

**Financial Literacy Lessons and Activities for The Ontario  
Geography Curriculum**

**“Your Personal Energy Costs”:  
Understanding and Making Personal  
Decisions and Budget to your Energy  
consumption**

*An activity package*

*For:*

**Grade 12 Environment and Resource  
Management CGR4M**

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## Financial Literacy Lessons and Activities for The Ontario

<b>Financial Literacy: CGR4M-Geography Curriculum</b> <b>Topic: Energy</b>		<b>Grade 12</b>
<b>Time Circle:</b> 3-4 periods x 70 mins	<p><b><u>Learning Expectations</u></b></p> <ul style="list-style-type: none"> <li>• Explain the difference between needs and wants</li> <li>• evaluate the effects of fossil fuel use (e.g. heat) on urban and rural environments</li> <li>• predict the social, economic and environmental effects of the extraction and depletion of selected resources</li> <li>• estimate personal and class ecological footprint based on consumption of resource</li> </ul> <p><b>Financial Literacy Learning Expectations</b></p> <ul style="list-style-type: none"> <li>• predict the social, economic, and environmental effects of the extraction and depletion of selected resources (mining various resources-oil)</li> <li>• analyse the environmental impact of a particular industry or human system and recommend practices to promote economic and environmental sustainability</li> </ul>	<p><b><u>Materials</u></b></p> <ul style="list-style-type: none"> <li>- Computer with projector</li> <li>- Calculator</li> <li>- Overhead projector</li> <li>- worksheets</li> </ul>
<b>Assessment Opportunities</b>		
Prior Knowledge: Energy use and extraction process have been taught in Grade 9 Geography		



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<p><b>Before - Activation Minds On!</b></p>	<p><u>Diagnostic Quiz</u></p> <ul style="list-style-type: none"> <li>• Energy quiz to assess students' prior knowledge on energy consumption and myths</li>   <li>• Take up questions with the class and provide opportunity to share thoughts and misunderstandings about the use of energy (Teacher may take up questions and summarize the students' responses in point form on the board)</li> </ul> <p><u>Objective of the lessons</u> Students will:</p> <ul style="list-style-type: none"> <li>• Become more aware of energy use and cost of operating a household product</li> <li>• Learn how to read their own household electricity bill</li> <li>• Find ways to be more energy efficient and reduce their household energy bill</li> <li>• Calculate energy saved which will result in money being saved</li> <li>• Analyze the cost of energy use and savings</li> </ul> <p><b>Culminating task:</b> students will calculate their household energy use and find way to reduce their energy consumption and save as much money as possible.</p>	<p><b>For, As or Of Learning</b></p> <p>For: Diagnostic quiz to assess students' understanding of energy consumption and use</p> <p>For: Opportunity to take up quiz and discuss myths and lack of understanding on energy use and consumption</p>
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<p><b>Strategies:</b></p>	<p><u>Activity 2: Calculating Energy Use and Cost</u> Teacher will use the overhead to show the calculations so that students can follow along. Students do not need to copy it down but just pay attention.</p> <ul style="list-style-type: none"> <li>Prior to the activity, ask the class the following questions to engage student's understanding about how energy is calculated and the use of energy.</li> </ul> <p><u>Questions</u></p> <ul style="list-style-type: none"> <li>How is energy calculated?</li> <li>When is it the most expensive to use energy and why?</li> <li>Is energy being used even when it is turned off? (Some students may not know about phantom energy)</li> <li>How much is an average electricity bill for a family?</li> </ul> <p>Activity: Do not handout everything at once.</p> <ul style="list-style-type: none"> <li>From that point, there should be an handout that can be given to student which shows a household electricity bill.</li> <li>Once the kWh is calculated, go through the example 1 with the class, step by step</li> <li>Ensure students that they will be given the process sheets, but at this moment, they need to all pay attention</li> <li>As the steps are being taught, ask for volunteers to give the answers</li> </ul> <p><u>Handout the practice questions</u></p> <ul style="list-style-type: none"> <li>Work with a partner to answer the practice questions provided.</li> <li>Take up with the class by the end of the period, if there is time</li> </ul>	<p>As: teacher will be able to assess the students' skill levels in calculating the average cost of using electricity based on the total bill</p> <p>As: teacher should observe students who are looking a little confused as the steps are being shown – as sign of student not being comfortable with math or doing calculations.</p> <p>As: students who are volunteering the answer can be paired up with those who are not comfortable to help each other out.</p> <p>For: by taking up the questions, the teacher will be able to assess those who understand and those who do not. It is important that students know how to complete the calculation in order to complete the culminating task</p>
<p><b>Strategies:</b></p>	<p><u>Activity 3: Analyze the Cost and Savings</u> Provide the steps to calculating the cost and savings of switching to energy efficient products.</p> <ul style="list-style-type: none"> <li>Activity 3 (<b>answers are based on Activity 2.</b> Need to have Activity 2 worksheet on hand with the answers in order to complete Activity 3).             <ul style="list-style-type: none"> <li>There are two parts to Activity 3.</li> </ul> </li> </ul> <p><u>Part A:</u> Calculate the cost of a product during the use of it's life time.</p> <ul style="list-style-type: none"> <li>Go through the steps of calculating the cost of using a product during its lifetime for both a regular item and an energy efficient product. The numbers are all made up, and do not accurately represent the actual lifetime of each item.</li> </ul>	<p>As: Teacher will be able to assess student's ability to transfer the skills taught last class to the new activity</p> <p>As: Having students volunteer will allow the teacher to assess the students' levels of understanding and comfort in completing the calculations</p>



