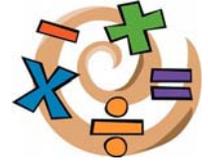


Math Pathways



The Goals of the New Pathways

The goals of all three pathways are to provide pre-requisite attitudes, knowledge, skills and understanding for specific post-secondary programs or direct entry into the work force.

All three pathways provide students with mathematical understanding and critical thinking skills. It is the choice of topics that varies among pathways. When choosing a pathway, students should consider their interests, both current and future so that the pathway they choose will be the one to engage them in their studies.

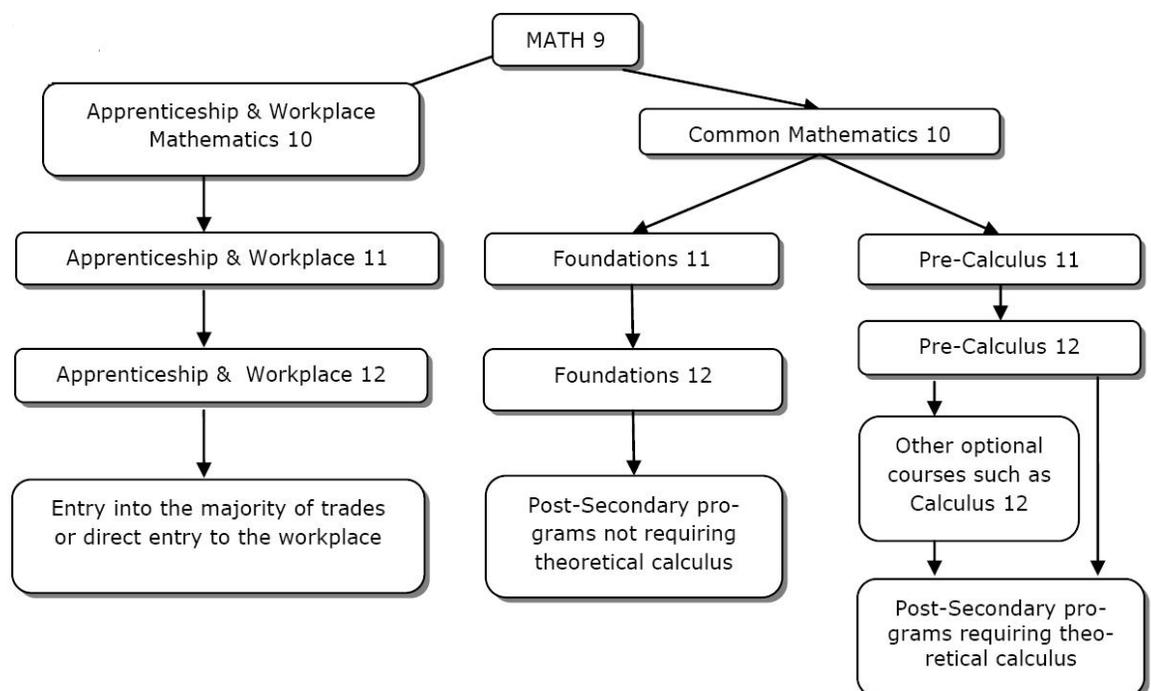
The new curriculum includes *seven mathematical processes* that are crucial to students' learning, doing, and understanding Mathematics. Students are expected to:

- use **communication** in order to learn and express their understanding.
- make **connections** among mathematical ideas, other concepts in mathematics, everyday experiences and other disciplines.
- demonstrate fluency with **mental mathematics and estimation**.
- develop and apply new mathematical knowledge through **problem solving**.
- develop mathematical **reasoning**.
- select and use **technology** as a tool for learning and solving problems.
- develop **visualization** skills to assist in processing information, making connections and solving problems.

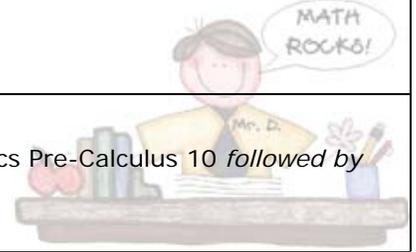
Grade 10
(Begins:
September 2010)

Grade 11
(Begins:
September 2011)

Grade 12
(Begins:
September 2012)



Sample Future Plans	Most Relevant Course Work
<ul style="list-style-type: none"> ▪ Technical College ▪ Trade School ▪ Direct entry to workforce 	<ul style="list-style-type: none"> ▪ Apprenticeship and Workplace Mathematics 10-12
<ul style="list-style-type: none"> ▪ Math ▪ Science ▪ Engineering ▪ Medicine ▪ Commerce 	<ul style="list-style-type: none"> ▪ Foundations of Mathematics Pre-Calculus 10 <i>followed by</i> ▪ Pre-Calculus 11-12
<ul style="list-style-type: none"> ▪ Socials Sciences ▪ Humanities ▪ Fine Arts ▪ Undecided 	<ul style="list-style-type: none"> ▪ Foundations of Mathematics Pre-Calculus 10 <i>followed by</i> ▪ Foundations 11-12



Graduation Requirements & Post-Secondary Admissions

To graduate, all students **MUST** complete a Grade 10 Mathematics course as well as another math course at the Grade 11 or 12 level. You might need more than one math course if you plan to continue school beyond Grade 12. Depending on the school you attend, there could be many Mathematics options available to you.

Students, parents and educators are encouraged to research the admission requirements for post-secondary programs of study as they vary by institution and by year.

