**PORT COLBORNE HIGH SCHOOL**

**COURSE OUTLINE**

**MPM 1D1 Grade 9 Academic Math**

**Textbook:** Principles of Mathematics 9, McGraw-Hill Ryerson

This course enables students to develop an understanding of mathematical concepts related to algebra, analytic geometry, and measurement and geometry through investigation, the effective use of technology, and abstract reasoning. Students will investigate relationships, which they will then generalize as equations of lines, and will determine the connections between different representations of a linear relation. They will also explore relationships that emerge from the measurement of three-dimensional figures and two-dimensional shapes. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

Throughout this course, students will:

· 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;

· develop and apply reasoning skills to make mathematical conjectures, assess conjectures, and justify conclusions, and plan and construct organized mathematical arguments;

· demonstrate that they are reflecting on and monitoring their thinking to help clarify their understanding as they complete an investigation or solve a problem;

· select and use a variety of concrete, visual, and electronic learning tools and appropriate computational strategies to investigate mathematical ideas and to solve problems;

· make connections among mathematical concepts and procedures, and relate mathematical ideas to situations or phenomena drawn from other contexts;

· create a variety of representations of mathematical ideas, connect and compare them, and select and apply the appropriate representations to solve problems;

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

**Topics of Study**

Number Sense and Algebra

· Operating with Exponents

· Manipulating Expressions and Solving Equations

Linear Relations

· Using Data Management to Investigate Relationships

· Understanding Characteristics of Linear Relations

· Connecting Various Representations of Linear Relations

Analytic Geometry

· Investigating the Relationship Between the Equation of a Relation and the Shape of Its

Graph

· Investigating the Properties of Slope

· Using the Properties of Linear Relations to Solve Problems

Measurement and Geometry

· Investigating the Optimal Values of Measurements

· Solving Problems Involving Perimeter, Area, Surface Area, and Volume

· Investigating and Applying Geometric Relationships

**Assessment and Evaluation Statement:** Our goal is for each student to achieve and demonstrate a high level of understanding and learning in this course. Please be aware that most of your marks will be coming from a small number of critical tasks completed throughout the semester. In order to be successful, it is very important that you participate in all of the activities in this course.

**Practice for Learning:** You will be given ample opportunity to learn and practice the key learnings of this course. The daily activities taking place allow you to build on the knowledge required to be successful. You will use self, peer and teacher assessments for these activities which will allow you to maximize your learning and your mark. You will be given feedback by your teacher that will allow you to submit your very best work for each of these critical tasks. You must participate in the feedback process; critical tasks will not be evaluated unless you have followed the process set up by your teacher.

**Evaluation of Learning:** Most of your marks will come from critical tasks that take place towards the end of a unit, after you have had the opportunity to master the expectations. Critical tasks will usually include an activity that connects your learning to life after high school (e.g. research reports, mock trials, multi-media presentations). Where appropriate, it may take the form of a written test.

**Mark Break Down:**

Formative and Summative Evaluations 70%

Provincial EQAO Test 10%

Final Exam 20%

**Learning Skills:** These include: responsibility, collaboration, organization, self-regulation, independent work, and initiative. These skills are important to your success as a student. They are not specifically part of your marks, but are recorded separately on your report card.

**Daily Essentials for Success:** a positive attitude, respect, discipline, perseverance, courage, a binder/notebook/duotang with lined paper, a pencil, an eraser, a scientific calculator, a ruler, and a textbook.

Teacher: Mr. D. Stickney

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"You don't get harmony when everyone sings the same note!"