

TFS High School

COURSE OUTLINE

COURSE TITLE	SCIENCE 9
COURSE CODE	SNC1W
GRADE	9
COURSE TYPE	De-streamed
CREDIT VALUE	1.00
COURSE HOURS	110 Hours
DEPARTMENT	Science
COURSE DEVELOPER(S)	Abbas Hemmati
DEVELOPMENT DATE	August 2023
MINISTRY CURRICULUM POLICY DOCUMENT	<i>Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools, First edition: 2010 The Ontario Curriculum, Grade 9: Science, 2022 Curriculum and Resources, Grade 9 Science, De-stream, 2022</i>
PREREQUISITE	NONE
TEACHER	Abbas Hemmati

COURSE DESCRIPTION:

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.

UNITS DESCRIPTION

Unit	Titles and Descriptions	Time and Sequence
Unit 1	STEM Skills, Careers, and Connections Throughout this course, in connection with the learning in the Biology, Chemistry, Physics, and Earth and Space Science	10 hours
Unit 2	BIOLOGY: SUSTAINABLE ECOSYSTEMS In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment	30 hours
Unit 3	Chemistry: The Nature of Matter In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment	30 hours
Unit 4	PHYSICS: THE CHARACTERISTICS OF ELECTRICITY In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment.	20 hours
Unit 5	Earth and Space Science: Space Exploration In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment.	18 hours
Final Assessment		
	Exam Final exam worth 20% of final grade with culminating 10% of the final grade	2 hours
	Total	110 hours

OVERALL CURRICULUM EXPECTATIONS

The Ontario Curriculum, Grade 9: Science, 2022 identifies the expectations for the course and describes the skills and knowledge that students are expected to acquire, demonstrate, and apply in their class work and investigations, and in various other activities on which their achievement is assessed and evaluated.

Mandatory learning is described in the overall and specific expectations of the curriculum.

Two sets of expectations – overall expectations and specific expectations – are listed for each strand, or broad area of the curriculum, in Grade 9 science. The strands include Strand A: STEM Skills, Careers, and Connections and four other strands, lettered B, C, D and E. Taken together, the overall and specific expectations represent the mandated curriculum.

The overall expectations describe in general terms the skills and knowledge that students are expected to demonstrate by the end of the course. The specific expectations describe the expected skills and knowledge in greater detail. The specific expectations are organized under numbered subheadings, each of which indicates the strand and the overall expectation to which the group of specific expectations corresponds (e.g., “B2” indicates that the group relates to overall expectation 2 in Strand B). This organization is not meant to imply that the expectations in any one group are achieved independently of the expectations in the other groups, nor is it intended to imply that the learning associated with the expectations happens in a linear, sequential way. The numbered headings are used merely as an organizational structure to help teachers focus on particular aspects of knowledge, concepts, and skills as they develop various lessons and learning activities for students.

In the Grade 9 science course, the overall expectations outline the fundamental concepts and skills that are required for students to become scientifically literate global citizens. The curriculum focuses on connecting, developing, reinforcing, and refining the knowledge, concepts, and skills that students acquire as they work towards meeting the overall expectations in the course. This approach reflects and accommodates the progressive nature of development of knowledge, concepts, and skills in science learning. In the course, the two overall expectations in each strand are developed in related sets of specific expectations.

Course Expectations

The expectations in the science curriculum are organized into five distinct but related strands. Strand A is an overarching strand that focuses on the STEM skills and connections that will enable students to investigate concepts and integrate knowledge from each of the other strands and to make connections between science and other subject areas. This strand also encourages students to examine various STEM-related careers, including skilled trades. In Strands B through E, students integrate Strand A expectations as they develop their understanding of strand-specific concepts, investigate phenomena, and make meaningful connections to the real world.

Throughout the course, learning related to the expectations in Strand A occurs in the context of learning related to the other four strands.

Strand A – STEM Skills, Careers, and Connections

Strand A focuses on the STEM skills that will enable students to explore and investigate scientific concepts. Students apply these skills as they integrate knowledge from the other four strands and as they make connections between these skills, their scientific knowledge, real-world issues in science, and various STEM-related occupations, including skilled trades.