For specific program requirements, you should contact the specific institution you are interested in or search for specific program requirements using the Education Planner's website: <http://www.educationplanner.ca/>

Questions & Answers

What are the new pathway names and what is in them?

Each pathway is designed to provide students with the mathematical understandings, rigour and critical-thinking skills that have been identified for specific post-secondary programs of study and for direct entry into the work force. The content of each pathway has been based on the Western and Northern Canadian Protocol (WNCP) which governs curriculum in the Western Provinces and Northern Territories.

Apprenticeship and Workplace Mathematics

This pathway is designed for entry into the majority of trades and for direct entry into the work force. Topics include working with formulas, financial mathematics, measurement and representation of 2-dimensional space and 3-dimensional objects. (Courses at grade 10, 11 and 12)

Foundations of Mathematics

This pathway is designed for entry into post-secondary programs such as Arts or Humanities that do not require the study of theoretical calculus. Topics include financial mathematics, statistics, logic and reasoning, and research into the history of mathematics. (Courses at grade 11 and 12)

Pre-Calculus

This pathway is designed for entry into post-secondary programs such as Science or Engineering that require the study of theoretical calculus. Topics include solving equations, functions (including quadratic, polynomial, exponential and trigonometric), logarithms, combinatorics and probability. (Courses at grade 11 and 12)

Is there still going to be a Provincial Exam in the new Grade 10 courses?

Yes. The new pathway courses starting in September 2010 will have a Provincial exam that counts for **20%** of the student's overall course mark (school mark still counts for **80%** overall). The exam will include a computation section without the use of a calculator as well as a calculator use section. The exams will still include multiple choice questions but will now also include problem solving that the new curriculum requires.

My daughter/son wants to study University Sciences but her teacher has recommended the Foundations stream. What should I do?

While Pre-Calculus 11 or 12 will be required for University Science and Engineering programs, it is important to understand the teacher's recommendation. Foundations was possibly suggested because your child found the Foundations and Pre-Calculus 10 course was very challenging. The concern is that your child will be more challenged in the Pre-Calculus pathway in grade 11 and/or 12. It may also be that your child's learning style is better suited to a less theory based course like the Foundations stream. With new courses starting, there will be institutions that accept the Foundations courses for entry to programs instead of Pre-Calculus.

Can my child get into university or college without Pre-Calculus 11 or 12?

Yes. There are many different combinations of courses and programs that will allow a student to go to college or university. The specific Math courses that are required by colleges and universities depend entirely on the program a student wants to enter. Some entrance requirements include calculus math courses (Pre-Calculus pathway) and others do not require calculus courses (Foundations pathway). It is crucial that you check the university or the college to find out which Math courses are needed for entry so that you choose the correct path.

What's the difference between the new courses and the old courses?

Not only have the course names changed, but the content covered in each course is also different. The content comes from WNCP and it has restructured math instruction from K to 12. Elementary students are already working on WNCP topics in their Math courses. Secondary courses need to change now so the whole structure is more consistent across grades and across provinces (WNCP include western provinces and northern territories). These changes have been made purposefully to achieve consistent delivery of curriculum from K to 12.

Which Math course is best suited to my child?

While there is no "rule" about which Math course is right for each student, the decision can be made easier by thinking about your child's ability and interest in Math, and future education and career plans. The new courses have been designed to facilitate student success after high school. For example:

- If your child has struggled in Math 8 or 9, enjoys working on projects or hands-on activities, or intends to pursue a trade or technical job after high school, then the Apprenticeship and Workplace pathway is the best choice.
- If your child enjoys working on projects or hands-on activities, or is planning further studying in the Social Sciences like Economics or Arts or Humanities at post-secondary, then the Foundations pathway will be the best choice.
- If your child has been very successful in Math 9, enjoys the challenges of Math, and is thinking about future education or a career that involves Sciences or Engineering at a university, then starting the Pre-Calculus pathway will be the best choice.

Your child's education choices after high school depend, in part, on the courses they take in high school. To make an informed decision about which course is best suited for your child, you need to find out as much as you can about each pathway. Parents need to remember that grade 10 has ONLY two courses but there are three pathways in grade 11 to 12. *Students who choose grade 10 Apprenticeship and Workplace CANNOT move to the Foundations stream easily.*

What happens if we change our mind about the course decision that we have made?

Because the three pathways were designed to give students different skills, attitudes and knowledge for different career and post-secondary paths, they were not designed specifically to allow for lateral movement between pathways. As a result, schools will not be suggesting students move from one pathway to another once a choice has been made and a student is working in one pathway's courses.

Is it possible to take more than one pathway?

The pathways were designed in such a way that students could take courses in more than one if desired. Taking more than one math course is not unusual in eastern Canada. This would give a student the most available opportunities at post-secondary institutions. If, after high school, your son/daughter changes career paths and realizes that he/she needs Pre-Calculus 11 or 12, colleges and universities will offer these or equivalent courses for upgrading.

Useful Links

- Education Planner: <http://www.educationplanner.ca/>
- BC Ministry of Education: <http://www.gov.bc.ca/bced/>
- BC Ministry of Education Graduation Requirements: <http://www.bced.gov.bc.ca/graduation/>
- BC Ministry of Education: Provincial Exams: <http://www.bced.gov.bc.ca/exams/>
- Math Curriculum Document: http://www.bced.gov.bc.ca/irp/irp_math.htm
- BC Association of Math Teachers: <http://bctf.ca/bcamt/>

