



NSRIC International School in Toronto (NIST)

London, ON, Canada

<https://www.nistonline.ca>

Linking Life with Learning

Course of Study

NSRIC International School in Toronto (NIST)

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**Module Title: Reducing Food waste and Composting as a Solution for
Climate Change**

Course Code: (SCIENCE)

Grade: 5

Credit Value:

Prerequisite: None

Department: Sustainability

Curriculum Policy Document

Modules Description

In this module students will learn about various environmental problems and how these problems are impacting our world. Students will focus on problems related to food waste and sending food to the landfill. Students will learn about backyard and industrial composting as a solution. The module describes that the food of almost any kind of animal can be tracked back to plants. Organisms are correlated in food grids in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition ultimately rebuilds (recycles) certain materials back to the soil. Organisms can survive just in environments in which their special needs are met. Healthful ecosystem is one where several species of various types are each able to meet their needs fairly stable web of life. Recently introduced species can cause damage to the balance of an ecosystem.

Overall Module Expectations and Contents

Lesson Titles and Descriptions	Time
Lesson 1.1 Vocabulary Words Students learn about the vocabulary words for this lesson. The teacher teaches the vocabulary word, uses it in a sentence, and then asks a question about the word to gauge the student’s understanding.	20 minutes
Lesson 1.2 Introduction to Climate Change Students start by watching the first video, titled "Climate Change: Earth’s Giant Game of Tetris." This video explains to kids how climate change is similar to a giant game of Tetris, and that if there are too many pieces, which represent CO ₂ , then the Earth will start to heat up. The second video, titled "Causes and Effects of Climate Change, National Geographic", shows what is causing global warming and then shows how global warming is affecting the oceans, weather, food, and health.	7 minutes
Lesson 1.3 Climate Change Information Handout Students will fill out the handout titled “Climate Change Information,” in which students will write down the different information that they learned from watching the two videos on climate change. Students can work together in pairs on this project, but each student should fill out their own worksheet. This worksheet will help the students during the final project in Lesson #5, where students need to write a Letter to the Editor about climate change along with potential solutions that the students have learned throughout the unit.	10 minutes
Lesson 2.1 Food Waste Why the topic of food waste is important and related to climate change: Food waste is a big problem because roughly 1/3 of the food that is grown worldwide is either wasted or lost throughout the entire process, from the farms, distributors,	45 minutes

<p>markets, restaurants, and people’s homes. Decomposing food waste thrown in the landfill can produce methane, which is a harmful greenhouse gas. Throwing away 1/3 of all of the food grown wastes resources, energy to transport these products, land to grow these products, and the time spent by farmers growing these products. It also reduces animals’ habitats and threatens wildlife species.</p>	
<p>Lesson 2.2 Food Waste: Educational Video</p> <p>Students will start by watching the video titled, “Saving Food Educational on food waste, “which explains that 1/3 of all of the food grown is wasted and gives students tips on how to combat food waste. The next two videos are the trailer and an extra clip from the documentary "Just Eat It: A Food Waste Story." The second video gives a brief overview of the film, showing perfectly edible food being wasted in the grocery stores and farmers having to throw out crops that don’t meet cosmetic standards. The third video shows one cauliflower farmer talking about how a certain cauliflower has to be thrown out since it was too big and a little yellow for the supermarkets.</p>	<p>8 minutes</p>
<p>Lesson 2.3 Food System and Waste Mapping Activity</p> <p>Students will be given five minutes to write down all of the steps that they can think of that needs to happen for food to end up in their fridge at home. The students can do this on a blank sheet of paper or within their notebooks.</p> <p>After the students have mapped out the food system themselves and how they think food gets to their fridge, the class will work on this project together. Through this activity, students can see all of the inputs that goes into food ending up in their fridge. They can see the importance of only buying the food that you need and not wasting this food. The teacher will call on students to ask for the different steps in the process. The teacher will then write most, if not all of the steps, on the white board.</p>	<p>15 minutes</p>
<p>Lesson 2.4 How can we solve the problem</p> <p>EPA’s Food Recovery Hierarchy Students review the EPA’s Food Recovery Hierarchy, which shows how people can manage food waste, with the most preferred to the least preferred options. The teacher will present this to the students via the PowerPoint, will select some students to read the table aloud, and then will ask students if they have any questions regarding the Food Recovery Hierarchy.</p>	<p>7 minutes</p>
<p>Lesson 3.1 Composting and other Climate Solutions</p> <p>Why the topic of composting is important and related to climate change: Because landfills contain no oxygen, decomposing food in landfills produce methane, which is a harmful greenhouse gas. Composting releases much less methane compared to throwing food in a landfill and also gives back nutrients to the soil. Additionally, composting also provides nutrients back to the soil and is a great fertilizer to fruits, vegetables, and plants in a backyard garden. Lastly, composting is one of the options on the EPA’s Food Recovery Hierarchy, which is the best option to do with food scraps that are inedible or are by-products such an</p>	<p>45 minutes</p>

