

<b>Contact Information</b>	
Board	Waterloo Catholic District School Board
Development date	August 25, 2011
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<b>SHSM sector</b>	Landscape and Horticulture
<b>Course code and course title</b>	MCT4C - Mathematics for College Technology
<b>Name of CLA</b>	Let's Build a Shed
<b>Brief description of CLA</b>	A brief look at the material requirements and cost to construct a backyard shed along with other skills required to complete the task.
<b>Key Search Terms (Do not use SHSM, CLA, Course Code or Sector)</b>	Geometry, Conversions, Area, Volume
<b>Duration</b>	6 hours
<b>Overall expectations</b>	2 Solve problems involving two-dimensional shapes and three-dimensional figures and arising from real-world applications;
<b>Specific expectations</b>	<p>2.2 Perform required conversions between the imperial system and the metric system using a variety of tools (e.g., tables, calculators, online conversion tools), as necessary within applications</p> <p>2.3 Solve problems involving the areas of rectangles, parallelograms, trapezoids, triangles, and circles, and of related composite shapes, in situations arising from real-world applications</p> <p>2.4 Solve problems involving the volumes and surface areas of spheres, right prisms, and cylinders, and of related composite figures, in situations arising from real-world applications</p>

<p>Catholic graduate expectations (if applicable)</p>	<p>CGE1i Integrates faith with life  CGE3e Adopts a holistic approach to life by integrating learning from various subject areas and experience  CGE4b Demonstrates flexibility and adaptability  CGE4f Applies effective communication, decision making, problem solving, time and resource management skills  CGE5d Finds meaning, dignity, fulfillment and vocation in work which contributes to the common good.  CGE7b Accepts accountability for one's own actions  CGE7i Respects the environment and uses resources wisely  CGE7j Contributes to the common good.</p>
<p>Essential Skills and work habits</p>	<p style="text-align: center;"><b>Essential Skills</b></p> <p><input checked="" type="checkbox"/> Reading Text  <input type="checkbox"/> Writing  <input type="checkbox"/> Document Use  <input checked="" type="checkbox"/> Computer Use  <input type="checkbox"/> Oral Communication  <input checked="" type="checkbox"/> Numeracy  <input checked="" type="checkbox"/> Money Math  <input type="checkbox"/> Scheduling or Budgeting and Accounting  <input checked="" type="checkbox"/> Measurement and Calculation  <input type="checkbox"/> Data Analysis  <input checked="" type="checkbox"/> Numerical Estimation</p> <p>Thinking Skills  <input checked="" type="checkbox"/> Job Task Planning and Organizing  <input type="checkbox"/> Decision Making  <input type="checkbox"/> Problem Solving  <input type="checkbox"/> Finding Information</p> <p style="text-align: center;"><b>Work Habits</b></p> <p><input type="checkbox"/> Working Safely  <input type="checkbox"/> Teamwork  <input type="checkbox"/> Reliability  <input type="checkbox"/> Organization  <input checked="" type="checkbox"/> Working Independently  <input checked="" type="checkbox"/> Initiative  <input type="checkbox"/> Self-advocacy  <input type="checkbox"/> Customer Service  <input type="checkbox"/> Entrepreneurship</p>

## Instructional/Assessment Strategies

### Teacher's notes

- The teacher should become familiar with the use of mathematics in the landscape and technology courses.
- Providing applicable real life examples from the horticulture and landscape technology sectors can be beneficial for student learning.
- Constant diagnostic and formative feedback is important for consistent learning and student development (ie. through use of practice questions at the end of each lesson.)
- 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 MCT4C students, not just those enrolled in the SHSM program.
- Allow students to supplement their learning with applicable computer use.
- Make sure to have copies of the formula sheets ready for the students to put in binders.

### Context

The CLA relates to the horticulture and landscape sector since shed building is a common task undertaken by landscape technicians. Therefore many of the skills used in the CLA such as unit conversions, area and volume are skills that would have to be used in the workplace. These skills in particular are helpful so that the builder can plan and purchase the correct amount of materials. This also allows them to give the consumer a quote based on the materials required for shed plus the additional cost of labor.

### Strategies

- Day 1 – Students will be introduced to the package. They will go through the note on conversion methods followed by practicing conversions. This practice will serve as assessment FOR learning
- Day 2 – Students will begin work on area of 2D shapes. They will practice this skill and that will serve as assessment FOR learning.
- Day 3 – Students will begin work on surface area and volume of 3D shapes. They will practice this skill and that will serve as assessment FOR learning
- Day 4/5 – Students will begin work on finding cost of a shed. This a summative skill with rubric attached.

