



Northern Gateway
Public Schools

Mayerthorpe Jr./Sr. High School
Northern Gateway Public Schools
MATH 9 COURSE OUTLINE
Google Classroom Code: oakqa3f



2023/2024

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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

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

In-Class assignments, projects & quizzes.....	25%
Chapter tests & Unit exams.....	45%
Mid-Term Exam.....	10%
Provincial Achievement Exam June 19 & 20.....	20%

Part A of the PAT is the **NO CALCULATOR** part of the exam. **June 19th 9:00am**
Part B of the PAT is Multiple Choice and Numerical Response. **June 20th 9:00am**

Assessment Expectations

- All assessments must be labeled with your name, date and chapter section, page & question numbers at the top of the page.
- Work must be done neatly in an orderly manner in **pencil** and final answers must be clearly indicated. Collected work must be clean and easily readable on 8.5” x 11” looseleaf paper. Scribblers may be used for notes only.
- All work must be shown (not just an answer) unless otherwise specified and all aspects of the question must be considered and clearly answered. Real life word problems require complete sentences that clearly answer all aspects of the question(s). Though work is expected to correctly respond to and reflect on multiple choice questions, only the selected response will be graded.
- If a graded assessment (assignment, project, quiz or exam) is not completed or turned in on the expected date, an NHI which counts as a zero will be recorded in Power School. If the assessment is completed or handed in late, “collected” will also be recorded. The NHI will either be changed to their grade when it is marked or it may be marked as exempt if the assessment was not completed in a timely manner or if the assessment was already returned or discussed with the rest of the class. In some circumstances, a new assessment may need to be completed to properly assess objectives.

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, projects 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.

Reassessment Policy:

The purpose of reassessment is to allow a student to remove an uncharacteristic grade.

Individual reassessments will only be granted in extenuating circumstances.

To qualify for a reassessment the following requirements must be met:

1. You must show evidence of preparing for the original assessment
 - a. For example:
 - i. Completion of all formative and summative assessments (assignments/quizzes/projects).
 - ii. Completion of practice questions/formative assessments
 - iii. Actively engaged in lessons/class/learning activities and effective use of class time.

2. You must review the assessment and receive feedback in order to establish an understanding of your grade.
 - a. For example:
 - i. A student/teacher conference
 - ii. Post-assessment self-reflection
3. You must provide evidence of enhanced learning of the outcomes.
 - a. For example:
 - i. Completion of teacher tutorial sessions
 - ii. Completion of additional practice materials
 - iii. Exam Analysis - identifying errors/common mistakes/distractors
4. You must arrange to meet for reassessment in a timely manner.
5. The reassessment may be in an alternative form than the original assessment but will assess the same outcome(s) from the programs of study.

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.

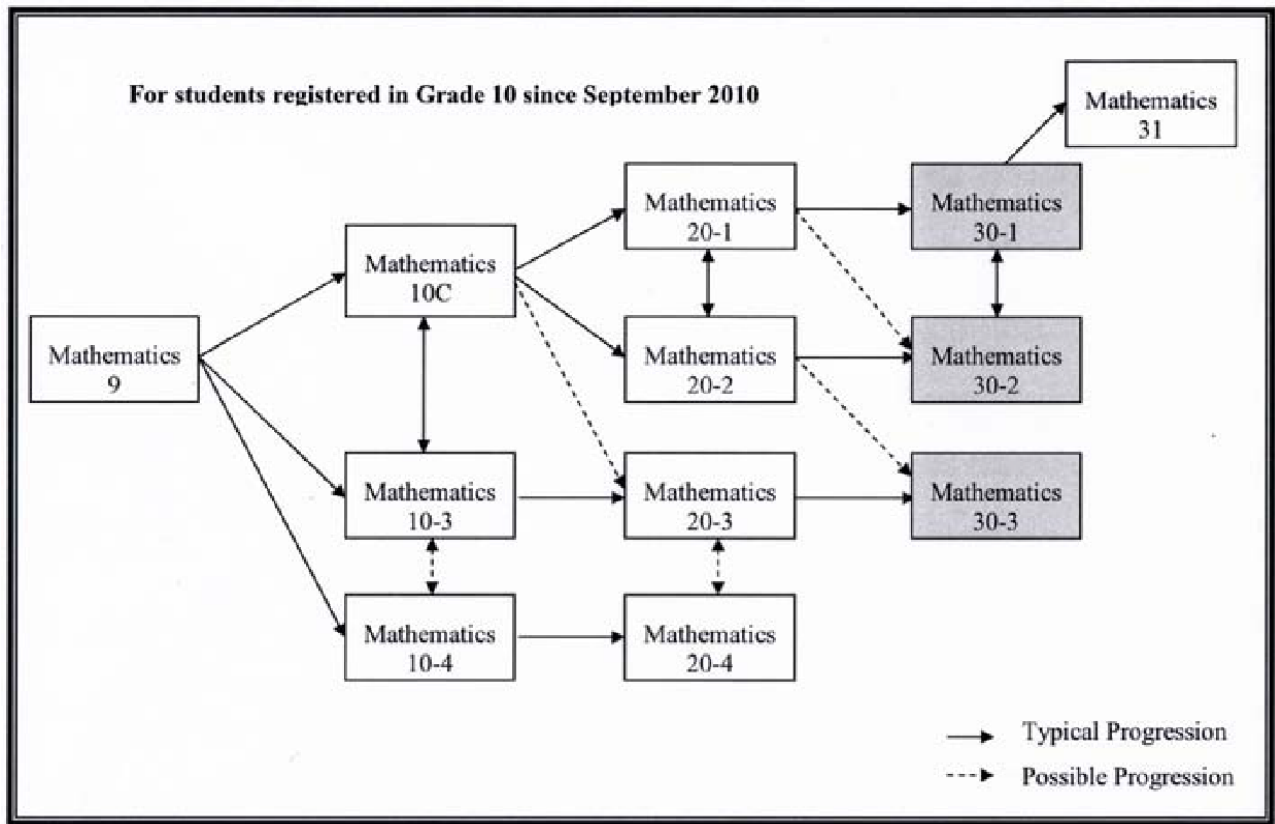
If an absence is excused by administration or phoned in by a parent/guardian, the missed work is still expected to be completed. All curricular objectives will be assessed on exams.

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.

Future Considerations:

The following chart shows the sequencing for senior high mathematics.



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