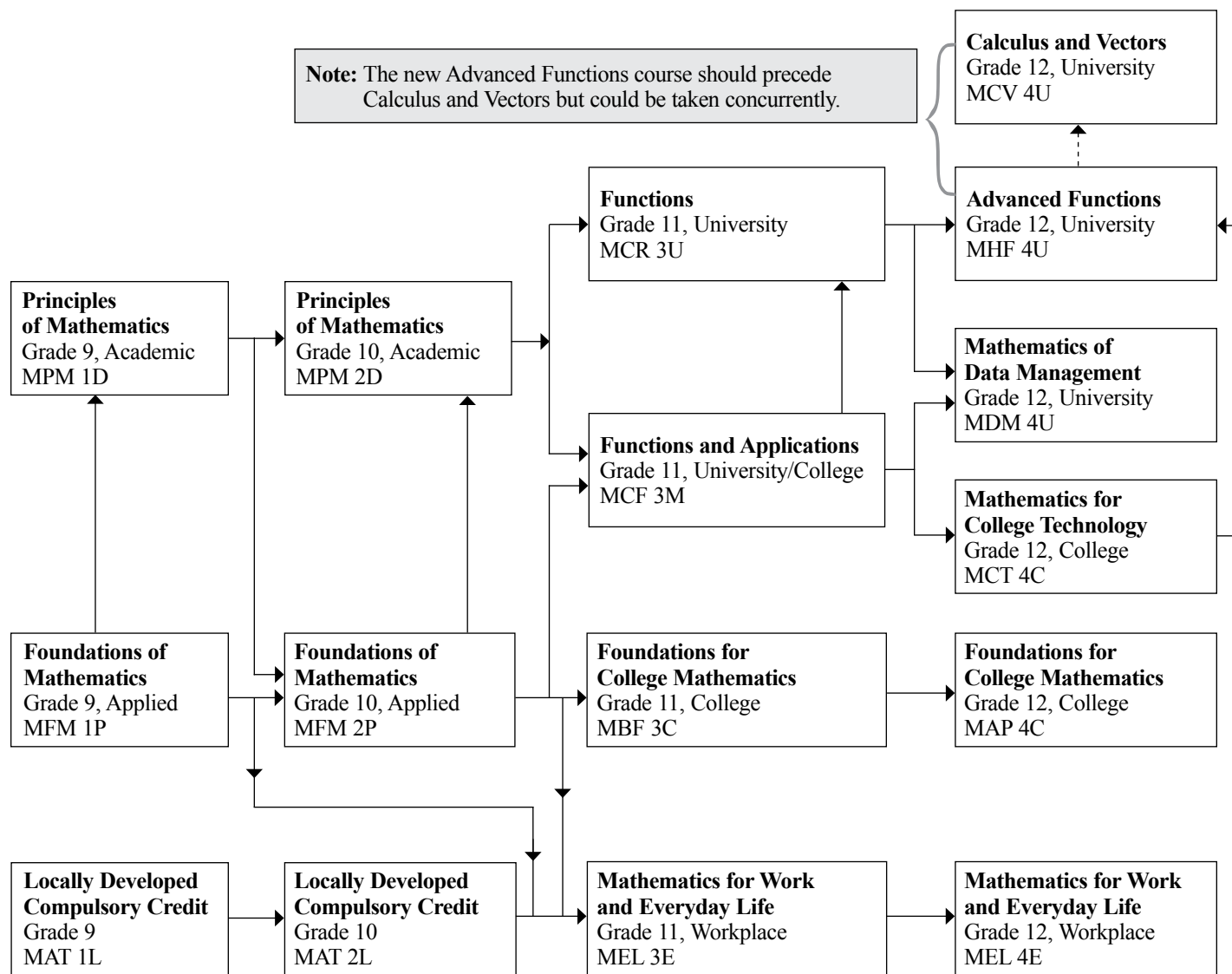


## Prerequisite Chart for Mathematics

This chart maps out all the courses in the discipline and shows the link between courses and the possible prerequisites for them. It does not attempt to depict all possible movements from course to course.



