

# ENERGY - Chevy Volt - Contextualized Learning Activity (CLA)

For the “other required credits” in the bundle of credits, students in an SHSM program must complete learning activities that are contextualized to the knowledge and skills relevant to the economic sector of the SHSM. CLAs, a minimum of six hours and a maximum of ten hours in length, address curriculum expectations in these courses in the context of the sector.

This template must be used to develop a CLA that will be submitted to the ministry. CLAs are posted on the Ontario Educational Resource Bank (OERB) website at <http://resources.elearningontario.ca> as well as on the SHSM e-Community website, a password-protected site for educators, at <http://community.elearningontario.ca>

**Prior to writing a CLA all teachers should have familiarized themselves with the  
CLA How-to Write Guide**

In order for a CLA to be posted, it is important to:

- submit all material in a **single** Microsoft Word file (not as a PDF) **please note, no attachments will be accepted (exception: PowerPoint presentations that accompany a CLA)**
- observe all copyright regulations (see *Access Copyright – The Canadian Copyright Licensing Agency* at [www.accesscopyright.ca](http://www.accesscopyright.ca)).
- \* Complete **all** sections of the template including:
  - 4 Key Search Words – these should allow others to search and locate this CLA from an electronic database. You do not need to include the course code and the SHSM sector as key words, as those will be default key words.

<i>e.g. Key Search Words</i>	geometry, manufacturing, conversions, calculations
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- Differentiated Instruction portion of the template
- \* When saving the CLA, please use the following document naming format:  
*Sector-Course Code–Title (max 250 characters for entire title)*  
Ex. H&T–SCH3U–Mole Cookie Lab.doc

*Note to CLA Developers:* For your convenience, instructions (enclosed in square brackets) have been provided throughout this template. Remove these instructions when you complete the template.

Contact Information	
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Development date	August 25, 2011
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SHSM sector	Energy
Course code and course title	MBF 3CI – Grade 11 College Mathematics
Name of CLA	Energy – Chevy Volt
Brief description of CLA	Students will learn about alternative energy vehicles generally. Students will research and compare purchasing and depreciation costs of alternative energy vehicles. Students will examine and analyze the operating costs of alternative energy vehicles, such as gas, electricity (including how smart metres work), maintenance/repairs, auto insurance, and fixed vs. variable costs. Students will apply prior knowledge of metric/imperial conversion, and HST, in this CLA.
Key Search Terms (Do not use SHSM, CLA, Course Code or Sector)	Hybrid, Electric, Transportation, Operating Costs, Vehicle, Alternative Energy Car
Duration	<p>Approximately 4 76-minute periods (or 6 hours).</p> <p>Day 1: Buying a Vehicle (76 minutes) plus accompanying homework sheet</p> <p>Day 2: Researching Chevy Volt and Ford Escape - Computer Lab Class (76 minutes)</p> <p>Day 3: Insuring a Vehicle - Computer Lab Class/ or guest speaker (76 minutes)</p> <p>Day 4: Costs of Owning an Electric Vehicle (76 minutes)</p>
Overall expectations	<p><b>Students will:</b></p> <p>3. interpret information about owning and operating a vehicle, and solve problems involving the associated costs.</p>