## Assessment and Evaluation of Student Achievement

Strategies/Tasks	Purpose
1. Conversions practice	Assessment for learning (Formative assessment) – Give constant feedback during student progress
2. Calculating area of 2 D shapes	Assessment for learning (Formative assessment) – Give constant feedback during student progress
3. Calculating surface area and volume of 3D shapes	Assessment for learning (Formative assessment) – Give constant feedback during student progress
4. Let's build a shed	Assessment of learning (Summative assessment) – See attached rubric

Assessment tools

**Let's Build a Shed Rubric**

Expectations	Level 4	Level 3	Level 2	Level 1	R/I
<b>K/U</b> -understanding of concepts	-demonstrates a thorough understanding of all concepts  - demonstrates a thorough ability to perform calculations	-demonstrates a strong understanding of most concepts  - demonstrates a strong ability to perform calculations	-demonstrates a considerable understanding of some concepts  - demonstrates a considerable ability to perform calculations	- demonstrates some understanding of concepts  - demonstrates some ability to perform calculations	
<b>TI - PS</b> - ability to solve geometric problems related to the shed design and construction	- demonstrates a thorough ability to solve geometric problems	- demonstrates a strong ability to solve budgetary problems	- demonstrates a considerable ability to solve budgetary problems	- demonstrates some ability to solve budgetary problems	
<b>App</b> -ability to apply mathematics to use in a landscape design application	- demonstrates thorough apply mathematics	- demonstrates considerable apply mathematics	- demonstrates some apply mathematics	- demonstrates limited apply mathematics	
<b>Comm.</b> -task solutions and explanations complete	- task has all solutions with thorough supporting comments	- task has all solutions with considerable supporting comments	- task is missing some solutions with considerable supporting comments	- task has some solutions and very simple supporting comments	

**Differentiation**

Differentiation will be based on:

Readiness                       Learner Profile                       Interest

Differentiation will take place through:

Content                       Process                       Product                       Learning Environment

## Additional Notes/Comments/Explanations

- Resources on shed building can be a great tool
- Also allowing students some time to research shed building may help set the stage for the work that they need to complete.

## Resources

- Online metric imperial conversion tool or similar conversion method using a table or calculator
- Geometric nets for visualizing surface area of 3D shapes

## Authentic workplace materials

- Books on shed building can be provided to students to show them the wide variety of shed designs and considerations that must be made when building this type of structure.

## Human resources

## Print resources

## Video resources

- It is possible to show the students a YouTube video on how to build a shed. This will give them an idea of what their project entails.
- <http://www.youtube.com/watch?v=TqXONFHck4E> (1)
- <http://www.youtube.com/watch?v=mBowa7Hze0k&feature=related> (2)
- <http://www.youtube.com/watch?v=jcS-YJ6YDnc&feature=related> (3)
- [http://www.youtube.com/watch?v=Klh687\\_poZg&feature=related](http://www.youtube.com/watch?v=Klh687_poZg&feature=related) (4)
- <http://www.youtube.com/watch?v=e1yLqPl7kws&feature=related> (5)
- <http://www.youtube.com/watch?v=I1k3mYHU9y4&feature=related> (6)
- Above are the links to the video series on how to build a shed. There are 6 portions of the video. The other links can be found

## Software

## Website

## Other resources

## Accommodations

[List instructional, environmental, and assessment accommodations.]

[What adjustments must be made to the instructional and assessment strategies to accommodate different learning needs?]

- Individual Education Plans (IEP) should be followed at all times. Be sure to consult the Special Education Research Teacher (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 can help students who are not progressing at the appropriate level;
- Font can be increased for those students that have vision problems;
- Class rules, behaviours, and due dates should be posted in the classroom and talked about so that all students are aware of the expectations;
- If possible, more individual instruction time can be allotted to students in need;
- Can account for student work habits when considering assignments;
- Provide opportunities for enrichment for exceptional students;
- Provide time for peer-to-peer teaching;
- Use audio aids if needed;
- Provide alternate assessment opportunities that are geared towards students strengths or areas of interest;
- If available, many computer programs can be used to supplement student learning.

## List of Attachments

Part A: Conversion rates

Part B: Area of Two Dimensional Objects

Part C: Volume/Surface Area of 3 Dimensional Shapes

Part D: Let's Build a Shed

Rubric: Let's Build a Shed

<http://www.firelogs.com/GasTypeInfo.htm>

Sure, go ahead.

John Galbreath Jr.

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

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