

**Forest Hill Collegiate Institute**  
**Course of Study and Evaluation Statement**

**Grade 9 Mathematics**

**Note 1:** All Ontario Ministry of Education curriculum documents with full course content information can be located at <http://www.edu.gov.on.ca/eng/curriculum/secondary/subjects.html>. The new Gr. 9 Math curriculum can be found at <https://www.dcp.edu.gov.on.ca/en/curriculum/secondary-mathematics/courses/mth1w>.

**Note 2:** Detailed information on Ministry of Education assessment, evaluation, and reporting policy is provided in *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*, located at <http://www.edu.gov.on.ca/eng/curriculum/secondary/progplan912curr.pdf>

### 1. Course Details

- Program Area: **Mathematics**
- Date of Development: September 2021
- Course title: **Grade 9 Mathematics (MTH1W). Credit Value 1.0**
- Prerequisites: None

### 2. Overall Goals

- Course Description:

Throughout this course, students will develop and explore a variety of social-emotional learning skills, demonstrate an understanding of sets of numbers, algebraic expressions, geometric shapes, and measurement relationships, demonstrate an understanding of linear and non-linear relations, apply coding skills to represent mathematical concepts, apply the process of mathematical modelling, using data, to represent, analyse, make predictions, and provide insight into real-life situations, and demonstrate the knowledge and skills needed to make informed financial decisions.
- Overall Expectations are in the areas of Mathematical Thinking and Making Connections; Number Sense; Algebra; Data; Geometry and Measurement and Financial Literacy. By the end of the course, students will:
  - in **Mathematical Thinking and Making Connections:**
    - A1. apply the mathematical processes to develop a conceptual understanding of, and procedural fluency with, the mathematics they are learning
    - A2. make connections between mathematics and various knowledge systems, their lived experiences, and various real-life applications of mathematics, including careers
  - in **Number Sense:**
    - B1. demonstrate an understanding of the development and use of numbers, and make connections between sets of numbers
    - B2. represent numbers in various ways, evaluate powers, and simplify expressions by using the relationships between powers and their exponents
    - B3. apply an understanding of rational numbers, ratios, rates, percentages, and proportions, in various mathematical contexts, and to solve problems
  - in **Algebra:**
    - C1. demonstrate an understanding of the development and use of algebraic concepts and of their connection to numbers, using various tools and representations
    - C2. apply coding skills to represent mathematical concepts and relationships dynamically, and to solve problems, in algebra and across the other strands
    - C3. represent and compare linear and non-linear relations that model real-life situations, and use these representations to make predictions
    - C4. demonstrate an understanding of the characteristics of various representations of linear and non-linear relations, using tools, including coding when appropriate
  - in **Data:**
    - D1. describe the collection and use of data, and represent and analyse data involving one and two variables
    - D2. apply the process of mathematical modelling, using data and mathematical concepts from other strands, to represent, analyse, make predictions, and provide insight into real-life situations

- in **Measurement and Geometry**

E1. demonstrate an understanding of the development and use of geometric and measurement relationships, and apply these relationships to solve problems, including problems involving real-life situations

- in **Financial Literacy:**

F1. demonstrate the knowledge and skills needed to make informed financial decisions

- Specific Curriculum Expectations

Please refer to Ontario Ministry of Education curriculum document for details of Overall and Specific Expectations, found at [https://assets-us-01.kc-usercontent.com/fbd574c4-da36-0066-a0c5-849ffb2de96e/2c41223a-5f39-4dd2-b94c-c75d2fae1fbd/Math\\_9\\_strand%20chart\\_AODA\\_06-May-21.pdf](https://assets-us-01.kc-usercontent.com/fbd574c4-da36-0066-a0c5-849ffb2de96e/2c41223a-5f39-4dd2-b94c-c75d2fae1fbd/Math_9_strand%20chart_AODA_06-May-21.pdf)

### 3. Program Planning Considerations

- *Individual Education Plan:* Accommodations to meet the needs of exceptional students as set out in their Individual Education Plan will be implemented within the classroom program. Additional assistance is available through the Special Education program.
- *The Role of Technology in the Curriculum.* Using information technology will assist students in the achievement of many of the expectations in the curriculum regarding research, written work, analysis of information, and visual presentations.
- *English As a Second Language (ESL):* Appropriate accommodations in teaching, learning, and evaluation strategies will be made to help ESL students gain proficiency in English, since students taking ESL at the secondary level have limited time in which to develop this proficiency.
- *Career Education:* Expectations in this course include many opportunities for students to explore educational and career options, and to become self-directed learners.
- *Cooperative Education and Other Workplace Experiences:* The knowledge and skills students acquire in this course will assist them in their senior level cooperative-education and work-experience placements related to this course. General information about cooperative education courses can be found at <http://www.edu.gov.on.ca/eng/document/curricul/secondary/coop/cooped.pdf>

### 4. Learning Skills

*Learning Skills* are skills and habits essential to success in school and in the workplace. The Learning Skills evaluated are: Responsibility, Independent Work, Collaboration, Organization, Initiative, and Self-regulation. Teachers report achievement on the five Learning Skills using letter symbols: **E = Excellent, G = Good, S = Satisfactory, N = Needs Improvement.**

Learning Skills clearly affect levels of achievement, but they are *not* part of the evaluation of achievement and are not included in the midterm mark or final course mark.

### 5. Academic Honesty: Cheating and Plagiarism

Students are expected to submit only their own original work on evaluations done in class or out of class. Plagiarism the passing off the ideas or writings of another as one's own. Cases of academic dishonesty (cheating and/or plagiarism) will be dealt with on a case-by-case basis, but each case will involve an investigation, communication with the student and his/her parent/guardian, and a mark of zero for the plagiarized work. Whether the student has an opportunity to demonstrate his/her learning in another assignment will be at the discretion of the teacher and/or Principal.

