

Social Action Curriculum Project

Grade 8

*What can we do to create an
ecological handprint?*

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Introduction

What is the goal?

In terms of social action, the goal for this unit and curriculum project is to encourage students to take individual responsibility for their ecological footprint and to spread awareness with regards to environmental sustainability. This means creating an ecological handprint instead. Our personal goal as a professional learning community is to encourage teachers to execute the lesson plans in an environmentally friendly fashion, to “lead by example”. The ideas expressed through each lesson will be mirrored by the teachers and the lessons themselves. Each lesson is intended to act as an artifact in which a teacher could implement as a complete unit, or as individual lessons. The themes of each lesson are therefore finite yet cohesive. Each lesson addresses its own essential question, as a component of the whole:

- *What is the economic impact of trading Canadian natural resources?*
- *How does my behaviour effect the global distributions of water, and what can I do to make a positive impact?*
- *How can we reduce the environmental impact in our households?*
- *How much energy am I actually saving by turning off that light?*
- *What makes a speech powerful and how can we use it to invoke environmental sustainability in our society?*

The project is composed in such a fashion that allows for the scaffolding between each individual lesson. It is intended that the sequence of the lesson plans will stimulate thought by providing students with enough background knowledge on environmental issues. This background knowledge will encourage students to begin to focus on following the ecological handprint model. Along with being knowledgeable, we want our students to become part of the solution, an engaged citizen. This is a student that develops from the “personally responsible”, grows to the “participatory”, and ends with the “justice oriented citizen” (Westheimer, 2008, p. 30). This means that we are not only encouraging students to take social action, but to ask questions about why this sort of action needs to be taken. This process will address the essential questions in a logical order as they relate back to the overall essential question of, *what can we do to create an ecological handprint?*

The following outlines the ways in which each lesson addresses the essential question of the unit:

Geography: Students will come to realize the ways in which economic factors and environmental sustainability often conflict. One must have a general understanding of both in order to understand that some efforts are not practical, but awareness is crucial to establishing this balance.

Science: After students address the water resources and the ways in which the quality of these resources are affected by human activity, the intention is that students will understand their role in terms of environmental stewardship.

Mathematics: Students might not perceive that their contributions such as limiting light use, recycling, and reducing electricity will amount to a significant impact on the environment over a lifetime. The overall curriculum expectation of solving proportional reasoning problems presented in the mathematics lesson allows for students to determine their individual impact on the environment.

Physical Education: Through active physical participation and understanding of personal motivational factors, students will begin to gain the personal and interpersonal knowledge and skills that increase their capacity to become active vocal leaders. Students who attain a better self-image and increased confidence through exercise are going to be more willing to canvass and to promote social issues in and around their community.

Language Arts: The overall curriculum expectations relates to the essential question in that students will use oral communication of public speaking strategies to effectively engage with the issues and to inspire change in others.

The bigger picture

Our rationale for this project is based on the idea that improvement takes place on an individual level as it leads to a collaborative effort in making change. This unit plan is part of a larger social justice project, which will be initiated through awareness of the issues surrounding how our ecological footprint affects the world, simulations and activities to further highlight these issues, followed by possible solutions to be implemented in our schools, communities, and society as a whole. The environment is in a fragile state, and it will take strong and educated efforts to sustain our beautiful planet. To be able to utilize and enjoy our resources in the future, students must learn what they can do to preserve our planet.

How can we do this?

When implementing each lesson, a great start might be to reduce the use of paper or to use recycled paper instead, utilize natural lighting when possible, and so on. Students will learn ways that they can make a difference in our world, through individual action, community efforts, and change on a global scale.

Why grade 8?

This unit plan and social action project targets grade 8 students specifically. This age group is beginning to understand social responsibility, and what it means to be an active citizen whose choices affect the bigger picture of our world. This selection of lesson plans demonstrates how students can engage with the curriculum in a practical way. Students are at a place in their lives where they are beginning to take a lot from the planet, and must understand how they can turn this footprint into a handprint.

Curricular Objectives

Geography: Economic Systems

The purpose of this lesson is to encourage students to analyse and research Canadian natural resources and the effects and influences that they have on the economy. Students will collect this information from different viewpoints. This will help students realize the effects that humans have on Canadian natural resources. This lesson will thus teach students how to reduce their ecological footprint.

Overall expectations

- Compare the economies of different communities, regions, or countries, including the influence of factors such as industries, access to resources, and access to markets

Specific expectations

- Explain how the availability of particular economic resources influences the economic success of a region
- Formulate questions to guide and analyze research on economic influences and relationships

Math: Number Sense and Numeration

The purpose of this lesson is to make students aware of the cost of electricity and water. By having students look at previous bills, they will estimate how much their household could save in cost by decreasing temperature, light and water proportionally. Students will apply this data in order to understand the impact they have on the environment and to develop goals for long-term electricity and water conservation.

Overall Expectations

- Solve problems by using proportional reasoning in a variety of meaningful contexts

Specific Expectations

- Solve problems involving percent that arise from real-life contexts (e.g., discount, sales tax, simple interest)
- Solve problems involving rates

Science: Understanding Earth and Space Systems

Students will discover through a variety of sources (news reports, physical demonstrations, class discussion, etc.) the ways in which human activity has impacted and continues to impact global distributions of water. Students will discover the scientific basis for this knowledge as well as explore applications in order to reduce water consumption. Following the lesson, students will discuss ways in which they as a class can weekly reduce their ecological footprint based on their new knowledge of water resources. Students will understand the connection between their individual actions, actions as a community, and so on, which affect the world as a whole.

Overall Expectations

- 1. assess the impact of human activities and technologies on the sustainability of water resources
- 3. demonstrate an understanding of the characteristics of the earth's water systems and the influence of water systems on a specific region

Specific Expectations

- 1.1 evaluate personal water consumption and propose a plan of action to reduce personal water consumption to help address water sustainability issues
- 3.1 identify the various states of water on the earth's surface, their distribution, relative amounts, and circulation, and the conditions under which they exist

- 3.2 demonstrate an understanding of the watershed as a fundamental geographic unit, and explain how it is related to water management and planning
- 3.3 explain how human and natural factors cause changes in the water table

Health and Physical Education: Active Living

During a physical education class, students will undergo a module based cyclic exercise endurance challenge. To the best of their abilities, students will perform various exercises at different stations throughout constant time intervals. The goal is to attain a numerical amount of the carbon dioxide emitted by the students at the end of the class and compare that to a daily commute of one hour by different modes of transportation. In addition, students will learn how to promote the health and ecological benefits of commuting to work/school using ecologically friendly means. Students will enter their community and pledge others to commit to commute to work/school with the goal of reducing carbon emissions.

Overall Expectations

- 1. participate actively and regularly in a wide variety of physical activities, and demonstrate an understanding of how personal motivational factors can be used to encourage participation in physical activity
- 3. demonstrate responsibility for their own safety and the safety of others as they participate in physical activities

Specific Expectations

- 1.3 demonstrate an understanding of factors that motivate personal participation in physical activities every day, and explain how these factors can be used to influence others to be physically active
- 3.1 demonstrate behaviours and apply procedures that maximize their safety and that of others in a variety of physical activity settings

Language Arts: Oral Communication

By the end of the lesson, students will have a better understanding of environmental issues and public speaking. Students will be able to learn effective ways to speak publicly by learning strategies and techniques of public speaking. This assignment deals specifically with the global issues surrounding environmental sustainability. It also teaches individual action and responsibility as a human contributing to society and interacting with the environment.

Overall Expectations

- 2. use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes

Specific Expectations

- 2.2 demonstrate an understanding of appropriate speaking behaviour in most situations, using a variety of speaking strategies and adapting them to suit the purpose and audience
- 2.3 communicate in a clear, coherent manner, using a structure and style appropriate to the purpose, the subject matter, and the intended audience
- 2.7 use a variety of appropriate visual aids to support and enhance oral presentations

This social action curriculum project incorporates five subject areas in order to prove that a multi-dimensional approach can be taken in reference to environmental sustainability. Environmental sustainability is important in every dimension of curriculum, thus should be addressed in this fashion. To underscore the importance of promoting environmental stewardship in the students, this unit plan demonstrates how environmental sustainability can be incorporated in every subject just as it should be in every aspect of life. With the five subject area approach, the unit plan is also flexible enough to allow teachers to extract lessons which they may wish to incorporate into other prearranged unit plans.

Assessment Tools

The collection of lesson plans in this unit ensures the coverage of the different types of assessment: diagnostic, formative, and summative. The diagnostic assessment piece, in lesson 1, in which student create a poster and presentation, gages students' prior knowledge and acts as a tool for the teacher to anticipate where she should go next with her lesson plans. The formative assessment piece, in lesson 3, in which has students analyze their energy consumption, determines whether students are developing a deep understanding of the material and the social action goals. The summative assessment piece, in lesson 5, in which students develop an oral presentation with the community as the intended audience, evaluates students' overall understandings of environmental sustainability and provides them with the opportunity to engage in a social action project. The three assessments tools incorporate the three modes of assessment. Through the diagnostic assessment tool, students are asked to use oral communication to express what they know about a topic, thus students will have the opportunity to "say" and "do". The formative assessment tool allows students to "write" what they are exploring through proportional reasoning and explain how they understand reducing their environmental footprint. Finally, the summative assessment tool encourages students to promote environmental stewardship and awareness in their own communities, through "say" and "do". Students will implement their social action project by developing an oral presentation using effective speaking strategies that will be discussed and developed in the Language Arts lesson.