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<p><b>Groupings:</b></p>	<p><u>Part B:</u> Students will calculate the total energy savings and cost of switching from a regular product to an energy efficient product</p> <ul style="list-style-type: none"> <li>• Go through the steps with students.             <ul style="list-style-type: none"> <li>○ Using the same strategies as in Part A, encourage students to just pay attention and follow the examples being shown</li> <li>○ Ask for volunteers to give answers to each step and calculation</li> </ul> </li>   <li>• Handout the practice questions and gets students to work in pairs.</li> <li>• Allow students 5 minutes to work on the first questions and take up as a class to ensure students' understanding</li> <li>• Those who are having difficulties can be assisted by the teacher</li> </ul>	<p>As: Allow the teacher to observe who may be having problems with the culminating task and encourage students to come in for extra help before the assignment is due</p> <p>For: Taking up the answers to the questions will allow the teacher to assess students understanding and readiness to complete the culminating task</p>
<p><b>After – Consolidation</b></p>	<p><u>Culminating Activity</u></p> <ul style="list-style-type: none"> <li>• The Culminating Activity is completed independently at home</li> <li>• Provide each student with a copy the culminating task, rubric and exemplar</li> <li>• Review the rubric</li> </ul> <p><u>Part A:</u> Students will be picking 5 household items that consume energy in their household</p> <ul style="list-style-type: none"> <li>• Calculate the cost and energy use of each item (based on Activity 1)</li> <li>• Students will then research by going to HomeDepot, Sears, the Bay, the internet or any place that sells appliance and find alternative choices to their current household items</li> <li>• Students will then calculate the cost of switching to an energy efficient appliance and compare it with their current household item</li> <li>• Calculate the total energy savings if they switch</li> </ul>	<p>Of: The culminating activity evaluates the student's ability to calculate their current household energy use and cost By looking at items that consumes energy and finding ways to save energy will result in a savings of their own household energy bill</p> <p>Of: It is taking the skills they have learned in the last 3 days and applying it to their own household situation</p> <p>Of: the reflection gives</p>



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	<p><u>Part B: Reflection</u></p> <ul style="list-style-type: none"> <li>Students will write a 1 page reflection, reflecting on their energy habits before the activity and their awareness after</li> </ul> <p>Students should be given a weekend or a couple of days to search for the alternatives to their current household products before the assignment is due.</p>	<p>students an opportunity to show growth and assess their own awareness in consuming energy</p>
<p><b><u>Home Activity or Future Classroom Consolidation</u></b></p>	<ul style="list-style-type: none"> <li>Culminating Activity is submitted to the teacher.</li> <li>Teacher can look at the students energy use and discuss the class consumption of energy as a lead into calculating the carbon footprint of individual students and the class</li> </ul>	

