

## COURSE INFORMATION SHEET

**DATE:** *Tuesday September 4, 2018*

**SECONDARY SCHOOL:** *Brebeuf College School*

**DEPARTMENT HEAD:** *Brad Ryan*

**TEACHER:** *Brad Ryan*

**DEPARTMENT:** *Mathematics*



CURRICULUM POLICY DOCUMENT			
COURSE TITLE	Principles of Mathematics 9	COURSE CODE	MPM 1DP
PRE-REQUISITE	Grade 8	GRADE & TYPE	9
FULL YEAR / SEMESTER	Semester	CREDIT VALUE	1

COURSE DESCRIPTION (AS SPECIFIED IN MINISTRY OF EDUCATION POLICY DOCUMENT)
<p>This course enables students to develop an understanding of mathematical concepts related to algebra, analytic geometry, and measurement and geometry through investigation, the effective use of technology, and abstract reasoning. Students will investigate relationships, which they will then generalize as equations of lines, and will determine the connections between different representations of a linear relation. They will also explore relationships that emerge from the measurement of three-dimensional figures and two-dimensional shapes. Students will reason mathematically and communicate their thinking as they solve multi-step problems.</p>

UNITS OF INSTRUCTION		
Strand / Unit Titles	CLASSES	OVERALL EXPECTATIONS / UNIT DESCRIPTION
<b>Mathematical Processes</b>	<b>10</b>	<ul style="list-style-type: none"> <li>- Simplify numerical expressions involving integers and rational numbers.</li> <li>- Solve problems requiring the manipulation of expressions arising from applications of percent, ratio, rate, and proportion.</li> </ul>
<b>Relations</b>	<b>9</b>	<ul style="list-style-type: none"> <li>- Interpret the meanings of points on scatter plots and graphs.</li> <li>- Pose problems, identify variables, and formulate hypotheses about relationships between two variables.</li> <li>- Describe trends and relationships observed in data, make inferences from data, compare the inferences with hypotheses, and explain any differences between them.</li> <li>- Construct graphs, tables of values, scatter plots, and lines or curves of best fit.</li> <li>- Determine values of a linear relation by interpolating or extrapolating from the graph of the relation.</li> <li>- Describe a situation that corresponds to a graph of a relationship between two variables.</li> <li>- Determine a line of best fit for a scatter plot, using an informal process.</li> <li>- Determine other representations of a linear relation, given one representation.</li> </ul>

<p><b>Polynomials</b></p>	<p><b>10</b></p>	<ul style="list-style-type: none"> <li>- Substitute into and evaluate algebraic expressions involving exponents.</li> <li>- Describe the relationship between the algebraic and geometric representations of a single-variable term up to degree three.</li> <li>- Relate understanding of inverse operations to squaring and taking the square root.</li> <li>- Extend the multiplication rule to derive and understand the power of a power rule, and apply it to simplify expressions involving one and two variables with positive exponents.</li> <li>- Add and subtract polynomials with up to two variables.</li> <li>- Multiply a polynomial by a monomial involving the same variable.</li> <li>- Expand and simplify polynomial expressions involving one variable</li> </ul>
<p><b>Equations</b></p>	<p><b>9</b></p>	<ul style="list-style-type: none"> <li>- Solve first-degree equations using a variety of tools and strategies.</li> <li>- Rearrange formulas involving variables in the first degree.</li> <li>- Solve problems that can be modelled with first-degree equations, and compare algebraic methods to other solution methods.</li> <li>- Relate understanding of inverse operations to squaring and taking the square root, and apply inverse operations to simplify expressions and solve equations.</li> </ul>
<p><b>Modelling With Graphs</b></p>	<p><b>9</b></p>	<ul style="list-style-type: none"> <li>- Construct tables of values, graphs, and equations.</li> <li>- Compare the properties of direct variation and partial variation in applications, and identify the initial value.</li> <li>- Determine values of a linear relation by using a table of values and by using the equation of the relation.</li> <li>- Determine other representations of a linear relation, given one representation.</li> <li>- Describe the effects on a linear graph and make the corresponding changes to the linear equation when the conditions of the situation they represent are varied.</li> </ul>
<p><b>Analyse Linear Relations</b></p>	<p><b>10</b></p>	<ul style="list-style-type: none"> <li>- Express the equation of a line in the form <math>y = mx + b</math>, given the form <math>Ax + By + C = 0</math>.</li> <li>- Graph lines by hand, using a variety of techniques.</li> <li>- Determine the equation of a line from information about the line.</li> <li>- Describe the meaning of the slope and y-intercept for a linear relation arising from a realistic situation and describe a situation that could be modeled by a given linear equation.</li> <li>- Identify and explain any restrictions on the variables in a linear relation arising from a realistic situation.</li> <li>- Determine graphically the point of intersection of two linear relations, and interpret the intersection point in the context of an application.</li> </ul>
<p><b>Geometric Relationships</b></p>	<p><b>8</b></p>	<ul style="list-style-type: none"> <li>- Determine and describe the properties and relationships of the interior and exterior angles of triangles, quadrilaterals, and other polygons, and apply the results.</li> <li>- Determine and describe properties of polygons, and apply the results in problem solving.</li> </ul>
<p><b>Measurement Relationships</b></p>	<p><b>10</b></p>	<ul style="list-style-type: none"> <li>- Relate the geometric representation and the algebraic representation, <math>a^2 + b^2 = c^2</math>, of the Pythagorean theorem.</li> <li>- Solve problems using the Pythagorean theorem.</li> <li>- Solve problems involving the areas and perimeters of composite shapes.</li> <li>- Solve problems involving the surface areas and volumes of prisms, pyramids, cylinders, cones, and spheres.</li> </ul>

