earth and Space Systems** is another fundamental foundation for further studies in Schools They will enhance their scientific investigation skills as they assess the Laws of Science In addition to that, they will learn to analyze the interrelationship between Physics and Technology along with considering the impact of application of Physics in the society and environment.

Unit Titles and Descriptions	Time
<p><b>Understanding Life Systems</b></p> <p>By the end of this unit ,student will learn to analyzed the different type of ecosystem, components of ecosystem . They will understand how energy is transferred through producers, consumers , and decomposers within an ecosystem. Furthermore , students will learn that matter is cycled in various cycles in the environment. They will also learn that successions including primary and secondary successions, occur naturally over time . The impacts of human activities on ecosystems and measure taken by the government to protect ecosystems will also be cleared.</p>	<p><b>28 hours</b></p>
<p><b>Understanding Structures and Mechanisms</b></p> <p>By the end of this unit, students will learn to analyze structures as frame, shell, and solid structure, as well as combination of them. They will investigate the center of gravity and symmetry of structure and how they effect a structure’s stability. The factors that affect the amount of force acting on structure will also be studied. Students will explore what can cause structures to fail and what factors should be considered to prevent structural failures. Moreover, they will examine the properties of of different material and how these properties make the materials suitable for certain structures.</p>	<p><b>27 hours</b></p>
<p><b>Understanding Matter and energy</b></p> <p>By the end of this unit, students will learn to analyze the particle theory of matter and understand that all matter is made up of particles. They will explore the distinction among pure substances, mechanical mixtures, and solutions using the theory. Students will learn to identify the solute and solvent in a solution and explore the common processes used to separate mixtures. Additionally , students will learn how to dispose of harmful substances and use nontoxic substances in place of them.</p>	<p><b>26 hours</b></p>
<p><b>Understanding Earth and the space systems</b></p> <p>By the end of this unit, students will examine the renewable and non-renewable sources of heat .They will investigate the effects of heat on different states of matter and how the particle theory of matter explains these effects. Students will also be introduced to the three ways of heat transfer: conduction convection and radiation . They will learn that some materials conduct heat while others insulate people</p>	<p><b>26 hours</b></p>

and things from heat , and some material absorb heat while others reflect heat. Moreover, they will examine the greenhouse effect through their understanding of heat.	
<b>Final Assessment</b>	
<b>Exam</b> This is a proctored exam worth 30% of your final grade.	<b>3 hours</b>
<b>Total</b>	<b>110 hours</b>

### 5. Overall Curriculum Expectations:

Grade 7 is the first year of middle school education (MID) section. To successfully complete Grade 7, students should complete eight courses (i.e, arts, English, French, geography, health and physical education, history, mathematics and science) as part of the Ontario School board requirement. Further, students should take five courses (i.e, cognitive skill development, computer literacy, native language and culture, religion, and changemakers for sustainability) as part of the NIST Hybrid Curriculum (NHC)

### 6. Teaching and Learning Strategies

The development of learning skills and work habits needed to succeed in school and in life begins

early in a child’s schooling. As students move through the grades, they develop and then consolidate

their learning skills and work habits in preparation for postsecondary education and the world of work.

These expectations are designed to help students develop a

positive sense of self, use coping and management skills, monitor their own progress, develop and

maintain healthy relationships, and use critical and creative thinking processes as they set goals,

make decisions, and solve problems. These skills clearly overlap with and reinforce the learning

skills and work habits listed on the preceding page, and will help students succeed in school and

throughout their lives

The Ontario Ministry of Education has drawn on its own research, as well as on findings from Human Resources and Skills Development Canada (HRSDC) and the Conference Board of Canada, to develop the Ontario Skills Passport (OSP), which is available at <http://skills.edu.gov.on.ca/OSPWeb/jsp/en/login.jsp>. The OSP identifies and describes the following important work habits: working safely, teamwork, reliability, organization, working independently, initiative, self-advocacy, customer service, and entrepreneurship. The Conference Board of Canada's list of employability skills focuses on (1) personal management skills that facilitate growth (sample behaviors include modelling positive attitudes and actions, being responsible, being adaptable, learning continuously, and working safely) and (2) teamwork skills that enhance productivity (sample behaviors include working with others and participating in projects and tasks). Similar lists have been developed in other countries and by international organizations. The Definition and Selection of Competencies (DeSeCo) Project, sponsored by the Organization for Economic Co-operation and Development (OECD), has underlined the importance of identifying and developing key competencies as follows: Globalization and modernization are creating an increasingly diverse and interconnected world. To make sense of and function well in this world, individuals need, for example, to master changing technologies and to make sense of large amounts of available information. They also face collective challenges as societies – such as balancing economic growth with environmental sustainability, and prosperity with social equity. In these contexts, the competencies that individuals need to meet their goals have become more complex, requiring more than the mastery of certain narrowly defined skills. (OECD, p. 4) The OECD report outlines the following three categories of competency: A. Using Tools Interactively • The ability to use language, symbols, and text interactively • The ability to use knowledge and information interactively • The ability to use technology interactively B. Interacting in Heterogeneous Groups • The ability to relate well to others • The ability to cooperate and work in teams • The ability to manage and resolve conflicts C. Acting Autonomously • The ability to act within the bigger picture • The ability to form and conduct life plans and personal projects • The ability to defend and assert rights, interests, limits, and needs (OECD, pp. 10–16) In the United States, researchers Arthur Costa and Bena Kallick have described sixteen “habits of mind” that contribute to success in school and in life: persisting; thinking and communicating with clarity and precision; managing impulsivity; gathering data through all senses; listening with understanding and empathy; creating, imagining, and innovating; thinking flexibly; responding with wonder and awe; thinking about thinking (metacognition); taking responsible risks; striving for accuracy; finding humor; questioning and posing problems; thinking interdependently; applying past knowledge to new situations; and remaining open to continuous learning (Costa & Kallick, <http://www.habits-of-mind.net/whatare.htm>). Clearly, there is broad agreement among educators from various constituencies that learning skills and work habits like those described here for Grades 1 to 12 contribute substantially to student success. It is expected that teachers will work with students and their parents to ensure that they understand these learning skills and work habits and their importance. Students benefit when teachers