orange peels or eggshells.	
Lesson 3.2 Composting Videos Students will watch three composting videos. The first video gives an overview showing the students how food is turned into compost via backyard composting. This is done by going into an animated compost bin where a roly-poly teaches about the different layers and animals needed to break down food within a compost bin. The second video is about how the City of Denver is closing the loop by collecting food scraps and then selling the finished compost in a local hardware store. The third video quickly explains what goes inside of the compost bin.	10 minutes
Total	167 minutes

Resources required by the student:

This course is entirely online and does not require a textbook.

Students will be required to have:

- Notebooks
- White Art paper
- Markers/crayons/coloured pencils

Assessment, Evaluation and Reporting Strategies of Student Performance:

Our method of assessment and evaluation is in accordance with the Ministry of Education's Growing Success document, which serves the best interests of students. We aim to design assessment in such a way as to make it possible to gather and show evidence of learning in a variety of ways to transfer skills and responsibility to students, and to give multiple and varied opportunities to reflect on learning and receive thorough feedback.

Growing Success articulates the vision the Ministry has for the purpose and structure of assessment and evaluation techniques. There are seven fundamental principles that ensure best practices and procedures of assessment and evaluation by NIST teachers. NIST assessments and evaluations,

- 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 course and at other 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.

Throughout the units, students will complete graded work, (task-based assignments, quizzes, and practical exercises) based on topics of the past week or topical past papers, which allows the teacher to assess the students' progress. Discussions will also be initiated to stimulate the thinking skills of the student. At the end of each unit there will be a summative assessment. This allows us to measure the students' progress throughout the course. 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.

Student achievement will be communicated formally to students via an official report card. Report cards are issued at the midterm point in the course, as well as upon completion of the course. Each report card will focus on two distinct, but related aspects of student achievement. First, the achievement of curriculum expectations is reported as a percentage grade. Additionally, the course median is reported as a percentage. The teacher will also provide written comments concerning the student's strengths, areas for improvement, and next steps. Second, the learning skills are reported as a letter grade, representing one of four levels of accomplishment. The report card also indicates whether an OSSD credit has been earned. Upon completion of a course, NIST will send a copy of the report card back to the student's home school (if in Ontario) where the course will be added to the ongoing list of courses on the student's Ontario Student Transcript. The report card will also be sent to the student's home address.

Program Planning Considerations:

Program for Students with Special Needs:

Teachers who are planning a program in this subject will make an effort to take into account considerations for program planning that align with the Ontario Ministry of Education policy and initiatives in a number of important areas.

NIST is committed to ensuring that all students, especially those with special education needs, are provided with the learning opportunities and supports they require 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 evolving. Provisions included in the Canadian Charter of Rights and Freedoms and the Ontario Human Rights Code have driven some of these changes. Others have resulted from the evolution and sharing of best practices related to the teaching and assessment of students with special educational needs.

NIST pays particular attention to the following beliefs: (1) all students can succeed, (2) each student has his or her own unique patterns of learning, (3) successful instructional practices are founded in evidence-based research, tempered by experience, (4) 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, (5) classroom teachers are the key educators for a

student's literacy and numeracy development, (6) classroom teachers need the support of the larger community to create a learning environment that supports students with special education needs, and finally, (7) fairness is not sameness.

The provision of special education programs and services for students at NIST rests within a legal framework. The Education Act and the regulations related to it set out the legal responsibilities pertaining to special education. They provide comprehensive procedures for the identification of exceptional pupils, for the placement of those pupils in educational settings where the special education programs and services appropriate to their needs can be delivered, and for the review of the identification of exceptional pupils and their placement.

If the student requires either accommodations, then NIST will take into account these needs of exceptional students as they are set out in the students' existing Individual Education Plan. The online courses offer a vast array of opportunities for students with special education needs to acquire the knowledge and skills required for our evolving society. Students who use alternative techniques for communication may find a venue to use these special skills in these courses. There are a number of technical and learning aids that can assist in meeting the needs of exceptional students as set out in their Individual Education Plan. In the process of taking their online course, students may use a personal amplification system, tele-typewriter (via Bell relay service), an oral or a sign-language interpreter, a scribe, specialized computer programs, time extensions, ability to change font size, oral readers, etc.

