

Picking the Right Math Courses in High School

The following is from the Alberta Government website at www.education.alberta.ca/math

Not all students have the same needs or goals. Now, in high school, students will be able to choose the mathematics courses that will help them on the path to their future. The new mathematics courses were developed together with the teachers who will be in the classrooms with you. They've been approved by instructors from colleges, technical institutions, and universities who'll be building on what you learn in high school. And the material is based on input from business and industry leaders who use mathematics every day. The courses were created to meet the needs of students in high school, and to support further education and career choices.

New Math Curriculum Overview:

- there are **two** choices at the 10-level: Math 10C (Combined dash 1 and dash 2) or 10-3
- a student must pass Math 9 to enrol in Math 10C (it is also recommended that a student achieve a minimum of 65% to go directly to 10C)
- there are **three** choices at the 20-level (20-1, 20-2, 20-3) and the 30-level (30-1, 30-2, 30-3)
- the **dash 1** sequence is intended for students planning to take Calculus in university (areas of Math and Science)
- the **dash 2** sequence is intended for university, college, technical institute programs that do not require Calculus (this is a challenging sequence with a strong foundation in algebra)
- the **dash 3** sequence is intended for students planning to enter the work force and/or pursue an Apprenticeship Program (where 30-2 is not required, see <http://tradesecrets.alberta.ca/learn-on-the-job/who-can-learn-a-trade/>)
- In Math 30-1 and 30-2, students must write a Provincial Diploma Exam (50% of grade), in Math 30-3 students do not write a Diploma Exam
- a student must pass math 10 to move to math 20, and must pass math 20 to move to math 30 (any specific exemptions must be done with the Principal's approval)
- there is built in flexibility to move from a dash 1 to the dash 2 or even dash 3 math, to suit the learning needs and requirements of individual students
- "It is important to get started off on the right foot." – success in Math 9 is very important, to both high school math and beyond
 - For example a student who struggled in math 9 may choose to take Math 10-3 to help build skills and confidence, then enrol in Math 10C after completion, or may choose to continue with Math 20-3
 - Another student who needs 30-1 or 30-2 for a post-secondary program, might struggle in Math 10C, and would likely need to retake the 10C in order to properly build the required math skills needed for 20-1 or 20-2

*the following information sheets were taken from the Alberta Government website at www.education.alberta.ca/math, please take the time to read them over and familiarize yourself with the information regarding the NEW Math Programs



Informed Decisions

The courses students take in high school affect the programs they can enter in post-secondary education. By waiting until Grade 11 to choose which mathematics course sequence to follow, students will have a better idea of their future career goals, their skill at high school-level mathematics, and the requirements for the post-secondary programs that interest them. Students can now get input from high school teachers and counselors on which course suits their specific skills and career needs. And a wider range of programs at universities, colleges, and technical institutes accept the new Mathematics-2 course sequence than the former Applied Mathematics route, giving students more options at the post-secondary level as well.

Greater Flexibility

Students' goals and needs may change during high school, and with Mathematics 10C they can change their mathematics course to suit those new directions. Mathematics 10C includes topics needed for both Mathematics 20-1 and Mathematics 20-2. This means students will have the background knowledge to switch course sequences in either Grade 11 or Grade 12. Students will have more options in high school, which means more choices for their future education and career paths.

(Refer to fact sheet, "A Number of Options" for information on course progression)



A Number of Options

How do the courses work?

Below is a chart showing how the courses relate to one another and what options students will have as they progress through their high school career.

