

Course Profile

Principles of Mathematics

Grade 9
Academic

• *for teachers by teachers*

Course Profiles are professional development materials designed to help teachers implement the new Grade 9 secondary school curriculum. These materials were created by writing partnerships of school boards and subject associations. The development of these resources was funded by the Ontario Ministry of Education and Training. This document reflects the views of the developers and not necessarily those of the Ministry. Permission is given to reproduce these materials for any purpose except profit. Teachers are also encouraged to amend, revise, edit, cut, paste, and otherwise adapt this material for educational purposes.

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Additional Codes:

Eastern Ontario Catholic Curriculum Cooperative

Institute for Catholic Education

Course Overview

Mathematics, Academic, Grade 9

Identifying Information:

School:	Course Developer(s): Arlene Corrigan, Dominique Levac, Maureen Vincentine, Linda Sloan, Carolyn Boyer, Tom Steinke, Len St. Clair, Nora Buckley, Sue Trew, Brian McCudden, Margaret Sinclair, David Kurzinger, Paul Costa
Department:	
District:	
Course Title: Principles of Mathematics	Development Date: February/March 1999
Grade: 9	Course Revisor(s):
Course Type: Academic	Revision Date: March/April 1999.
Ministry Course Code: MPM1D	
Credit Value: 1.0	

Description/Rationale

This course enables students to develop generalizations of mathematical ideas and methods through exploration of applications, the effective use of technology, and abstract reasoning. Students will investigate relationships to develop equations of straight lines in analytic geometry, explore relationships between volume and surface area of objects in measurement, and apply extended algebraic skills in problem solving. Students will engage in abstract extensions of core learning that will deepen their mathematical knowledge and enrich their understanding.

How This Course Supports the Ontario Catholic School Graduate Expectations

This course enables students to develop a confident and positive sense of self. Within the setting of a supportive and caring classroom community, the dignity and value of each student is respected and affirmed. Through their personal growth in reason, critical thinking and communication, students come to appreciate their mathematical ability as a God given gift. By sharing their abilities, students contribute to the good of others, in service to the classroom and school community.

Unit Titles (Time and Sequence)

Unit 1	Exploring Relationships	20 hours
Unit 2	Modelling Linear Relationships	40 hours
Unit 3	Exploring Relationships in Geometry	35 hours
Unit 4	Making Connections	15 hours

Unit Organization

Unit #1: Exploring Relationships

Time: 20 Hours

Description:

In this unit, both students and teachers will begin to explore both linear and non-linear relationships arising from meaningful problems. Students will develop numeric, graphic and algebraic skills as needed in the context of the activity. Various forms of assessment are built into all the activities.

Ontario Catholic School Graduation Expectations: CGE 3c, 4b, 5a, 7j

Strand(s): Number Sense and Algebra, Relationships

Overall Expectations: NAV.01, NAV.02, NAV.04, REV.01, REV.02, REV.03.

Specific Expectations: NA1.01, NA1.02, NA1.03, NA1.04, NA1.05, NA1.06, NA2.03, NA2.04, NA2.05, RE1.01, RE1.03, RE1.04, RE1.05, RE1.06, RE1.07, RE2.01, RE2.02, RE2.04, RE2.05, RE2.06, RE3.02, RE3.03, RE3.04.

Unit #2 : Modelling Linear Relationships

Time: 40 Hours

Description:

In this unit, students and teachers will explore numerical, graphical and algebraic models (tables, graphs, equations) of linear relationships arising from meaningful problems. Students will develop numeric, graphic and algebraic skills as needed. Various forms of assessment are built into all the activities.

Ontario Catholic School Graduate Expectations:CGE 2b, 3c, 3e, 4f, 5a, 5g

Strands: Number Sense and Algebra, Relationships, Analytic Geometry

Overall Expectations: NAV.01, NAV.03, NAV.04, REV.01, REV.03, AGV.01, AGV.02, AGV.03.

Specific Expectations: NA1.01, NA1.02, NA1.03, NA1.04, NA1.05, NA1.06, NA3.01, NA3.02, NA3.03, NA3.04, NA3.06, NA4.01, NA4.02, NA4.03, RE1.01, RE1.02, RE1.03, RE1.04, RE1.05, RE1.06, RE1.07, RE2.01, RE2.02, RE2.03, RE3.01, RE3.02, RE3.03, RE3.04, AG1.01, AG1.02, AG1.03, AG1.04, AG2.01, AG2.02, AG2.03, AG2.04, AG2.05, AG3.01, AG3.02, AG3.03, AG3.04, AG3.05, AG3.06, AG3.07, AG3.08.