Accommodations (instructional, environmental or assessment) allow the student with special education needs access to the curriculum without changes to the course curriculum expectations. NIST will develop a Student Success Action Plan (SSAP) based on the student's existing Individual Education Plan.

Program Considerations for English Language Learners

This NIST online course provides a number of strategies to address the needs of ESL/ELD students. This online course must be flexible in order to accommodate the needs of students who require instruction in English as a second language or English literacy development. The NIST teacher considers it to be his or her responsibility to help students develop their ability to use the English language properly. Appropriate accommodations affecting the teaching, learning, and evaluation strategies in this course may be made in order to help students gain proficiency in English, since students taking English as a second language at the secondary level have limited time in which to develop this proficiency.

NIST determines the student's level of proficiency in the English Language upon registration. This information is communicated to the teacher of the course following the registration and the teacher then invokes a number of strategies and resources to support the student in the course. On a larger scale, well written content will aid ESL students in mastering not only the content of this course, but as well, the English language and all of its idiosyncrasies. NIST has created course content to enrich the student's learning experience. Many occupations in Canada require employees with capabilities in the English language. Enabling students to learn English language skills will contribute to their success in the larger world.

Environmental Education

Helping students become environmentally responsible is a role assumed by NIST. The first goal is to promote learning about environmental issues and solutions. The second goal is to engage students in practicing and promoting environmental stewardship in their community. The third goal stresses the importance of the education system providing leadership by implementing and

promoting responsible environmental practices so that all stakeholders become dedicated to living more sustainably. Environmental education teaches students about how the planet's physical and biological systems work, and how we can create a more sustainable future. Good curriculum design following the resource document - The Ontario Curriculum, Grades 9-12: Environmental Education, Scope and Sequence of Expectations, 2011, will assist NIST staff to weave environmental education in and out of the online course content. This ensures that the student will have opportunities to acquire the knowledge, skills, perspectives and practices needed to become an environmentally literate citizen. The online course should provide opportunities for each student to address environmental issues in their home, in their local community, or even at the global level.

Equity & Inclusive Education

The NIST equity and inclusive education strategy focuses on respecting diversity, promoting inclusive education, and identifying and eliminating discriminatory biases, systemic barriers, and power dynamics that limit the ability of students to learn, grow, and contribute to society. Antidiscrimination education continues to be an important and integral component of this strategy. In an environment based on the principles of inclusive education, all students, parents, caregivers, and other members of the school community - regardless of ancestry, culture, ethnicity, sex, physical or intellectual ability, race, religion, gender identity, sexual orientation, socio-economic status, or other similar factors - are welcomed, included, treated fairly, and respected. Diversity is valued, and all members of the NIST community feel safe, comfortable, and accepted. Every student is supported and inspired to succeed in a culture of high expectations for learning. In an inclusive education system, all students see themselves reflected in the curriculum, their physical surroundings, and the broader environment, so that they can feel engaged in and empowered by their learning experiences.

NIST can give students a variety of opportunities to learn about diversity and diverse perspectives. By drawing attention to the contributions of women, the perspectives of various ethno-cultural, religious, and racial communities, and the beliefs and practices of First Nations, Métis, and Inuit peoples, teachers enable NIST students from a wide range of backgrounds to see themselves reflected in the curriculum. It is essential that learning activities and materials used to support the curriculum reflect the multicultural nature of society that is Canada. In addition, NIST differentiates the instruction and assessment strategies to take into account the background and experiences, as well as the interests, aptitudes, and learning needs, of all students.

Financial Literacy Education

Financial literacy may be defined as having the knowledge and skills needed to make responsible economic and financial decisions with competence and confidence. Since making financial decisions has become an increasingly complex task in the modern world, students need to have knowledge in various areas and a wide range of skills in order to make informed decisions about financial matters. Students need to be aware of risks that accompany various financial choices. They need to develop an understanding of world economic forces as well as ways in which they themselves can respond to those influences and make informed choices. NIST considers it essential that financial literacy be considered an important attribute of a well-educated population. In addition to acquiring knowledge in such specific areas as saving, spending, borrowing, and investing, students need to develop skills in problem solving, inquiry, decision making, critical thinking, and critical literacy related to financial and other issues. The goal is to help students acquire the knowledge and skills that will enable them to understand and respond to complex issues regarding their own personal finances and the finances of their families, as well as to develop an understanding of local and global effects of world economic forces and the social, environmental,

and ethical implications of their own choices as consumers. The Ministry of Education and NIST are working to embed financial literacy expectations and opportunities in all courses as appropriate, as part of the ongoing curriculum review process.

