



Mayerthorpe Jr./Sr. High School
Northern Gateway Public Schools



MATH 9 COURSE OUTLINE
Google Classroom Code: h5uppic

2022/2023

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Welcome to Mathematics 9. Mathematics is a common human activity, increasing in importance in a rapidly advancing technological society. Students need to become mathematically literate in order to explore problem-solving situations, accommodate changing conditions, and actively create new knowledge in striving for self-fulfillment. At the completion of this program, students should have developed a positive attitude toward mathematics and have a base of knowledge and skills related to: Number, Patterns and Relations, Shape and Space, and Statistics and Probability.

General Objectives:

1. To develop number sense.
2. To represent algebraic expressions in multiple ways.
3. To use direct and indirect measurement to solve problems.
4. To describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.
5. To describe and analyze position and motion of objects and shapes.
6. To collect, display and analyze data to solve problems.
7. To use experimental or theoretical probabilities to represent and solve problems involving uncertainty.

Instructional Methodologies:

A variety of instructional methodologies will be used in this class. Whenever possible, concepts will be introduced using manipulatives and be developed concretely, pictorially and symbolically.

Classroom Materials:

- Agenda, binder with lined & graph paper, compass, ruler, several pencils and erasers, headphones for Chromebooks, (Scribbler for notes is optional).
- **Approved scientific calculator. (Students must not use a graphing calculator)**
- School issued Chromebooks

Calculation of Marks:

The mark for the course shall be broken down as follows:

In-Class assignments, projects & assessments (Including quizzes)	30%
Chapter tests & exams.....	50%
Provincial Achievement Exam June - Date TBA	20%

Part A of the PAT is the NO CALCULATOR part of the exam.

Part B of the PAT is Multiple Choice and Numerical Response. Calculators are permitted.

Assessment for Learning Policy:

Many in class worksheets and practice problems will be used to assess student's progress in class. These are low stakes, regular assessments that are intended to provide constructive feedback. Many of these formative assessments may be marked in class, and some may receive written or verbal constructive comments for improvement from the teacher. It is expected that students complete all of these assignments.

Assessment of Learning Policy:

Major assignments, quizzes, labs and exams are all types of assessments that will be used in calculating a final grade for each student. All grades in the course are cumulative, assessments in each chapter below will be averaged throughout the year. A list of assessment outcomes for each unit is provided on this outline and at the start of each chapter.

Grade Determination:

Term grade determination: Grade will be based upon evaluations conducted throughout the course. This portion of the grade will reflect the student's most consistent level of achievement throughout the course.

Final grade determination: Grade will be based on the accumulation of term grade evidence and a final PAT examination administered at the end of the course (This exam will be based on an evaluation of all units of the course and some outcomes from previous grades). This combined grade will reflect the student's most consistent level of achievement throughout the course.

Opportunities to demonstrate learning

When the teacher's professional judgment indicates the student is in a position to demonstrate learning on a summative assessment with greater success than the initial attempt, such an alternative or additional summative assessment will be provided at a time agreed upon by the student and the teacher.

Appeals Process

Should a situation arise where a student is not satisfied with an assessment outcome, first discuss the matter with the teacher outside of class time. If the teacher and student are unable to resolve the issue, then the teacher will approach another teacher to assess the assignment. (The teacher will not have prior knowledge of the student's name or previous grade for the given assignment). If there is still an issue, a meeting will be set up between the student, teacher, parents and administration to resolve the matter. The commencement of an appeal must occur in a timely manner; within 48 hours of receiving a marked assignment. In return, the appeal process will be completed as soon as possible. Please see the student agenda for more detailed appeals information.

Late Policy: Students must be on time for class. They are expected to be in class at the bell. Students that miss 25% or more of the class will be marked absent. (10 min for 40 min class, 20 min for 80 min class)

Attendance Policy: Students who are consistently late may receive contact home and possible meetings with administration, to ensure their success.

If an absence is excused by administration or phoned in by a parent/guardian, the missed work is still expected to be completed. All curricular objectives will be assessed on exams.

Bus Days

In the event of buses not running, I will run a drop in google meeting during regular class time. This will be time to ask questions, clarify concepts, work on assignments, have group discussions, etc. No new material will be covered, but this may change depending on the frequency of bus cancellations.

Course Overview

Unit 1 (Chapters 1,2,3): Number Sense & Surface Area

Develop Number Sense

- Powers with integral bases(not 0) and whole number exponents
- Operations on powers using power laws
- Develop an understanding of rational numbers that includes problems and operations.
- Order of operations with exponents (with and without technology)
- Determine the square root of positive rational numbers that are perfect squares
- Determine an approximate square root of positive rational numbers that are non-perfect squares

Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

- Determine the surface area of 3-D objects and 2-D shapes, and analyze the relationships among them

Unit 2 (Chapters 4,5,6): Patterns and Relations

Use patterns to describe the world and to solve problems

- Generalize a pattern arising from a problem-solving context, using a linear equation, and verify by substitution
- Graph a linear relation, analyze the graph, and interpolate or extrapolate to solve problems

