



201 Yorkland Street, Richmond Hill, Ontario, Canada – L4S 1A2 – 905 - 884 - 2131

Principles of Mathematics, Grade 10, Academic (MPM2D)

Value: 1.0 Credits

Prerequisite: MPM1D

Text: Mathematics 10 (NELSON)

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.” (Ontario Curriculum, Mathematics, 2005)

Overall Expectations: By the end of the course, students will:

- A1. Model and solve the intersection of two straight lines.
- A2. Solve problems using analytic geometry involving properties of lines and segments
- A3. Verify geometric properties of triangles and quadrilaterals.
- B1. Determine the basic properties of quadratic relations.
- B2. Relate transformations of the graph of $y = x^2$ to the algebraic representation $y = a(x - h)^2$.
- B3. Solve quadratic equations and interpret the solutions with respect to the corresponding relations.
- B4. Solve problems involving quadratic relations.
- C1. Use their knowledge of ratio and proportion to investigate similar triangles and solve problems related to similarity.
- C2. Solve problems involving right triangles, using the primary trigonometric ratios and the Pythagorean Theorem.
- C3. Solve problems involving acute triangles, using the sine law and the cosine law.

Course Content:

UNIT	TOPIC
1	Using Linear Systems to Solve Problems Model real-world problems using a pair of linear equations to solve graphically and algebraically.
2	Analytic Geometry Solving problems involving Properties of line segments; verify geometric properties.
3	Analyzing and Applying Quadratic Models Investigate the basic properties of quadratic relations; Solving quadratic equations; optimization problems.
4	Graphing Quadratic Relations Relating the graph of $y = x^2$ and its transformations; Expressing quadratic relations in Vertex form; Solve problems involving quadratic relations.
5	Trigonometric Ratios Investigate similarity and solving problems involving similar triangles; solving problems involving the trigonometry of right triangles.
6	Investigating Non-Right Triangles Using the sine law and the cosine law to solve problems involving the trigonometry of acute triangles.

Assessment and Evaluation:

The primary purpose of assessment and evaluation is to improve student learning. The Achievement Chart for Mathematics will guide all assessment and evaluation.

Assessment and evaluation is divided into two important parts. The grade the student receives on a mid-term or final report indicates achievement/proficiency in Curriculum Expectations (see box), based on a variety of products, including tests, quizzes and assignments. A level of competence (*Needs Improvement, Satisfactory, Good or Excellent*) will be assessed and reported in the area of Learning Skills and Work Habits: Independent Work, Collaboration, Responsibility, Initiative, Self-Regulation and Organization.

The final grade is determined as follows:	
Term work (70%) based on Achievement Chart categories:	
Knowledge	25%
Application	25%
Communication	10%
Thinking	10%
Final Exam	30%

Program Considerations:

Assessment, instructional and environmental accommodations are provided to individual students as per their IEP. Similarly, adaptations for English Language Learners are provided based upon the student's level of language development, strengths and needs.

Homework and Attendance:

The Grade 10 Academic course is a challenging course requiring a very high level of commitment from each student. Students must be prepared to devote regular daily time on home study and review. It is the student's responsibility to catch up on lessons and homework that have been missed. Students should ask classmates for lessons and homework and the teacher can provide any handouts. Students should also consult the math department's website at www.rhsmath.ca and follow the appropriate links.

Tests and Quizzes:

Tests and Quizzes are based on a unit of work and are always announced in advance. A student who will be missing a quiz or test must make arrangements with the teacher **prior** to the day of the absence. Failure to do so may result in a mark of zero. Any student who is away due to unforeseen justified reasons must bring a note, signed by a parent or guardian, indicating that they are aware that the student has missed a math test, and the reason for the absence. Failure to do so may result in a mark of zero.

Extra Help:

Teachers will inform students of their availability for extra help. In addition to help from the teacher, students are invited to drop in to the extra help room 2026. This room is open Monday to Thursday from 3:40pm to 4:20pm for extra help, and is supervised each day by a math teacher.

MPM2D Course Outline revised: Fall, 2018

Mathematics Department Head: Ms. C. Park

Contact information for Students:

Mr. Karo Email: roy.karo@yrdsb.ca
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TeachAssist: <http://ta.yrdsb.ca>

Two classmates:

Name #1: _____ Tel. _____ email: _____

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