



Westside Secondary School

Orangeville, Ontario, Canada

519-938-9355

Course Outline

www.ugdsb.on.ca/westside

Course: MPM2D - Grade 10 Academic Mathematics

Program Leader: Mr. R. Marchildon

Teacher(s): Ms. S. Dhawan, Ms. S. Sabatine

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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.

Big Ideas (overall learning outcomes for the course):

- The point of intersection of a linear system can be used to make real world decisions.
- The key features of a quadratic relation are related to important information in real world problems.
- If you know the right information about a triangle, trigonometry can be used to find all of the information about a triangle.
- Clear, concise communication is essential in an effective mathematical solution.

Overall Curriculum Expectations:

By the end of this course, students will:

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

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

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



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Instructional Strategies:

Westside teaching staff will use a variety of instructional strategies to help students develop and improve skills in the following areas: character, citizenship, communication, critical thinking and problem solving, collaboration and teamwork, and creativity and imagination.

Assessment and Evaluation:

Formative assessments are used to improve student learning by providing varied opportunities to demonstrate an understanding of course expectations in preparation for summative evaluations. Students will have the opportunity to complete mastery quizzes throughout each unit. Summative evaluations test groups of key expectations. Failure to complete a summative evaluation may result in the expectations of the course not being met and the credit not being granted.

The following soft skills will be assessed:

Responsibility, Organization, Independent Work, Collaboration, Initiative, Self-Regulation

More details about Westside's Assessment and Evaluation Policy is available

at: <http://www.ugdsb.ca/westside/wp-content/uploads/sites/74/2016/12/Westside-Assessment.pdf>

Late Policy

Students are expected to complete all assigned work and submit it by the teacher's established due date. Every attempt will be made to encourage students to complete all assigned work on time so their grade represents their actual achievement. For late and missed summative assessments, please see the *Westside Students' Contract for Missing Evidence of Learning*.

Achievement Categories:

Student learning is assessed and evaluated with respect to the following four categories of knowledge and skills.

Knowledge and Understanding: 25%

Thinking: 25%

Communication: 25%

Application: 25%

Students will have the opportunity to complete mastery quizzes throughout each unit which may lead to a reduced summative assessment.

	Term Work (70%)
Unit of Study	Summative Evaluations
Analytic Geometry and Linear Systems	<ul style="list-style-type: none">Unit TestProblem Solving Assignment
Properties of Quadratic Relations	<ul style="list-style-type: none">Unit Test
Applications of Quadratic Relations	<ul style="list-style-type: none">Unit TestProblem Solving Assignment
Similar Triangles and Trigonometry	<ul style="list-style-type: none">Unit TestProblem Solving Assignment
	Final Summative (30%)
Culminating Task	10%
Final Exam	20%



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Course Materials and Replacement Cost:

Principles of Mathematics 10; McGraw-Hill Ryerson; Replacement Cost: \$95

Student Expectations

Every student enrolled in Mathematics at Westside is expected to:

- be prepared for class each and every day. This means you bring a writing utensil, calculator and paper with you to class
- actively participate in class discussions
- be on time to class
- complete homework assigned
- learn to problem solve using the techniques you will learn in class

Final Assessments/Examinations

Culminating activities for each unit must be completed by the student in order to achieve the credit. Failure to complete any one of them may result in loss of credit.

There are no extensions or exemptions for final assessments without the approval from an administrator.