In this strand, students use scientific research, scientific experimentation, and engineering design processes to carry out investigations, design solutions to problems, develop a conceptual understanding of the science they are learning, and communicate their findings. Students also use coding to investigate and model scientific concepts and relationships. Through the planning and conducting of hands-on investigations, students apply knowledge and understanding of established health and safety procedures.

In Strand A, students design an experiment or a prototype to explore a problem relevant to a STEM-related occupation or skilled trade. Students continue to develop and apply scientific literacy skills to examine local and global social and environmental issues, and assess how the development and application of science is influenced by social, economic, and cultural contexts. Students analyse the contributions to science by people with diverse lived experiences and from various communities and have the opportunity to learn about Indigenous sciences and to make connections to First Nations, Métis, and Inuit knowledge systems and perspectives.

Strand B – Biology

In this strand, students develop an understanding of sustainable ecosystems and how sustainability is related to various ecological factors and processes, such as biodiversity, air and water quality, and soil health. Students assess how human activities impact the environment, including how they contribute to climate change, and explore ways to address some of the impacts. Students investigate the flow of energy and the cycling of matter in the environment and the importance of these natural processes in maintaining a dynamic equilibrium in ecosystems.

Strand C – Chemistry

In this strand, students explore the relevance of chemistry to their daily lives by investigating the use and safe disposal of various elements and compounds. Additionally, they assess the impacts of chemical processes and technologies on society and the environment. Students investigate the nature of matter by studying properties of elements and compounds, the structure of atoms, and the relationship between the atomic structure of elements and the organization of the periodic table.

Strand D – Physics

In this strand, students develop an understanding of the impacts of electrical energy production and consumption on society, the environment, and the economy, and explore ways to achieve sustainable practices. Students also investigate the nature of electric charges, including properties of static and current electricity, and explain the relationships between various electrical quantities.

Strand E – Earth and Space Science

In this strand, students investigate the impacts of space exploration on society, the environment, and the economy, and the importance to society of technological innovations resulting from space exploration. Students also learn about the components of the solar system and the universe and the Sun’s relationship to processes on Earth.

Units: Titles and Times

Unit 1	STEM, Careers, and Connections	10 hours
Unit 2	Biology, Sustainable Ecosystem	30 hours
Unit 3	Chemistry, the Nature of Matter	30 hours
Unit 4	Physics, the Characteristics of Electricity	20 hours
Unit 5	Earth and Space Science, Space Exploration	18 hours
Final	20% of the final grade and 10% of culminating activity	2 hours

Unit 1: STEM, Careers, and Connections Time: 10 hours

Unit Description

Throughout this course, in connection with the learning in the Biology, Chemistry, Physics, and Earth and Space Science

Unit 2: Biology, Sustainable Ecosystem Time: 30 hours

Unit Description

In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment

Unit 3: Chemistry, the Nature of Matter Time: 30 hours

Unit Description

In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment

Unit 4: Physics, the Characteristics of Electricity Time: 20 hours

Unit Description

In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment.

Unit 5: Earth and Space Science, Space Exploration Time: 18 hours

Unit Description

In this strand, students integrate learning from Strand A as they investigate concepts, develop, and apply skills, and make meaningful connections to their lives, their communities, and the environment.

Resources

[1] Science 9, by Nelson Education Ltd, 2010.

[2] The Ontario Curriculum Grade 11 and 12 Science
<https://www.dcp.edu.gov.on.ca/en/curriculum/secondary-science/courses/snc1w>

[3] PowerPoints

[4] Online Resources

[5] YouTube Videos

Resources required by students

- Access to Science 9 online Textbook
- Access to Google Classroom
- Access to a laptop/desktop/tablet
- Access to reliable internet connection
- Access to YouTube

Assessment and Evaluation Strategies

The primary purpose of assessment and evaluation is to improve student learning. Assessment *for* learning, *as* learning and *of* learning as outlined in the Ministry document **Growing Success** will be the focus in this course.

To ensure that assessment, evaluation, and reporting are valid and reliable, and that they lead to the improvement of learning for all students, teachers use practices and procedures that:

- are fair, transparent, and equitable for all students;
- support all students, including those with special education needs, those who are learning the language of instruction (English or French), and those who are First Nation, Métis, or Inuit;
- are carefully planned to relate to the curriculum expectations and learning goals and, as much as possible, to the interests, learning styles and preferences, needs, and experiences of all students;
- are communicated clearly to students and parents at the beginning of the school year or course and at other appropriate points throughout the school year or course;
- are ongoing, varied in nature, and administered over a period of time to provide multiple opportunities for students to demonstrate the full range of their learning;

- provide ongoing descriptive feedback that is clear, specific, meaningful, and timely to support improved learning and achievement;
- develop students’ self-assessment skills to enable them to assess their own learning, set specific goals, and plan next steps for their learning.

