



**MATHEMATICS COURSES
OFFERED AT
BURNABY CENTRAL
SECONDARY SCHOOL**

2022/2023

GRADE 08

MATHEMATICS 8

The units studied include number concepts and operations, patterns and relations, shape and space, variables and equations, statistics and probability, and financial literacy. The new curriculum also focuses on curricular competencies that include Reasoning and Analyzing, Understanding and Solving, Communicating and Representing, and Connecting and Reflecting.

GRADE 09

MATHEMATICS 9

This course is designed to extend on topics from Mathematics 8. Topics include operations with rational numbers, exponents, polynomials and algebra, linear relations, shape and space, statistics and financial literacy. Teachers may provide a recommendation to students at the end of this course as to which Mathematics 10 course would be best suited for them.

COURSES YOU COULD TAKE NEXT

WORKPLACE 10

FOUNDATIONS OF MATHEMATICS & PRE-CALCULUS 10

Grade 9

The topics covered in this course are transferable to Grade 10.
If you found these topics interesting or excelled in them...

- ❖ **Similarities & Transformations**
- ❖ **Probability & Statistics**
- ❖ **Financial Literacy**

We recommend you explore the *Workplace* Mathematics Pathway.

- ❖ **Rational Numbers**
- ❖ **Linear Equations & Inequalities**
- ❖ **Powers & Exponent Laws**
- ❖ **Linear Relations**
- ❖ **Polynomials**
- ❖ **Probability & Statistics**

We recommend you explore the *Foundations & Pre-Calculus* Mathematics Pathway.

GRADE 10

There are two Courses offered at Burnaby Central for Mathematicians entering the 10th grade.

WORKPLACE 10

This option is designed to provide students with the Mathematical understanding and critical thinking skills identified for entry into the majority of trades and for direct entry into the work force. Topics include graphing, primary trigonometric ratios, conversions, surface area and volume, angles, financial literacy, and statistics.

COURSES YOU COULD TAKE NEXT

WORKPLACE 11

FOUNDATIONS & PRE-CALCULUS 10

FOUNDATIONS OF MATHEMATICS & PRE-CALCULUS 10

This course is designed to provide students with the mathematical understandings and critical thinking skills identified for post-secondary studies in both the arts and sciences. Topics include applying trigonometric ratios to right triangles, prime factorization, operations with powers, functions and relations, systems of linear equations, arithmetic sequences, operations with polynomial expressions, and financial literacy. Teachers may provide a recommendation to students at the end of this course as to which Mathematics 10 course would be best suited for them.

COURSES YOU COULD TAKE NEXT

WORKPLACE 11

FOUNDATIONS OF MATHEMATICS 11

PRE-CALCULUS 11

COMPUTER SCIENCE 11*

HISTORY OF MATHEMATICS 11*

STATISTICS 12 / AP STATISTICS 12

*DENOTES ELECTIVE (COURSE DOES NOT SATISFY GRADUATION REQUIREMENTS)

Grade 10

The topics covered in this course are transferable to Grade 11.
If you found these topics interesting or excelled in them...

- ❖ **Measurements**
- ❖ **Trigonometry**
- ❖ **Relations**
- ❖ **Financial Mathematics**

We recommend you explore the **Workplace** Mathematics Pathway.

For students not pursuing Post Secondary ventures; Jobs in trades.

- ❖ **Trigonometry**
- ❖ **Factors and Products**
- ❖ **Linear Functions**
- ❖ **Systems of Linear Equations**
- ❖ **Probability**

We recommend you explore the **Foundations** Mathematics Pathway.

For students pursuing Post Secondary ventures at college or university in the Arts/Humanities.

- ❖ **Trigonometry**
- ❖ **Factors and Products**
- ❖ **Roots and Powers**
- ❖ **Linear Functions**
- ❖ **Systems of Linear Equations**

We recommend you explore the **Pre-Calculus** Mathematics Pathway.

For students pursuing Post Secondary ventures that need theoretical work in Calculus.

GRADE 11

Five Courses are offered at Burnaby Central for Mathematicians entering the 11th grade.

WORKPLACE 11

The emphasis of this course is on consumer mathematics. Topics include measurement, geometry, data analysis, probability and statistics, formulae, and budgeting.

COURSES YOU COULD TAKE NEXT

FOUNDATIONS & PRE-CALCULUS 10

APPRENTICESHIP 12

FOUNDATIONS OF MATHEMATICS 11

This course is designed to provide students with mathematical understandings and critical thinking skills identified for post-secondary studies in the arts or the humanities. Topics include logic and reasoning, functions, geometry, and statistics. Although the course explores many abstract concepts including algebra, it will not prepare you for university calculus.

COURSES YOU COULD TAKE NEXT

PRE-CALCULUS 11

FOUNDATIONS OF MATHEMATICS 12

COMPUTER SCIENCE 11*

HISTORY OF MATHEMATICS 11*

PRE-CALCULUS 11

This course is designed for VERY STRONG students who are going into programs which require students to take theoretical calculus in university (for example, Sciences, Engineering, or Business). This course is accepted for entrance to many post-secondary institutions. This course explores functions and relations, algebra, and trigonometry in depth to prepare students for Calculus.

