CROCUS PLAINS REGIONAL SECONDARY SCHOOL
COURSE OUTLINE AND ASSESSMENT GUIDE

Mathematics 10 Advantage (MAT10F)

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Course Description Grade 9: The Grade 9 Mathematics course is designed to provide students with the necessary fundamental skills to pursue the wide variety of Grade 10 to Grade 12 courses. This course continues with the four strands of mathematics: number, patterns and relations, shape and space, and statistics and probability. The activities that take place in the Grade 9 Mathematics classroom should stem from a problem-solving approach and be based on the seven mathematical processes. Students should develop an understanding of the nature of mathematics through specific knowledge, skills, and connections among and between strands.

Course Description: Grade 10 Essential Mathematics 20S is intended for students whose post-secondary planning does not include a focus on mathematics and science-related fields. The learning outcomes emphasize consumer applications, problem solving, decision making, and spatial sense. This pathway is designed to provide students with the mathematical understanding and critical thinking skills identified for entry into the majority of trades and for direct entry into the work force.

Text/Other Resources: Grade 9 Mathematics Cumulative Exercises, Math Makes Sense 9

Units of Study

Unit Title	Learning Outcomes *It is expected that students will:*	Assessment Plan	
Rational Numbers	9.N.3. Demonstrate an understanding of rational numbers by • comparing and ordering rational numbers • solving problems that involve arithmetic operations on rational numbers	Formative Assessment May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations Summative Assessment May include: • Tests • Quizzes • Projects • Assignments	
Powers and Exponent Laws	9.N.1. Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by • representing repeated multiplication using powers	Formative Assessment May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals	

	• using patterns to show that a power with an exponent of zero is equal to one • solving problems involving powers 9.N.2. Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents. 9.N.4. Explain and apply the order of operations, including exponents, with and without technology. 9.N.5. Determine the square root of positive rational numbers that are perfect squares. 9.N.6. Determine the approximate square root of positive rational numbers that are non-perfect squares.	• Conferencing • Group Discussions • Observations <u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	
Surface Area	9.SS.2. Determine the surface area of composite 3-D objects to solve problems.	<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	
Polynomials	9.PR.5. Demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2). 9.PR.6. Model, record, and explain the operations of addition and subtraction of polynomial	<u>Formative Assessment</u> May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations	

	expressions, concretely, pictorially, and symbolically (limited to polynomials of degree less than or equal to 2). 9.PR.7. Model, record, and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially, and symbolically.	<u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	
Linear Relations	9.PR.1. Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution. 9.PR.2. Graph linear relations, analyze the graph, and interpolate or extrapolate to solve problems.	<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	
Linear Equations and Inequalities	9.PR.3. Model and solve problems using linear equations of the form • $ax = b$ • $ax + b = c$ • $ax = b + cx$ • $a(x + b) = c$ • $ax + b = cx + d$ • $a(bx + c) = d(ex + f), x \neq 0$ where a, b, c, d, e and f are rational numbers. 9.PR.4. Explain and illustrate strategies to solve single variable linear inequalities with rational number coefficients within a problem-solving context.	<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	
Statistics and Probability	9.SP.1. Describe the effect of • Bias, use of language, ethics, cost, time and timing, privacy, and cultural sensitivity	<u>Formative Assessment</u> May include: • Textbook Assignments • Mental Math	

	on the collection of data. 9.SP.2. Select and defend the choice of using either a population or a sample of a population to answer a question. 9.SP.3. Develop and implement a project plan for the collection, display, and analysis of data by • formulating a question for investigation • choosing a data collection method that includes social considerations • selecting a population or a sample • collecting the data • displaying the collected data in an appropriate manner • drawing conclusions to answer the question 9.SP.4. Demonstrate an understanding of the role of probability in society.	• Quizzes • Math Journals • Conferencing • Group Discussions • Observations <u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	
Similarity and Symmetry	9.SS.3. Demonstrate an understanding of similarity of polygons. 9.SS.4. Draw and interpret scale diagrams of 2-D shapes. 9.SS.5. Demonstrate an understanding of line and rotation symmetry.	<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	
Circle Properties	9.SS.1. Solve problems and justify the solution strategy using circle properties including • the perpendicular from the centre of a circle to a chord bisects the chord • the measure of the central angle is equal to twice the measure of the inscribed	<u>Formative Assessment</u> May include: • Textbook Assignments • Mental Math • Quizzes • Math Journals • Conferencing • Group Discussions • Observations	

	angle subtended on the same arc • the inscribed angles subtended by the same arc are congruent • a tangent to a circle is perpendicular to the radius at the point of tangency	<u>Summative Assessment</u> May include: • Tests • Quizzes • Projects • Assignments	

Assessment Guidelines

There are various purposes for assessment:

- Assessment *for* learning **(formative assessment)**: where assessment helps teachers gain insight into what students understand in order to plan and guide instruction, and provide helpful feedback to students.
- Assessment *of* learning **(summative assessment)**: where assessment informs students, teachers and parents, as well as the broader educational community, of achievement at a certain point in time in order to celebrate success, plan interventions and support continued progress.

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 **85%**
- **Assignments, Projects, Mental Math** **40%**
- **Tests** **45%**

Final Assessment **15%**
- **Final Exam - January 2024 Exam Week**

Learning Behaviours

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

Unit/Term Summative Assessment – Due Dates

All assessments will be assigned a reasonable completion date. If absent, students are responsible for getting notes, completing assignments, or making arrangements for tests to be written during their own time. In the event of a school or parent excused absence, students will be given a reasonable amount of time to catch up on any assessments. Typically, this means that if a student has an excused absence on the day of a test, they will be expected to write the test at noon on the following day. However, if they are excused for more than one day, then they will have as many days as they missed to get caught up and prepared to write any summative assessments (ie. miss two days, the first of which is a test day, and it is expected that the student will write the test at noon on their second day back). Unexcused absences on assessment days will result in a grade of <u>zero.</u>

Parents/guardians will be advised of all unit/term summative assessments that are not handed in by the due date.