CROCUS PLAINS REGIONAL SECONDARY SCHOOL
COURSE OUTLINE AND ASSESSMENT GUIDE

GRADE 9 MATHEMATICS

Teacher: Mr. Patel

Contact Information: patel.chintankumar@bsd.ca

Course Description/Objectives:

This course is designed primarily with an emphasis on problem solving approaches and based on the seven mathematical processes (communication, connection, mental math & estimation, problem solving, reasoning, technology, and reasoning). Students will develop mathematical understanding & knowledge, problem-solving skills and connections between mathematical concepts & ideas.

Text/Other Resources: Math Makes Sense 9

Student Learning Skills

The mathematical processes listed below are critical aspects of learning, doing, and understanding mathematics. They are common through the four levels of Mathematics and extend to real world realities.

1. Use communication in order to learn & express understanding
2. Make connections among mathematical ideas, other concepts in mathematics & everyday experiences & disciplines
3. Demonstrate fluency with mental mathematics and estimation
4. Develop and apply new mathematical knowledge through problem-solving
5. Develop mathematical reasoning
6. Select & use technology as a tool for learning and solving problems
7. Develop visualization skills to assist in processing information, making connections & solving problems
8. Take personal responsibility for the mastery of concepts and skills

General Learning Outcomes

1. Develop spatial sense and proportional reasoning.
2. Develop algebraic reasoning and number sense.
3. Develop algebraic and graphical reasoning through the study of relations.

Units of Study:

Unit Title	Learning Outcomes	Assessment Plan	Proposed Time
Review of Grade 8 Material & Concepts	———————-	Formative Assessment Assessment may include: - Daily classroom activities Summative Assessment None Skills learned to be integrated into other outcomes	Integrated over whole semester
Number Sense (Rational Numbers)	• Demonstrate an understanding of rational numbers by 1. comparing and ordering rational numbers 2. solving problems that involve arithmetic operations on rational numbers • Determine the square root of positive rational numbers that are perfect squares. • Determine the approximate square root of positive rational numbers that are non-perfect squares.	Formative Assessment Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations Summative Assessment May include: - Unit Tests/Quizzes/ Projects	~ 12 Classes
Powers / Exponents	• Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by 1. representing repeated multiplication using powers 2. using patterns to show that a power with an exponent of zero is equal to one 3. solving problems involving powers • Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents. • Explain and apply the order of operations, including exponents, with and without technology.	GRADE 9 MATHEMATICS FULL YEAR	~ 9 Classes

Statistics	• Describe the effect of 1. Bias 2. use of language 3. ethics 4. cost 5. time and timing 6. privacy 7. cultural sensitivity on the collection of data • Select and defend the choice of using either a population or a sample of a population to answer a question. • Develop and implement a project plan for the collection, display, and analysis of data by 8. formulating a question for investigation 9. choosing a data collection method that includes social considerations 10. selecting a population or a sample 11. collecting the data 12. displaying the collected data in an appropriate manner 13. drawing conclusions to answer the question • Demonstrate an understanding of the role of probability in society.	<u>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 7 Classes
Polynomials	• Demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2). • Model, record, and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially, and symbolically (limited to polynomials of degree less than or equal to 2). • 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>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 10 Classes

Linear Relations I → Solving Linear Equations & Inequalities		• Model and solve problems using linear equations of the form 1. $ax = b$ 2. $ax + b = c$ 3. $ax = b + cx$ 4. $a(x + b) = c$ 5. $ax + b = cx + d$ 6. $a(bx + c) = d(ex + f)$ 7. $\frac{a}{x} = b$, $x \neq 0$ where a, b, c, d, e and f are rational numbers. • Explain and illustrate strategies to solve single variable linear inequalities with rational number coefficients within a problem-solving context.	<u>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 9 Classes
Linear Relations II → Patterns & Graphs		• Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution. • Graph linear relations, analyze the graph, and interpolate or extrapolate to solve problems.	<u>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 10 Classes
Circle Geometry		• Solve problems and justify the solution strategy using circle properties including 1. the perpendicular from the centre of a circle to a chord bisects the chord 2. the measure of the central angle is equal to twice the measure of the inscribed angle subtended on the same arc 3. the inscribed angles subtended by the same arc are congruent 4. a tangent to a circle is perpendicular to the radius at the point of tangency	<u>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 6 Classes

Geometry – 2D/3D		• Determine the surface area of composite 3-D objects to solve problems • Demonstrate an understanding of similarity of polygons. • Draw and interpret scale diagrams of 2-D shapes	<u>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 12 Classes
Transformation Rotational & Symmetry		• Demonstrate an understanding of line and rotation symmetry.	<u>Formative Assessment</u> Assessment may include: - Textbook Assignments - Mental Math - Quizzes - Math Journals - Conferencing - Group Discussions - Observations <u>Summative Assessment</u> May include: - Unit Tests/Quizzes/ Projects	~ 7 Classes

(please note that <u>order</u> of units completed will vary and/or be combined). All units will be evaluated with a variety of assignments, checkpoints, tests and/or projects.

<u>Course Evaluation Structure</u>

Several types of evaluation will be used in the course. This will allow students to display their level of learning in a variety of manners and also expand their skill levels in different presentation methods.

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.

- Tests & Major Projects 50%
- Assignments/Checkpoints 35%
- Final Exam 15%

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.

Classroom policies and rules:

- Be respectful and responsible at all times.
- Students are expected to attend class each day. They will come prepared to work each class period, and will be required to take notes, perform daily assignments, quizzes, and tests.
- **Rules around Cell Phones**

1) On August 15, 2024, the Government of Manitoba has banned the use of cellular phones in the classroom for grades 9 -12, phones are permitted to be used on breaks and lunch. Phones may be used within a classroom with the permission of the classroom teacher for educational purposes only, supporting students with medical or diverse learning needs.

2) Phones are not permitted for use in Mr. Patel's class as sufficient devices are available to support student learning

- It is the student's responsibility to notify the teacher of future absences and to schedule time to make up tests/assignments.
- Students are not allowed to use calculator on their phones during a test or final **exam.**

Extra Help/Contact Information

I am available for extra help before school, at lunch and after school.I can be found in **Room#227**