Unit #3: Exploring Relationships in Geometry

Time: 35 Hours

Description:

In this unit, students and teachers will explore and model relationships in measurement and geometry numerically and graphically in the context of optimization problems. This is an extension of the study of non-linear relationships introduced in Unit 1. Students will also explore geometric relationships using dynamic geometry software.

Ontario Catholic School Graduation Expectations: CGE 2b, 5a, 5b

Strand:Number Sense and Algebra, Relationships, Analytic Geometry, Measurement and Geometry

Overall Expectations: NAV.02, NAV.03, REV.01, REV.02, REV.03, MGV.01, MGV.02, MGV.03.

Specific Expectations: NA2.01, NA2.02, NA2.03, NA2.04, NA2.05, NA2.06, NA3.01, NA3.02, NA3.03, NA3.04, NA3.05, NA3.06, RE1.01, RE1.03, RE1.04, RE1.05, RE1.06, RE1.07, RE2.01, RE2.02, RE2.04, RE2.05, RE3.01, RE3.02, RE3.03, MG1.01, MG1.02, MG1.03, MG1.04, MG2.01, MG2.02, MG2.03, MG2.04, MG3.01, MG3.02, MG3.03, MG3.04, MG3.05.

Unit #4: Making Connections

Time: 15 Hours

Description:

In this unit, students will engage in a few, large assessment activities. These activities will capture the essence of the grade 9 course. One activity will serve as a culminating assessment task, which will be used in conjunction with a final exam as a final assessment.

Ontario Catholic School Graduation Expectations: CGE 2b, 5a, 5b.

Strand: Number Sense and Algebra, Relationships, Analytic Geometry, Measurement and Geometry

Overall Expectations: NAV.01, REV.01, REV.02, REV.03, AGV.01, AGV.02, AGV.03, MGV.01, MGV.02.

Specific Expectations: NA1.01, NA1.02, NA1.03, NA1.04, NA1.05, NA4.01, RE1.01, RE1.02, RE1.03, RE1.04, RE1.05, RE1.06, RE1.07, RE2.01, RE2.02, RE2.03, RE2.04, RE2.05, RE3.02, RE3.03, RE3.04, AG1.01, AG1.02, AG1.03, AG2.01, AG2.02, AG2.03, AG2.04, AG2.05, AG3.01, AG3.02, AG3.03, AG3.04, AG3.05, AG3.06, AG3.07, AG3.08, MG1.01, MG1.02, MG1.03, MG1.04, MG2.01, MG2.02, MG2.03, MG2.04.

Course Notes

“It is expected that in developing detailed courses of study from this document, teachers will weave together related expectations from different strands ...” (page 5, The Ontario Curriculum, Grades 9 and 10, Mathematics, 1999). This course profile has been constructed with a common theme of relationships that connects all the units. Below is a chart which displays the “weaving”:

Unit	Strand	Number Sense and Algebra	Relationships	Analytic Geometry	Measurement and Geometry
1. Exploring Relationships		✓	✓		
2. Exploring Linear Relationships		✓	✓	✓	
3. Exploring Relationships in Geometry		✓	✓		✓
4. Making Connections		✓	✓	✓	✓

“Skill acquisition is an important part of the program: skills are embedded in the contexts offered by various topics in the mathematics program and should be introduced as they are needed.” (page 4, The Ontario Curriculum, Grades 9 and 10, Mathematics, 1999). Skill development is truly embedded in the activities we have designed.

“The philosophy of the Grade 9 courses is consistent with that of the elementary program and facilitates a seamless transition from elementary school, because it reflects the belief that students learn mathematics effectively when they have initial opportunities to explore through hands-on experiences, followed by careful guidance into an understanding of the abstract mathematics involved.” (page 4, The Ontario Curriculum, Grades 9 and 10, Mathematics, 1999). All the activities give students initial opportunities to explore, through hands-on experiences followed by a thoughtful journey through various, appropriate representations. The bridge to the algebraic representation is one that must be crossed carefully to ensure all students develop a true understanding of this abstract representation. The activities in Unit 2 allow students to initially explore relationships numerically and graphically. The linear regression capabilities of graphing calculators provide a bridge for all students to develop an initial algebraic model. Dynamic Geometry Software is a powerful tool to allow all students to explore the connection between graphical and algebraic models.