Lesson 1

“Canadian Natural Resources Research Introduction”

Geography: Economic Systems



Title: <u>Canadian Natural Resource Research Introduction</u>		Strand: <u>Economic Systems</u>	
Subject/Course: <u>Geography</u>		Grades: <u>8</u>	
		Time: <u>50 minutes</u>	
Lesson Description			
Students will be introduced to Canadian natural resources and the positive and negative aspects of sharing these resources on a global scale. Students will be given a specific resource to research. Within the research group, students will be assigned individual roles as part of a community. Students will come to a final consensus about how the resource should be used on a global level through an oral presentation.			
Stage 1: Desired Results			
Fundamental Concepts/Skills			
<ul style="list-style-type: none"> -Canada's natural resources and their effects on the economy -How pictures and quotes help to communicate meaning -Understand the ways in which different points of view affect Canadian economic decisions 			
Big Ideas/Essential Question			
What is the economic impact of trading Canadian natural resources?			
Ontario Curricular Overall Expectation			
Compare the economies of different communities, regions, or countries, including the influence of factors such as industries, access to resources, and access to markets.			
Ontario Curricular Specific Expectation			
<ul style="list-style-type: none"> - Explain how the availability of particular economic resources (e.g., quantity and quality of land, labour, capital, entrepreneurial ability) influences the economic success of a region. - Formulate questions to guide and analyze research on economic influences and relationships (e.g., Where would be the best place to start a new logging industry in Canada? How have the types of industries in Canada changed since the nineteenth century? How has technology changed a specific industry?) 			
Lesson Goals			
By the end of this lesson students will be able to develop a basic understanding of Canada's natural resources and the use for these resources in the economic system. Students will practice and develop simple research strategies. In groups, students will summarize findings from research and express opinions through point of view. Following, students will orally present findings to the class. Students will be able to develop their own opinion of how Canadian natural resources should be used.			
Key concepts and/or skills to be learned/applied:		Background Knowledge:	
<ul style="list-style-type: none"> - Canadian natural resources - Analyze economic influence and relationships - Critical thinking and opinion-based point of view - Appropriate terminology 		<ul style="list-style-type: none"> - Basic concept of Canadian natural resources - General knowledge of Canadian economic systems 	
Stage 2: Planning learning experience and instruction			
Student Groupings		Instructional Strategies	
<ul style="list-style-type: none"> • Whole class discussion • Students grouped into groups of 6 • Students will be grouped by readiness in pre-selected groups • Roles played will be randomly selected (line up shortest to tallest, tallest is #1, etc. 		<ul style="list-style-type: none"> • Discussion (teacher led) • Collaborative learning • Discussion (student led) • Cooperative Learning 	
Materials		Considerations	

<ul style="list-style-type: none"> • SMARTboard • Computer lab/access to the internet (e.g. iPads) • Pens • Notebooks • Markers • Chart paper 	<ul style="list-style-type: none"> • Availability of internet access and devices • SMARTboard hookups
Accommodations	
<ul style="list-style-type: none"> - Students will be grouped by readiness, therefore the teacher will be able to guide certain groups and provide them with extra attention when necessary - Students with difficulty reading: Will be given lesson night before to go over with parent or and brainstorm activities - Vision impaired students: Will be given a personal copy of lesson in a larger font or can use computers in order to increase font size 	
Stage 3: Learning experience and instruction	
Motivational Hook (5 MINS):	
<p>Students will view Slide #1 (see Exhibit 1) “No man is an island, entire of itself” -John Donne on the SMARTboard. As a class, students will brainstorm ideas about what this quote might mean. Teacher will use guiding and prompting words in order to direct students to the conclusion that no person could exist without the existence of another. This will lead to the idea of the importance of resource sharing from country to country. Ideas of interdependence and globalization will be introduced.</p>	
Open (10 MINS):	
<p>Students will view Slide #2 (see Exhibit 2) and brainstorm the importance of resource. Students will determine the positive and negative aspects of each and post them on the SMARTboard. Positive examples might include connections with different countries, economic growth, job increases. Negative examples might include the negative effect on nature, finite resources. Slide #3 (see Exhibit 3) will follow, in which students will discuss the photo of the logger and the positive and negative connotations of such a career. Slide #4 (see Exhibit 4) of the Canadian bill from 1973 will follow in which students will be asked to recognize the location depicted. It will be explained that the timber trade was a key factor that helped to establish Ottawa in the 1800’s. Finally, Slide # 5 (see Exhibit 5) will be used to ask students to brainstorm other Canadian natural resources. The photos of grains and oil seeds, forests, water, live animals, coal and oil will be displayed on the SMARTboard.</p>	
Body (25 MINS):	
<p>The task will be explained to students (see Exhibit 6) and students will get into groups in order to complete the activity.</p>	
Close (15 MINS):	
<p>Students will have organized their points onto chart paper, and will report their findings to the class. After all of the short presentations, the class will make a consensus about how Canada should use its natural resources.</p>	
Link to Future Lessons	
<p>Students will be required to research and write a summary or make a poster to advertise for a non-government organization, which they will complete at home. These organizations must have a focus on protecting Canadian natural resources (see Exhibit 7). This will allow students to develop simple research skills. This activity will also introduce students to grassroots organizations that could potentially lead to a volunteer position. Future lesson will allow students to discover the meaning of primary, secondary, and tertiary industries. Following this lesson, students will also learn to weigh the pros and cons of trade agreements such as NAFTA and the WTO.</p>	
Assessment	
<p>Exhibits 1-5 will be used as diagnostic assessments. These photos will engage students and introduce them to natural resources. Students will then be able to activate their prior knowledge about natural resources through class discussion. The students’ current level of understanding will then be assessed through observation in order to determine students’ strengths and areas of need in order to continue with the lesson and activities.</p>	

Exhibit 1

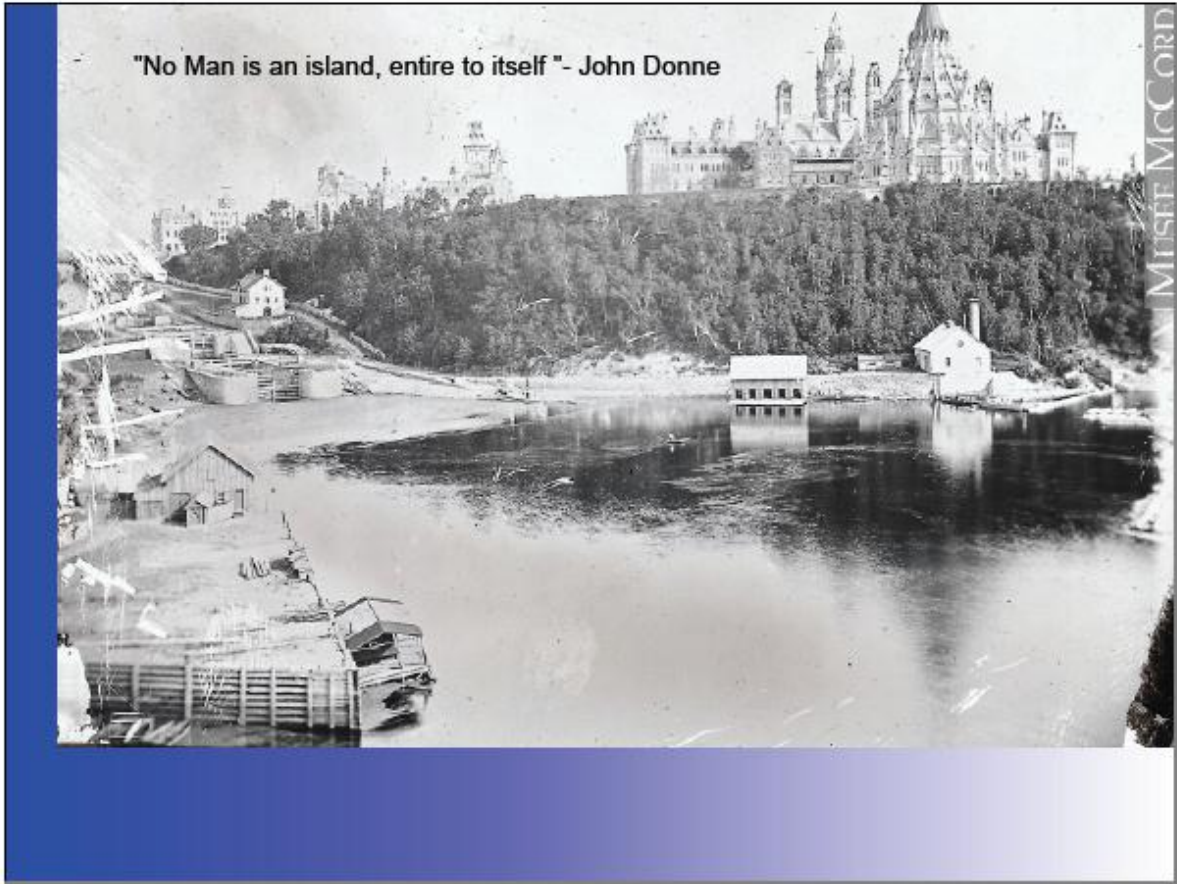


Exhibit 2



Exhibit 3



Exhibit 4



Exhibit 5



Exhibit 6

Canadian Natural Resources Introduction

As we have just discussed, Canada is a country that is rich with natural resources. However, not everyone in Canada agrees as to how these natural resources should be used within the Canadian economy. Now that you are aware of some of the positive and negative aspects of resource sharing, develop your own opinion of how Canadian natural resources should be used in your community!

- Select a member of your group to draw the Canadian natural resource from a hat.
- Arrange your group in order from tallest to shortest to determine who will play each role. The tallest student will form their answer based on role #1, and so on.

Questions:

1. A government minister who wishes to sell the natural resource to improve the economy
 2. A poor farmer who wishes to sell the resource to make money for his family
 3. An environmental NGO who wishes to protect the resource
 4. A company manager who wishes to use the resource due to the demand for the product, and to make money for the company
 5. A professor from a local university who wishes to find a compromise between all interest groups
 6. A poor local farmer that has three children
- Research your natural resource on the internet. Come up with three or more points based on your role, as to how the resource should be used. Provide evidence to back up your point. You will have 20 minutes to research.
 - Discuss your points with your “community” and appoint one person to manage the discussion.
 - Reach a conclusion using chart paper. Write down 5 points that your community was able to agree upon and 5 points that you did not agree upon. Be sure to incorporate what your resource is and the names of your group members on the chart paper.
 - Present your natural resource to the class. State what the resource is, and discuss its importance in Canada. Share the 10 points your community came up with.

Exhibit 7

Canadian Natural Resources Introduction

1. Research a non-government organization whose main focus is to protect a Canadian natural resource of your choice. Write a summary outlining the goals of this organization and how this can potentially affect the community you live in.

Or

2. Research a non-government organization whose main focus is to protect a Canadian natural resource of your choice. Make a poster for your community to advertise this organization. Attach a brief summary that outlines the goals of this specific organization. The poster must have the name of the organization incorporated in it.