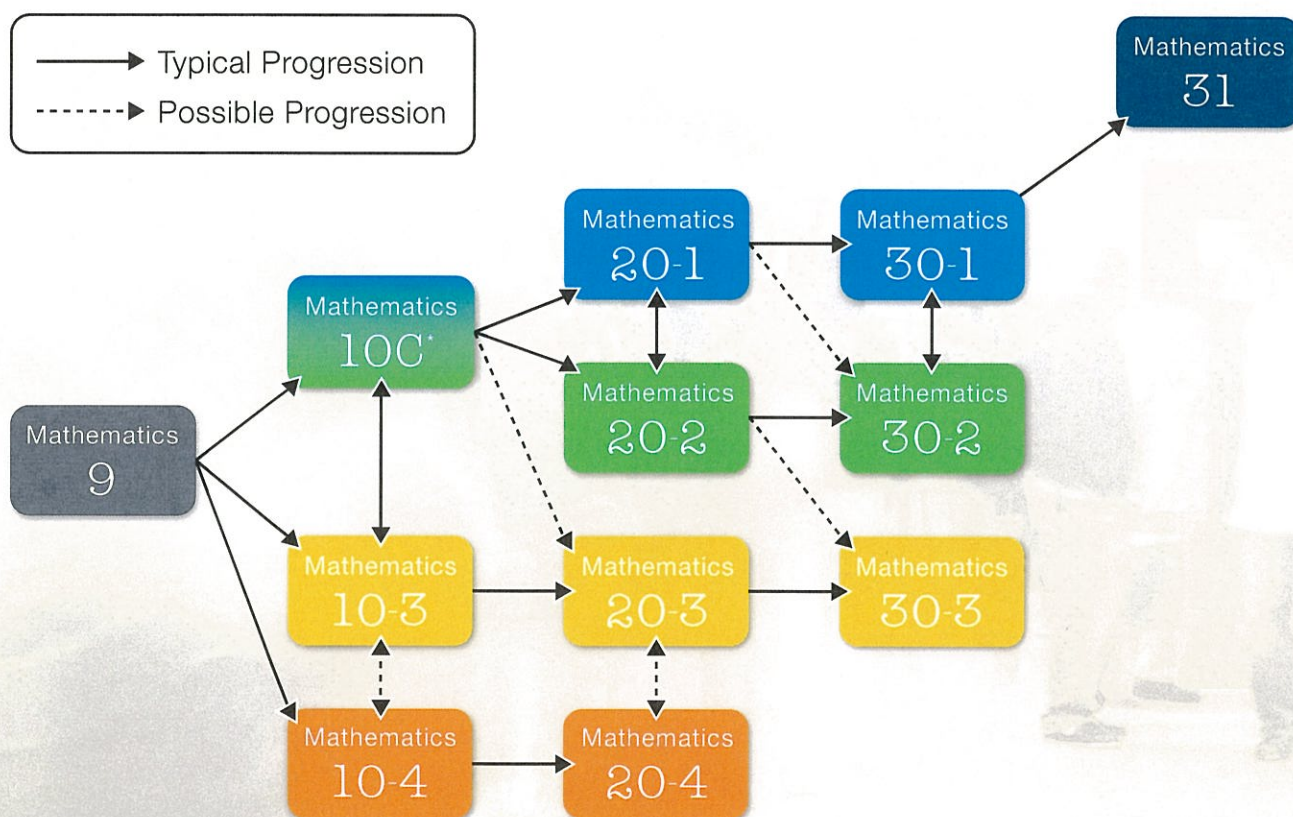
Please note:

Mathematics 10C is for students who want to take Mathematics-1, Mathematics-2, or just aren't sure yet.

Mathematics 10-4 and 20-4, the Knowledge and Employability courses, have not changed.

Mathematics 31 has not changed. Mathematics 30-1 is a co-requisite for Mathematics 31.

Progression Through Course Sequences



* Students must pass Grade 9 Mathematics to enrol in Mathematics 10C.

For more information, visit www.education.alberta.ca/math



Mathematics-1

Once you successfully complete Mathematics 10C, you will need to decide which course sequence will meet your needs during the rest of your high school career and beyond. Whether you plan on pursuing further studies or entering the workforce directly, the revised Mathematics Program is designed to help you develop the appropriate skills.

There is a mathematics course that will meet your needs, no matter how your plans change.



Who should take the Mathematics-1 course sequence?

- *Mathematics-1 is designed for students who plan to apply for post-secondary programs that may require calculus skills.*
- *If you want to enter a post-secondary program such as engineering, mathematics, sciences, some business studies, or other programs that require advanced math skills, you should take Mathematics-1.*
- *Mathematics 30-1 is a co-requisite for Mathematics 31 and may be required for post-secondary calculus courses. You should always check the most up-to-date information on post-secondary mathematics entrance requirements, which is available on the Alberta Learning Information Service (ALIS) website (see www.education.alberta.ca/math) and directly from the institutions themselves.*



For more information, visit www.education.alberta.ca/math



What will I learn in Mathematics-1?