Assessment:

Assessment will be ongoing and is intended to provide students with feedback for improvement. Assessment can be understood in three ways:

1. Assessment *for* learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go, and how best to get there;
2. Assessment *as* learning focuses on the explicit fostering of students’ capacity over time to be their own best assessors;
3. Assessment *of* learning is the assessment that becomes public and results in statements or symbols about how well students are learning.

The tools highlighted in yellow will be used for the three different types of assessments:

Assessment for Learning	Assessment as Learning	Assessment of Learning
Student Product Assignment Journal/Letters/E-Mails (checklist) Pre-Tests (scale/rubric) Quizzes (scale/rubric) Rough drafts (rubric) Portfolios (rubric) Posters (rubric/scale) Graphic organizers Peer feedback (anecdotal/checklist) Essays (rubric) Vocabulary notebooks (anecdotal) Webbing/mapping (rubric/scale) Entrance tickets Visual Thinking Networks	Student Product Journal/Letters/E-Mails (checklist) Learning Logs (anecdotal) Entrance tickets Exit tickets	Student Product Assignment Journal/Letters/E-Mails (checklist) Tests (scale/rubric) Exam Rough drafts (rubric) Portfolios (rubric) Posters (rubric/scale) Graphic organizers Reports (rubric) Essays (rubric) Visual Thinking Networks Lab Reports (rubric)
Observation Class Discussions (anecdotal) Debate (rubric) PowerPoint presentations (rubric) Performance tasks (anecdotal/scale)	Observation Whole Class Discussions (anecdotal) Self-proofreading (checklist) Peer feedback Goal setting	Observation Debate (rubric) PowerPoint presentations (rubric) Performance tasks (anecdotal/scale)
Conversation Student-teacher conferences (checklist) Small Group Discussions (checklist) Pair work (anecdotal) Peer-feedback (anecdotal) Peer-editing (anecdotal) Oral pre-tests (scale/rubric) Oral quizzes (scale/rubric)	Conversation Student-teacher conferences (checklist) Small Group Discussions (checklist) Pair work (checklist) Debate (rubric)	Conversation Student-teacher conferences (checklist) Question & Answer Session (Checklist) Oral Tests (scale/rubric)

Evaluation:

Evaluation will be summative and will occur at key points during the term (70 percent) and at/near the end of the course (30 percent). Evaluation will provide information about student achievement based on student

performance in the four areas of Knowledge/Understanding, Thinking/Inquiry, Communication and Application.

Term Work (70 percent) - Examples may merge across categories

- Paper and pencil include such strategies as classroom tests, quizzes, examinations, and standardized tests.
- Performance methods include products, projects, portfolios, essays, reports, written assignments, in-class assignments, presentations, seminars, independent research, exhibitions, recitals, skills demonstration, role-playing, and work samples.
- Personal communication methods include instructional question and answer sessions for review of previous material, interviews, conferences, journals/learning logs, and classroom discussion.
- Computer programs

Final Evaluation (30 Percent)

In accordance with school policy, the final evaluation is a 30 percent final exam. The expectations of the course will be used when creating a final exam that tests the students` ability to meet the course expectations. The final exam will also specifically evaluate student achievement by examining the following types of learning: knowledge/understanding, thinking/inquiry, application and communication.