Lesson 2

“Wild Water Works”

Science: Understanding Earth and Space Systems



Title: <u>Wild Water Works</u>		Strand: <u>Understanding Earth and Space Systems</u>	
Subject/Course: <u>Science</u>		Grade: <u>8</u>	Time: <u>50 minutes</u>
Lesson Description			
Students will discover through a variety of sources (news reports, physical demonstrations, class discussion, etc.) the ways in which human activity has impacted and continues to impact global distributions of water. Students will discover the scientific basis for this knowledge as well as explore applications in order to reduce water consumption. Following the lesson, students will discuss ways in which they as a class can weekly reduce their ecological footprint based on their new knowledge of water resources. Students will understand the connection between their individual actions, actions as a community, and so on, which affect the world as a whole. Students will create and take an oath to make an ecological handprint at the end of the lesson.			
Stage 1: Desired Results			
Fundamental Concepts/Skills			
<ul style="list-style-type: none"> - Water distributions around the world - Properties of saltwater vs. fresh water - Forms of water usage - Appropriate terminology - Human impact on global distributions of water and water conditions 			
Big Ideas/Essential Question			
<ul style="list-style-type: none"> • How does my behaviour effect the global distributions of water, and what can I do to make a positive impact? 			
Ontario Curricular Overall Expectation			
<ol style="list-style-type: none"> 1. assess the impact of human activities and technologies on the sustainability of water resources 3. demonstrate an understanding of the characteristics of the earth's water systems and the influence of water systems on a specific region 			
Ontario Curricular Specific Expectation			
<ol style="list-style-type: none"> 1.1 evaluate personal water consumption and propose a plan of action to reduce personal water consumption to help address water sustainability issues 3.1 identify the various states of water on the earth's surface, their distribution, relative amounts, and circulation, and the conditions under which they exist 3.3 explain how human and natural factors cause changes in the water table 			
Lesson Goals			
<ul style="list-style-type: none"> • By the end of the lesson, students will have an understanding of distributions of water, and the differences between saltwater and freshwater. Students will have a good understanding of water usage and how human behaviour impacts water conditions, leading to an understanding of how to monitor water usage and pollution, in order to preserve our freshwater resources. 			
Key concepts and/or skills to be learned/applied:		Background Knowledge:	
<ul style="list-style-type: none"> • Water distribution and Water usage • Differences between saltwater and freshwater • Terminology • Human impact on water and ecological handprint 		<ul style="list-style-type: none"> • Students will be expected to have completed the short reading on Sudbury's Minnow lake (see Exhibit 1) 	
Stage 2: Planning learning experience			
Student Groupings		Instructional Strategies	
<ul style="list-style-type: none"> • Random student groupings • Groups struggling will receive more attention and guidance 		<ul style="list-style-type: none"> • Group discussion/activity (water distribution) • Group activity, class discussion and worksheet (properties of saltwater vs. freshwater) • Small group activity (forms of water usage and ways to reduce usage), present to class upon completion 	

	<ul style="list-style-type: none"> Independent work (homework sheet – Monitoring Water Use at Home) – requires simple math skills
Materials	Considerations
<ul style="list-style-type: none"> Worksheets (see exhibits) Chart paper and Markers Homework sheet Blackboard/whiteboard/SMARTboard Reference text: Pearson Investigating Science and Technology 8 	<ul style="list-style-type: none"> Classroom size for the water distribution (ability to move into separate and distinct groupings within the classroom) Power within the classroom for SMARTboard (if used – chalkboard and whiteboard will be just as effective in this lesson)
Accommodations	
<ul style="list-style-type: none"> Students with physical disabilities may have difficult participating in the water distribution demonstration depending on the size and arrangement of the classroom 	
Stage 3: Learning experience and instruction	
Motivational Hook (10 MINS.):	
<p>Students will be instructed to stand. The class will then be divided proportionately to represent the different global water distributions. 97% represents salt water, and the remaining 3% represents fresh water. The remaining 3% will be composed of 5 students. 3 of these students will represent frozen fresh water. 1 of these students will represent ground water, and the last student will represent fresh water available for human consumption.</p>	
Open (5 MINS):	
<p>Students will discuss how the available freshwater portion compares to the remainder of the water representations. Students will discuss why it is important to keep our usable supply of fresh water clean, and why Earth's supply of frozen fresh water might be considered a source of drinking water in the future.</p>	
Body (25 MINS):	
<p>Students will discuss the differences between fresh water and salt water. Students will first be separated into ability groups, then reconvene as a class to fill out a <i>Characteristics of Fresh Water and Salt Water</i> worksheet (see Exhibit 2). Students will break into groups again in order to discuss water usage and brainstorm ways to reduce water usage. Groups will go to the front of the room to present their findings.</p>	
Close (10 MINS):	
<p>Teacher will conclude the lesson by reminding students of the ways that their water usage effects our global distributions of water. Students will be encouraged to make a pledge in order to reduce their usage, and to make an effort to reduce the impact of human behaviour on our resources. Students are to complete a worksheet titled, <i>Monitoring Water Use at Home</i> (see Exhibit 3) in order to determine how much water each student's family uses per day, and to recognize ways in which water usage can be decreased.</p>	
Link to Future Lessons	
<ul style="list-style-type: none"> Comparing saltwater and fresh water lab activity Acid rain – so what! Reading Wastewater to clean water worksheet Bill Nye video and worksheet on oceans Students will take a field trip to a local fresh water resource. Students will test the water condition and state of the surrounding ecosystem. This is considered place-based learning and will be used as an opportunity to consolidate learning. Students will be asked to imagine a life in which they would not have access to rivers and lakes, etc., therefore would not be able to swim, fish, canoe, etc. summative assessment for the water systems component of the strand – Neville lake debate assignment (questions and paper choosing a side) 	
Assessment	
<ul style="list-style-type: none"> Blackline master worksheet, Monitoring Water Use at Home – homework 	

Exhibit 1

Minnow Lake History

A sawmill on the shores of Minnow Lake (then known as Black Lake) was constructed as soon as the railway reached Sudbury in 1883. For over 30 years the mill processed lumber from the rich forest that covered the landscape, much of it sturdy white pine. A few stumps of these large trees can still be found in the area behind the Carmichael arena on the Blueberry Hill trail. The sawdust, slabs and other residue from formed a peninsula out into Minnow Lake from the site of the mill at the bottom of Downing Street that can still be plainly seen today. Later primitive ore smelting methods would destroy much of the remaining vegetation and deposit heavy minerals into the soil and water. As apparent from this picture the area was a pretty bleak place in the very early days.

Regardless of the environmental damage, there were those who held great faith in the future of the Sudbury area. One of these individuals was an actual member of the French nobility. His full name was Count Nicholas Julian Frederic du Caillaud. In the early part of the last century he owned virtually all of the land east of the train station and Tom Davies Square including the Flour Mill and Bell Park areas. His property extended along the entire length of the north shore of Lake Ramsey, including all of what is now considered the Minnow Lake area.



FRÉDÉRIC ROMANET DU CAILLAUD

A world traveler and author of many books, the Count cut a dashing figure with his long beard, swallow tail coat studded with beads, tall hat and high boots. He always carried a cane or long stick. He made an annual trip across the Atlantic to visit Sudbury each summer, and was his intention to settle here in retirement. He said, "Sudbury is a small town with a great future". Unfortunately, on his death in 1919 his family, back in France, let the property go, and the Barry Family became the second owners of much of the Count's property in the Minnow Lake Area. The two islands in Minnow Lake are named after the Count, the larger island is Du Caillaud, and the smaller Romanet.



William and Maurerite Barry were the best know Minnow Lake residents for many years, and for good reason. William was an active politician serving as reeve of McKim Township, and he also ran for Federal election. He subdivided much of the land in the area and also in what was to become New Sudbury. Mrs. Barry named virtually all of the streets, many after her children (7 of their own and over 30 foster kids).

The Barry's donated land for church buildings of all faiths and for other public uses. They opened the first post office and operated the largest general store in the area, shown in this photo with their residence to the left of the store in the background. The store still stands today, however moved somewhat from its former location. The Barry residence, which became vacant when Mrs. Barry died at age 89 in 1999, has been preserved as an historical site, and is now occupied by offices, but is open for public viewing by appointment (call Financial Decisions Inc. at 525-7526). It is planned that a portion of the property will eventually become a park to add to the public space along the waterfront and to recognize the contribution of the Barry family to this area.



Lake Water Quality Report Card



MINNOW LAKE



Size: 20.9 ha
Watershed: Ramsey
Township: McKim
Population: 36 permanent residences and no seasonal/recreational residences

WATER QUALITY



Clarity: A secchi depth reading of 0.9 m, which falls into the eutrophic zone, indicates that this lake has large areas of abundant aquatic vegetation and is not clear.

Phosphorus Levels: The 10-year average for spring phosphorus in Minnow Lake is 39.36 µg/L, which falls under the eutrophic level, indicating that there is an excess of nutrients in this lake, which may make it susceptible to algae blooms.

PUBLIC ACCESS



Parks and Public Beaches: The Minnow Lake community has many recreational facilities, some located right on the shores of Minnow Lake. Although there is not a public city beach there is the Minnow Lake board walk on Bancroft Drive.

Public Boat Launches: There are no public boat launches on this lake.

SHORELINE DEVELOPMENT



Minnow Lake is a small lake with a fairly high population density with many open grass areas lacking a good buffer zone. Often, the road is close to the lake, which

water. In total, about 46-50% of Minnow Lake's shoreline is disturbed from its natural state.

FISH SPECIES



Percentage of Expected Number of Fish Species: Minnow Lake has 4 known fish species, caught and documented by the Co-operative Freshwater Ecology Unit (<http://coopunit.laurentian.ca>). Based on the size of the lake, the Co-op Unit calculates the number of expected fish species for each lake. Then, given the actual number of fish species present, they calculate the percentage of expected number of fish species - for example, if the Co-op Unit expected 5 species of fish, and the lake only yielded 4 species, the percentage of expected number of fish species would be 80%. Minnow Lake ranks poorly in this category, achieving about 57% of the expected number of fish species for a lake its size.

Species found in this lake: Yellow perch, Brown bullhead, White sucker, and Golden shiner

LAKE STEWARDSHIP



The Minnow Lake Restoration Group was formed over 25 years ago, and continues to be an active stewardship group, looking to improve the health of Minnow Lake.

For more information on the Minnow Lake Restoration Group, please visit their website at <http://www.minnowlake.ca/> or refer to the "Lake Stewardship" link on our website.