Many activities require the use of technology: “The development of sophisticated yet easily used calculators and computers is changing the role of procedure and technique in mathematics. Operations that have been an essential part of a procedures-focused curriculum for decades can now be accomplished quickly and effectively using technology, so that students can now solve problems that were too time consuming to attempt, and can focus on underlying concepts. This curriculum integrates appropriate technologies into the learning and doing of mathematics ...” (page 3, The Ontario Curriculum, Grades 9 and 10, Mathematics, 1999).

In the area of assessment it is essential that examples of student work be provided to paint a clearer picture of the meanings of the levels and their descriptors for students, parents, and teachers.

Mathematics, Academic, Grade 9

Strategies and Resources

Teaching and Learning Strategies	Assessment Strategies	Main Resources
<p>Teaching and learning strategies will include the following:</p> <p>Hypothesize students will formulate hypotheses associated with relationships</p> <p>Explore/Investigate through hands-on investigations of relationships</p> <p>Model/Formulate students develop numeric, graphic, algebraic and geometric models for exploring relationships, dependencies and constraints</p> <p>Transform/Manipulate students will develop numeric, graphic and algebraic skills as needed in the context of their investigations to allow them to move within and between representations</p> <p>Infer/Conclude students will re-evaluate their hypotheses in light of their learning and make inferences to extend their learning</p> <p>Communicate students, individually and in groups, orally and in writing, communicate the findings of their investigations by defending their mathematical models and explaining their reasoning</p>	<p>The assessment plan will include the following:</p> <p>Personal Communication</p> <ul style="list-style-type: none"> • journals • self/peer assessment • student-teacher conferences <p>Paper and Pencil</p> <ul style="list-style-type: none"> • tasks • unit tests • final exam • reports <p>Observation</p> <ul style="list-style-type: none"> • formal and informal <p>Performance Assessment</p> <ul style="list-style-type: none"> • oral presentations • culminating assessment task • written reports <p>Assessment tools will include:</p> <ul style="list-style-type: none"> • checklists • rubrics 	<p>The following resources are required to support teaching and learning:</p> <p>Textbooks Student Textbook NCTM Standards</p> <p>Videotapes <i>Life By the Numbers</i>, PBS, 1998</p> <p>Computer Software Spreadsheet and Wordprocessor (<i>Corel Suite 8, Microsoft Office</i>) Dynamic Geometry Software (<i>Cabri, Geometer's SketchPad, TI92</i>) Graphing Software (<i>Graphmatica or Zap-A-Graph</i>)</p> <p>Websites http://www.ti.com/calc/docs http://www.statcan.ca http://forum.swarthmore.edu/</p> <p>Technology and Manipulatives Graphing Calculators (<i>TI82/83/83Plus</i>), Data Collection Devices (<i>CBR, CBL and scientific probes</i>) Manipulatives</p>

Mathematics, Academic, Grade 9

Evaluation of Student Achievement

Knowledge/Skill Category Weighting		Course Grade Weighting	%
<p>Final Examination Focus on:</p> <ul style="list-style-type: none"> • Knowledge/Understanding • Application/Making Connections 		<p>Final Examination</p>	15
<p>Final Assignment: Culminating Assessment Task Focus on:</p> <ul style="list-style-type: none"> • Thinking/Inquiry/Problem Solving • Communication 		<p>Culminating Assessment Task</p>	15
<p>Written Reports Focus on:</p> <ul style="list-style-type: none"> • Thinking/Inquiry/Problem Solving • Communication 		<p>Written Reports</p>	20
<p>Oral Presentations Focus on:</p> <ul style="list-style-type: none"> • Communication 		<p>Oral Presentations</p>	10
<p>Paper and Pencil Tasks Focus on:</p> <ul style="list-style-type: none"> • Knowledge/Understanding • Application/Making Connections 		<p>Paper and Pencil Tasks</p>	10
<p>Unit Tests Focus on:</p> <ul style="list-style-type: none"> • Knowledge/Understanding • Application/Making Connections 		<p>Unit Tests</p>	30
		<p>Course Grade</p>	<p>----- 100</p>

