

Earl of March Secondary School
Principles of Mathematics, Grade 10, Academic (MPM2D)
Revised: February 2021

Course Description:

This course is designed for students with a credit in Principles of Mathematics, Grade 9, Academic (MPM1D) who intend to take further mathematics course(s) at college or university. This course enables students to broaden their understanding of relationships and extend their problem-solving and algebraic skills through investigation. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

Curriculum: The major strands and the overall expectations for the course are summarized below.

To learn more about the curriculum follow the [link](#).

By the end of the course students will. . .

A. Quadratic Relationships

- 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.

B. 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.

C. 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.

Assessment Strategies

A variety of teaching/assessment strategies to address students' needs will be used during this course. Formative assessments will be ongoing throughout the academic year and students will receive descriptive feedback intended to help them improve their learning. The chart below outlines levels with their descriptors. Levels will be used when assigning marks in this course.

Level	Descriptors
R: not a passable level of achievement	Insufficient demonstration of understanding
1: much below the provincial standard	Limited understanding, weak, lacking purpose
2: approaching the provincial standard	Some understanding, simplistic, somewhat purposeful
3: the provincial standard	Considerable understanding, solid, standard, purposeful, effective
4: surpassing the provincial standard	Consistent, thorough understanding, in depth, insightful to a purpose, efficient

Evidence of Student Achievement

Students may demonstrate their understanding of the course material in a wide variety of ways. Evidence of student achievement may come from observations, conversations, and students products. Student products may include tests, assignments, performance tasks, and examinations. A balanced combination of a student's Knowledge and Understanding, Thinking, Communication, and Application will be assessed. These 4 categories will not be separately evaluated. Instead, they will be "*considered as interrelated, reflecting the wholeness and interconnectedness of learning.*" – from the Ontario Ministry of Education curriculum documents.

Source of Evidence	Description	
Observations	The teacher may record evidence of student achievement observed as students work on investigations in class.	
Conversations	The teacher may record evidence of student achievement elicited during a conversation with a student	
P r o d u c t s	Tests	There will be major unit tests.
	Assignments	Students may complete in-class assignments.
	Tasks	Students may demonstrate their creativity, knowledge and understanding of the material through in-class performance tasks.
	Summative Task	Students will show evidence of their learning by performing a task in class that will include many overall expectations of the course.
	Final Examination	There will be a final examination during exam week at the end of the semester.

Earl of March Homework Policy - Helping Learning "Stick"

Learning requires a sincere commitment to work and study. Choosing to do homework is an essential part of a student's educational development. Homework helps students improve their academic and study skills, and is critical in the reinforcement of ideas and concepts presented in class. Also, homework helps students develop responsibility, independence, perseverance, time management skills and curiosity. The Ontario Curriculum emphasizes that there is a direct relationship between effort and student achievement. Homework will be assigned to students based upon reasonable expectations, and with the understanding that many students are involved in a variety of worthwhile activities outside of the school setting.

Textbook: Nelson Principles of Mathematics 10

How Can Parents Help?

First of all, don't panic if you have forgotten your high school math. You can support your children's learning without teaching them. Having a positive attitude towards learning in general and mathematics in particular can go a long way. Consider also that teenagers are often unaware that the pathway to "success" is rarely a straight line; sharing your own personal experiences of frustration and struggle, perseverance and accomplishment may help your child see his or her own experiences in a new way. Thirdly, why not take a look at some of the sites below and see what you think; the internet is full of resources!

1. Free online 1:1 tutoring for students in Grades 6-10. Register through [TVO Mathify](#).
2. This Ontario Ministry of Education [Student Success page](#) provides links for parents, students, teachers and employers.
3. [This PowerPoint presentation](#) is designed for parents of students of all ages. Many ideas, questions and links are provided although not all are focussed on secondary education.
4. [Clips](#) and e-practice are research-based tools to support student learning along specific mathematical pathways. New material will continue to be added over time.
5. Students may wish to challenge themselves further by writing math contests offered through the [University of Waterloo CEMC](#).

If you have any questions, please feel free to contact your child's teacher.