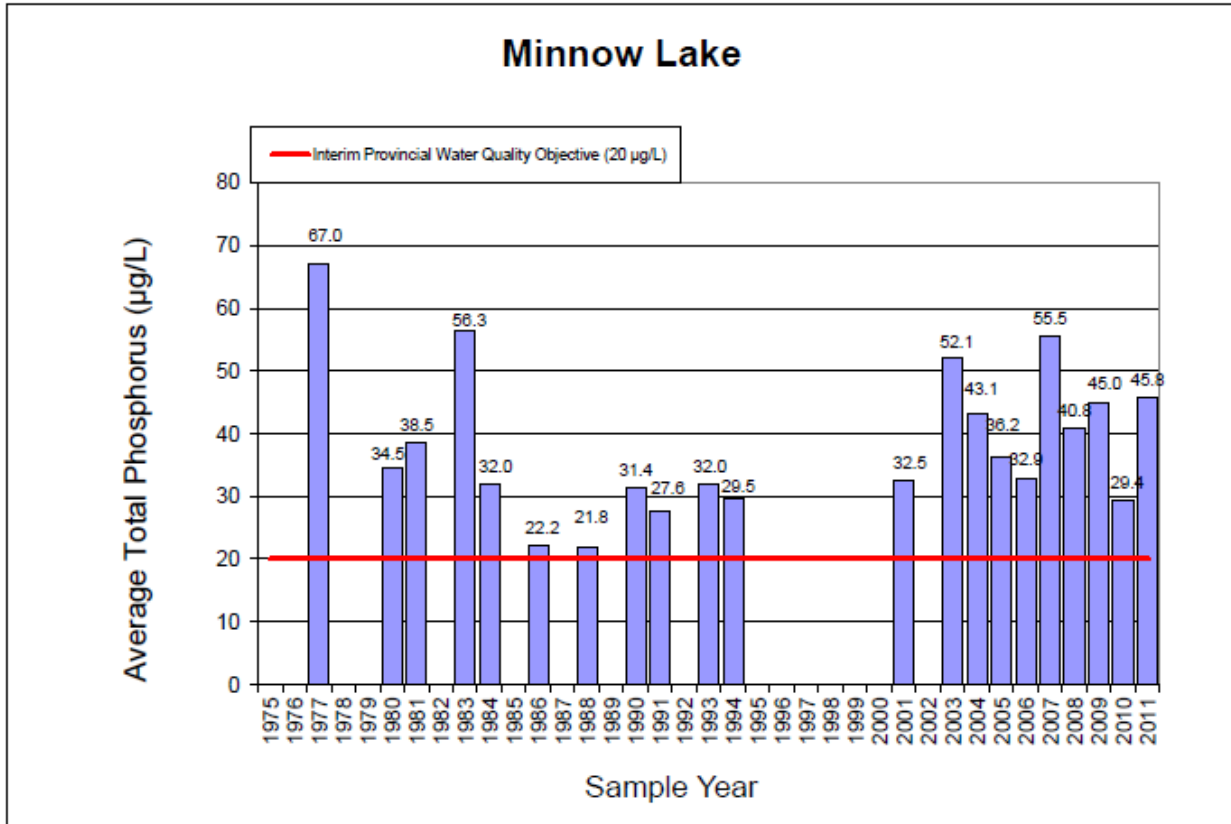


Exhibit 2

Blackline Master 4.1.1

Characteristics of Fresh Water and Salt Water

Salt Water	Fresh Water

Exhibit 3 (exemplar)

Blackline Master 4.6.3
Monitoring Water Use at Home

The average Canadian family uses 326L* of water per day. How much does your family use? Complete the table to find out.

Activity	How Many Times Per Day							Average* per Use (L)	Total (L)
	1	2	3	4	5	6	7		
Bathroom									
toilet flush							10	× 20 L	200 L
shower							2	× 100 L	200 L
bath							2	× 60 L	120 L
teeth brushing							4	× 2 L	8 L
Kitchen									
cooking							1	× 20 L	20 L
washing dishes by hand							0	× 35 L	0 L
dishwasher							1	× 40 L	40 L
garbage disposal							0	× 20 L	0 L
Laundry Room									
washing							2	× 225 L	450 L
Outdoors									
car wash							0	× 400 L	0 L
lawn watering							1	× 35 L/min	6300 L
Total daily									7338 L

*Environment Canada
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Water Systems/Blackline Masters 171

Lesson 3

“How Can We Reduce Heating, Lighting, and Water Usage in Our Classroom/Home?”

Mathematics: Number Sense and Numeration



Title: <u>How Can We Reduce Heating, Lighting, and Water Usage in Our Classroom/Home?</u>	
Strand: <u>Number Sense and Numeration</u> Subject/Course: <u>Mathematics</u> Time: <u>60 minutes</u> Grade: <u>8</u>	
Lesson Description	
This lesson will give students the opportunity to look at two major environmental footprints that we as human beings leave on this earth. Firstly the overuse of energy, and secondly the overuse of water. Students will look at 3 different pictures of the world where it illustrates the electricity usage, and water resources available compared to water utilization. The lesson will focus on proportional situations such as the cost of water, heating and lighting. There will be several ways presented to students to reduce these 3 different household environmental footprints. The students will have a chance to work on a scavenger hunt activity in which they will examine these different classroom usages and determine how these usages can be decreased and by how much.	
Stage 1: Desired Results	
Big Ideas/Essential Question	
<ul style="list-style-type: none"> • How can we reduce the environmental impact in our households? 	
Ontario Curricular Overall Expectation	
<ul style="list-style-type: none"> • solve problems by using proportional reasoning in a variety of meaningful contexts • solve problems involving whole numbers, decimal numbers, fractions, and integers, using a variety of computational strategies 	
Specific Expectation	
solve problems involving percent that arise from real-life contexts (e.g., discount, sales tax, simple interest)	
Key concepts and/or skills to be learned/applied:	Background Knowledge:
<ul style="list-style-type: none"> • Problem solving • Proportions saved in cost 	<ul style="list-style-type: none"> • Calculate volume • Percentage calculation • Subtraction, multiplication, addition
Student Groupings	Instructional Strategies
<ul style="list-style-type: none"> • Hook: Class discussion (pictures) • Predetermined groups of 3 for scavenger hunt, have some weaker students working with stronger students 	<ul style="list-style-type: none"> • Class discussion • Independent work • Group work
Materials	Accommodations
<ul style="list-style-type: none"> • Pencil • Scavenger hunt handout • PowerPoint of figures 1-3 • Hydro bill and Water bill 	<ul style="list-style-type: none"> • Handouts of world maps for students with vision impairment
Stage 3: Learning experience and instruction	
Motivational Hook (10 MINS.):	
Students will view figure 1 (see Exhibit 1) and determine what it might represent. They will be asked about the positive and negative aspects that may occur because of this usage. Students might talk about how the industrialized nations are more lit up than other nations. They might mention how we are using a lot of energy that can be detrimental to the environment. The students will be asked about what can be done in order to reduce the usage of lights and electricity. Students will then view figures 2 and 3 (see Exhibits 2 and 3 respectively). The meanings, as well as positive and negative effects will be discussed.	

Open (5 MINS):
It will be explained to students that we have the potential to reduce energy and water usage in our very own classroom and homes. Students will be asked whether or not they know of any ways that we can reduce usage. Students will discuss what types of electricity are being used in the classroom, and if we can somehow reduce. Students will be asked to list what electricity is used in the home and how this can be reduced. The same questions will be posed regarding water usage.
Body (35 MINS):
The students will be introduced to the idea of proportional situations. For example, most proportional situations can be represented by a graph and involve 4 criteria: there are two quantities involved, the quantities involved are always related by multiplication and division, the points on each graph lie on a straight line passing through the origin, and the graphs lean upwards to the right. Students will get into predetermined groups of 3. Students will be presented with the "Save Resources, Save Money – Scavenger Hunt!" (see Exhibit 4). Hydro and water bills will be available for students to work with. Teacher will circulate the room and assist groups having difficulty.
Close (10 MINS):
To finish off, students will discuss difficulties encountered and offer suggestions to other classmates. The teacher will provide any help and discuss common difficulties and successes. The class will also discuss how this same activity can be utilized in different parts of the school, home, and community. Students will be asked about how they can reduce their usage and will be encouraged to promote these ideas to other community members.
Assessment
<ul style="list-style-type: none"> • Throughout this lesson students will be formatively assessed on their abilities to answer problem solving questions. The scavenger hunt scavenger hunt forms will be collected at the end of class (see Exhibit 5). • Students will be assessed on collaboration and initiative during the time that they are working on the scavenger hunt activity. Collaboration and initiative will be determined based on rubric criteria (see Exhibit 6), and skills will be recorded in a chart (see Exhibit 7).

