

Foundations of Mathematics, Grade 9 Applied, 2019-2020

Course Code	MFM1PI	Teacher	Mr. V. Folino
Period 4/3	1:09 - 2:24 11:47-1:02	Additional Availability	Lunch
Classroom	114	Contact Info	vittorio_folino@wrdsb.ca
Report Cards	Nov. 21	Important Website(s)	http://teachers.wrdsb.ca/folinov/mfm-1pi/
		Parent Teacher Night	Oct. 23

Course Description

This course enables students to develop an understanding of mathematical concepts related to introductory algebra, proportional reasoning, and measurement and geometry through investigation, the effective use of technology, and hands-on activities. Students will investigate real-life examples to develop various representations of linear relations, and will determine the connections between the representations. They will also explore certain relationships that emerge from the measurement of three-dimensional figures and two-dimensional shapes. Students will consolidate their mathematical skills as they solve problems and communicate their thinking. (The Ontario Curriculum Grades 9 and 10 Mathematics, 2005)

Big Ideas/Enduring Understanding

By the end of this course, you will have worked through a variety of problems and situations to come to these conclusions:

- Certain patterns and situations grow in consistent ways and can be expressed in a variety of representations.
- Certain representations of a situation or pattern are more useful and helpful than others, depending on the information that is needed.
- There are often many strategies and methods to use to solve a problem; certain strategies will produce a result more efficiently.

Overall Expectations

Number Sense and Algebra

- solve problems involving proportional reasoning
- simplify numerical and polynomial expressions in one variable and solve simple first-degree equations

Linear Relations

- apply data-management techniques to investigate relationships between two variables
- determine the characteristics of linear relations
- demonstrate an understanding of constant rate of change and its connection to linear relations
- connect various representations of a linear relation, and solve problems using the representations

Measurement and Geometry

- determine, through investigation, the optimal values of various measurements of rectangles
- solve problems involving the measurements of two-dimensional shapes and the volumes of three-dimensional figures

- determine, through investigation facilitated by dynamic geometry software, geometric properties and relationships involving two-dimensional shapes, and apply the results to solving problems

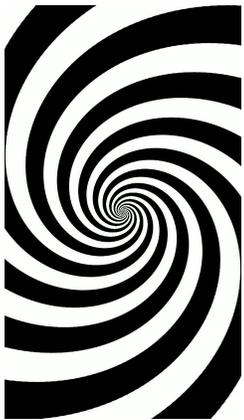
Learning Strategies

Among the many strategies you and I will take advantage of in this class are the following:

- Persistence (aka The Struggle is Real)
- Opportunities (aka Use 'Em All)
 - Self-Quizzing (aka Lots of Practice)
 - Exit Tickets (aka Tell Me What You Learned)
 - EQAO Practice (aka I'm Not Scared of That Test!)
- Peer/Teacher Feedback (aka Learning From Mistakes)
- Collaboration (aka More Minds are Better Than One)
- Play (aka Fun Fun Fun ... Oops...I Learned Something!)
- Vertical Non Permanent Surfaces (aka Big Whiteboards)
- Direct Instruction (aka Teacher Talks)
- Independent Work (aka All By Myself)



Spiralling Up to Success



Research has shown that practice that is varied and spaced out leads to longer lasting retention and more reliable recall or retrieval of information. This research also shows that this kind of practice leads to the ability to better discriminate between strategies and content to apply to different situations. Given the nature of this course and its emphasis on problem-solving, and using these ideas as a basis for the approach to this course, we will be looking at the overall expectations of this course at least three times throughout this semester. You will have multiple opportunities to demonstrate your understanding and the skills you have learned through a variety of assessments. The course has been designed to engage you with different problems, to challenge you with making connections and selecting strategies to use to solve problems, and to help you develop curiosity about situations and recognize and build on your own skills and knowledge as you work to answer questions. Persistence, a positive attitude, and a willingness to take risks are all important qualities that will help you be successful in this course.

CYCLES 1-3

Each cycle will focus on building the following:

CLASS CULTURE: Each cycle will focus on building and then reinforcing a collaborative community through different activities and lessons. We will look at expectations we can set for each other as we work in pairs or groups and revisit these expectations throughout the course. You can expect to work, talk and share ideas when you enter this class.

NUMERACY: We will look at different ways that we can build our numeracy skills. We all think of basic operations differently, and we will look at various strategies we can use to help us build our knowledge of operations and be able to apply this understanding as we get into more difficult or abstract math concepts. One way that we will do this is to use Number Talks/Problem Strings.

PROCESS EXPECTATIONS: Throughout the course, you will learn about and be asked to use the different skills that mathematicians typically use when tackling a problem:

- Problem Solving
- Reasoning and Proving
- Reflecting
- Selecting Tools and Computational Strategies
- Connecting
- Representing
- Communicating

CYCLE 1: September to mid October

In this cycle, the following will be areas of focus:

We will touch on all the overall expectations of this course in this cycle, emphasizing **intuitive problem-solving** and **introductory concepts** in the course. We will highlight **concrete/hands-on** approaches to solving problems. We will start making connections between these concepts as we work through problems together.

CYCLE 2: Mid-October to December

In this cycle, the following will be areas of focus:

We will build on the introductory concepts of Cycle 1 by working through **more complicated problems**, pushing ourselves to use **visual** representations when working through them. Each overall expectation will be addressed in this cycle, and we will make more **connections between concepts** and topics to add to the growing bank of strategies we can use to solve problems. We will begin looking at how we **communicate** our thinking and introduce some algebraic concepts to make connections between representations.

CYCLE 3: December to January

In this cycle, the following will be areas of focus:

We will continue building on the connections we have made between concepts in Cycle 2. All overall expectations will be addressed in this cycle, and the problems we tackle will be **more complex** and require different levels of **critical thinking**. These problems will also help us understand **multiple representations** of the same situation and where a particular representation is more useful than another. You will be encouraged to work towards more **abstract or generalized** thinking and to **communicate** this thinking clearly and more **formally** for your audience.

PSEUDO-CYCLE 4: EQAO and Summative Review: Mid-January

The final weeks of the course will be spent completing summative tasks and preparing for the EQAO Grade 9 Mathematics Assessment. The summative tasks will be final opportunities for you to demonstrate your understanding of course content, and for you to show how your understanding and application of concepts has improved over the course of the semester/year.

Assessment and Evaluation

Overall, coursework will be worth 70% and summative evaluations 30%. A specific breakdown of assessments is below:

Assessment Breakdown	Assessment For Learning	Assessment As Learning	Assessment Of Learning	Weight (%)
Self-Quizzing, Exit Tickets	✓	✓		70
Interviews, Conferences and Conversations	✓	✓		
Mid Cycle 1: EQAO Practice assessment	✓	✓	✓	
Cycle 1: Individual Problem-Solving Opportunity	✓	✓	✓	
Mid Cycle 2: EQAO Practice assessment	✓	✓	✓	
Cycle 2: Individual Problem-Solving Opportunity	✓	✓	✓	
Mid Cycle 3: EQAO Practice assessment	✓	✓		
Cycle 3: Individual Problem-Solving Opportunity	✓	✓	✓	
EQAO: Grade 9 Mathematics Assessment			✓	30
Final Exam			✓	

Learning Skills

The development of learning skills and work habits is an integral part of your learning. The achievement of these skills is officially reported on the Provincial Report Card. The learning skills on which you are evaluated are **Responsibility, Organization, Independent Work, Collaboration, Initiative, and Self-Regulation**. The scale that is used for this evaluation are **E - Excellent, G - Good, S - Satisfactory, and N - Needs Improvement**.