- You will study the concept of function in-depth, including quadratic, radical, polynomial, rational, trigonometric, exponential and logarithmic functions.
- You will extend your knowledge of trigonometry to include Sine and Cosine Laws to solve any triangle.
- You will be introduced to counting techniques involving permutations and combinations; these are the basis for the Binomial Theorem, which has important applications in the areas of calculus and statistics.

What do I do if my interests or future plans change?

- The Grades 10-12 Mathematics Program was designed to be flexible and to support student needs.
- After completing Mathematics 20-1, you can continue on to Mathematics 30-1. If you decide Mathematics 30-2 is more appropriate for your future goals, you can take that course instead. You can also choose to take Mathematics 30-3.
- No matter how your plans change, there is a mathematics course that will meet your needs.



Mathematics-2

Once you successfully complete Mathematics 10C, you will need to decide which course sequence will meet your needs during the rest of your high school career and beyond. Whether you plan on pursuing further studies or entering the workforce directly, the revised Mathematics Program is designed to help you develop the appropriate skills.

There is a mathematics course that will meet your needs, no matter how your plans change.



Who should take the Mathematics-2 course sequence?

- *Mathematics-2 is designed for students who want to attend a university, college, or technical institute after high school, but do not need calculus skills.*
- *If you want to study at the post-secondary level in fields such as arts programs, civil engineering technology, medical technologies, or some apprenticeship programs, you should take Mathematics-2. This sequence will fulfill most high-school students' needs.*
- *You should always check the most up-to-date information on post-secondary mathematics entrance requirements, which is available on the Alberta Learning Information Service (ALIS) website and directly from the institutions themselves.*



What will I learn in Mathematics-2?


- You will develop logical reasoning techniques, including inductive and deductive reasoning.
- You will study a variety of relations and functions, both graphically and algebraically, including quadratic, radical, polynomial, rational, sinusoidal, exponential and logarithmic functions.
- You will extend your knowledge of trigonometry to include Sine and Cosine Laws to solve any triangle.
- You will be introduced to counting techniques involving permutations and combinations.
- You will complete a Mathematics Research Project, involving the collection and analysis of data in a mathematical area of interest in both Mathematics 20-2 and 30-2.

What do I do if my interests or future plans change?

- The Grades 10-12 Mathematics Program was designed to be flexible and to support student needs.
- After completing Mathematics 20-2, you can continue and complete Mathematics 30-2.
- If you decide that the -1 course sequence is more appropriate for your future plans, you can transition by taking Mathematics 20-1 and then 30-1. Or, you can take Mathematics 30-1 after successfully completing Mathematics 30-2.
- If you decide that Mathematics 30-3 is more useful for you, you can take that course instead of Mathematics 30-2.
- No matter how your plans change, there is a mathematics course that will meet your needs.

Mathematics-3

Once you successfully complete Mathematics 10-3 or Mathematics 10C, you will need to decide which course sequence will meet your needs during the rest of your high school career and beyond. Whether you plan on pursuing further studies or entering the workforce directly, the revised Mathematics Program is designed to help you develop the appropriate skills.



There is a mathematics course that will meet your needs, no matter how your plans change.

Who should take the Mathematics-3 course sequence?

- Mathematics-3 is designed for students who want to learn the mathematics needed to enter most trades or want to enter the workforce after high school.
- Most apprenticeship training programs in Alberta will recommend students successfully complete Mathematics 30-3. However, a small number of apprenticeship training programs may require students to complete the -2 course sequence in order to meet the mathematics entrance level competencies for those trades. Further information regarding apprenticeships can be found at: <http://www.advancededandtech.gov.ab.ca/planning.aspx>.
- You should always check the most up-to-date information on post-secondary mathematics entrance requirements, which is available on the Alberta Learning Information Service (ALIS) website and directly from the institutions themselves.



What will I learn in Mathematics-3?

- You will use SI and imperial measures and apply them in 2-D and 3-D situations.
- You will extend your knowledge of trigonometry to include Sine and Cosine Laws to solve problems.
- You will learn and apply spatial, proportional and logical reasoning to solve problems.
- You will explore financial topics including personal finance and basic small business operations.
- You will apply basic statistics and probability concepts to solve problems.

What do I do if my interests or future plans change?

- The Grades 10-12 Mathematics Program was designed to be flexible and to support student needs.
- If you develop new interests or post-secondary goals, you can transition to the -1 course sequence or -2 course sequence through Mathematics 10C.
- No matter how your plans change, there is a mathematics course that will meet your needs.