Exhibit 1

Electricity Usage around the World



Exhibit 2

Fresh Water Resources

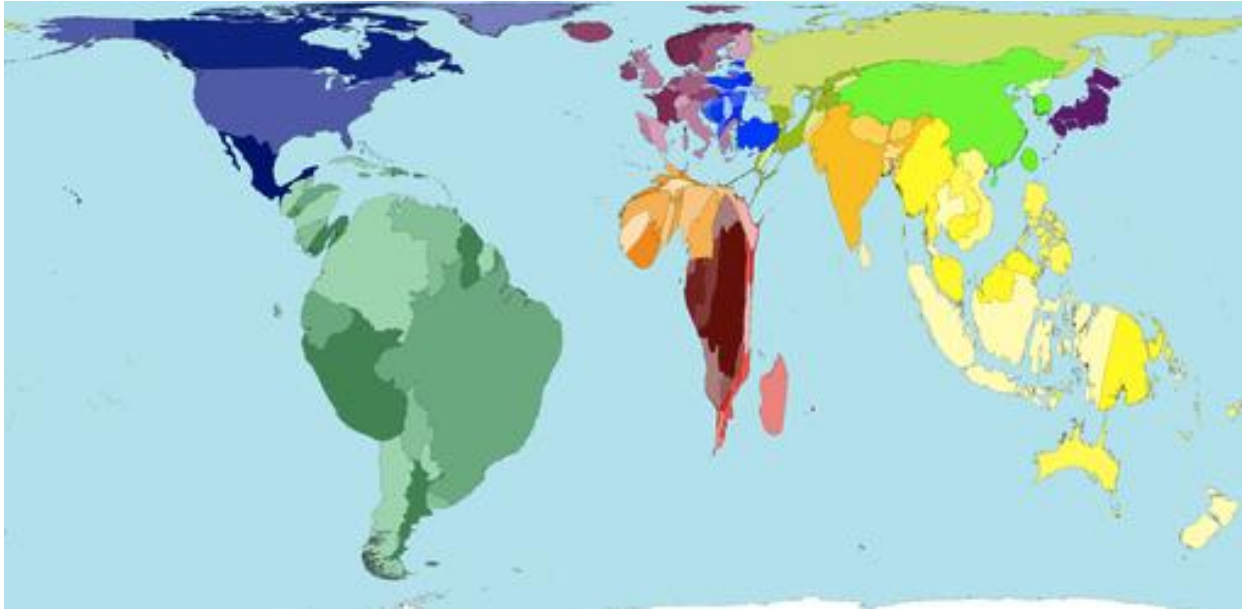


Exhibit 3

Domestic Water Use

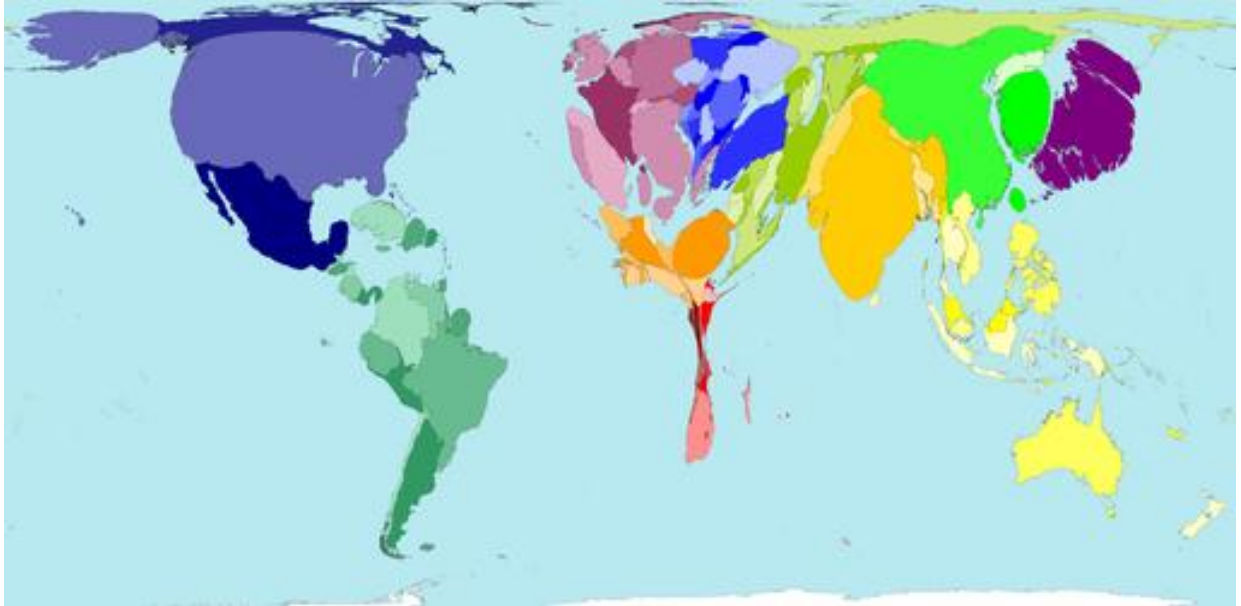


Exhibit 4

Save Resources, Save Money - Scavenger Hunt!

Name: _____

Activity 1 – Reducing Heating Cost:

1. What temperature is the classroom thermostat set at? _____
2. Would you still be comfortable if the temperature was set lower? _____
3. If you can set it lower, by how many degrees during the day, night? _____
4. Reducing temperature by 2 degrees during the day and 5 degrees at night can reduce a heating bill by 15%. Using the bills provided by the teacher add up how much the heating bill was last year. _____
5. How much would you save per year if you decreased your temperature by 2 degrees during the day and 5 at night? _____

Activity 2 – Reducing Lighting Costs

1. With the hydro bills provided by the teacher find out how much electricity cost last year. _____
2. How many light bulbs are in the classroom? _____
3. What is the total wattage of all these light bulbs? _____
4. Estimate how many hours the lights are on for on average daily? _____
5. How many hours would this be each year? _____
6. How much does one kilowatt-hour of electricity cost according to the bill? _____
7. How much does it cost to operate the lights in the classroom for one year? _____
8. If you were to replace the light bulb with a lower wattage bulb how much money would be saved in one year? _____
9. If you were to replace the bulb with a fluorescent bulb how much money would you save in one year? _____
10. What is the price different between regular bulbs and fluorescent bulbs? _____
11. Regular bulbs last only about 6 months compared to fluorescent bulbs that last 10 times as long. How much money could be saved in 5 years by using fluorescent bulbs? _____

Activity 3 – Reducing Water Costs

1. With the water bills provided by your teacher, what was the annual water cost? _____
2. How much does one cubic meter of water cost? (found on bill) _____
3. After taking a bath at home measure the length and width of the tub and depth of the water. Approximately how much water in cubic meters did you use? _____
4. Do the same thing when plugging the drain after you shower. How much more or less water did you use than in the bath? _____
5. How much less or more water would you use in one year? And how much money would you save? You can also save water by putting a brick in the tank of your toilet. _____
6. Measure the volume of the tank in cubic meters. _____
7. Why would you use less water if you put a brick in it? And how much less water would you use in a flush and per year if you put a brick in the tank? _____

Exhibit 5

Formative Assessment - Save Resources, Save Money - Scavenger Hunt

Name: _____

Checklist	Gets It	Needs Work	Comments
Estimate appropriately (Activity 2 – Q4)			
Use percentages appropriately (Activity 1 – Q4)			
Calculate savings of a proportional problem (Activity 1 – Q4, Activity 2 – Q9)			
Accurately calculated proportional cost (Activity 2 – Q7)			
Capable to calculate volume and difference of volume used (Activity 3 – Q6, Q7)			

Exhibit 6

Learning Skills Criteria and Grading Framework

Skill	Excellent (E)	Good (G)	Satisfactory (S)	Needs Improvement (N/I)
Initiative	Consistently seeks clarification or assistance when needed; Uses own strengths, and interests. Perseveres and makes an effort when responding to challenges.	Usually seeks clarification or assistance when needed; Uses own strengths, and interests. Perseveres and makes an effort when responding to challenges.	Sometimes seeks clarification or assistance when needed; Uses own strengths, and interests. Perseveres and makes an effort when responding to challenges.	Rarely seeks clarification or assistance when needed; Uses own strengths, and interests. Perseveres and makes an effort when responding to challenges.
Collaboration	Consistently shares equitably in a group; responds positively to the ideas, and opinions of others. Shares information and expertise and promotes critical thinking.	Usually shares equitably in a group; responds positively to the ideas, and opinions of others. Shares information and expertise and promotes critical thinking.	Sometimes shares equitably in a group; responds positively to the ideas, and opinions of others. Shares information and expertise and promotes critical thinking.	Rarely shares equitably in a group; responds positively to the ideas, and opinions of others. Shares information and expertise and promotes critical thinking.

Exhibit 7

Learning Skills Checklist

Class List	Initiative				Collaboration			
	E	G	S	N/I	E	G	S	N/I

Lesson 4

“Working Energy”

Health and Physical Education: Active Living



Title: <u>Working Energy</u>	Subject/Course: <u>Health and Physical Education</u>
Strand: <u>Active Living</u>	Grades: <u>8</u> Time: <u>50 minutes</u>
Lesson Description	
<p>When Students are told to turn the lights off if they are not in the room, they usually do because they have been told over and over that that's how it should be. If children have a better appreciation for how much actual energy is wasted by leaving that light on, students may self-regulate and become proactive in terms of energy conservation. This lesson will seek out the opportunity to compare the amount of human energy used during a physical education class to that of regular home appliances.</p> <p>At the start of the physical education class, students will be given pedometers that will be attached to their waists throughout the duration of the time period. Students will undergo a module based fitness blast. To the best of their abilities, students will perform various exercises at different stations. The goal is for the students to attain a raised heart rate over a duration of time longer the 20 minutes. The pedometers are going to allow us to attain data that will enable us to formulate that amount of calories that were used during the span of the exercise. The calorie usage of every student in the class will be summed up in which we will then compare to the energy usage of regular everyday home appliances and forms transportation.</p> <p>An assignment will also be Attached with the lesson that will persuade students to promote energy conservation techniques within their communities. With their newly learnt appreciation through the lesson, they will attempt to inform people of the energy consumption rates of their homes and promote being more conscious of not wasting energy.</p>	
Stage 1: Desired Results	
Fundamental Concepts/Skills	
<ul style="list-style-type: none"> - Increase the fitness capacity - Actively participate according to their capabilities - Develop a personal plan to meet short and long term health related fitness and physical activity goals. 	
Big Ideas/Essential Question	
<ul style="list-style-type: none"> • How much energy am I actually saving by turning off that light? 	
Ontario Curricular Overall Expectation	
<ul style="list-style-type: none"> - 1. Demonstrate personal and interpersonal skills and the use of critical and creative thinking processes as they acquire knowledge and skills in connection with the expectations in the Active Living, Movement Competence, and Healthy Living strands for this grade - A1. Participate actively and regularly in a wide variety of physical activities, and demonstrate an understanding of how personal motivational factors can be used to encourage participation in physical activity - A2. Demonstrate an understanding of the importance of being physically active, and apply physical fitness concepts and practices that contribute to healthy, active living. 	
Ontario Curricular Specific Expectation	
<ul style="list-style-type: none"> - 1.2. Use adaptive, management, and coping skills to help them respond to the various challenges they encounter as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living. - 1.5. Use a range of creative and critical thinking skills and processes to assist them in making connections, planning and setting goals, analysing and solving problems, making decisions, and evaluating their choices in connections with learning in health and physical education. - A1.1. Actively participates according to their capabilities in a wide variety of program activities. - A2.1. Daily physical activity (DPA): participate in sustained moderate to vigorous physical activity, with appropriate warm-up and cool-down activities, to the best of their ability for a minimum of 20 minutes. - A2.3. Assess their level of health-related fitness (i.e., cardiorespiratory endurance, muscular strength, muscular 	