STUDENT EVALUATION CRITERIA					
TERM – 70%		FINAL – 30%		FINAL REPORT CARD - 100%	
<b>10 ≤ RELATIVE EMPHASIS / WEIGHTING ≤ 40</b>		RELATIVE EMPHASIS / WEIGHTING		<b>TERM TOTAL + FINAL TOTAL = REPORT CARD MARK</b>	
KNOWLEDGE/UNDERSTANDING	22.5	E.Q.A.O.	5		
INQUIRY/THINKING	15	Final Exam	25		
COMMUNICATION	10				
APPLICATION	22.5				
TERM TOTAL		70	FINAL TOTAL	30	

ASSESSMENT FORMAT USED					
WRITTEN		PERFORMANCE		OTHER	
e.g. Multiple Choice	X	e.g. Manipulative Skills	X	e.g. Teacher Observation	X
Short Answer	X	Investigations	X	Interviews	
Open/Free Response	X	Projects	X	Skills Checklist	
Papers/Reports	X	Presentations	X		
		Programming	X		
		Problem Solving	X		

POLICIES & PROCEDURES (EXAMPLES PROVIDED)	
<b>Plagiarism / Cheating</b>	See School Agenda Page 15 “School Code of Behaviour”
<b>Internet Policies</b>	Acceptable Use Policy A.29 of the T.C.D.S.B. at <a href="http://www.tcdsb.org">http://www.tcdsb.org</a>
<b>Classroom Policies</b>	<ul style="list-style-type: none"> <li>- Arrive on time prepared to learn.</li> <li>- Stay on task during class activities.</li> <li>- No food or drink allowed in the classroom.</li> <li>- Students are expected to be in proper uniform at all times.</li> <li>- No portable music devices or cell phones to be used in class.</li> </ul>
<b>Absences</b>	Students are responsible to contact a fellow classmate or the teacher to receive any missed work due to absence.
<b>Teacher Contacts</b>	Parents are encouraged to contact the teacher if any concerns arise at <a href="mailto:brad.ryan@tcdsb.org">brad.ryan@tcdsb.org</a> , or call the school for an appointment.
<b>Extra Help</b>	Extra help is provided in the morning before school ( 8:10 – 8:35 ) and after school ( After 2:50 pm )
<b>Late Assignments</b>	Assignments shall be accepted up until the day that they are returned by the teacher, and may be subject to administrative consequences for lateness.