THE FINAL GRADE

Percentage of Final Mark	Weight	Evaluation Categories	Assessment will be ongoing to inform the students of their performance and the opportunity for success. Four achievement categories are illustrated in the chart. K: Knowledge and Understanding 30% I: Inquiry/Thinking 30% C: Communication 20% MC: Making Connections/Application 20%
70%	10%	Unit Test 1-Biology	
	10%	Ecosystem Lab	
	10%	Unit Test 2-Chemistry	
	10%	Chemistry Lab	
	10%	Unit Test 3-Physics	
	20%	Poster Project (Solar System)	
30%	10%	ISU (Culminating)-Conserving Energy	
	20%	Final (PPT)	

ACHIEVEMENT CHART: SCIENCE, GRADES 9-12

Category	50-59% (Level 1)	60-69% (Level 2)	70-79% (Level 3)	80-100% (Level 4)
Knowledge and Understanding - Subject-specific content acquired in each course (knowledge), and the comprehension of its meaning and significance (understanding)				
	The student:			
understanding of concepts, principles, laws, and theories (e.g., identifying assumptions; eliminating misconceptions; providing explanations)	demonstrates limited understanding of concepts, principles, laws, and theories	demonstrates some understanding of concepts, principles, laws, and theories	demonstrates considerable understanding of concepts, principles, laws, and theories	demonstrates thorough understanding of concepts, principles, laws, and theories

knowledge of facts and terms	demonstrates limited knowledge of facts and terms	demonstrates some knowledge of facts and terms	demonstrates considerable knowledge of facts and terms	demonstrates thorough knowledge of facts and terms
transfer of concepts to new contexts	infrequently transfers simple concepts to new contexts	sometimes transfers simple concepts to new contexts	usually transfers simple concepts to new contexts	routinely transfers simple concepts to new contexts
understanding of relationships between concepts	demonstrates limited understanding of relationships between concepts	demonstrates some understanding of relationships between concepts	demonstrates considerable understanding of relationships between concepts	demonstrates thorough and insightful understanding of relationships between concepts

Thinking and Inquiry - The use of critical and creative thinking and inquiry skills and/or processes

	The student:			
application of the skills and strategies of scientific inquiry (e.g., initiating and planning, performing and recording, analysing and interpreting, problem solving)	applies few of the skills and strategies of scientific inquiry	applies some of the skills and strategies of scientific inquiry	applies most of the skills and strategies of scientific inquiry	applies all or almost all of the skills and strategies of scientific inquiry
application of technical skills and procedures (e.g., microscopes)	applies technical skills and procedures with limited competence	applies technical skills and procedures with moderate competence	applies technical skills and procedures with considerable competence	applies technical skills and procedures with a high degree of competence
use of tools, equipment, and materials	uses tools, equipment, and materials safely and correctly only with supervision	uses tools, equipment, and materials safely and correctly with some supervision	uses tools, equipment, and materials safely and correctly	demonstrates and promotes the safe and correct use of tools, equipment, and materials

Communication - The conveying of meaning through various forms

	The student:			
communication of information and ideas	communicates information and ideas with limited clarity and precision	communicates information and ideas with some clarity and precision	communicates information and ideas with considerable clarity and precision	communicates information and ideas with a high degree of clarity and precision
use of scientific terminology, symbols, conventions, and standard (SI) units	uses scientific terminology, symbols, conventions, and SI units with limited accuracy and effectiveness	uses scientific terminology, symbols, conventions, and SI units with some accuracy and effectiveness	uses scientific terminology, symbols, conventions, and SI units with considerable accuracy and effectiveness	uses scientific terminology, symbols, conventions, and SI units with a high degree of accuracy and effectiveness
communication for different audiences and purpose	communicates with a limited sense of audience and purpose	communicates with some sense of audience and purpose	communicates with a clear sense of audience and purpose	communicates with a strong sense of audience and purpose
use of various forms of communication (e.g., reports, essays)	demonstrates limited command of the various forms	demonstrates moderate command of the various forms	demonstrates considerable command of the various forms	demonstrates extensive command of the various forms
use of information technology for scientific purposes (e.g., specialized databases)	uses technology with limited appropriateness and effectiveness	uses technology with moderate appropriateness and effectiveness	uses appropriate technology with considerable effectiveness	uses appropriate technology with a high degree of effectiveness

Application - The use of knowledge and skills to make connections within and between various contexts

