"New" Math 10 Courses Starting September 2010 for current grade 9 students

Important Questions and Answers for Parents and Students about new Math Pathways and new Math Courses coming to your secondary school starting in September 2010 and beyond

"Together We Learn"
School District #23 (Central Okanagan)

"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. There are three pathways of courses to consider:

Apprenticeship and Workplace Mathematics (Courses at grade 10, 11 and 12)
This pathway is specifically designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into the majority of trades at post secondary and for direct entry into the work force. Topics include algebra, geometry, measurement, number, statistics and probability.

Foundations of Mathematics (Courses at grade 11 and 12)
This pathway 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 theoretical calculus like Economics, Geography, Arts or Humanities. Topics include financial mathematics, geometry, measurement, number, logical reasoning, relations and functions, and statistics and probability. Most students will choose this pathway.

Pre-calculus (Courses at grade 11 and 12)
This pathway is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary programs that require the study of theoretical calculus like Sciences or Engineering. Topics include algebra and number, measurement, relations and functions, trigonometry, permutations, combinations and binomial theorem. A small number of students will choose this pathway because of the higher-level topics included in it.

Look inside this brochure to see an illustrated pathway diagram and to find out more detailed information.

"What are the Goals of the New Pathways?"

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

All three pathways provide students with mathematical understandings and critical-thinking skills. It is the choice of topics through which those understandings and skills are developed that varies among pathways. When choosing a pathway, students should consider their interests, both current and future and their plans after high school.

Students will be exposed to more problem solving as a way of learning and practicing math concepts. The pathways and courses were designed to prepare students to solve problems in real life more confidently.

All three pathways were designed to clearly communicate high expectations for students' mathematical learning in grades 10, 11 and 12 to all education partners across the jurisdictions.

"Was Apprenticeship and Workplace <u>really</u> designed for students thinking of entering the trades at post secondary?"

YES! There were a number of discussions between various stakeholder groups in the development of the WNCP curriculum. It was clear from post secondary stakeholders that one of the pathways needed to focus more on trades and technical math.

This led to reduced overlap between pathways where, "each pathway is designed to provide students with the math understandings, rigour and critical-thinking skills that have been identified for specific post-secondary programs of study like the trades".

The courses in Apprenticeship and Workplace 10 to 12 contain topics like Measurement, Geometry, Pythagoras and Trigonometry that are directly relevant to studies in trades programs post secondary. *It was designed that way!*

"What happens if we change our mind about the pathway decision that we made before the start of this year?"

Because the three pathways were designed to give students <u>different</u> skills, attitudes and knowledge for different career and post secondary paths, they were <u>not</u> 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. The pathway courses contain different content and were designed in such a way that students could take courses in <u>more than one pathway if desired</u>. Taking more than one math course is not unusual in other parts of Canada. It is a newer idea in British Columbia but this would give a student the most available opportunities at post secondary institutions.

There are other options as well. If, after high school, your son or daughter changes career paths and realizes that he/she needs Pre-Calc 11 or 12 instead of the Foundations courses taken, colleges and universities will offer these or equivalent courses for upgrading.

Your son/daughter should choose the courses that best fit his/her current math interest and best fit his/her current post secondary direction!

"Which pathway is most suitable for the majority of students to be studying in grades 11 and 12?"

The most challenging pathway for students will be the highly theoretical Pre-Calculus 11 and 12 pathway. It leads to Univ. level post secondary Calculus courses for Sciences and Engineering (where only a small number of students are successful in enrolling). The majority of students will likely choose the less theoretical <u>Foundations</u> pathway for their high school studies.

“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 in Math, his/her interest in Math, and his/her future education and career plans. The new courses have been designed to facilitate student success after high school. For example:

If your child has worked hard 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 choose the **Apprenticeship and Workplace pathway.**