<p>endurance, flexibility) during various physical activities and monitor changes in fitness.</p> <ul style="list-style-type: none"> - A2.4 Develop, implement, and revise a personal plan to meet short- and long-term health-related fitness and physical activity goals. 	
<p>Lesson Goals</p> <ul style="list-style-type: none"> • Demonstrate an understanding of the importance of being physically active and apply physical fitness concepts while participating actively in a wide variety of physical activities • Use creative and critical thinking and management skills, while actively participating in sustained moderate to vigorous physical activities, to assess their level of health-related fitness in order to develop, implement and revise a personal fitness plan. • Calculate the whole class energy output and compare it to the energy consumption of household appliances 	
<p>Key concepts and/or skills to be learned/applied:</p> <ul style="list-style-type: none"> • Assess their level of health related fitness • Develop a personal plan to meet short and long term health related fitness and physical activity goals. • Quantifying the energy output during an exercise using a pedometer. 	<p>Background Knowledge:</p> <ul style="list-style-type: none"> • An understanding that energy can be seen in many different forms other than that we see in our house. • Concepts of being energy conscious. • General idea of different energy consumption rates of appliances in their house. Encourage to go to the website: http://www.atcoenergysense.com/NR/rdonlyres/502FD662-E386-45AA-ABEC-885430AD3206/0/AES_HECLbooklet_FINAL_web.pdf
<p>Student Groupings</p> <ul style="list-style-type: none"> • One large group • Smaller groups during main activity. 	<p>Instructional Strategies</p> <ul style="list-style-type: none"> • Student led activities • Module based exercise stations with written instructions at each station.
<p>Materials</p> <ul style="list-style-type: none"> - 1 beanbag - 5 skipping ropes - 5 medicine balls - 5 tennis balls - 5 stability balls - 1 bench - 5 agility ladders - 1 stopwatch - 5 Mats - 15 – 20 flat discs or markers - 20 – 30 pencils or writing utensils (1 per student) - From Comprehension of Fitness Concepts unit: Student Resource 1: Fitness Journal (completed) - From Comprehension of Fitness unit: Student Resource 3: SMART ACTION Goal Setting - Teacher Resource 1: Fitness Choice Board – Master (see Exhibit 1) - Teacher Resource 2: Fitness Checklist (see Exhibit 2) - Student Resource 1: Fitness Journal (see Exhibit 3) - Student Resource 2: Fitness Choice Board (Exhibit 4) 	<p>Considerations</p> <ul style="list-style-type: none"> • Location (gym/outside) • Location to write date on • Music player to be played during activities. • Pedometer availability

Accommodations
- Note that for some students, oral conferencing or scribing may be necessary to achieve success with this activity.
Stage 3: Learning experience and instruction
Warm-Up (10 MINS.):
Students will gradually increase their heart rate by participating in the following activity. <u>Eight Whatevers</u>
<ul style="list-style-type: none"> - Select a student to be the leader. Give the leader a beanbag. - The leader performs an activity on the spot for eight beats; everyone else follows the activity. - After the leader has completed eight repetitions of the activity, he or she calls out a classmates name and tosses the beanbag to that student, who becomes the new leader. - If a leader does not have an idea for a move, he or she says “Whatever” and the class does any move they choose for eight beats. A student can only say “Whatever” once, and will have to choose an activity for his/her next turn. - While waiting for new leaders’ instructions, students jog on the spot.
Minds On (30 MINS):
<u>Share and identify the lesson Learning Goals</u>
Using the Popcorn Strategy (see Appendix), ask students to call out some management skills that they will use to be successful in this lesson. Responses may include monitoring the frequency of their physical activity, the intensity of their activity, the types of activities they choose, and the length of time they are being active.
Distribute and review with students their completed copies of Student Resource 1: Fitness Journal from the Comprehension of Fitness Concepts unit and Student Resource 3: SMART ACTION Goal Setting from the Comprehension of Fitness Concepts unit.
Distribute Student Resource 2: Fitness Choice Board and instruct students to select three activities from each column. Encourage students to select activities they enjoy and would like to use in the future. Instruct students to record their choices in Student Resource 1: Fitness Journal. Using a large-group discussion, review with students how to take their pulse and instruct students to record their resting heart rate in Student Resource 1: Fitness Journal. To accommodate a variety of learners, consider allowing students to work with a partner who has similar goals.
Teacher prompt: “Using your Fitness Journals that you began in the first unit and modified in the second unit, you are going to re-assess your performance on fitness components and set new short-term goals for the remainder of the unit. Remember to record the fitness activities you chose from the Fitness Choice Board and your resting heart rate in your Fitness Journal.”
Action (5 MINS):
<u>Choice Board Activity</u>
<ul style="list-style-type: none"> - Copy and post Student Resource 2: Fitness Choice Board and designate different parts of the activity space for each fitness category. - Place all the equipment necessary to complete Choice Board activities in their designated areas. - Based on their new short-term fitness goal, instruct students to go to their selected fitness category area. - Inform students that they will be participating in their chosen activity for one minute intervals. - On a signal, students engage in their chosen activity until they are given a signal to stop. - Upon completion of the activity, instruct students to take their active heart rate and to record it in Student Resource 1: Fitness Journal. - Students then begin a new activity under their fitness category. - Repeat this sequence until all activities are completed.
Cool-Down (5 MINS):
Students gradually decrease their heart rate to a resting rate by participating in the activity below. Students should also stretch the body parts that have been active throughout the lesson.

Eight Whatevers

- Select a student to be the leader. Give the leader a beanbag.
- The leader performs a stretch for eight seconds, which everyone else follows.
- After the leader has completed eight seconds of the stretch, he or she calls out a classmate's name and tosses the beanbag to that student, who becomes the new leader.
- If a leader does not have an idea for a stretch, he or she says "Whatever" and the class does any stretch they choose for eight seconds. A student can only say "Whatever" once, and will have to choose an activity for his/her next turn.

Students will use the website to calculate the amount of calories expended during the fitness blast (energy calculator): <http://www.healthstatus.com/calculate/cbc>

This amounts for each student will be summed and so create a number that we can now compare to the list of home appliances.

A discussion will occur comparing the numbers and finding some similarities and differences in the amounts along with a direction of understanding that the students required a lot of effort in order to burn that off when an electronic device just sits there and uses that energy wastefully when it is not even turned on.

Link to Future Lessons






- An assignment will also be attached with the lesson that will persuade students to promote energy conservation techniques within their communities. With their newly learnt appreciation through the lesson, they will attempt to inform people of the energy consumption rates of their homes and promote being more conscious of not wasting energy.






Assessment






- Assessing for living skills which includes critical and creative thinking and personal skills (see Exhibit 5)
- Fitness checklist for movement competence and active living (see Exhibit 2)

Exhibit 1

Instructions: Pick three activities from each column.

CARDIORESPIRATORY ENDURANCE	MUSCULAR ENDURANCE	MUSCULAR STRENGTH AND ENDURANCE	FLEXIBILITY	SKILL-RELATED COMPONENTS OF FITNESS
<p>SKIP FOR 1 MINUTE</p> <ul style="list-style-type: none"> Do 2-foot jumps while counting the rope rotations. 	<p>ALTERNATING STANDING WALL TOUCHES (BASKETBALL OR MEDICINE BALL)</p> <ul style="list-style-type: none"> Stand against the wall with your feet slightly away, slightly bent, and shoulder-width apart. Hold the ball out in front of your body, parallel to the floor, and swing it left, touching the wall, then swing the ball to the right, touching the wall. Repeat. 	<p>PUSH-UPS TO EXHAUSTION</p> <ul style="list-style-type: none"> Perform push-ups from knees or toes. Keep your back in line with your legs (i.e., as flat as a board from head to knee/toe). 	<p>CHEST, SHOULDERS AND ARM STRETCH</p> <ul style="list-style-type: none"> Stand with feet shoulder-width apart. Grasp hands behind back and slowly lift arms upward until stretch is felt in the chest, shoulders and arms. Hold and repeat. 	<p>WALL-BALL TOSS (Coordination)</p> <ul style="list-style-type: none"> Throw a tennis ball against a wall, from waist level, and catch it with the opposite hand. Mark a line on the floor 1.5 metres from a smooth wall. Stand behind the line and throw the ball underhand against the wall, catching with the other hand. Alternate hands – throw left, catch right; throw right, catch left. Count each successful catch; do not use your body to catch the ball. If you drop or miss-catch the ball, pick it up as fast as you can and continue on to count the next completion. Record the number of catches that did not hit the floor. 

CARDIORESPIRATORY ENDURANCE	MUSCULAR ENDURANCE	MUSCULAR STRENGTH AND ENDURANCE	FLEXIBILITY	SKILL-RELATED COMPONENTS OF FITNESS
<p>BENCH STEP FOR 1 MINUTE</p> <ul style="list-style-type: none"> Alternate left up, right up onto a bench, then left down, right down. Repeat up-and-down bench steps. 	<p>PLANK FROM KNEES OR TOES FOR 1 MINUTE</p> <ul style="list-style-type: none"> Lift your body off the ground onto your forearm and toes (with back, neck, legs all in line). Contract abdominal muscles; relax shoulders. <p>Variation: Stability Ball Plank</p> <ul style="list-style-type: none"> Use your forearms to balance. The wider your toes are apart, the easier it is to balance and keep your back flat. With practice, move feet closer together. Back should be in line with legs. 	<p>CRUNCHES TO EXHAUSTION</p> <ul style="list-style-type: none"> Pretend an apple is between your chin and chest and a rope is pulling your forehead to the ceiling. Bring your shoulders off the ground. Press belly button and lower back into ground when raising shoulders off the ground. Tip: Try not to dig your chin into your chest. 	<p>STORK STRETCH</p> <ul style="list-style-type: none"> Stand and hold onto something for balance (chair, table, wall) if necessary. Grasp right foot or shin with right hand and gently pull it toward buttocks. Tilt right hip forward slightly until a gentle stretch is felt in the front of the thigh. Keep knees together. Hold and repeat with the other leg. 	<p>KNEES TO FEET (Power)</p> <ul style="list-style-type: none"> Kneel so that your shins and knees are on a mat. Hold your arms back. Point your toes straight backward. Without curling your toes under you or rocking your body backward, swing your arms upward and spring to your feet. Hold your position for three seconds after you land. 

