

TEMPLATE: Contextualized Learning Activities (CLAs)

For the “other required credits” in the bundle of credits, students in a Specialist High Skills Major program must complete learning activities that are contextualized to the knowledge and skills relevant to the economic sector of the SHSM. Contextualized learning activities (CLAs) address curriculum expectations in these courses. This template must be used to describe the CLAs. The completed form must be submitted to the Ministry of Education for approval.

Contact Information	
Board	Waterloo Catholic District School Board
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Specialist High Skills Major	Environment (however, this CLA can be applied to numerous Majors)
Course code and course title	MBF3C: Grade 11 College Preparation
Name of contextualized learning activity	Environmental Assessment Study
Brief description of contextualized learning activity	<p>There are 3 modules in this activity:</p> <p>Module 1- Collection of data.</p> <p>Module 2- Use various mathematical models to interpret and analyze the data.</p> <p>Module 3- Interpretation of data and designing ways to decrease impact on the environment locally, provincially or nationally.</p>
Duration	<p>Module 1- 35-70minutes (0.5 to 1 class maximum)</p> <p>Module 2- 35-70minutes (0.5 to 1 class maximum)</p> <p>Module 3- 3.5-6h (3 to 5 classes depending on time available)</p>

Overall expectations	<ul style="list-style-type: none"> ❖ Apply what students have learned throughout the course and make recommendations on how to improve the environmental awareness/concern/impact within the local community. ❖ Make connections between the numeric, graphical and algebraic representations of quadratic relations, and use the connections to solve problems. ❖ Describe and represent exponential relations, and solve problems involving linear, quadratic and exponential relations arising from real-world applications. ❖ Solve problems involving one-variable data by collecting, organizing, analyzing and evaluating data.
Specific expectations	<p>Mathematical Models</p> <ul style="list-style-type: none"> • (A2.6) Distinguish exponential relation from linear and quadratic relations by making comparisons in a variety of ways. • (A3.1) Collect data that can be modelled as an exponential relation from primary or secondary sources, using a variety of tools. • (A3.2) Describe some characteristics of exponential relations arising from real-world applications by using tables of values and graphs. • (A3.3) Pose problems involving exponential relations arising from a variety of real-worlds applications and solve these and other such problems by using a given graph or a graph generated with technology from a given table of values or a given equation. • (A3.4) Solve problems using given equations of exponential relations arising from a variety of real-world applications by substituting values for the exponent into the equations. <p>Data Management</p> <ul style="list-style-type: none"> • (D1.1) Identify situations involving one-variable data and design questionnaires or experiments for gathering one-variable data, giving consideration to ethics, privacy, the need for honest responses, and possible sources of bias. • (D1.2) Collect one-variable data from secondary sources and organize and store the data using a variety of tools. • (D1.3) Explain the distinction between the terms population and sample, describe the characteristics of a good sample, and explain why sampling is necessary. • (D1.5) Identify different types of one-variable data and represent the data, with and without technology, in appropriate graphical forms. • (D1.6) Identify and describe properties associated with common distributions of data. • (D1.7) Calculate, using formulas and/or technology and interpret measures of central tendency. • (D1.9) Compare two or more sets of one-variable data, using measures of central tendency and measures of speed. • (D1.10) Solve problems by interpreting and analyzing one-variable data collected from secondary sources.
Catholic graduate expectations (if applicable)	<ul style="list-style-type: none"> • CGE2b -reads, understands and uses written materials effectively; • CGE2c -presents information and ideas clearly and honestly and with sensitivity to others; • CGE3b -creates, adapts, evaluates new ideas in light of the common good; • CGE3c -thinks reflectively and creatively to evaluate situations and solve

