



Mayerthorpe Jr./Sr. High School  
NGPS  
Math 20-2  
Course Outline  
2025-2026  
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## Course Overview

Mathematics is used to describe and explain relationships. Within the study of mathematics, students look for relationships among numbers, sets, shapes, objects, variables, and concepts. The search for possible relationships involves collecting and analyzing data, analyzing patterns and describing possible relationships visually, symbolically, orally, or in written form.

This course sequence is designed to provide students with the mathematical understandings and critical thinking skills identified for post-secondary studies in programs that do not require the study of calculus. Topics include geometry, measurement, number and logic, logical reasoning, relations and functions, statistics, and probability.

Alberta's mathematics program reflects current research, developments and trends in mathematics education. Mathematical principles have not changed however the approach to the teaching and learning of mathematics and in some cases the topics of study have changed.

The revised programs of study offer students greater opportunities to develop mathematical reasoning and problem solving skills and to make connections between mathematics and its applications. The program also builds students' confidence in their mathematical skills and appreciation of the subject. I believe that the concepts taught in this course are applicable to everyday life and will be valuable learning tools for the future.

## General Objectives

- Develop spatial sense and proportional reasoning.
- Develop number sense and logical reasoning.
- Develop statistical reasoning.
- Develop algebraic and graphical reasoning through the study of relations.
- Develop an appreciation of the role of mathematics in society.

## Specific Objectives

### Course Research Project:

- Develop an appreciation of the role of mathematics in society. Research a historical event or an area of interest that involves mathematics.

## Inductive and Deductive Reasoning

- Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems.

## **Properties of Angles and Triangles**

- Derive proofs that involve the properties of angles and triangles.
- Solve problems that involve properties of angles and triangles.

## **Acute Triangle Trigonometry**

- Solve problems that involve the cosine law and the sine law, excluding the ambiguous case.

## **Radicals**

- Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands (limited to square roots).
- Solve problems that involve radical equations (limited to square roots or cube roots).

## **Statistical Reasoning**

- Demonstrate an understanding of normal distribution, including:
  - standard deviation
  - z-scores.
- Interpret statistical data, using:
  - confidence intervals
  - confidence levels
  - margin of error.

## **Quadratic Functions**

- Demonstrate an understanding of the characteristics of quadratic functions including:
  - Vertex
  - Intercepts
  - domain and range
  - axis of symmetry.
- Solve problems that involve quadratic equations.

## **Quadratic Equations**

- Demonstrate an understanding of the characteristics of quadratic functions, including:
  - Vertex
  - Intercepts
  - domain and range
  - axis of symmetry.
- Solve problems that involve quadratic equations.

## **Proportional Reasoning**

- Solve problems that involve the application of rates.
- Solve problems that involve scale diagrams, using proportional reasoning.
- Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects.
- Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies.

## **Assessment of Learning**

The school awarded mark shall be broken down as follows and account for 80% of the Final Mark

Unit Exams and Projects.....40%

Quizzes: .....25%

Assignments: .....15%

For the final mark:

School Based Mark: ...80%

Math 20-2 Final Exam: ...20%

## **Assessment will be conducted on three levels in this class.**

Diagnostic Assessment will aid both the teacher and student in understanding where the student is at initially in his/her learning. Pre-tests, quizzes and written assignments may be utilized for this means.

Formative assessment will be used so that teacher and student will be aware of the progress the student is making within his/her curricular outcomes. Various self-reflection, teacher reflection on completed assignments may be used to aid student growth. While these assignments will be tracked, not always will a specific grade be recorded. This will be used to help the student improve his/her learning.

Summative Assessment will be utilized as final evaluation for grades.

- These assignments will include but will not be limited to: assignments, quizzes, culminating projects, tests, unit final exams, and final exams.
- These assessments will be reported to students and parents through Power School.
- All summative assessment tasks must be completed by the deadline. Once an assessment is marked and returned to students, late assessments will not be accepted, however, all students will have the opportunity to make up a missed assessment during a time selected by the teacher.
- It is the student's responsibility to meet deadlines or ask for extra time to complete missing work.
- In the event a student receives a re-assessment opportunity, it is important to know the most recent assessment grade will stand.

## **INSTRUCTIONAL METHODOLOGIES**

A variety of instructional methodologies will be used in this class. They will include:

- Lecture
- Notes
- Discussion of assigned questions
- Independent work
- Small group work

## **ATTENDANCE**

I insist that you make every effort to attend all classes.

- Students absent from a class are responsible for obtaining and completing all notes and assignments missed during their absence. It is the responsibility of the student to catch up on missed work. Ask the teacher or a classmate for guidance and use your Google Classroom to retrieve missing lessons.

- Students absent from a scheduled test or assignment deadline for a legitimate reason are expected to write the test or hand in the assignment on the day of their return, or otherwise discussed with the teacher prior to the absence.

## **CLASSROOM EXPECTATIONS**

- Attend and be on time
- Be prepared: Have your binder, paper, textbook, pencil, eraser, and calculator
- Work hard and be on task at all times
- Complete all homework and assignments
- Show respect
- Work to your potential
- Adhere to the cell phone policy
- Have fun with the wonderful world of mathematics

## **APPEAL OF FINAL MARKS**

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 a resolution is not found, then the teacher will approach another qualified teacher to assess the assignment. (This new teacher will not have prior knowledge of the student's name or the 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 an assignment. In return, the appeal process will be completed as soon as possible.

## **REWRITE POLICY**

Each unit exam will have one rewrite option available during the first test center upon your return, immediately following the exam date in written response format. The re-write exam result will stand as the final exam grade.

**Resources: Principals of Mathematics 11. Nelson Education Ltd. 2012.**

Supplementary resources will be used as necessary throughout the topics to enhance and support the course content.