### 6. Teaching Strategies

Teachers use a variety of teaching strategies to maximize student learning. The following teaching strategies will be used in this course:

- *Direct Instruction* is highly teacher-directed. This strategy includes methods such as lecture, didactic questioning, explicit teaching, practice and drill, and demonstrations.
- *Indirect Instruction* is mainly student-centered. Indirect Instruction includes inquiry, induction, problem solving, decision making, and discovery.
- *Interactive Instruction* relies heavily on discussion and sharing among participants. Interactive instruction may include total class discussions, small group discussions or projects, or student pairs or triads working on assignments together.
- *Experiential Learning* is inductive, learner centered, and activity oriented. In Experiential Learning, students participate in an activity; critically look back on the activity to clarify learnings and feelings; draw useful insights from such analysis; and/or put learnings to work in new situations.

- *Independent Study* refers to the range of instructional methods which are purposefully provided to foster the development of individual student initiative, self-reliance, and self-improvement. The focus is on planned independent study by students under the guidance or supervision of a classroom teacher.

## 7. Assessment and Evaluation Strategies

### Assessment and Evaluation of Student Achievement

The primary purpose of assessment and evaluation is to improve student learning. Assessment is the process of gathering information from assignments, demonstrations, projects, performances, and tests that accurately reflects how well a student is achieving the curriculum expectations in a course. As part of assessment, teachers provide students with feedback that guides their efforts towards improvement.

Evaluation refers to the process of judging the quality of student work on the basis of established criteria, and assigning a value to represent that quality. In Ontario secondary schools, the value assigned will be in the form of a percentage grade.

- In this course, the following evaluation strategies will be used: short and chapters/units evaluation, assignments, investigations, in-class activities, final examination

## 8. Achievement Chart

The achievement chart provides a standard, province-wide method for teachers to use in assessing and evaluating their students' achievement. Students are evaluated according to the major categories or strands in each course. Ministry curriculum documents provide detailed description of student achievement levels.

In this course, students are evaluated in four categories, according to the weightings shown:

Knowledge/Understanding	Thinking/Inquiry	Communications	Application
30%	20%	20%	30%

## 9. 70% Mark on Course Work

- Students need to demonstrate achievement of all the overall expectations of the course. 70% of the final mark in the course will be based on work done prior to the culminating activities. Evaluations that are late, missing, and/or incomplete will affect a student's 70% grade. See FHCI Evaluation Policy as printed in the Student Agenda Book for information about late, missed, and/or incomplete assignments.

## 10. 30% Grade Based on Course Culminating Activities

- All students must take part in the culminating activities for each course at every grade and level of study. The steps to follow when a student is absent from one or more culminating activities is included in the FHCI evaluation policy as printed in the Student Agenda Book.
- Culminating activities that occur in class are held within the last three weeks of classes. Culminating activities that are formal examinations occur within the last nine days of the semester.
- In this course, all students will write the mandatory EQAO math test. Passing this test is *not* a graduation requirement. In addition, students will write a common exam, set by the FHCI teachers of the course.

## 11. Determining Marks for the Midterm Provincial Reports in November and April

This grade will be based on the evaluations that have been conducted to the midterm point in the course. Some of the Overall Expectations, categories/strands, and units will not have been addressed by the midterm, and the students' grades will most likely change when the students' entire work is evaluated by the end of the course.

## 12. Determining the Mark for the Final Report Card

The mark for the final will report card will be the sum of the 70% mark and the 30% mark.

GRADE 9 MATHEMATICS: STUDENT’S COURSE OUTLINE

Course Code: MTH1W

Homework will be assigned daily from different resources.

UNIT 1: NUMERACY

Sets of Numbers
Integers § Adding/Subtracting § Multiplying/Dividing § Order of Operations
Multiplying Rational Numbers § Review various fraction forms
Dividing Rational Numbers
Adding and Subtracting Rational Numbers
Order of Operations with Rational Numbers
Ratios, Equivalent Ratios & Proportions Rates and Unit Pricing
Powers; Exponent Rules § Multiplication and Division Laws § Power of a Power Law § Zero & Negative Exponents

UNIT 2: ALGEBRA

Exponents, Powers, and Variables Intro to Polynomials
Adding Polynomials and Subtracting Polynomials
Multiplying Monomials Powers of Monomials
Multiplying a Polynomial by a Monomial
Dividing Monomials by Monomials
Solving One-step Equations
Solving Multi-Step Equations and Solving Equations with the Variable on Both Sides
Solving Equations with Brackets
Writing Equations; Using Equations to Solve Problems (Look at different types of problems)

## UNIT 3: LINEAR RELATION

Graphing Ordered Pairs
Graphing Linear Relations (Table of Values)
Non-Linear Relations (Discuss the 3 methods for determining if an equation is linear)
Rates of Change; Slope as a Rate of Change (Determine the equations of lines from graphs, tables of values)
Other Methods for Graphing Linear Equations
Special Lines (horizontal and vertical; parallel and perpendicular)
Intersecting Lines

## UNIT 4: DATA

Scatter Plots & Lines of Best Fit: Activity
Relationships/Interpreting Graphs: Activity

## UNIT 5: MEASUREMENT &amp; GEOMETRY

Triangles and Circles
Right Triangles Problems
Review of Formulas for Perimeter and Area
Area of Composite Figures
Volume of a Prism and a Pyramid
Volume of a Cylinder and a Cone

## UNIT 6: FINANCIAL LITERACY

Financial Decisions: Appreciation vs. Depreciation
Interest; Interest Rates; Amounts
Money and Budgets
Assignment/Project