RESOURCES (EXAMPLES PROVIDED)	
<b>Textbook</b>	<i>Principles of Mathematics: 9 ( McGraw-Hill )</i> by: Chris Dearling
<b>Student Materials</b>	Notebooks, Pens, Pencils, Ruler, Calculator
<b>Computer Use</b>	<b>Lab:</b> Available for booking. <b>Software:</b> Microsoft Office 2010 , Geometer’s Sketchpad
<b>Course Related Websites</b>	<a href="http://www.MrRyan.com">http://www.MrRyan.com</a>

Student:	OEN:	Grade:	Homeroom:
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### Learning Skills and Work Habits

E – Excellent G – Good S – Satisfactory N – Needs Improvement

Responsibility	Organization
<ul style="list-style-type: none"> <li>• Fulfills responsibilities and commitments within the learning environment.</li> <li>• Completes and submits class work, homework, and assignments according to agreed-upon timelines.</li> <li>• Takes responsibility for and manages own behaviour.</li> </ul>	<ul style="list-style-type: none"> <li>• Devises and follows a plan and process for completing work and tasks.</li> <li>• Establishes priorities and manages time to complete tasks and achieve goals.</li> <li>• Identifies, gathers, evaluates, and uses information, technology, and resources to complete tasks.</li> </ul>
Independent Work	Collaboration
<ul style="list-style-type: none"> <li>• Independently monitors, assesses, and revises plans to complete tasks and meet goals.</li> <li>• Uses class time appropriately to complete tasks.</li> <li>• Follows instructions with minimal supervision.</li> </ul>	<ul style="list-style-type: none"> <li>• Accepts various roles and an equitable share of work in a group.</li> <li>• Responds positively to the ideas, opinions, values, and traditions of others.</li> <li>• Builds healthy peer-to-peer relationships through personal and media-assisted interactions.</li> <li>• Works with others to resolve conflicts and build consensus to achieve group goals.</li> <li>• Shares information, resources, and expertise, and promotes critical thinking to solve problems and make decisions.</li> </ul>
Initiative	Self-Regulation
<ul style="list-style-type: none"> <li>• Looks for and acts on new ideas and opportunities for learning.</li> <li>• Demonstrates the capacity for innovation and a willingness to take risks.</li> <li>• Demonstrates curiosity and interest in learning.</li> <li>• Approaches new tasks with a positive attitude.</li> <li>• Recognizes and advocates appropriately for the rights of self and others.</li> </ul>	<ul style="list-style-type: none"> <li>• Sets own individual goals and monitors progress towards achieving them.</li> <li>• Seeks clarification or assistance when needed.</li> <li>• Assesses and reflects critically on own strengths, needs, and interests.</li> <li>• Identifies learning opportunities, choices, and strategies to meet personal needs and achieve goals.</li> <li>• Perseveres and makes an effort when responding to challenges.</li> </ul>

Percentage Mark	Achievement of the Provincial Curriculum Expectations
80–100	The student has demonstrated the required knowledge and skills with a high degree of effectiveness. Achievement surpasses the provincial standard. (Level 4)
70–79	The student has demonstrated the required knowledge and skills with considerable effectiveness. Achievement meets the provincial standard. (Level 3)
60–69	The student has demonstrated the required knowledge and skills with some effectiveness. Achievement approaches the provincial standard. (Level 2)
50–59	The student has demonstrated the required knowledge and skills with limited effectiveness. Achievement falls much below the provincial standard. (Level 1)
Below 50	The student has not demonstrated the required knowledge and skills. Extensive remediation is required.
I	Insufficient evidence to assign a percentage mark (for Grade 9 and 10 courses only)
W	The student has withdrawn from the course.
ESL/ELD – Achievement is based on expectations modified from the curriculum expectations for the course to support English language learning needs.	
IEP – Individual Education Plan	
FRENCH – The student receives instruction in French for the course.	
SHSM – Specialist High Skills Major (for Grade 11 and 12 courses only)	
Course Median – The median is the percentage mark at which 50 per cent of the students in the course have a higher percentage mark and 50 per cent of the students have a lower percentage mark.	

**NOTE:** The above chart is a reformatting of the skills identified in the Ministry of Education's [Growing Success Document 2010](#).