

ST. CLAIR CATHOLIC DISTRICT SCHOOL BOARD
STUDENT INFORMATION SHEET/OUTLINE OF COURSE OF STUDY

School: St. Christopher Secondary School

Department: Mathematics

Course Title: Principles of Mathematics (MPM 2D1)

Grade: 10

Course Type: Academic

Credit: One Full

Prerequisite: MPM 1D1 or MFM 1P1

COURSE DESCRIPTION:

This course enables students to broaden their understanding of relationships and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and abstract reasoning. Students will explore quadratic relations and their applications; solve and apply linear systems; verify properties of geometric figures using analytic geometry; and investigate the trigonometry of right and acute triangles. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

HOW COURSE SUPPORTS THE ONTARIO CATHOLIC GRADUATE EXPECTATION:

Through the use of the Catholic course profile as well as additional resources (I.C.E. documents) the Ontario Catholic Graduate expectations will be addressed.

HOW THIS COURSE SUPPORTS THE COMPETENCIES OF CHOICES INTO ACTION:

Career Exploration Activities through classroom experience (page 19, Choices into Action)

1. Overall Expectation For Student Learning:

Through this course, the student will be expected to demonstrate knowledge, skills and values related to the following Strands:

Strand 1:

Quadratic Relations of the form $y = ax^2 + bx + c$

- Determine the basic properties of quadratic relations
- Relate transformations of the graph of $y = x^2$ to the algebraic representation $y = a(x - h)^2 + k$
- Solve quadratic equations and interpret the solutions with respect to the corresponding relations
- Solve problems involving quadratic relations

Strand 2:

Analytic Geometry

- Model and solve problems involving the intersection of two straight lines
- Solve problems using analytic geometry involving properties of lines and line segments
- Verify geometric properties of triangles and quadrilaterals, using analytic geometry

Strand 3:

Trigonometry

- Use their knowledge of ratio and proportion to investigate similar triangles and solve problems related to similarity
- Solve problems involving right triangles, using the primary trigonometric ratios and the Pythagorean theorem
- Solve problems involving acute triangles, using the sine law and the cosine law

2. Expectations Regarding Learning Skills:

It is expected that students will demonstrate the following learning skills (this is not intended to be an exhaustive list). Learning skills will be assessed according to criteria which have been clearly communicated to students and will be reported separately from student achievement of the curriculum expectations. The student's demonstrated learning skills in each course will be evaluated using the four-point scale

(E - Excellent, G - Good, S - Satisfactory, N - Needs Improvement)

- Strong work habits during class time
- Completed homework and assignments
- Organizational skills on a daily basis
- Initiative in all areas of the course
- Independent learning ability
- Team work ability
- Frequent review of concepts and skills

3. Support For Higher Learning:

Whenever accommodations are made to address student learning needs, or alternative or modified expectations are identified for a student, these accommodations, modifications, or alternative expectations will be outlined in an IEP and will be communicated to parents.

4. Course Breakdown:

Unit Title/Description		Assessment & Evaluation Strategies	Unit Planning Notes
Unit 1	Using Linear Systems to Solve Problems	checklists, assignments, tests	
Unit 2	Coordinate Geometry	checklists, assignments, tests	
Unit 3	Introduction to Quadratic Relations	checklists, assignments, tests	
Unit 4	More Quadratic Relations	checklists, assignments, tests	
Unit 5	Trigonometry	checklists, assignments, tests	
Unit 6	Trigonometry of Non-Right Triangles	checklists, assignments, tests	

Unit 7	Radicals	checklists, assignments, tests	
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5. Key Dates, Special Events and Additional Considerations:

- to be announced by the teacher

6. Teaching/Learning Strategies:

Instruction in this course will include but not be limited to the following:

- use of technology tools: graphing calculators, computers
- presentation of homework solutions to class
- whole class activities
- pairs activities
- group work/ data collection

7. Assessment and Evaluation of Student Learning:

Student achievement of the learning expectations will be evaluated according to the following breakdowns:

Categories of the Achievement Chart	Weight %	
	Term Evaluation	Final Evaluation Activity/Exam
Knowledge/Understanding	40	40
Thinking/Inquiry/Problem Solving	15	15
Application	35	35
Communication	10	10
Breakdown of Final Marks (%)	70	30

8. Learning Resources:

Textbook: Mathematics 10, Nelson Publishing

9. School, Department & Classroom Policies:

The following policies apply to this course:

- use of student handbook: for reference and for time management
- be prepared for class: paper, pencil, graph paper, calculator
- keep work complete and up to date
- correct all tests and assignments