<b>Specific expectations</b>	<b>Students will:</b>  <b>3.1</b> gather and interpret information about the procedures and costs involved in insuring a vehicle (e.g., car, motorcycle, snowmobile) and the factors affecting insurance rates (e.g., gender, age, driving record, model of vehicle, use of vehicle), and compare the insurance costs for different categories of drivers and for different vehicles  <b>3.2</b> gather, interpret, and compare information about the procedures and costs (e.g., monthly payments, insurance, depreciation, maintenance, miscellaneous expenses) involved in buying or leasing a new vehicle or buying a used vehicle  <b>3.3</b> solve problems, using technology (e.g., calculator, spreadsheet), that involve the fixed costs (e.g., license fee, insurance) and variable costs (e.g., maintenance, fuel) of owning and operating a vehicle.
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<p>Catholic graduate expectations</p>	<p><b>Ontario Catholic School Graduate Expectations</b></p> <p>The graduate is expected to be:</p> <p><b>A Discerning Believer Formed in the Catholic Faith Community</b> who</p> <p><b>CGE1d</b> -develops attitudes and values founded on Catholic <b>social teaching</b> and acts to promote social responsibility, human solidarity and the common good;</p> <p><b>A Reflective and Creative Thinker</b> who</p> <p><b>CGE3b</b> -creates, adapts, evaluates new ideas in light of the common good;</p> <p><b>CGE3c</b> -thinks reflectively and creatively to evaluate situations and solve problems;</p> <p><b>CGE3d</b> -makes decisions in light of gospel values with an informed moral conscience;</p> <p><b>CGE3f</b> -examines, evaluates and applies knowledge of interdependent systems (physical, political, ethical, socio-economic and ecological) for the development of a just and compassionate society.</p> <p><b>An Effective Communicator</b> who</p> <p><b>CGE2a</b> - <b>listens actively</b></p> <p><b>CGE2b</b> – reads, understands and uses written materials effectively;</p> <p><b>CGE2c</b> – presents information and ideas clearly, honestly, with sensitivity to others</p> <p><b>CGE2e</b> -uses and integrates the Catholic faith tradition, in the critical analysis of the arts, media, technology and information systems to enhance the quality of life.</p> <p><b>A Responsible Citizen</b> who</p> <p><b>CGE7i</b> -respects the environment and uses resources wisely.</p>
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Essential Skills and work habits	Essential Skills
	<input checked="" type="checkbox"/> Reading Text <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Document Use <input checked="" type="checkbox"/> Computer Use <input checked="" type="checkbox"/> Oral Communication Numeracy <input checked="" type="checkbox"/> Money Math <input checked="" type="checkbox"/> Scheduling or Budgeting and Accounting <input checked="" type="checkbox"/> Measurement and Calculation <input checked="" type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical Estimation Thinking Skills <input type="checkbox"/> Job Task Planning and Organizing <input checked="" type="checkbox"/> Decision Making <input checked="" type="checkbox"/> Problem Solving <input checked="" type="checkbox"/> Finding Information <div style="text-align: right;">Work Habits</div> <input type="checkbox"/> Working Safely <input type="checkbox"/> Teamwork <input checked="" type="checkbox"/> Reliability <input checked="" type="checkbox"/> Organization <input checked="" type="checkbox"/> Working Independently <input checked="" type="checkbox"/> Initiative <input checked="" type="checkbox"/> Self-advocacy <input type="checkbox"/> Customer Service <input type="checkbox"/> Entrepreneurship

## Instructional/Assessment Strategies

Teacher's notes

It is assumed that teachers have taught the lessons on metric imperial conversion, HST, .

- The worksheets should be photocopied for each student.
- The teacher should become familiar with the websites that the students will be using.
- Ongoing diagnostic and formative feedback is important for consistent learning and student development (i.e. through use of student worksheets).
- If the class is a split group (not all SHSM students) it may be advantageous to group the SHSM students together, however, this CLA has benefits for all MBF students, not just those enrolled in the SHSM program.

### Context

This CLA is designed for students that plan on entering the workplace in the Energy sector.

### Strategies

- Socratic Review: Teacher can begin each part of the activity with a reminder of pertinent definitions on the board, or a small example of the topic of the day.
- Modelling: Some handouts have an example to show the students what is required for their response.
- Observation & Conferencing: As students work to complete the activity, teachers should discuss answers and point out where students may need to double check their work as form of formative feedback and assessment.

## Assessment and Evaluation of Student Achievement

How will we know students are learning?	How will we know students have learned?
• How will students demonstrate progress towards the desired learning?	• How will students demonstrate achievement of the desired learning?
• What criteria will be used to determine whether students are learning?	• What criteria will be used to determine that students have learned?
• What assessment strategies/tools will best gather evidence during learning?	• What assessment strategies/tools will best gather evidence that students have learned?
• Will the assessment tasks provide opportunities for students to demonstrate the full range of their learning in a variety of ways?]	

Strategies/Tasks	Purpose
1. Planning a car purchase	Assessment for Learning (give constant feedback on Student Progress)
2. Choosing a vehicle	Assessment for Learning (give constant feedback on Student Progress)



## Additional Notes/Comments/Explanations

This CLA is meant to follow/mimic the following units of the PEARSON MATH 11 text:

6.4 Choosing a Vehicle -

6.5 Insurance Costs

6.6 the Costs of Owning a Vehicle

Although designed for the SHSM student(s) the partner work involved could be completed by a SHSM and a non SHSM to constantly be comparing the similarities/differences of a standard car and the electric car

## Resources

### Human resources

Teacher, and The Speakers bureau - can be used to have guest speakers from a car dealership regarding a vehicle purchase, and /or from the auto insurance industry

### Print resources

PEARSON MATH 11

Chevrolet Dealerships in the area for pertinent data

### Websites

[www.chevrolet.com](http://www.chevrolet.com)

[www.ford.ca](http://www.ford.ca)

[www.toyota.ca](http://www.toyota.ca)

[www.autotrader.ca](http://www.autotrader.ca)

## Accommodations

- Individual Education Plans (IEP) should be followed at all times. Be sure to consult the SERT for additional information and suggestions
- Additional time may be needed for formative and summative assignments
- The activities and lessons outlined in this CLA allow for flexibility in the delivery of the material. Alternating teaching strategies (including chunking) can help students who are not progressing at the appropriate level
- Font can be increased for those students that have vision problems
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## List of Attachments

Permission to use the internet pictures and data found in this CLA was given and suggested by Schlueter Chevrolet in Waterloo, Ontario .

**Appendix 1-4 Teacher Resource - Answer Sheets**