## Mathematics

### **Principles of Mathematics, Grade 9, Academic (MPM 1D)**

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.

Successful completion of this course prepares students for Principles of Mathematics, Grade 10, Academic (MPM 2D) or Foundations of Mathematics, Grade 10, Applied (MFM 2P).

Learning through abstract reasoning is an important aspect of this course.

*Prerequisite: None*

### **Foundations of Mathematics, Grade 9, Applied (MFM 1P)**

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 objects and two-dimensional shapes. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

Successful completion of this course prepares students for Foundations of Mathematics, Grade 10, Applied (MFM 2P). (Note: Students who wish to take Principles of Mathematics, Grade 10, Academic (MPM 2D) after completing this course will need to take a transfer course.)

Learning through hands-on activities and the use of concrete examples is an important aspect of this course.

*Prerequisite: None*

### **Locally Developed Compulsory Credit Grade 9 (MAT 1L)**

This course emphasizes further development of mathematical knowledge and skills to prepare students for success in their everyday lives, in the workplace, and in the Grade 10 LDCC course.

The course is organized in three strands related to money sense, measurement, and proportional reasoning. In all strands, the focus is on developing and consolidating key foundational mathematical concepts and skills by solving authentic, everyday problems.

Students have opportunities to further develop their mathematical literacy and problem-solving skills and to continue developing their skills in reading, writing, and oral language through relevant and practical math activities.

*Prerequisite: None*

### **Principles of Mathematics, Grade 10, Academic (MPM 2D)**

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.

*Prerequisite: Mathematics, Grade 9, Academic or Applied + Transfer*

### **Foundations of Mathematics, Grade 10, Applied (MFM 2P)**

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.

*Prerequisite: Mathematics, Grade 9, Academic or Applied*

## **Locally Developed Compulsory Credit Grade 10**

**(MAT 2L)**

This course emphasizes the extension of mathematical knowledge and skills to prepare students for success in their everyday lives, in the workplace, and in the Grade 11 Mathematics Workplace Preparation course.

The course is organized in three strands related to money sense, measurement, and proportional reasoning. In all strands, the focus is on strengthening and extending key foundational mathematical concepts and skills by solving authentic, everyday problems.

Students have opportunities to extend their mathematical literacy and problem-solving skills and to continue developing their skills in reading, writing and oral language through relevant and practical math activities.

*Prerequisite: A Grade 9 Mathematics credit*

## **Functions, Grade 11, University Preparation**

**(MCR 3U)**

This course introduces the mathematical concept of the function by extending students' experiences with linear and quadratic relations. Students will investigate properties of discrete and continuous functions, including trigonometric and exponential functions; represent functions numerically, algebraically, and graphically; solve problems involving applications of functions; and develop facility in simplifying polynomial and rational expressions. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

*Prerequisite: Principles of Mathematics, Grade 10, Academic*

## **Functions and Applications, Grade 11, University/College Preparation**

**(MCF 3M)**

This course introduces basic features of the function by extending students' experiences with quadratic relations. It focuses on quadratic, trigonometric, and exponential functions and their use in modelling real-world situations. Students will represent functions numerically, graphically, and algebraically; simplify expressions; solve equations; and solve problems relating to financial and trigonometric applications. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

*Prerequisite: Principles of Mathematics, Grade 10, Academic, or Foundations of Mathematics, Grade 10, Applied*

## **Foundations for College Mathematics, Grade 11, College Preparation**

**(MBF 3C)**

This course enables students to broaden their understanding of mathematics as a problem-solving tool in the real world. Students will extend their understanding of quadratic relations; as well as of measurement and geometry; investigate situations involving exponential growth; solve problems involving compound interest; solve financial problems connected with vehicle ownership; and develop their ability to reason by collecting, analysing, and evaluating data involving one and two variables. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