Coded Expectations: Principles of Mathematics, Academic Grade 9

Number Sense and Algebra

Overall Expectations

NAV.01

- solve multi-step problems requiring numerical answers, using a variety of strategies and tools

NAV.02

- demonstrate understanding of the three basic exponent rules and apply them to simplify expressions

NAV.03

- manipulate first-degree polynomial expressions to solve first-degree equations

NAV.04

- solve problems, using the strategy of algebraic modelling

Specific Expectations

Solving Numerical Problems

NA1.01

- demonstrate facility with critical numerical skills, including mental mathematics, estimation, operations with integers (as necessary for working with equations and analytical geometry), and operations with rational numbers (as necessary in analytic geometry, measurement, and equation solving)

NA1.02

- distinguish between exact and approximate representations of the same quantity and choose appropriately between them in given situations (e.g. use the symbol π instead of 3.14 in determining the effect on volume of a sphere of doubling its diameter; determine the perimeter of a square having an area of 2)

NA1.03

- solve multi-step problems involving applications of percent, ratio, and rate as they arise throughout the course

NA1.04

- use a specific calculator effectively for applications that arise throughout the course

NA1.05

- judge the reasonableness of answers to problems by considering likely results within the situation described in the problem

NA1.06

- judge the reasonableness of answers produced by a calculator, a computer, or pencil and paper, using mental mathematics and estimation

Operating Elements

NA2.01

- elevate numerical expressions involving natural-number exponents with rational-number bases

NA2.02

- substitute into and evaluate algebraic expressions involving exponents, to support other topics of the course (e.g., measurement, analytical geometry)

NA2.03

- determine the meaning of negative exponents and of zero as an exponent from activities involving patterning

NA2.04

- represent very large and very small numbers, using scientific notation

NA2.05

- enter and interpret exponential notation on a scientific calculator, as necessary in calculations involving very large and very small numbers

NA2.06

- determine, from the examination of patterns, the exponent rules for multiplying and dividing monomials and the exponent rule for the power of a power, and apply these rules in expressions involving one and two variables

Manipulating Polynomial Expressions and Solving Equations

NA3.01

- add and subtract polynomials

NA3.02

- multiply a polynomial by a monomial, and factor a polynomial by removing a common factor

NA3.03

- expand and simplify polynomial expressions involving one variable

NA3.04

- solve first-degree equations, including equations with fractional coefficients, using an algebraic method

NA3.05

- calculate in right triangles, using the Pythagorean theorem, as required in topics throughout the course (e.g. measurement)

NA3.06

- rearrange formulas involving variables in the first degree, with and without substitution, as they arise in topics throughout the course (e.g. analytical geometry, measurement)

Using Algebraic Modelling to Solve Problems

NA4.01

- use algebraic modelling as one of several problem-solving strategies in various topics of the course (e.g. relations, measurement, direct and partial variation, Pythagorean theorem, percent)

NA4.02

- compare algebraic modelling with other strategies used for solving the same problem

NA4.03

- communicate solutions to problems in approximate mathematical forms (e.g., written explanations, formulas, charts, tables, graphs) and justify the reasoning used in solving the problems

Relationships

Overall Expectations

REV.01

- determine relationships between two variables by collecting and analysing data

REV.02

- compare the graphs and formulas of linear and non-linear relations

REV.03

- describe the connections between various representations of relations

Specific Expectations

Determining Relationships

RE1.01

- pose problems, identify variables, and formulate hypotheses associated with relationships (*Sample problem:* If you look through a paper tube at a wall, you can see a region of a certain height on the wall. If you move farther from the wall, the height of that region changes. What is the relationship between the height of the visible region and your distance from the wall? Describe the relationship that you think will occur.)

RE1.02

- demonstrate and understanding of some principles of sampling and surveying (e.g., randomization, representivity, the use of multiple traits) and apply the principles in designing and carrying out experiments to investigate the relationships between variable (*Sample problem:* What factors might affect the outcome of this experiment? How could you design the experiment to account for them?)

