



Mathematics 20-3

Teacher Contact Info:

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Course Description and Objectives:

Mathematics is one way of understanding, interpreting and describing our world. It has application in the sciences, economics, business, engineering, medicine, the trades and daily life just to name a few areas. The main goals of mathematics education are to prepare students to:

- Solve problems and communicate and reason mathematically
- Make connections between mathematics and its applications
- Become mathematically literate and appreciate and value mathematics

Students who have met these goals will have gained an understanding and appreciation of the role of mathematics in society, exhibit a positive attitude toward mathematics and engage with and persevere in mathematical problem solving. In order to assist students in attaining these goals, teachers will provide opportunities for students to take risks, think independently, share and communicate their mathematical understanding and exhibit curiosity about mathematics and the disciplines broader applications to the real world.

In Mathematics 20–3, students gain the mathematical understanding and critical thinking skills appropriate for entry into the majority of trades or direct entry into the workforce. This is a hands-on course that allows students to apply their knowledge of subjects to real-world situations. Topics include measurement, geometry, numbers, algebra, and statistics.

Students are expected to communicate solutions to problems clearly and effectively when solving both routine and non-routine problems. Students are also expected to apply mathematical concepts and procedures to meaningful life problems. It is important to realize that it is acceptable for students to solve problems in different ways and that solutions may vary depending upon how the problem is understood.

Over the course of the 2020-2021 school year, Nelson Mandela High School teachers will maintain an online course presence containing materials, resources, assignments and supports through our D2L environment. It is important for students to take an active role in their learning and stay current in their schoolwork if away for any reason.

Course Materials and Resources:

Students will require lined and graph paper, a binder, a ruler, a protractor, pencils, and erasers. Students will also require a **scientific calculator**. There is no textbook for the course, but class notes and selected solutions will be posted on D2L.

Course Assessment:

Outcomes:

The specific outcomes from the Alberta Education Mathematics Grades 10 – 12 Program of Studies will account for 100% of each student's school awarded grade. These outcomes (and the associated competencies) will be assessed using the Nelson Mandela Assessment Rubric. Teachers may use a variety of assessments including quizzes, assignments, activities, projects, and one-on-one conversations to provide multiple opportunities for students to demonstrate their understanding of each of the specific outcomes.

Units and Outcomes	
Topics	CBE Power School Outcomes Weightings
Measurement • Area Measurement • Volume and Capacity Measurement	• M1/A1: Surface Area (8%) • M2/A1: Volume (8%)
Geometry • Trigonometry • Scale Factor • 3-D Objects	• G1: Right Triangle Trigonometry (12%) • G2: Scale Problems (4%) • G3 Model and draw 3-D Objects (4%) • G4: Draw and Describe Exploded Views (4%)
Number • Puzzles and Games • Personal Budgets • Simple & Compound Interest • Financial Institution Services • Credit Options	• N1: Puzzles and Games (6%) • N2: Budget (12%) • N3/A1: Interest (6%) • N4: Finance (4%) • N5/A1: Credit (5%)
Algebra • Manipulation and Application of Formulas • Slope and Rate of Change • Proportional Reasoning and Unit Analysis	• A2/A1: Slope (10%) • A3: Proportional Reasoning (5%)
Statistics • Creating and Interpreting Graphs	• S1: Graphs (12%)

Note that the order of the outcomes listed above does not correspond to the order in which the topics will be taught in class. For more detailed information about the specific outcomes from the Mathematics Program of Studies and Power School Outcomes, please follow the links:

[Math 20-3 Program of Studies](#)

[Math 20-3 Power School Outcomes](#)

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Plagiarism

When ideas are taken from other sources without giving credit, this is known as plagiarism. Plagiarism is the unacknowledged or unauthorized use of somebody else's words or ideas, **including AI-generated material**. We expect our students to act with academic integrity, and to use their own knowledge to demonstrate authentic learning. Student honesty and ethical behaviour is foundational to their schoolwork and in how they handle challenges. Our teachers support students' authentic and ethical learning through teaching when and how to cite resources.

When To Give Credit in Your Work

- When you are using or referring to somebody else's words or ideas from a magazine, book, newspaper, song, TV program, movie, web page, computer program, letter, advertisement, AI application or any other source.
- When you use information gained through interviewing another person.
- When you copy the exact words from somewhere.
- When you reprint any diagrams, illustrations, charts, and pictures.

Don't Need to Give Credit

- When you are writing your own experiences, your own observations, your own insights, your own thoughts, your own conclusions about a subject.
- When you are using common knowledge, common sense observations, or shared information.
- When you are using generally accepted facts.
- When you are writing up your own experimental results.

Academic Expectations

Students are expected to behave according to the CBE [Student Code of Conduct](#). Students who knowingly misrepresent the work of others as their own, or allow their work to be copied, act outside of the parameters of academic integrity. If this happens, we use [Progressive Student Discipline](#) so that teachers, parents, and school leaders can help students take responsibility for their learning to achieve their academic goals.

(<https://school.cbe.ab.ca/school/cbe-learn/teaching-learning/program-approach/academic-integrity/Pages/default.aspx>)