	The student:			
understanding of connections among science, technology, society, and the environment	shows limited understanding of connections in familiar contexts	shows some understanding of connections in familiar contexts	shows considerable understanding of connections in familiar and some unfamiliar contexts	shows thorough understanding of connections in familiar and unfamiliar contexts

analysis of social and economic issues involving science and technology	analyses social and economic issues with limited effectiveness	analyses social and economic issues with moderate effectiveness	analyses social and economic issues with considerable effectiveness	analyses complex social and economic issues with a high degree of effectiveness
assessment of impacts of science and technology on the environment	assesses environmental impacts with limited effectiveness	assesses environmental impacts with moderate effectiveness	assesses environmental impacts with considerable effectiveness	assesses environmental impacts with a high degree of effectiveness
proposing of courses of practical action in relation to science and technology-based problems	extends analyses of familiar problems into courses of practical action with limited effectiveness	extends analyses of familiar problems into courses of practical action with moderate effectiveness	extends analyses of familiar problems into courses of practical action with considerable effectiveness	extends analyses of familiar and unfamiliar problems into courses of practical action with a high degree of effectiveness

Late or Missing Assignments

Students are expected to submit assignments by the agreed-upon due dates. It is important that all summative assessment tasks be completed so that there is sufficient evidence of achievement of the overall expectations for a credit to be granted. For this reason, missed due dates will result in action on behalf of the school to collect the missing evidence at the earliest opportunity, in accordance with procedures included in the student agenda. All final summative tasks must be completed before a credit is granted.

Academic Honesty

Academic honesty is a fundamental cornerstone in student learning. A breach of academic honesty is the theft of intellectual property and is treated with the utmost seriousness. All breaches of academic honesty will be reported to the school administration and a plan of action will be implemented in accordance with procedures included in the student agenda.

Attendance and Punctuality

Regular attendance and punctuality are expected, as they contribute to success at school and are important requirements in the workplace. It is essential that you contact your teacher when you know you will be absent. Following an absence, it is critical that you work diligently to catch up on missed work. Attendance and punctuality are reported on the provincial report card.

Learning Skills:

1. Learning Skills and Work Habits Achievement:

Learning skills and work habits are instructed, assessed and evaluated separately from your academic work. You will be assessed frequently on your level of achievement of the following six learning skills and work habits (e.g. through conferences with your teacher; observation during class activities; and completion of assignments where specific learning skills are addressed). Learning skills and work habits will be evaluated at mid-term and again at the end of the semester with a letter grade (E=excellent, G=good, S=satisfactory, N=needs improvement).

- **Responsibility** (e.g. fulfills responsibilities and commitments within the learning environment, completes and submits class work, homework, and assignments according to agreed-upon timelines; takes responsibility for managing own behaviour)
- **Organization** (e.g. devises and follows a plan for completing work and tasks; establishes priorities and manages time to complete tasks and achieve goals; identifies, gathers, evaluates and uses information, technology and resources to complete tasks)
- **Independent Work**(e.g. independently monitors, assesses, and revises plans to complete tasks and meet goals; uses class time appropriately to complete tasks; follows instructions with minimal supervision)

- **Collaboration** (e.g. accepts various roles and an equitable share of work in a group; responds positively to the ideas, values, opinions and traditions of other; builds healthy peer-to-peer relationships through personal and media-assisted interactions; works with others to resolve conflicts and build consensus to achieve group goals; shares information, resources, and expertise, and promotes critical thinking to solve problems and make decisions)
- **Initiative** (e.g. looks for and acts on new ideas and opportunities for learning; demonstrates the capacity for innovation and a willingness to take risks; demonstrates curiosity and interest in learning; approaches new tasks with a positive attitude; recognizes and advocates appropriately for the rights of self and others)
- **Self-regulation** (e.g. sets own individual goals and monitors progress towards achieving them; seeks clarification or assistance when needed; assesses and thinks critically on own strengths, needs and interests; identifies learning opportunities, choices, and strategies to meet personal needs and achieve goals; perseveres and makes an effort when responding to challenges)

Note: Learning skills are not considered in the determination of the final grade.

The following table provides a summary description of achievement in each percentage grade range and corresponding level of achievement:

Percentage Grade Range	Achievement Level	Summary Description
95-100%	Level 4+	A very high to outstanding level of achievement. Achievement is above the provincial standard
87-94%	Level 4	
80-86%	Level 4-	
77-79%	Level 3+	A high level of achievement. Achievement is at the provincial standard.
73-76%	Level 3	
70-72%	Level 3-	
67-69%	Level 2+	A moderate level of achievement. Achievement is below, but approaching, the provincial standard.
63-66%	Level 2	
60-62%	Level 2-	
57-59%	Level 1+	A passable level of achievement. Achievement is below the provincial standard
53-56%	Level 1	
50-52%	Level 1-	
Below 50%	Insufficient achievement of curriculum expectations. A credit will not be granted.	

