LISGAR COLLEGIATE INSTITUTE

DEPARTMENT: Mathematics, Computer Science and Technology

COURSE NAME: Foundations of Mathematics

COURSE CODE: MFM2P

OVERVIEW

This course enables students to consolidate their understanding of linear relations and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and hands-on activities. Students will develop and graph equations in analytic geometry; solve and apply linear systems, using real-life examples; and explore and interpret graphs of quadratic relations. Students will investigate similar triangles, the trigonometry of right triangles, and the measurement of three-dimensional figures. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

COURSE CONTENT

1. Proportional Reasoning	6. Trigonometry
2. Equations and Formulas	7. Quadratic Functions
3. Linear Functions	8. Algebraic Expressions
4. Systems of Linear Equations	9. Solving Problems using Quadratic Functions
5. Similar Triangles	

OVERALL CURRICULUM EXPECTATIONS

Measurement and 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 the surface areas and volumes of three-dimensional figures, and use the imperial and metric systems of measurement.

Modelling Linear Relations
• manipulate and solve algebraic equations, as needed to solve problems;
• graph a line and write the equation of a line from given information;
• solve systems of two linear equations, and solve related problems that arise from realistic situations.

Quadratic Relations of the Form $y = ax2 + bx + c$
• manipulate algebraic expressions, as needed to understand quadratic relations;
• identify characteristics of quadratic relations;
• solve problems by interpreting graphs of quadratic relations.

Throughout this course, students will be:

PROBLEM SOLVING
• develop, select, apply, and compare a variety of problem-solving strategies as they pose and solve problems and conduct investigations, to help deepen their mathematical understanding;

REASONING AND PROVING
• develop and apply reasoning skills (e.g., recognition of relationships, generalization through inductive reasoning, use of counter-examples) to make mathematical conjectures, assess conjectures, and justify conclusions, and plan and construct organized mathematical arguments;

REFLECTING
• demonstrate that they are reflecting on and monitoring their thinking to help clarify their understanding as they complete an investigation or solve a problem (e.g., by assessing the effectiveness of strategies and processes used, by proposing alternative approaches, by judging the reasonableness of results, by verifying solutions);

SELECTING TOOLS AND COMPUTATIONAL STRATEGIES
• select and use a variety of concrete, visual, and electronic learning tools and appropriate computational strategies to investigate mathematical ideas and to solve problems;

CONNECTING
• make connections among mathematical concepts and procedures, and relate mathematical ideas to situations or phenomena drawn from other contexts (e.g., other curriculum areas, daily life, current events, art and culture, sports);

REPRESENTING
• create a variety of representations of mathematical ideas (e.g., numeric, geometric, algebraic, graphical, pictorial representations; onscreen dynamic representations), connect and compare them, and select and apply the appropriate representations to solve problems;

COMMUNICATING
• communicate mathematical thinking orally, visually, and in writing, using mathematical vocabulary and a variety of appropriate representations, and observing mathematical conventions.

LEARNING SKILLS

The development of sound learning skills is essential to the success of our students. Teachers and students will work together to understand and further the development of student learning skills in the areas of initiative, work habits, organization, team work, and independent work. Teachers report on learning skills on the midterm and final report cards.

ASSESSMENT METHODS

Your understanding of the course material will be assessed using unit tests, quizzes, in-class assignments, a summative assignment, and a final exam. Marks from the various assessments will be broken down and recorded in the above categories. Please refer to the Lisgar Assessment and Evaluation Policy.

EVALUATION

Course Work (70%)

1. Application	24.5 %
2. Knowledge/Understanding	24.5 %
3. Communication	14 %
4. Thinking/Inquiry/Problem Solving	7 %

Summative (10%)

All students in gr.9 mathematics in Ontario write the gr. 9 Mathematics EQAO test. Sections of this will be marked by your teacher and used as the summative mark.
Summative Date(s): January 15 & 16, 2009

Exam (20%)

The final exam is written during the formal exam period and covers all the course material.

ATTENDANCE

If you are absent from class, you are expected to catch up what you missed and complete any relevant homework. When you return to class, you must show your teacher an Absence Verification Form.

If you know in advance that you will be absent for a test, please see your teacher **before** the scheduled test date to arrange an alternate time to write it.

If you are unexpectedly absent for a valid reason on the day of a scheduled test, please let your teacher know why. When you return to class, remember to show an Absence Verification Form from your homeroom teacher and a note from your parents indicating that they are aware you missed the test. An **unjustified absence** for a test may result in a **mark of zero.**

SUPPLEMENTARY NOTES

Text: **Principles of Mathematics, McGraw-Hill Ryerson**

Everyone will be assigned their own textbook. If you lose or damage your textbook the replacement cost is $80.00.

Homework:

The importance of regular completion of homework cannot be overemphasized.
Guidelines for homework:

- Record the homework assigned in your planner at the end of each lesson
- Date and page number must be written at the beginning of each homework assignment
- Answers should be verified with the given answers at the back of the text
- For homework to be considered complete, an attempt on each question must be shown

Extra Help:

See your teacher about arranging a mutually convenient time for extra help. There is also math help available in room 316 Mondays from 3:15 to 4:15 and Thursdays in room 310 from 8:15 to 8:45, where a teacher and tutors will be available. You may also go to the guidance office for a list of volunteer and professional tutors.