discuss and model these skills, and when teachers and parents work with students to help them develop these skills. Students also benefit when teachers work with them to explain how these skills will be assessed and evaluated.

**7. Strategies for Assessment and Evaluation of Student Performance** Assessment and evaluation techniques are an integral part of teaching/learning strategies and expectations. The assessment/evaluation techniques are selected to effectively assist students in achieving the overall and specific expectations and be consistent with the teaching/learning strategies. A variety of assessment and evaluation methods, strategies and tools are required as appropriate to the expectation being assessed. Our theory of assessment and evaluation follows the Ministry of Education's *Growing Success* document, and it is our firm belief that doing so is in the best interests of students. These include Assessment for Learning (diagnostic), Assessment as Learning (formative) and Assessment of Learning (summative) within the course as a whole and within each unit. Specific strategies and tools are described in detail in each activity and unit.

**a) Assessment strategies include:**

- self-assessment
- cooperative learning/group work
- student-teacher conferencing
- research projects/reports
- practical applications
- Exam
- peer assessment
- case studies
- concept maps
- presentations
- unit and activity tests/quizzes.

Strategy Example	Assessment Type / Assessor	Assessment Tool
Speeches	- for learning / teacher - as learning / by student, peer, teacher - of learning / by teacher	checklist or rubric or marking scheme
Tests	- of learning / by teacher	marking scheme
Homework/ Study and Discussion questions	- for learning / teacher - as learning / by student, peer, teacher	Checklist or rubric
Analytical Writing or Experiment	- for learning / teacher - as learning / by student - of learning / by teacher	Guided questions, checklist, and rubric
Creative	- for learning / teacher - as learning / by student - of learning / by teacher	Guided questions, checklist, and rubric
Independent Study Unit	- for learning / teacher - as learning / by student - of learning / by teacher	Checklist, marking scheme, rubric

Summative Assignment	- as learning / teacher - of learning / by teacher	rubric or marking scheme, checklist
Final Written Exam	- of learning / by teacher	marking scheme

**b) Assessments AS learning, FOR learning, and OF learning are listed for the following strategies:**

The performance standards, outlined in the achievement chart for the course, are a standard province-wide guide and are used to assess and evaluate student achievement of the expectations in the course.

The achievement chart identifies four categories of knowledge and skills which are as follows:

- Knowledge and Understanding: Subject-specific content acquired in the course (knowledge), and the comprehension of its meaning and significance (understanding).
- Thinking: The use of critical and creative thinking skills and/or processes.
- Communication: The conveying of meaning through various forms.
- Application: The use of knowledge and skills to make connections within and between various contexts.

For a full explanation, please refer to Growing Success.

**c) The Final Grade**

The evaluation for this course is based on the student's achievement of curriculum expectations and the demonstrated skills required for effective learning. The final percentage grade represents the quality of the student's overall achievement of the expectations for the course and reflects the corresponding level of achievement as described in the achievement chart for the discipline. A credit is granted and recorded for this course if the student's grade is 50% or higher. The final grade will be determined as follows:

- 70% of the grade will be based upon evaluations conducted throughout the course. This portion of the grade will reflect the student's most consistent level of achievement throughout the course, although special consideration will be given to more recent evidence of achievement.

- 30% of the grade will be based on final evaluations administered at the end of the course. The final assessment may be a final exam, a final project, or a combination of both an exam and a project.

## **8. Learning Skills and Work Habits**

The development of learning skills and work habits is an integral part of a student's learning; therefore, assessing, evaluating, and reporting on the achievement of curriculum expectations and on the demonstration of learning skills and work habits are done separately, apart from when learning skills and work habits may be included as part of a curriculum expectation. All curriculum expectations are accounted for in instruction and assessment. Evidence of student achievement for evaluation is collected over time from three different sources: observations, conversations, and student products.