CARDIORESPIRATORY ENDURANCE	MUSCULAR ENDURANCE	MUSCULAR STRENGTH AND ENDURANCE	FLEXIBILITY	SKILL-RELATED COMPONENTS OF FITNESS
<p>MOUNTAIN CLIMBER PLATE/TOWEL SHUFFLE FOR 1 MINUTE</p> <ul style="list-style-type: none"> Start in push-up position on the floor, then bring alternate knees up to the chest. While one leg is in toward the chest, the other leg is extended. Variation: Use paper plates/towel pieces under each foot and alternate, shuffling up and back for more resistance. 	<p>STABILITY BALL CRUNCHES</p> <ul style="list-style-type: none"> Sit on the stability ball, then walk your feet forward so the ball is in the middle of your back. Have your feet wide or shoulder-width apart for balance (the closer together your feet are, the more challenging it will be). 	<p>CONTINUOUS EXPLOSIVE STANDING LONG JUMPS x 10</p> <ul style="list-style-type: none"> Stand with your feet shoulder-width apart. Bend at your knees and bring your arms down and back. Pause, then extend your legs, swing your arms forward, propelling your body forward. Land on two feet. Ensure each jump is a powerful maximum jump. Pause to prepare arms and legs (i.e., ready position) for next jump. 	<p>SIDE LUNGES</p> <ul style="list-style-type: none"> Stand with feet spread wide apart, knees bent, hands on hips. Move slowly from side to side by alternately bending and straightening each leg, keeping upper body facing straight and vertical. 	<p>DOT DRILL (Agility)</p> <ul style="list-style-type: none"> Place four dots (discs/markers) spaced two by two feet in a square. Place a fifth dot in the middle of the square. Use the following pattern to quickly move your feet around the dots: <ul style="list-style-type: none"> Begin with both feet on middle disc. Step to a top disc with right foot. Step to the other top disc with left foot. Step right and then left foot back to middle disc. Step to a bottom disc with right foot. Step to the other bottom disc with left foot. Step right and then left foot to middle disc. Turn around and repeat facing new direction. Repeat the pattern multiple times. Create your own pattern. 








CARDIORESPIRATORY ENDURANCE	MUSCULAR ENDURANCE	MUSCULAR STRENGTH AND ENDURANCE	FLEXIBILITY	SKILL-RELATED COMPONENTS OF FITNESS
<p>JUMPING JACKS FOR 1 MINUTE</p> <ul style="list-style-type: none"> Straddle jump (legs move out then in) at the same time as moving arms laterally at your sides, up then down. 	<p>STABILITY BALL SQUAT FOR 1 MINUTE</p> <ul style="list-style-type: none"> Start with the ball on your lower back against a wall, legs out in front of you on an angle. Move the ball up your back and you into a sitting position. Don't allow your knees to go over your toes. 	<p>CONTINUOUS VERTICAL JUMPS x10</p> <ul style="list-style-type: none"> Ensure each Jump is a powerful maximum jump using the same effort. Pause to prepare arms and leg (i.e., ready position) for next jump. 	<p>SIT AND REACH FOR 1 MINUTE</p> <ul style="list-style-type: none"> Sit on the ground with legs straight out in front and toes pulled up. Lean forward; slowly run hands along legs toward toes. Keep legs flat on floor. Hold where you feel the stretch. Do not bounce. You should not feel pain. 	<p>SOLO REACTION BALL WITH A TWIST (Reaction)</p> <ul style="list-style-type: none"> Stand with feet shoulder-width apart and knees slightly bent. Drop the ball from shoulder height (right hand) in front of you and try to catch it (left hand) before the second bounce. Drop the ball from waist height (right hand) in front of you and try to catch it (left hand) before the second bounce. Drop the ball from knee height (right hand) in front of you and try to catch it (left hand) before the second bounce.
<p>JOG AROUND THE ACTIVITY AREA FOR 1 MINUTE</p> <ul style="list-style-type: none"> Jog at a slow, steady pace. Watch out for other students performing their activities. 	<p>CALF RAISES</p> <ul style="list-style-type: none"> Stand with feet shoulder-width apart. If necessary, hold onto a table, chair or wall for balance. Raise heels up (to stand in tiptoe position) and hold. Lower heels to floor and repeat. 	<p>WALL SIT TO EXHAUSTION</p> <ul style="list-style-type: none"> Hold your back flat against the wall. Slide body downward so knees are at 90° and feet shoulder-width apart. Keep your hands at your sides. 	<p>BUTTERFLY (Inner-Thigh Stretch)</p> <ul style="list-style-type: none"> Sit with legs bent, soles of feet together, knees out to the side. Use hands to gently press knees toward floor. Hold. 	<p>TWO FEET IN EACH (Speed, Agility)</p> <ul style="list-style-type: none"> Start at the end of the ladder facing down it. Step with either foot into the first square, followed by the second foot into the same square. Repeat the drill leading with the other foot. 

Exhibit 2

Teacher Resource 2: Fitness Checklist
 Movement Competence, Active Living
 Capacity for Fitness
 Fitness Concept Board

(Page 1 of 2)



Class: _____

Specific Expectations

- 1.2 - use adaptive, management, and coping skills to help them respond to the various challenges they encounter as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living
- 1.5 - use a range of critical and creative thinking skills and processes to assist them in making connections, planning and setting goals, analysing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education
- A1.1 - actively participate according to their capabilities in a wide variety of program activities [PS, IS]
- A2.1 - **Daily physical activity (DPA):** participate in sustained moderate to vigorous physical activity, with appropriate warm-up and cool-down activities, to the best of their ability for a minimum of twenty minutes each day [PS]
- A2.3 - assess their level of health-related fitness during various physical activities and monitor changes in fitness levels over time [PS, CT]
- A2.4 - develop, implement, and revise a personal plan to meet short- and long-term health-related fitness and physical activity goals [PS, CT]
- A3.1 - demonstrate behaviours and apply procedures that maximize their safety and that of others in a variety of physical activity settings [PS, IS]

	Success Criteria							
	Application		Application		Application		Application	
	Got It	Still Working On It	Got It	Still Working On It	Got It	Still Working On It	Got It	Still Working On It
	1.2 Adaptive, Management and Coping Skills, A2.3 Fitness Assessment 1. uses adaptive, management and coping skills to respond to and assess personal levels of health-related fitness during various physical activities		1.5 Critical and Creative Thinking A2.4 Fitness Plan 1. thinks critically and creatively to assess levels of health-related fitness and develops, implements and revises personal fitness plan to meet short- and long-term fitness goals		A 1.1, A 1.2 Active Participation 1. demonstrates readiness and ability to take part 2. participates actively in all physical activities 3. participates in sustained moderate to vigorous physical activity with appropriate Warm-Up and Cool-Down activities for a minimum of 20 minutes		A3.1 Safety 1. monitors their own actions to ensure safety 2. applies safety rules and safety procedures while participating in a variety of physical activities	
Student Names	Got It	Still Working On It	Got It	Still Working On It	Got It	Still Working On It	Got It	Still Working On It
Gurpreet	1			1	2,3	1	1	2

Exhibit 3

Student Resource 1: Fitness Journal
 Movement Competence, Active Living
 Capacity for Fitness
 Fitness Concept Board

(Page 1 of 1)



Name: _____

Date: _____

Keep a record of your thoughts and goals for fitness. Include your challenges, what motivates you and improvements you made.

1. What activities do you enjoy?
2. Which ones do you find challenging?
3. How can you apply these activities throughout the year and in everyday life?
4. What are you doing well?
5. What are you working on?
6. What strategies are you using to improve?

Date	Activity	Comments
		Resting heart rate: _____ Active heart rate: _____ Recovery heart rate: _____ Comments: _____ _____ _____
		Resting heart rate: _____ Active heart rate: _____ Recovery heart rate: _____ Comments: _____ _____ _____
		Resting heart rate: _____ Active heart rate: _____ Recovery heart rate: _____ Comments: _____ _____ _____
		Resting heart rate: _____ Active heart rate: _____ Recovery heart rate: _____ Comments: _____ _____ _____
		Resting heart rate: _____ Active heart rate: _____ Recovery heart rate: _____ Comments: _____ _____ _____

Exhibit 4

Ophea
Healthy Schools
Healthy Communities

Ophea
Healthy Schools
Healthy Communities

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(Page 1 of 3)











Student Resource 2: Fitness Choice Board
Movement Competence, Active Living
Capacity for Fitness
Fitness Concept Board

Instructions: Pick three activities from each column.

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(Page 2 of 3)

Student Resource 2: Fitness Choice Board
Movement Competence, Active Living
Capacity for Fitness
Fitness Concept Board

HEALTH-RELATED FITNESS CONCEPT BOARD WITH EXPLANATIONS

CARDIORESPIRATORY ENDURANCE	MUSCULAR ENDURANCE	MUSCULAR STRENGTH AND ENDURANCE	FLEXIBILITY	SKILL-RELATED COMPONENTS OF FITNESS
SKIP FOR 1 MINUTE 	ALTERNATING STANDING WALL TOUCHES (BASKETBALL OR MEDICINE BALL) 	PUSH-UPS TO EXHAUSTION 	CHEST, SHOULDERS AND ARM STRETCH 	WALL-BALLOONS (Coordination) 
BENCH STEP FOR 1 MINUTE 	PLANK FROM KNEES OR TOES FOR 1 MINUTE 	CRUNCHES TO EXHAUSTION 	STORK STRETCH 	KNEES TO FEET (Power) 

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(Page 3 of 3)

Student Resource 2: Fitness Choice Board
Movement Competence, Active Living
Capacity for Fitness
Fitness Concept Board



HEALTH-RELATED FITNESS CONCEPT BOARD WITH EXPLANATIONS






CARDIORESPIRATORY ENDURANCE	MUSCULAR ENDURANCE	MUSCULAR STRENGTH AND ENDURANCE	FLEXIBILITY	SKILL-RELATED COMPONENTS OF FITNESS
JOG AROUND THE ACTIVITY AREA FOR 1 MINUTE 	CALF RAISES 	WALL SIT TO EXHAUSTION 	BUTTERFLY (Inner-Thigh Stretch) 	TWO FEET IN BACH (Speed, Agility) 