Level 3 (70-79%) is the provincial standard. Teachers and parents can be confident that students who are achieving at level 3 are well prepared for work in the next grade or the next course.

CONSIDERATIONS FOR PROGRAM PLANNING

PROGRAM CONSIDERATIONS FOR STUDENTS WITH SPECIAL NEEDS

TFS High School is committed to ensuring that all students, especially those with special education needs, are provided with the learning opportunities and support they may require in order to gain the knowledge, skills, and confidence needed to succeed in a rapidly changing society. The context of special education and the provision of special education programs and services for exceptional students in Ontario are constantly changing.

TFS High School believes:

- (1) all students can succeed;
- (2) an open and accessible learning environment with differentiated instruction are effective and interconnected means of meeting the learning or productivity needs of any group of students;
- (3) successful instructional practices are founded in evidence-based research, tempered by experience;
- (4) classroom teachers are the key educators for a student's literacy and numeracy development;
- (5) each student has his or her own unique patterns of learning;
- (6) classroom teachers need the support of the larger community to create a learning environment that supports students with special education needs; and,
- (7) fairness is not sameness.

The provision of special education programs and services for students at TFS High School rests within a legal framework The Education Act and the regulations related to it set out the legal responsibilities pertaining to special education.

PROGRAM CONSIDERATIONS FOR ENGLISH LANGUAGE LEARNERS

A number of students coming to TFS High School will be from other countries. When they start school in Ontario, many of these students are entering a new linguistic and cultural environment. These English language learners (students who are learning English as a second or additional language in English-language schools) bring a rich diversity of background knowledge and experience to the classroom. These students' linguistic and cultural backgrounds not only support their learning in their new environment but also become a cultural asset in the classroom community.

In planning programs for students with linguistic backgrounds other than English, teachers recognize the importance of the orientation process, understanding that every learner needs to adjust to the new social environment and language in a unique way and at an individual pace.

As such teachers will adapt the instructional program in order to facilitate the success of these students in their classrooms. Appropriate adaptations include:

- modification of some or all of the subject 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, graphic organizers, scaffolding; 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, and materials that reflect cultural diversity);
- use of assessment accommodations (e.g., granting of extra time; use of oral interviews, demonstrations or visual representations, or tasks requiring completion of graphic organizers or close sentences instead of essay questions and other assessment tasks that depend heavily on proficiency in English).

Any modifications made to the learning expectations of a course due to English language issues will be clearly indicated on the student's report card.

ANTIDISCRIMINATION EDUCATION

Antidiscrimination education encourages students to think critically about themselves and others in the world around them in order to promote fairness, healthy relationships, and active, responsible citizenship.

Antidiscrimination principles in education help promote a school climate that encourages all students to work to high standards, affirms the worth of all students, and helps students strengthen their sense of identity and develop a positive self-image. It encourages staff and students alike to value and show respect for diversity in

the school and the wider society. At TFS High School our students come from all over the world. It is essential that we create an environment that is hospitable to all cultures, races and genders. It is also important that we familiarize them with not only the Ontario school system but with Canadian legal, political and social systems. Teachers, in choosing resources for learning, will select those that reflect a broad range of students' interests, backgrounds, cultures, and experiences as a means of achieving inclusivity. The materials chosen will reflect the diversity of Canadian and world cultures, including those of contemporary First Nations, Métis, and Inuit peoples. Literature studies afford both students and teachers a unique opportunity to explore the social and emotional impact of bullying, violence, and discrimination in the form of racism, sexism, or homophobia on individuals and families. Short stories, novels, magazine and newspaper articles, television programs, and films will be used to provide opportunities for students to explore issues relating to their self-identity. Students will be made aware of the historical, cultural, and political contexts for both the traditional and non-traditional gender and social roles represented in the materials they are studying. Teachers will prompt students new to Canada to share their knowledge and experiences with others. In addition, in the context of the English program, both students and teachers should become aware of aspects of intercultural communication – for example, by exploring how different cultures interpret the use of eye contact and body language in conversation and during presentations.