*Prerequisite: Foundations of Mathematics, Grade 10, Applied*

## **Mathematics for Work and Everyday Life, Grade 11, Workplace Preparation**

**(MEL 3E)**

This course enables students to broaden their understanding of mathematics as it is applied in the workplace and daily life. Students will solve problems associated with earning money, paying taxes, and making purchases; apply calculations of simple and compound interest in saving, investing, and borrowing; and calculate the costs of transportation and travel in a variety of situations. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

*Prerequisite: Principles of Mathematics, Grade 9, Academic, or Foundations of Mathematics, Grade 9, Applied, or a ministry-approved locally developed Grade 10 mathematics course*

## **Calculus and Vectors Grade 12, University Preparation**

**(MCV 4U)**

This course builds on students' previous experience with functions and their developing understanding of rates of change. Students will solve problems involving geometric and algebraic representations of vectors, and representations of lines and planes in three-dimensional space; broaden their understanding of rates of change to include the derivatives of polynomial, rational, exponential, and sinusoidal functions; and apply these concepts and skills to the modelling of real-world relationships. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended for students who plan to study mathematics in university and who may choose to pursue careers in fields such as physics and engineering.

*Prerequisite: Functions, Grade 11, University Preparation, and the new Advanced Functions course must be taken prior to or concurrently with Calculus and Vectors.*

## **Advanced Functions, Grade 12, University Preparation (MHF 4U)**

This course extends students' experience with functions. Students will investigate the properties of polynomial, rational, logarithmic, and trigonometric functions; broaden their understanding of rates of change; and develop facility in applying these concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended both for students who plan to study mathematics in university and for those wishing to consolidate their understanding of mathematics before proceeding to any one of a variety of university programs.

*Prerequisite: Functions, Grade 11, University Preparation, or Mathematics for College Technology, Grade 12, College Preparation*

## **Mathematics of Data Management, Grade 12, University Preparation (MDM 4U)**

This course broadens students' understanding of mathematics as it relates to managing data. Students will apply methods for organizing large amounts of information; solve problems involving probability and statistics; and carry out a culminating project that integrates statistical concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. Students planning to enter university programs in business, the social sciences & humanities will find this course of particular interest.

*Prerequisite: Functions and Applications, Grade 11, University/College Preparation, or Functions, Grade 11, University Preparation*

## **Mathematics for College Technology, Grade 12, College Preparation (MCT 4C)**

This course enables students to extend their knowledge of functions. Students will investigate and apply properties of polynomial, exponential, and trigonometric functions; continue to represent functions numerically, graphically, and algebraically; develop facility in simplifying expressions and solving equations; and solve problems that address applications of algebra, trigonometry, vectors, and geometry. Students will reason mathematically and communicate their thinking as they solve multi-step problems. This course prepares students for a variety of college technology programs.

*Prerequisite: Functions and Applications, Grade 11, University/College Preparation*

## **Foundations for College Mathematics, Grade 12, College Preparation (MAP 4C)**

This course enables students to broaden their understanding of real-world applications of mathematics. Students will analyse data using statistical methods; solve problems involving applications of geometry and trigonometry; simplify expressions; and solve equations. Students will reason mathematically and communicate their thinking as they solve multi-step problems. This course prepares students for college programs in areas such as business, health sciences, and human services, and for certain skilled trades.

*Prerequisite: Foundations for College Mathematics, Grade 11, College Preparation*

## **Mathematics for Work and Everyday Life, Grade 12, Workplace Preparation (MEL 4E)**

This course enables students to broaden their understanding of mathematics as it is applied in the workplace and daily life. Students will investigate questions involving the use of statistics; apply the concept of probability to solve problems involving familiar situations; investigate accommodation costs and create household budgets; use proportional reasoning; estimate and measure; and apply geometric concepts to create designs. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

*Prerequisite: Mathematics for Work and Everyday Life, Grade 11, Workplace Preparation*