Literacy, Mathematical Literacy, and Inquiry Skills

Literacy is defined as the ability to use language and images in rich and varied forms to read, write, listen, view, represent, and think critically about ideas. It involves the capacity to access, manage, and evaluate information; to think imaginatively and analytically; and to communicate thoughts and ideas effectively. Literacy includes critical thinking and reasoning to solve problems and make decisions related to issues of fairness, equity, and social justice. Literacy connects individuals and communities and is an essential tool for personal growth and active participation in a cohesive, democratic society. Literacy involves a range of critical-thinking skills and is essential for learning across the curriculum. Literacy instruction takes different forms of emphasis in different subjects, but in all subjects, literacy needs to be explicitly taught. 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.

Many of the activities and tasks that students undertake in the NIST courses involve the literacy skills relating to oral, written, and visual communication. For example, they develop literacy skills by reading, interpreting, and analysing various texts. In addition, they develop the skills needed to construct, extract information from, and analyse various types of information presented in a variety of media forms. In all NIST courses, students are required to use appropriate and correct terminology, including that related to the concepts of disciplinary thinking, and are encouraged to use language with care and precision in order to communicate effectively.

Inquiry and research are at the heart of learning in all subject areas at NIST. Students are encouraged to develop their ability to ask questions and to explore a variety of possible answers to those questions. As they advance through the grades, they acquire the skills to locate relevant information from a variety of print and electronic sources. The questioning they practiced in the early grades becomes more sophisticated as they learn that all sources of information have a particular point of view and that the recipient of the information has a responsibility to evaluate it, determine its validity and relevance, and use it in appropriate ways. The ability to locate, question, and validate information allows a student to become an independent, lifelong learner.

Cooperative Education

By applying the skills they have developed, students will readily connect their classroom learning to real-life activities in the world in which they live. Cooperative education and other workplace experiences will broaden their knowledge of employment opportunities in a wide range of fields. In addition, students will increase their understanding of workplace practices and the nature of the employer-employee relationship. NIST will try to help students link to Ministry programs to ensure that students have information concerning programs and opportunities.

Health and Safety

In order to provide a suitable learning environment for the NIST staff and students, it is critical that classroom practice and the learning environment complies with relevant federal, provincial, and municipal health and safety legislation and by-laws, including, but not limited to, the Workplace Safety and Insurance Act, the Workplace Hazardous Materials Information System (WHMIS), the Food and Drug Act, the Health Protection and Promotion Act, the Ontario Building Code, and the

Occupational Health and Safety Act (OHSA). The OHSA requires all schools to provide a safe and productive learning and work environment for both students and employees.

Ethics

NIST courses provide varied opportunities for students to learn about ethical issues and to explore the role of ethics in both public and personal decision making. During the inquiry process, students may need to make ethical judgements when evaluating evidence and positions on various issues, and when drawing their own conclusions about issues, developments, and events. Teachers may need to help students in determining appropriate factors to consider when making such judgements. In addition, it is crucial that NIST teachers provide support and supervision to students throughout the inquiry process, ensuring that students engaged in an inquiry are aware of potential ethical concerns and address them in acceptable ways. Teachers at NIST will ensure that they thoroughly address the issue of plagiarism with students. In a digital world in which there is easy access to abundant information, it is very easy to copy the words of others and present them as one's own. Students need to be reminded, even at the secondary level, of the ethical issues surrounding plagiarism, and the consequences of plagiarism should be clearly discussed before students engage in an inquiry. It is important to discuss not only dishonest plagiarism but also more negligent plagiarism instances. Students often struggle to find a balance between writing in their own voice and acknowledging the work of others in the field. Merely telling students not to plagiarize, and admonishing those who do, is not enough. The skill of writing in one's own voice, while appropriately acknowledging the work of others, must be explicitly taught to all NIST courses. Using accepted forms of documentation to acknowledge sources is a specific expectation within the inquiry and skill development strand for each course.

Information and Communications Technology

Information literacy is the ability to access, select, gather, critically evaluate, and create information. Communication literacy refers to the ability to communicate information and to use the information obtained to solve problems and make decisions. Information and communications technologies are utilized by all NIST students when the situation is appropriate within their online course. As a result, students will develop transferable skills through their experience with word processing, internet research, presentation software, and telecommunication tools, as would be expected in any other course or any business environment. Although the Internet is a powerful learning tool, there are potential risks attached to its use. All students must be made aware of issues related to 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.