RE1.03

- collect data, using appropriate equipment and/or technology (e.g., measurement tools, graphing calculators, scientific probes, the Internet) (*Sample problem:* Acquire or construct a paper tube and work with a partner to measure the heights of visible regions at various distances from a wall.);

RE1.04

- Organize and analyse data, using appropriate techniques (e.g., making tables and graphs, calculating measures of central tendency) and technology (e.g., graphing calculators, statistical software, spread-sheets) (*Sample problem:* Enter the data into a spreadsheet. Decide what analysis would be appropriate to examine the relationship between the variables – a graph, measures of central tendency, ratios)

RE1.05

- describe trends and relationships observed in data, make inferences from data, compare the inferences with hypotheses about the data, and explain the differences between the inferences and the hypotheses (*Sample problem:* Describe any trend observed in the data. Does a relationship seem to exist? Of what sort? Is the outcome consistent with your original hypotheses? Discuss any outlying pieces of data and provide explanations for them. Suggest a formula relating the height of the visible region to the distance from the wall. How might you vary the experiment to examine other relationships?)

RE1.06

- communicate findings of an experiment clearly and concisely, using appropriate mathematical forms (e.g., written explanations, formulas, charts, tables, graphs), and justify the conclusions reached

RE1.07

- solve and/or pose problems related to an experiment, using the findings of the experiment

Comparing Linear and Non-linear Relations**RE2.01**

- Construct tables of values, graphs, and formulas to represent the linear relations derived from descriptions of realistic situations (e.g., the cost of holding a banquet in a rented hall is \$25 per person plus \$975 for the hall)

RE2.02

- construct tables of values and scatter plots for linearly related data collected from experiments (e.g., the rebound height of a ball versus the height from which it was dropped) or from secondary sources (e.g., the number of calories in fast food versus the number of grams of fat)

RE2.03

- determine the equation of a line of best fit for a scatter plot, using an informal process (e.g., a process of trial and error on a graphing calculator; calculation of the equation of the line joining two carefully chosen points of the scatter plot)

RE2.04

- construct tables of values and graphs to represent non-linear relations derived from descriptions of realistic situations (*Sample problem:* A triangular prism has a height of 20 cm and a square base. Represent the relationship between the volume of the prism and the side length of its base, as the side length varies)

RE2.05

- construct tables of values and scatter plots for non-linear related data collected from experiments (e.g., the relationship between height and age) or from secondary sources (e.g., the population of Canada over time); sketch a curve of best fit

RE2.06

- demonstrate an understanding that straight lines represent linear relations and curves represent non-linear relations

Describing Connections Between Representations of Relations

RE3.01

- determine values of a linear relations be using the formula of the relations and by interpolating or extrapolating from the graph of the relation (e.g., if a student earns \$5/hr caring for children, determine how long he or she must work to earn \$143)

RE3.02

- describe, in written form, a situation that would explain the events illustrated by a given graph or the relationship between two variables (e.g., write a story that matches the events shown in the graph)

RE3.03

- identify, by calculating finite differences in its table of values, whether a relation is linear or non-linear

RE3.04

- describe the effect on the graph and the formula of a relation of varying the conditions of a situation they represent (e.g., if a graph showing partial variation represents the cost of producing a yearbook, describe how the appearance of the graph changes if the cost per book is altered; describe how it changes if the fixed costs are altered)

Analytical Geometry

Overall Expectations

AGV.01

- determine, through investigation, the relationships between the form of an equation and the shape of its graph with respect to linearity an non-linearity

AGV.02

- determine, through investigation, the properties of the slope and y-intercept of a linear relation

AGV.03

- solve problems, using the properties of linear relations

Specific Expectations

Investigating the Relationship Between the Equation of a Relation and the Shape of Its Graph

AG1.01

- determine, through investigation, the characteristics that distinguish the equation of a straight line from the equation of non- linear relations (e.g., use graphing soft-ware to obtain the graphs of a variety of linear and non-linear relations from their equations; classify the relations according to the shapes of their graphs; focus on the characteristics of the equations of linear relations and how they differ from the characteristics of the equations of non-linear relations)

AG1.02

- select the equations of straight lines froms given set of equations of linear and non-linear relations

AG1.03

- identify the equation of a line in any of the forms $y = mx + b$, $Ax + By + C = 0$, $x = a$, $y = b$

AG1.04

- rearrange the equation of a line from the form $y = mx + b$ to the form $Ax + By + C = 0$, and vice versa

Investigating the Properties of Slope**AG2.01**

- determine the slope of a line segment, using various formulas, e.g.,

$$= \frac{\Delta y}{\Delta x} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}$$