LITERACY, MATHEMATICAL LITERACY, AND INQUIRY/RESEARCH SKILLS

Literacy, mathematical literacy, and inquiry/research skills are critical to students' success in all subjects of the curriculum and in all areas of their lives.

The Science curriculum will be on students gaining and improving upon their scientific and research skills, but the Science program also builds on, reinforces, and enhances mathematical literacy. For example, the Science curriculum emphasizes students' ability to interpret and use graphic texts, charts, tables and diagrams and develop statistical analysis.

Students are encouraged to develop their ability to ask questions and to explore a variety of possible answers to those questions. Students will use their acquired skills to locate relevant information from a variety of sources, such as books, newspapers, dictionaries, encyclopedias, interviews, videos, and the Internet. Emphasis will be placed on the students' ability to evaluate information, determine its validity and relevance, and use it in an appropriate way. The ability to locate, question, and validate information allows a student to become an independent, lifelong learner.

THE ROLE OF THE SCHOOL LIBRARY IN THE SCIENCE PROGRAM

At present the school has a limited but growing library. Teachers are encouraged to educate students on how the public library system works by bringing their classes to the local library and having students sign up to get a library card. The teachers at TFS High School realize the importance of having a library program which can help build and transform students' knowledge to support lifelong learning. Having students go to the library on a regular basis will encourage them to read more widely, teach them to read for both understanding and enjoyment, and help them to improve their research skills and to use information gathered through research effectively.

THE ROLE OF TECHNOLOGY IN THE SCIENCE PROGRAM

Information and communications technologies (ICT) provide a range of tools that can significantly extend and enrich teaching strategies and support students' learning skills. ICT tools include multimedia resources, databases, Internet websites, digital cameras, and word-processing programs. Tools such as these can help students to collect, organize, and sort the data they gather and to write, edit, and present reports on their findings. Whenever appropriate, therefore, students are encouraged to use ICT to support and communicate their learning. For example, students working individually or in groups can use computer technology and/or

Internet websites to gain access to museums and archives in Canada and around the world. Students can also use digital cameras and projectors to design and present the results of their research to their classmates.

Although the Internet is a powerful learning tool, there are potential risks attached to its use. All students must be made aware of issues of Internet privacy, safety, and responsible use, as well as of the potential for abuse of this technology, particularly when it is used to promote hatred.

THE ONTARIO SKILLS PASSPORT AND ESSENTIAL SKILLS

The Ontario Skills Passport (OSP) is a free, bilingual, web-based resource that provides teachers and students with clear descriptions of the "Essential Skills" and work habits important in work, learning, and life. Students can use the OSP to identify the skills and work habits they already have, plan further skill development, and show employers what they can do. Teachers will encourage students to use OSP tools and resources to show how what they learn in class can be applied in the workplace and in everyday life. For further information on the Ontario Skills Passport, including the Essential Skills and work habits, visit <http://www.skills.edu.gov.on.ca>.

CAREER EDUCATION

To prepare students for the literacy demands of a wide array of postsecondary educational programs and careers, Science courses require students to develop research skills, practice expository writing, and learn strategies for understanding informational reading materials. Making oral presentations and working in small groups with classmates help students express themselves confidently and work cooperatively with others. Regardless of their postsecondary destination, all students need to realize that literacy skills are employability skills. Powerful literacy skills will equip students to manage information technologies, communicate effectively and correctly in a variety of situations, and perform a variety of tasks required in most work environments.

COOPERATIVE EDUCATION AND OTHER FORMS OF EXPERIENTIAL LEARNING

At present the school does not offer a program in cooperative education. If such a program were to be developed then it would be expected for teachers to support their students' learning by maintaining links with community-based businesses to ensure that students have access to hands-on experiences that will reinforce the knowledge and skills gained in school.

HEALTH AND SAFETY IN THE SCIENCE PROGRAM

The Science department stresses health and safety issues in all work associated with labs. Students will be carefully instructed on proper behaviour and proper techniques when doing lab exercises. The Science department also stresses the need for vigilance when the learning involves community service. Out-of-school community service can provide an exciting and authentic dimension to students' learning experiences. Teachers will preview and plan these activities carefully to protect students' health and safety by providing students information regarding their rights to privacy and confidentiality as outlined in the Freedom of Information and Protection of Privacy Act. Teachers will explain to students their right to function in an environment free from abuse and harassment. Students will be informed about school.