	<p>problems;</p> <ul style="list-style-type: none"> • CGE3f -examines, evaluates and applies knowledge of interdependent systems (physical, • political, ethical, socio-economic and ecological) for the development of a just and • compassionate society. • CGE5e -respects the rights, responsibilities and contributions of self and others; • CGE7i -respects the environment and uses resources wisely;
Essential Skills and work habits	<ul style="list-style-type: none"> • Reading Text • Writing • Document Use • Computer Use • Oral Communication • Numeracy <ul style="list-style-type: none"> ○ <u>Measurement and Calculation:</u> ○ <u>Data Analysis:</u> ○ <u>Numerical Estimation:</u> • Thinking Skills <ul style="list-style-type: none"> ○ <u>Decision Making</u> ○ <u>Problem Solving .</u> ○ <u>Finding Information</u> • Working Safely • Teamwork • Reliability • Working Independently • Initiative • Self-advocacy • Customer Service • Entrepreneurship

Instructional/Assessment Strategies

Teacher's notes

See Lesson Plan attachment for full explanations of this CLA. There are numerous ways to modify and expand on this activity as well.

Context

This CLA is applicable for any environmental research facility, government (municipal, provincial and federal levels), and for any environmental worker involved in industry research to help determine trends in their particular market (agriculture, transportation, food and animals, manufacturing, etc.)

Strategies

See Lesson Plan attachment for full explanations of this CLA. There are numerous ways to modify and expand on this activity as well.

Assessment and Evaluation of Student Achievement

Strategies/Tasks	Purpose
Module 1	<p>Formative. Students will check in with the teacher to go over their brainstorming and choices made for data collection. This is to ensure students are on the right track.</p> <p>Formative. Ensure student has collected sufficient data for the graphing stage.</p> <p>Summative. Students will be evaluated on their graphs.</p>
Module 2	<p>Formative. Students will receive feedback from their teacher and peers to ensure they are on the right track with their math models and data analysis.</p> <p>Summative. Students will be evaluated on their math models and data analysis.</p>
Module 3	<p>Formative. Students will self-edit and peer-edit their surveys.</p> <p>Summative. Students will be evaluated on their surveys, presentation and reflection.</p>
<p>Assessment tools See attached evaluation rubric.</p>	

Additional Notes/Comments/Explanations

Prior completing this CLA, students should have an understanding of the Data Management and Mathematical Models units.

See Lesson Plan attachment for full explanations of this CLA. There are numerous ways to modify and expand on this activity as well.

Resources

Print

Cooke, Gordon et al, *Pearson Math 11*, Pearson Education Canada, 2008

Software

Microsoft Word
Microsoft Excel
Fathom

Websites

<http://www.statcan.gc.ca/> Stats Canada
<http://www.ec.gc.ca> Environment Canada
<http://www.edu.gov.on.ca/eng/teachers/studentssuccess/specific.html> Think Literacy Documents
<http://www19.statcan.gc.ca/r000-eng.htm> Census at School
http://www.statcan.gc.ca/kits-trousses/edu01f_0000-eng.htm Human Activity and the Environment: Annual Statistics
http://www.statcan.gc.ca/kits-trousses/edu01i_0000-eng.htm Canada at a Glance

Accommodations

- Individual Education Plans (IEP) will be followed (including if additional time is needed).
- Computer programs should be used (if available) to supplement students work, and allows room for creativity.
- Due dates should be made clear (written on assignment as well as posted in the classroom) and discussed as a class so all students are aware of the expectations for the assignment.
- This assignment allows for lots of student creativity for those more oriented to certain learning styles/intelligences.
- Ample time should be given for students to peer edit and look over each others work and look for ways to improve.
- Use audio and visual aids if needed.
- Modifications on length of delivery and teaching styles can be made for those not working at appropriate level.
- Allow students to work towards their strengths. For example, if they are very creative and love using technology and AV materials, their final project could be a DVD of their topic.
- There are many opportunities for enriched students to expand and have more independence in this assignment. See Lesson Plan for examples.

List of Attachments

1. Student Handout
2. Teacher Lesson Plan
3. Rubric for evaluation of entire activity
4. Data Tables (STAT-CAN)
5. Using STAT-CAN
6. Exemplar