CROCUS PLAINS REGIONAL SECONDARY SCHOOL
COURSE OUTLINE AND ASSESSMENT GUIDE

Mathematics Intro to Applied and Pre-Calculus

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Course Description: Grade 10 Introduction to Applied and Pre-calculus Mathematics (20S) is intended for students considering post-secondary studies that require a math pre-requisite. This pathway provides students with the mathematical understanding and critical-thinking skills that have been identified for specific post-secondary programs of study. The topics studied form the foundation for the content to be studied in both Grade 11 Applied Mathematics and Grade 11 Pre-calculus Mathematics.

Text/Other Resources**:** Foundations and Pre-Calculus Mathematics 10
Supplies*:* Binder with note paper, Ruler, Pencils, Pens and a **Scientific Calculator**
Students must bring all required supplies to class as students will not be allowed to go to their lockers during class time.

Units of Study

Unit Title	Learning Outcomes *It is expected that students will:*	Assessment Plan	Proposed Time
Measurement	Solve problems that involve linear measurement, using: 1. SI and Imperial units of measure 2. Estimation strategies 3. Measurement strategies Apply proportional reasoning to problems that involve conversions within and between SI and Imperial units of measure. Solve problems, using SI and Imperial units, that involve the surface area and volume of 3-d objects, including: 1. right cones 2. right cylinders 3. right prisms 4. right pyramids 5. spheres	Formative Assessment May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations Summative Assessment May include: • Tests • Quizzes • Projects • Assignments	13 days
Trigonometry	Develop and apply the primary trigonometric ratios (sine, cosine, tangent) to solve problems that involve right triangles.	Formative Assessment May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations Summative Assessment May include: • Tests • Quizzes	10 days

		• Projects • Assignments	
Factors and Products	Demonstrate an understanding of factors of whole numbers by determining: 1. prime factors 2. greatest common factor 3. least common multiple 4. square root 5. cube root Demonstrate an understanding of the multiplication of polynomial expressions (limited to monomials, binomials and trinomials) concretely, pictorially, and symbolically. Demonstrate an understanding of common factors and trinomial factoring, concretely, pictorially, and symbolically.	<u>Formative Assessment</u> May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations <u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	11 days
Roots and Powers	Demonstrate an understanding of powers with integral and rational exponents. Demonstrate an understanding of irrational numbers by representing, identifying, and simplifying irrational numbers ordering irrational numbers.	<u>Formative Assessment</u> May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations <u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	8 days
Relations and Functions	Interpret and explain the relationships among data, graphs and contexts. Demonstrate an understanding of relations and functions. Describe and represent linear relations, using 1. Words 2. ordered pairs 3. tables of values 4. graphs 5. equations Represent a linear function, using function notation	<u>Formative Assessment</u> May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations <u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	12 days
Linear Functions	Demonstrate an understanding of slope with respect to 1. rise and run	<u>Formative Assessment</u> May include: • Textbook Assignments	10 days

	2. line segments and lines 3. rate of change 4. parallel lines 5. perpendicular lines Determine the characteristics of the graphs of linear relations, including 1. Intercepts 2. Slope 3. Domain 4. Range Relate linear relations expressed in 1. slope–intercept form ($y = mx + b$) 2. general form ($Ax + By + C = 0$) 3. slope–point form $y - y_1 = m (x - x_1)$) to their graphs Determine the equation of a linear relation, given 1. a graph 2. a point and the slope 3. two points 4. a point and the equation of a parallel or perpendicular line. 5. Scatter plots	• Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations <u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	
Systems of Linear Equations	1. Model a situation, using a system of linear equations. 2. Relate a system of linear equations to the context of a problem. 3. Determine and verify the solution of a system of linear equations graphically, with or without technology. 4. Explain the meaning of the point of intersection of a system of linear equations. 5. Determine and verify the solution of a system of linear equations algebraically. 6. Explain, using examples, why a system of equations may have no solution, one solution, or an infinite number of solutions. 7. Describe a strategy to solve a system of linear equations. 8. Solve a contextual problem that involves a system of linear equations, with or without technology.	<u>Formative Assessment</u> May include: • Textbook questions • Mental math • Group discussion <u>Summative Assessment</u> May include • Tests • Quizzes • Projects	**7 days**

Academic Achievement

Grades will be calculated on summative assessment information only. The final calculation will be a fair reflection of a student's achievement of the learning outcomes.

Term Work	**80%**
• **Assignments and classwork**	**40%**
• **Tests and quizzes**	**40%**
Final Assessment	**20%**
• **Final Exam**	

Learning Behaviours

Assessment and reporting of learning behaviors will be according to the Brandon School Division Learning Behaviors Rubric.