Represent algebraic expressions in multiple ways

- Model and solve linear equations in nine different forms
- Explain and illustrate strategies to solve single variable linear inequalities in a problem solving context
- Demonstrate an understanding of polynomials with degree 2 or less.
- Model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (degree 2 or less)
- Multiplication and division of polynomials by a monomial, (degree 2 or less) concretely, pictorially and symbolically

Unit 3 (Chapter 7,8): Shape and Space

Use direct and indirect measurement to solve problems

- Solve problems and justify the solution strategy using the 4 prescribed circle properties

Describe the characteristics of 3-D objects and 2-D shapes, and analyze their relationships

- Determine the surface area of 3-D objects and 2-D shapes, and analyze the relationships among them
- Demonstrate an understanding of similarity of polygons

Describe and analyze position and motion of objects and shapes

- Draw and interpret scale diagrams of 2-D shapes
- Demonstrate an understanding of line and rotation symmetry

Unit 4 (Chapter 9): Statistics and Probability

Collect, display and analyze data to solve problems

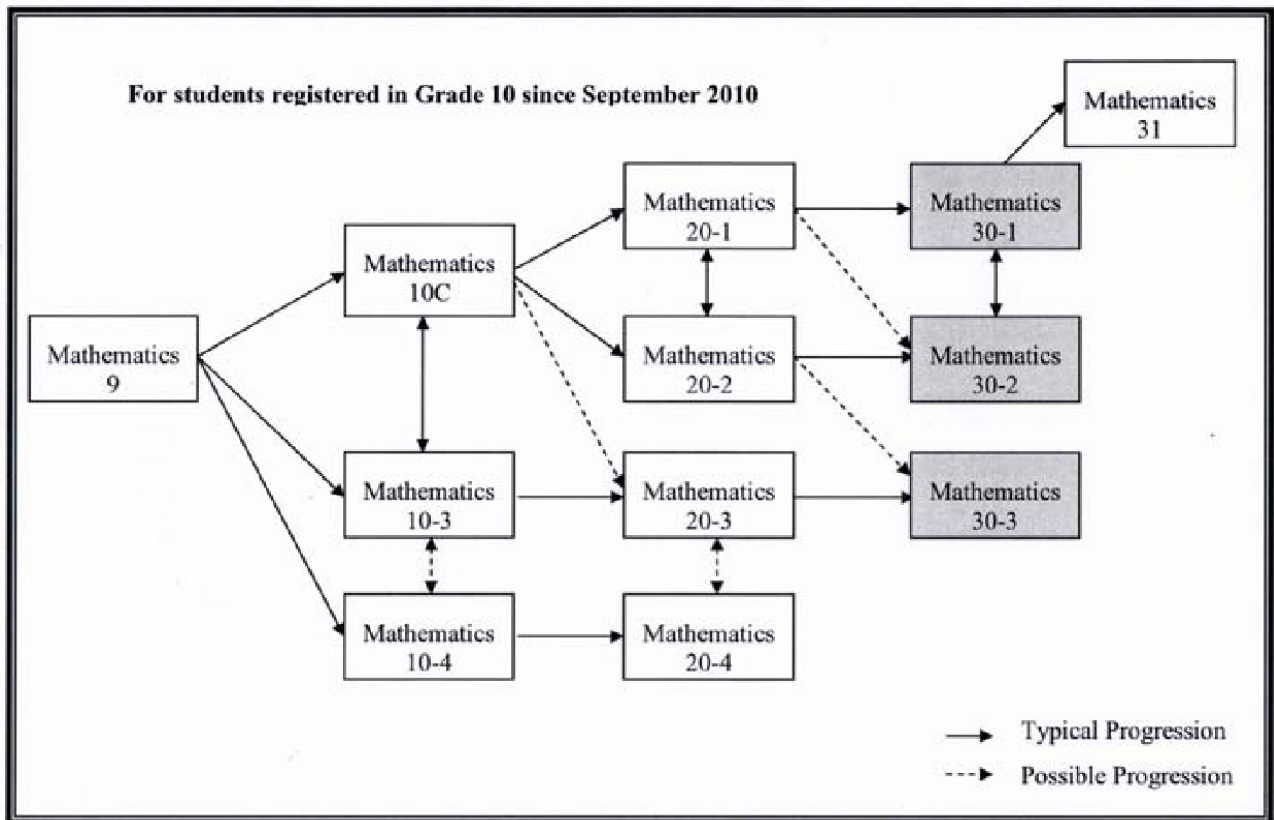
- Describe the effect of bias, language use, ethics, cost, time & timing, privacy, and cultural sensitivity on the collection of data
- Select and defend the choice of using either a population or a sample of a population to answer a question
- Develop and implement a project plan for the collection, display and analysis of data following a given set of criteria

Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

- Demonstrate an understanding of the role of probability in society

Future Considerations:

The following chart shows the sequencing for senior high mathematics.



[I have read and understand the above course outline. \(Please follow the link to the google form to provide contact information for your parent/guardian.\)](#)