AG2.02

- identify the slope of a linear relation as representing a constant rate of change

AG2.03

- calculate the finite differences in the table of values of a linear relation and relate the result to the slope of the relation

AG2.04

- identify the geometric significance of m and b in the equation $y = mx + b$ through investigation

AG2.05

- identify properties of the slopes of line segments (e.g., direction, positive or negative rate of change, steepness, parallelism, perpendicularity) through investigations facilitated by graphing technology, where appropriate

Using the Properties of Linear Relations to Solve Problems**AG3.01**

- plot points on the xy -plane and use the terminology and notation of the xy -plane correctly

AG3.02

- graph lines by hand, using a variety of techniques (e.g., making a table of values using intercepts, using the slope and y intercept)

AG3.03

- graph lines, using graphing calculators or graphing software

AG3.04

- determine the equation of a line, given information about the line (e.g., the slope and y intercept, the slope and a point, two points, a line parallel to a given line and having the same x intercept as another given line)

AG3.05

- communicate solutions to multi-step problems in established mathematical form, with clear reasons given for the steps taken

AG3.06

- describe the meaning of the slope and y intercept for a linear relation arising from a realistic situation, interpolate and extrapolate from the graph and the equation of the relation, and identify and explain any restrictions on the variables in the relation

AG3.07

- describe a situation that would be modelled by a given linear equation

AG3.08

- determine the point of intersection of two linear relations, by hand for simple examples, and using graphing calculators or graphing software for more complex examples; interpret the intersection point in the context of an application

Measurement and Geometry**Overall Expectations****MGV.01**

- determine the optimal values of various measurements through investigations facilitated, where appropriate, by the use of concrete materials, diagrams, and calculators or computer software

MGV.02

- solve problems involving the surface area and the volume of three-dimensional objects

MGV.03

- formulate conjectures and generalizations about geometric relationships involving two-dimensional figures, through investigations facilitated by dynamic geometry software, where appropriate

Specific Expectations**Investigating the Optimal Value of Measurements****MG1.01**

- identify, through investigation, the effect of varying the dimensions of a rectangular prism or cylinder on the volume or surface area of the object

MG1.02

- identify, through investigation, the relationships between the volume and surface area of a given rectangular prism cylinder

MG1.03

- explain the significance of optimal surface area or volume in various applications (e.g., packaging; the relationship between surface area and heat loss)

MG1.04

- pose and solve a problem involving the relationship between the perimeter and the area of a figure when one of the measures is fixed

Solving Problems Involving Surface Area and Volume**MG2.01**

- solve simple problems, using the formulas for the surface area and the volume of prisms, pyramids, cylinders, cones and spheres

MG2.02

- solve multi-step problems involving the volume and the surface area of prisms, cylinders, pyramids, cones, and spheres

MG2.03

- judge the reasonableness of answers to measurement problems by considering likely results within the situation described in the problem

MG2.04

- judge the reasonableness of answers produced by a calculator, a computer, or pencil and paper, using mental mathematics and estimation

Investigating Geometric Relationships**MG3.01**

- illustrate and explain the properties of the interior and exterior angles of triangles and quadrilaterals, and of angles related to parallel lines

MG3.02

- determine the properties of angle bisectors, medians, and altitudes in various types of triangles through investigation

MG3.03

- determine the properties of the sides and the diagonals of polygons (e.g., the diagonals in quadrilaterals, the diagonals of regular pentagons, the figure that results from joining the midpoints of sides of quadrilaterals) through investigation

MG3.04

- pose questions about geometric relationships, test them, and communicate the findings, using appropriate language and mathematical forms (e.g., written explanations, diagrams, formulas, tables)

MG3.04

- confirm a statement about the relationship between geometric properties by illustrating the statement with examples, or deny the statement on the basis of a counter-example (e.g., confirm or deny the following statement: If a quadrilateral has perpendicular diagonals, then it is a square)

Ontario Catholic School Graduate Expectations

The graduate is expected to be:

A Discerning Believer Formed in the Catholic Faith Community who

- CGE1a** -illustrates a basic understanding of the **saving story** of our Christian faith;
- CGE1b** -participates in the **sacramental life** of the church and demonstrates an understanding of the centrality of the Eucharist to our Catholic story;
- CGE1c** -actively reflects on **God’s Word** as communicated through the Hebrew and Christian scriptures;
- CGE1d** -develops attitudes and values founded on Catholic **social teaching** and acts to promote social responsibility, human solidarity and the common good;
- CGE1e** -speaks the **language of life**... “recognizing that life is an unearned gift and that a person entrusted with life does not own it but that one is called to protect and cherish it.” (Witnesses to Faith)
- CGE1f** -seeks intimacy with God and celebrates **communion** with God, others and creation through prayer and worship;
- CGE1g** -understands that one’s purpose or **call in life** comes from God and strives to discern and live out this call throughout life’s journey;
- CGE1h** -respects the **faith traditions**, world religions and the life-journeys **of all people of good will**;
- CGE1i** -integrates faith with life;
- CGE1j** -recognizes that “sin, human weakness, conflict and forgiveness are part of the human journey” and that the cross, the ultimate sign of forgiveness is at the heart of **redemption**. (Witnesses to Faith)

An Effective Communicator who

- CGE2a** -listens actively and critically to understand and learn in light of gospel values;
- CGE2b** -reads, understands and uses written materials effectively;
- CGE2c** -presents information and ideas clearly and honestly and with sensitivity to others;
- CGE2d** -writes and speaks fluently one or both of Canada’s official languages;
- CGE2e** -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.

A Reflective and Creative Thinker who

- CGE3a** -recognizes there is more grace in our world than sin and that hope is essential in facing all challenges;
- CGE3b** -creates, adapts, evaluates new ideas in light of the common good;
- CGE3c** -thinks reflectively and creatively to evaluate situations and solve problems;
- CGE3d** -makes decisions in light of gospel values with an informed moral conscience;
- CGE3e** -adopts a holistic approach to life by integrating learning from various subject areas and experience;
- 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.

A Self-Directed, Responsible, Life Long Learner who

- CGE4a** -demonstrates a confident and positive sense of self and respect for the dignity and welfare of others;
- CGE4b** -demonstrates flexibility and adaptability;
- CGE4c** -takes initiative and demonstrates Christian leadership;
- CGE4d** -responds to, manages and constructively influences change in a discerning manner;
- CGE4e** -sets appropriate goals and priorities in school, work and personal life;
- CGE4f** -applies effective communication, decision-making, problem-solving, time and resource management skills;
- CGE4g** -examines and reflects on one's personal values, abilities and aspirations influencing life's choices and opportunities;
- CGE4h** -participates in leisure and fitness activities for a balanced and healthy lifestyle.

A Collaborative Contributor who

- CGE5a** -works effectively as an interdependent team member;
- CGE5b** -thinks critically about the meaning and purpose of work;
- CGE5c** -develops one's God-given potential and makes a meaningful contribution to society;
- CGE5d** -finds meaning, dignity, fulfillment and vocation in work which contributes to the common good;
- CGE5e** -respects the rights, responsibilities and contributions of self and others;

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- CGE5f** -exercises Christian leadership in the achievement of individual and group goals;
 - CGE5g** -achieves excellence, originality, and integrity in one's own work and supports these qualities in the work of others;
 - CGE5h** -applies skills for employability, self-employment and entrepreneurship relative to Christian vocation.

A Caring Family Member who

- CGE6a** -relates to family members in a loving, compassionate and respectful manner;
- CGE6b** -recognizes human intimacy and sexuality as God given gifts, to be used as the creator intended;
- CGE6c** -values and honours the important role of the family in society;
- CGE6d** -values and nurtures opportunities for family prayer;
- CGE6e** -ministers to the family, school, parish, and wider community through service.

A Responsible Citizen who

- CGE7a** -acts morally and legally as a person formed in Catholic traditions;
- CGE7b** -accepts accountability for one's own actions;
- CGE7c** -seeks and grants forgiveness;
- CGE7d** -promotes the sacredness of life;
- CGE7e** -witnesses Catholic social teaching by promoting equality, democracy, and solidarity for a just, peaceful and compassionate society;
- CGE7f** -respects and affirms the diversity and interdependence of the world's peoples and cultures;
- CGE7g** -respects and understands the history, cultural heritage and pluralism of today's contemporary society;
- CGE7h** -exercises the rights and responsibilities of Canadian citizenship;
- CGE7i** -respects the environment and uses resources wisely;
- CGE7j** -contributes to the common good.