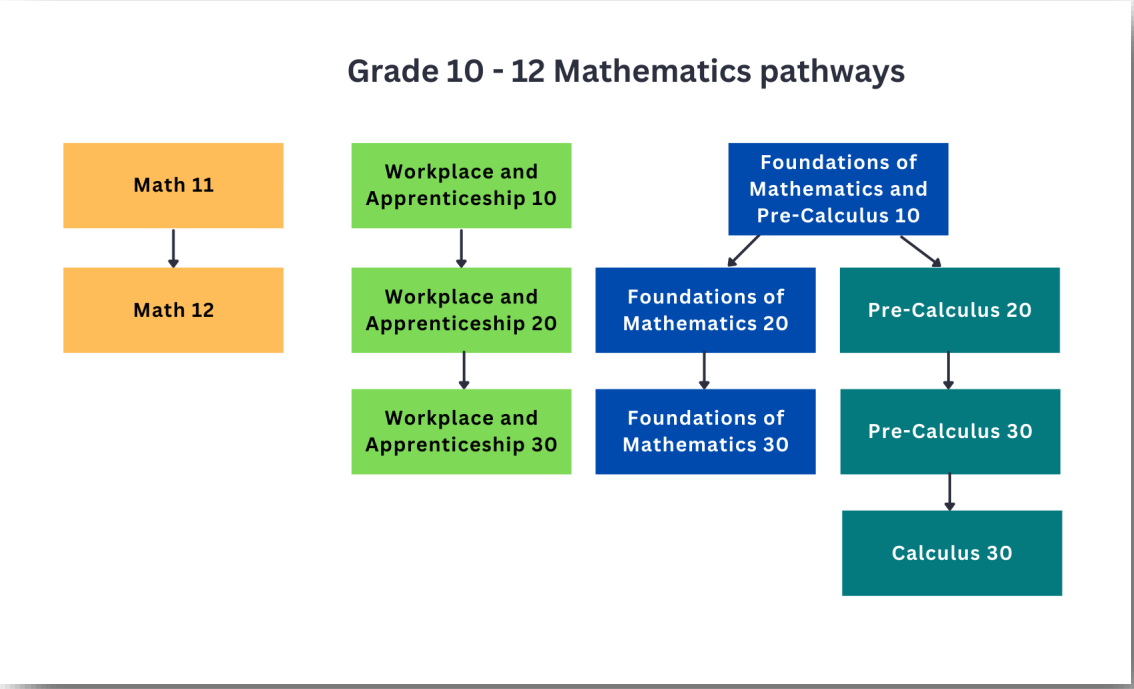
PRAIRIE SPIRIT
SCHOOL DIVISION



Please note: there are no arrows connecting courses in different pathways. Students wishing to change pathways need to first get the prerequisite courses for the pathway.

For example, if students have taken Pre-Calculus 20, they cannot move directly into either Foundations 30 or Workplace and Apprenticeship 30. In addition, if students have not already taken Workplace and Apprenticeship 10, they must do so before entering into Workplace and Apprenticeship 20. Students may take courses from more than one pathway for credit.

The current math credit requirements for graduation are: one 10 level credit and one 20 level credit in mathematics.

Workplace and Apprenticeship	Foundations of Mathematics	Pre-Calculus
The Workplace and Apprenticeship pathway is designed to provide students with the mathematical knowledge, skills, and understanding needed for entry into some trades-related courses and for direct entry into the workforce.	This pathway is designed to provide students with the mathematical knowledge, skills and understandings required for post-secondary studies. Content in this pathway will meet the needs of students intending to pursue careers in areas that typically require a degree, but are not math intensive, such as humanities, fine arts, and social sciences.	The Pre-Calculus pathway is designed to provide students with the mathematical knowledge, skills and understandings required for post-secondary studies. Content in this pathway will meet the needs of students intending to pursue careers that will require a degree with a math intensive focus.

Sample Course Loads*

**dependent on course offering and availability*

Student going into Humanities

Grade	Grade 10	Grade 11	Grade 12
Semester 1	Foundations and Pre-Calculus 10	Foundations 20	Foundations 30
Semester 2	Workplace & Apprenticeship 10	Another 20-level math, if desired	Another 30-level math, if desired

Student going into Math/Science

Grade	Grade 10 (with 85% or higher in Math 9 and/or consult with current math teacher)	Grade 11	Grade 12
Semester 1	Foundations and Pre-Calculus 10	Pre-Calculus 20	Pre-Calculus 30
Semester 2	Foundations 20	Foundations 30	Calculus 30

Student unsure of future career

Grade	Grade 10	Grade 11	Grade 12
Semester 1	Foundations and Pre-Calculus 10	Consult with Career Counsellor	Consult with Career Counsellor
Semester 2	Workplace & Apprenticeship 10		

Summary of Mathematics Pathways Content

Grade 10

Workplace and Apprenticeship	Foundations of Mathematics	Pre-Calculus
• Preservation of equality • SI, Imperial measurement • Area and surface area • Pythagorean Theorem • Similarity of polygons • Trigonometric ratios • Angles • Spatial reasoning games and puzzles • Unit Pricing and Currency Exchange • Income	• Factors • Multiplying and factoring polynomials • Irrational numbers in radical and mixed radical forms • SI and Imperial measurement • Trigonometric ratios • Linear relations • Functions • Slope • Solving systems of linear equations	

continued...

Summary of Mathematics Pathways Content *(con't)*

Grade 11

Workplace and Apprenticeship	Foundations of Mathematics	Pre-Calculus
• Preservation of equality • Numerical reasoning games and puzzles • Surface area and volume • Problems involving right triangles • Scale diagrams • Slope • Proportional reasoning • Data representation • Financial institution services • Credit options • Simple and compound interest	• Math research project • Inductive and deductive reasoning • Proportional reasoning • Scale diagrams • Properties of angles and triangles • Cosine and sine law • Statistics: normal distribution, standard deviation, z score, confidence intervals and levels, and margin of error • Linear inequalities • Quadratic functions	• Absolute value of real numbers and of linear and quadratic functions • Radicals with numerical and variable radicands • Rational expressions and equations • Trigonometric ratios • Cosine and sine law • Factoring polynomials • Quadratic functions • Solutions of quadratic functions • Quadratic inequalities • Arithmetic and geometric sequences and series • Reciprocals of linear and quadratic functions

Grade 12

Workplace and Apprenticeship	Foundations of Mathematics	Pre-Calculus
• Logical reasoning games and puzzles • Analyze the precision of measuring instruments • Cosine and sine law problems • Problem solving using properties of triangles, quadrilaterals and regular polygons • Transformations of 2-D and 3-D shapes • Linear relations • Statistics: measures of central tendency, percentiles • Probability • Credit options within a vehicle purchase • Small business finances	• Inductive and deductive reasoning • Set theory • Odds and probability: dependent and independent events • Combinatorics • Functions: polynomial, logarithmic, and sinusoidal • Research that requires data collection and analysis • Financial decision making	• Angles expressed in degrees and radians • Trigonometric ratios and the unit circle • Graphs of trig functions • First and second degree trig equations • Trig identities • Operations on and compositions of functions • Transformations of functions • Reflections of functions, relations and inverses • Logarithms • Polynomial functions • Radical and rational functions • Permutations • Binomial theorem