Exhibit 5

Living Skills Framework

Personal Skills	use adaptive, management, and coping skills to help them respond to the various challenges they encounter as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living				
Critical and Creative Thinking	use a range of critical and creative thinking skills and processes to assist them in making connections, planning and setting goals, analysing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education				
SKILLS	EXCELLENT	GOOD	SATISFACTORY	NEEDS IMPROVEMENT	NOTES
STUDENTS					
Andrew Bath (IEP Behaviour)					
Catherine Dunn (High)					
Early Riser (Low)					
Gred Grag (Med.)					
Heather Ing (ESL lvl 2)					
James Klank (med)					
Lauren Mack (med)					
Nancy Ople (med)					
Prudence Querie (high)					
Rashanda Sinc (ESL I.2)					

Lesson 5

“Speaking About Environmental Sustainability”

Language Arts: Oral Communication



Title: <u>Speaking About Environmental Sustainability</u>		Subject/Course: <u>Language Arts</u>	
Strand: <u>Oral Communication</u>		Grades: <u>8</u>	Time: <u>60 minutes</u>
Lesson Description			
<p>By the end of the lesson, students will have a better understanding of how students can enact change through spoken word. Students will learn effective ways to speak publicly by learning strategies and techniques of public speaking. This lesson deals specifically with the global issues surrounding environmental sustainability. It also teaches individual action and responsibility as a human contributing to society and interacting with the environment. Students will listen to a song by Joni Mitchell and watch a video by Severn Suzuki. Students will analyse the speaking Suzuki used that made her speech effective in the UN Conference. As a class, students will discuss how speeches can be effective and why they are effective. Also, teacher and students will brainstorm ways to prepare a speech and strategies to create effective speeches.</p>			
Stage 1: Desired Results			
Big Ideas/Essential Question			
<ul style="list-style-type: none"> • What makes a speech powerful and how can we use it to invoke environmental sustainability in our society? 			
Ontario Curricular Overall Expectation			
<ul style="list-style-type: none"> • 2. use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes 			
Ontario Curricular Specific Expectation			
<ul style="list-style-type: none"> • 2.2 demonstrate an understanding of appropriate speaking behaviour in most situations, using a variety of speaking strategies and adapting them to suit the purpose and audience • 2.3 communicate in a clear, coherent manner, using a structure and style appropriate to the purpose, the subject matter, and the intended audience • 2.7 use a variety of appropriate visual aids to support and enhance oral presentations 			
Lesson Goals			
<ul style="list-style-type: none"> • By the end of this lesson, students will understand and begin to develop public speaking skills and strategies. 			
Key concepts and/or skills to be learned/applied:		Background Knowledge:	
<p>Learning Skills:</p> <p>1. Initiative: The student:</p> <ul style="list-style-type: none"> • Independently monitors, assesses, and revises plans to complete tasks and meet goals; • Uses class time appropriately to complete tasks; • Follows instructions with minimal supervision. <p>2. Independent Work: The student:</p> <ul style="list-style-type: none"> • 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. <p>http://www.edu.gov.on.ca/eng/policyfunding/growSuccess.pdf</p>		<ul style="list-style-type: none"> • Students will use the knowledge they have attained in the previous 4 lesson plans (Geography, Mathematics, Science, and Physical Education) of this unit to engage in this lesson plan and complete their summative task of making a speech on environmental sustainability. 	

Student Groupings	Instructional Strategies
<ul style="list-style-type: none"> Students will be placed into groups of 4-5 by the teacher. Desks will be set up into groups prior to the beginning of class. Students will sit where teacher has written their name on the chart paper. Students will also work independently. 	<ul style="list-style-type: none"> Indirect Instruction: teacher will act as a facilitator of group discussion and observations. Direct Instruction: teacher may lead instruction at certain points of the lesson: when introducing speaking techniques/ strategies in “Body”. Interactive Instruction: during group work (placemat activity) students will share and collaborate ideas for their placemat.
Materials	Considerations
<ul style="list-style-type: none"> Chart paper Markers SMARTboard Laptop Speakers 	<ul style="list-style-type: none"> Electricity. Classroom set up: desks must be moved to create groups of 4-5 students. Materials will be distributed prior to the commencement of class.
Accommodations	
<ul style="list-style-type: none"> Students that have anxiety speaking publicly may record themselves giving their speech to the class. Students who have difficulty processing information may receive a printed copy of the points generated by the class the following day. Students that require a computer to write their first draft of their speech may use a classroom/ library computer. 	
Stage 3: Learning experience and instruction	
Motivational Hook (3 MINS.):	
Joni Mitchell song “Big Yellow Taxi” and lyrics. http://www.youtube.com/watch?v=S_UcRbCGmZs	
Open (7 MINS):	
<p>Class will begin with a placemat activity. Students will sit in groups of 4-5 and brainstorm what they know about environmental sustainability (what it means, what they know about it, examples, etc.). ** Groups will be assigned by the teacher before class begins.</p> <p>Collaborate: groups will be encouraged to share their ideas with the class. The teacher will write these ideas down on a chalkboard or whiteboard for later.</p>	
Body (30 MINS):	
<p>Students will watch a video: http://www.youtube.com/watch?v=6Sb6RmRMbBY&feature=fvwrel (6:42 min)</p> <p>First, students will discuss some of the points Severn Suzuki made in her speech: the topics she brought up and how they may or may not match with what the class brainstormed.</p> <p>Second, students will analyse the speaking techniques Severn Suzuki used that made her speech effective in the UN Conference. As a class, students will discuss how speeches can be effective, why they are effective. Also, teacher and students will brainstorm ways to prepare a speech and strategies to create effective speeches.</p> <ul style="list-style-type: none"> ➤ Speaking Techniques: voice, body language, eye contact, pacing, poise, and creating a capturing introduction and conclusion. ➤ Public Speaking Strategies: use of cue-cards, use of images/ pictures, engage audience, preparation, practice, creating visual markers in the room to maintain eye-contact, etc. 	

Close (20 MINS):

Students will pick at least one topic on the chalkboard/ whiteboard and write a 3-5 minute speech pertaining to environmental sustainability. Students will be given class time to work on their assignment and may be given time next class to complete their rough draft of their assignment. See Exhibit 1 and Exhibit 2 for details about speech assignment. Students will work independently during this part of the lesson.

The teacher will circulate around the classroom and individually conference with students to see if they understand the assignment and their topic.

Students will be given time to research their topic and write their speech in following classes.

Link to Future Lessons

- This lesson will last at least 2-3 classes of Language Arts to provide them with the opportunity to use classroom resources to brainstorm, research, and write their speech.
- This lesson is part of the oral communication strand. Students will also engage in other lessons that will teach and analyse the dramatic arts.

Assessment

- Diagnostic Assessment for lesson: the placemat activity allows the teacher to see how much knowledge about environmental issues/ sustainability students have retained from previous lessons. The placemat activity also allows class to review their knowledge to prepare for the summative assignment.
- Formative Assessment for lesson: The teacher will use individual conference sessions to check-in with students' speech writing.
- Summative Assessment for unit: Students will be asked to write a 3-5 minute speech pertaining to the environmental issues/ sustainability they have learned throughout the unit (see Exhibit 1). Students will perform a summative assessment, and will be evaluated by way of a rubric (see Exhibit 2). The rubric will be given to students prior to writing their speeches.

Exhibit 1

Speech Assignment

You are to write a persuasive speech for your community, asking them to act towards creating a more sustainable environment. You may choose any topic that the class has brainstormed about and discussed throughout the Environmental Sustainability unit. (**If you would like to speak about a different environmental topic not discussed in class, you must speak to the teacher before beginning the rough draft of your speech).

Your speech must be at least 3 minutes long and cannot go over 5 minutes. You may present your speech in front of the class or record yourself giving the speech and show it to the class.

You must use at least 3 public speaking techniques discussed in class in the presentation of your speech. Beyond this, you may use as many speaking strategies as you like.

You may use visual aids (PowerPoint/images/objects) in your speech, but you will not be graded on them.

Please read the attached rubric carefully before brainstorming for your speech.



Exhibit 2

Rubric for Student Speech

Categories	Level 1	Level 2	Level 3	Level 4
Knowledge and Understanding				
	The student:			
Knowledge of Content	Does not state a topic or purpose in their speech. The student's speech contains no knowledge of chosen environmental topic.	Has made attempts to state the topic or purpose. The student's speech contains some knowledge of chosen environmental subject.	Clearly states either the topic or purpose in their speech. The student's speech contains some facts and points about chosen environmental subject.	Clearly states the topic and purpose in their speech. The student's speech contains facts, strong points, and information that demonstrates strong knowledge of content.
Understanding of Content	Demonstrates limited understanding of content. Student has limited concepts, ideas, or opinions about their chosen topic.	Demonstrates some understanding of content. Student uses some concepts, ideas, and opinions about their chosen topic.	Demonstrates considerable understanding of content. Student uses concepts, ideas, and opinions about their chosen topic.	Demonstrates through understanding of content. Student understands the environmental issue(s)/ solution(s) in their speech; and can reflect on it.
Communication				
	The student's:			
Voice	Use of fluid speech and inflection maintains the interest of the audience	Satisfactory use of inflection, but does not consistently use fluid speech.	Displays some level of inflection throughout delivery.	Consistently uses a monotone voice
Body Language	Movements seemed fluid and helped the audience visualize.	Made movements or gestures that enhanced articulation.	Very little movement or descriptive gestures.	No movement or descriptive gestures.
Eye Contact	Holds attention of entire audience with the use of direct eye contact.	Consistent use of direct eye contact with audience.	Displayed minimal eye contact with audience.	No eye contact with audience.
Introduction and Closure	Student delivers open and closing remarks that capture the attention of the audience and set the mood.	Student displays clear introductory or closing remarks.	Student clearly uses either an introductory or closing remark, but not both.	Student does not display clear introductory or closing remarks.
Pacing	Good use of drama and student meets apportioned time interval.	Delivery is patterned, but does not meet apportioned time interval.	Delivery is in bursts and does not meet apportioned time interval.	Delivery is either too quick or too slow to meet apportioned time interval.
Poise	Student displays relaxed, self-confident nature about self, with no mistakes.	Makes minor mistakes, but quickly recovers from them; displays little or no tension.	Displays mild tension; has trouble recovering from mistakes.	Tension and nervousness is obvious; has trouble recovering from mistakes.

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