COURSES YOU COULD TAKE NEXT

COMPUTER SCIENCE 11*

HISTORY OF MATHEMATICS 11*

PRE-CALCULUS 12

STATISTICS 12 / AP STATISTICS 12

FOUNDATIONS OF MATHEMATICS 12

GEOMETRY 12

***DENOTES ELECTIVE (COURSE DOES NOT SATISFY GRADUATION REQUIREMENTS)**

GRADE 11 CONT

HISTORY OF MATHEMATICS 11*

History of Mathematics is a course that delves into how the Mathematic concepts we know and use today came to be. Students will see how ideas evolved over the centuries, how math is a universal language, and how mathematics has benefited society throughout the years. Advancements in Mathematics came around due to not only new members of the mathematical community, but also came about as rudimentary tools and technology developed.

*Students should note, that this course DOES NOT satisfy the ministry's requirement for a Grade 11 Math course- this course is considered an elective.

THIS COURSE IS OFFERED EVERY OTHER YEAR- IN OPPOSING YEARS TO GEOMETRY 12

COMPUTER SCIENCE 11*

This new Mathematics course focuses to introduce computer science using the Python language- intended for beginners. Topics include applying logic statements, basic computer programming, modelling mathematical problems, and applying computational thinking to solve problems. This course teaches students to create their own programs.

COURSES YOU COULD TAKE NEXT
AP COMPUTER SCIENCE 12

*DENOTES ELECTIVE (COURSE DOES NOT SATISFY GRADUATION REQUIREMENTS)

GRADE 12

There are six Courses (plus AP Courses) offered at Burnaby Central for Mathematicians entering their final year. Students must have completed the Numeracy Exam in order to qualify to graduate.

FOUNDATIONS OF MATHEMATICS 12

The practical focus of the Foundations of Mathematics 12 pathway is designed to enable students to develop their mathematical knowledge, skills, and attitudes in the context of their lives and possible careers. There is increased emphasis on concrete activities and modeling, and decreased emphasis on symbol manipulation (algebra).

PRE-CALCULUS 12

This is a higher level of Mathematics which is required for entrance into many university-level programs and prepares students for the study of Calculus. Students will build on concepts learned in Pre-Calculus 11, and will spend more time developing their knowledge of algebra and the more formal generalizations of mathematical concepts.

COURSES YOU COULD TAKE NEXT

CALCULUS 12

GEOMETRY 12

COMPUTER SCIENCE 11*

HISTORY OF MATHEMATICS 11*

AP STATISTICS 12

AP COMPUTER SCIENCE 12

APPRENTICESHIP 12

This course is designed to provide students with the mathematical understandings and critical thinking skills needed for entry into the majority of trades* and for direct entry into the work force. The core curriculum consists of tools of measurement, visualizations, mathematics in the workplace, and financial literacy, including business investments and loans.

**Students should speak with their counsellor about their post-secondary requirements.*

***DENOTES ELECTIVE (COURSE DOES NOT SATISFY GRADUATION REQUIREMENTS)**

GRADE 12 CONT

There are five Courses offered at Burnaby Central for Mathematicians entering their final year. Students must have completed the Numeracy Exam in order to qualify to graduate.

GEOMETRY 12

PREREQUISITE COURSES

PRE-CALCULUS 11

This is a new Mathematics course where students will cover some history of Geometry, conjecture, investigate and discover properties & relations in geometry- circle geometry, isometries and non- isometric transformations, geometric constructions, non-Euclidean geometries, and more.

THIS COURSE IS OFFERED EVERY OTHER YEAR- IN OPPOSING YEARS TO HISTORY OF MATHEMATICS 11

STATISTICS 12

PREREQUISITE COURSES

FOUNDATIONS OF MATHEMATICS & PRE-CALCULUS 10

In Statistics, we learn to examine raw data, graphs, charts, rates, percentages, probabilities, averages, forecasts, and trend lines to see if a true experiment was conducted. This course is open to senior students who have a demonstrated aptitude for math.

COURSES YOU COULD TAKE NEXT
AP STATISTICS

CALCULUS 12

PREREQUISITE COURSES

PRE-CALCULUS 12

Calculus will introduce the student to the fundamentals of differentiation and integration, along with applications. Topics include graphing, maxima and minima, related rates, areas, volumes, and exponential functions. This course is a good introduction to university calculus.

COURSES YOU COULD TAKE NEXT
AP CALCULUS 12

AP MATHEMATICS

There are three Courses offered at Burnaby Central for Mathematicians who are interested in College Board's Advanced Placement (AP) Program. Offerings are a rigorous look at what university courses will be; allowing students to gain credits in high school towards their post-secondary school career.

AP CALCULUS 12

PREREQUISITE COURSES

CALCULUS 12

This is an extension of the course material covered in Calculus 12. This course can be taken only after Calculus 12 has been successfully completed. At the culmination of which students may write an exam in May for first year university

AP COMPUTER SCIENCE 12

PREREQUISITE COURSES

COMPUTER SCIENCE 11

This college-level course introduces students to computer science with fundamental topics, such as data structures, algorithms and design methodologies, etc. Students learn problem-solving techniques, software development skills as well as object-oriented concepts, all through the use of the Java programming language. The course also prepares students to take the AP Computer Science A exam in May.

AP STATISTICS 12

PREREQUISITE COURSES

FOUNDATIONS OF MATHEMATICS & PRE-CALCULUS 10

CO-REQUISITE COURSES

STATISTICS 12

In AP Statistics, we learn to examine raw data, graphs, charts, rates, percentages, probabilities, averages, forecasts, and trend lines to see if a true experiment was conducted. This course is open to senior students who have a demonstrated aptitude for math.