The development, assessment, and evaluation of the following categories of learning skills and work habits will occur responsibility, organization, independent work, collaboration, initiative, and self-regulation. Learning skills and work habits, apart from when learning skills and work habits may be included as part of a curriculum expectation, will not be considered in the determination of a student's grade.

## **9. Considerations for Program Planning**

### **9 a). Instructional Approaches**

Effective instructional approaches and learning activities draw on students' prior knowledge, capture their interest, and encourage successful/meaningful practice both inside the classroom. Successful classroom practices engage students in activities that require higher-order thinking, with an emphasis on problem solving. Students will be encouraged to see the connection between the mathematical concepts they are learning and their application in their workplace and everyday life.

Students will have opportunities to learn in a variety of ways – individually, cooperatively, independently, with teacher direction, through hands-on experiences, and through examples followed by practice. In this course students will learn concepts and procedures, acquire skills for analysis of a problem, analyze workplace and everyday life related mathematical problems, and apply mathematical processes of the problems, so that they become competent in these various areas with the aid of instructional and learning strategies that are suited to the learning. Activities related with practical life experience/examples are necessary for supporting the effective learning of this course for all students.

### **9 b). Promoting Positive Attitudes towards Learning Mathematics**

Students will be encouraged to develop a willingness to persist, to investigate, to reason, to explore alternative solutions, to view challenges as opportunities to extend their learning, and to take the risks necessary to become successful problem solvers. Students will be provided with problems that are challenging but not beyond their ability to solve to develop their confidence and reduce anxiety and frustration.

Collaborative learning enhances students' understanding of mathematics. Working cooperatively in groups reduces isolation and provides students with opportunities to share ideas and communicate their thinking in a supportive environment as they work together towards a common goal. Communication and the connections among ideas that emerges students interact with one another enhance the quality of student learning. Considering these, group work will be encouraged by assigning group assignments and projects.

### **9 c). Planning Mathematics Programs for Students with Special Education Needs**

This course work will be designed that recognize the diversity of learning process of among individual students. Student's performance will be given considering their particular abilities so that all students can derive the greatest possible benefit from the teaching and learning process. To planning the course for students with special education needs the current achievement level of the individual student, their strengths and learning needs, and the knowledge and skills that all students are expected to demonstrate at the end of the course will be examined in order to determine the types of accommodation they need in the course.

### **9 d). Program Considerations for English Language Learners**

Appropriate adaptations and strategies for instruction and assessment to facilitate the success of the English language learners in their classrooms will be incorporate so that they can understand the lessons and complete their task properly. These adaptations and strategies might include:

- modification of some or all of the course expectations so that they are challenging but attainable for the learner at his or her present level of English proficiency, given the necessary support from the teacher;
- use of a variety of instructional strategies (e.g., extensive use of visual cues, scaffolding, manipulatives, pictures, diagrams, graphic organizers; attention to clarity of instructions);
- modeling of preferred ways of working in mathematics; previewing of textbooks; pre-teaching of key vocabulary; peer tutoring; strategic use of students' first languages;
- use of a variety of learning resources (e.g., visual material, simplified text, bilingual dictionaries, materials that reflect cultural diversity);
- use of assessment accommodations (e.g., granting of extra time; simplification of language used in problems and instructions; use of oral interviews, learning logs, portfolios, demonstrations, visual representations, and tasks requiring completion of graphic organizers or cloze sentences instead of tasks that depend heavily on proficiency in English).



## **10. Resources**

Selections from the following may be considered for use:

- o Ministry of Education and Training “Course Profile” ([www.curriculum.org](http://www.curriculum.org))
- o Ontario Secondary Schools 9 to 12 – Program and Diploma Requirements 1999
- o The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000.
- o OTDSB documents
- o Approved textbook: Nelson Physics 11 (University Preparation)
- o other sources

## **11. Late Submission Policy**

There will be a DUE DATE and a DEADLINE to hand in assignments, projects, etc. For example,

I, the teacher, decide that Project A is due on Monday. That will be the DUE DATE. The DEADLINE will be five school days after the due date i.e., on next Monday but for 1st 3-days of delay in submission 10% marks will be deducted per day and after that 20% for rest of the days. No submission will be accepted after deadline. However, in case sickness or any other acceptable reason, the student could not submit his/her work within deadline; the student might get extension of time on the condition that the student provides a doctor’s note or parent’s note explaining the condition.

## **12. Test/Exam Policy**

A student who remains absent with acceptable reason on the day of a test or exam will get no marks on that test/exam. A re-test will only be allowed on the condition that the student provides acceptable explanation of his/her absence on that day with proper evidence (doctor’s and/or parent’s note).

## **13. Academic Honesty**

Academic honesty is a fundamental cornerstone in student learning. Academic dishonesty, including instances of plagiarism and cheating, are serious breaches of the school code of conduct. All cases of academic dishonesty will be reported to the school administration and guardians, and a disciplinary action taken. Disciplinary action taken may include Academic counselling; a compensatory task (e.g., writing an article about “ethics”); or a zero mark.