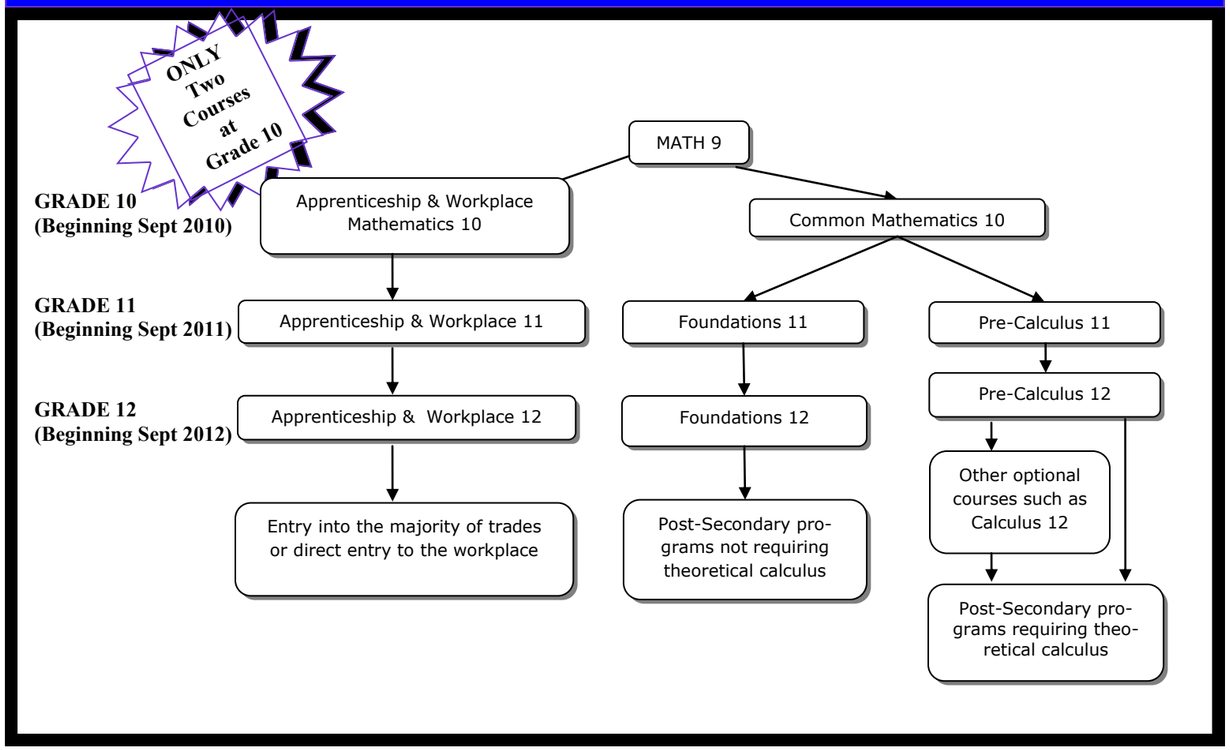
If your child has worked hard in Math 8 or 9, enjoys working on projects or “hands-on” activities, or is planning further study in the Social Sciences like Economics, Geography, Psychology, Arts or Humanities at post secondary, then the **Foundations pathway** will be the best choice.

If your child has been very successful in Math 8 and 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 depends, in part, on the courses he/she takes in high school. To find out more information about each pathway option, please talk to your child’s Principal, counsellor and math teacher as well as visit www.wncp.ca for more curriculum information. **Parents need to remember that grade 10 has ONLY two courses but there are three pathways in grade 11 to 12. Please review the diagram at the right hand side. Students who choose grade 10 Apprenticeship and Workplace cannot move to the Foundations stream easily.**

Start your post secondary career exploration in BC at http://educationplanner.bc.ca
Start your career planning at http://www.bced.gov.bc.ca/careers/
Get free math homework help or start your online learning exploration at http://learnnowbc.ca

New Math Pathways and Courses



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

Yes! The new grade 10 pathway courses starting in Sept. 2010 will have a Provincial exam that counts for 20% of the student’s overall course mark. This is the same breakdown for exam and school mark as the current math 10 courses.

The exams will include a computation section without the use of a calculator as well as a calculator-allowed section. The exams will still include multiple choice questions but will now also include problem solving questions that are required to be assessed from the new curriculum. Students will be able to access sample exams for these new courses from:

http://www.bced.gov.bc.ca/exams/

*☺ School District 23 would like to **thank** the Comox School District (SD71) for this information pamphlet*

“My daughter wants to study University Chemistry but her teacher has suggested Foundations … What should we do?”

While Pre-Calculus 11 or 12 will be required for University Science and Engineering programs, it is important to understand the reason for the teacher’s recommendation for Foundations.

Foundations may have been suggested because your child found the Foundations and Pre-Calc 10 course very challenging. The teacher is concerned that your daughter will be challenged by the content in the Pre-Calc pathway in grade 11 and/or 12. It may also be that your child’s learning style is more suited to a less theory-based course like in the Foundations pathway.

Parents should review the prerequisite courses required for individual institutions. With new courses starting for September, there will be institutions that accept the Foundations stream courses for entry to programs instead of just Pre-Calc 11 and/or 12.

“Can my daughter get into University or College without taking Pre-Calc 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 (courses from the Pre-calculus pathway) and others do not require calculus courses (courses from the Foundations pathway).

It is crucial that you check the university or college guidebook to find out which specific courses are needed for entry and what marks are needed in those courses. A good place to start is the website: http://educationplanner.bc.ca

“What’s the difference between Apprenticeship and Workplace, Foundations and Pre-Calculus compared to Essentials, Applications and Principles that we are used to now?”

As you can see, the course names have changed, but there is more than that! The content covered in each course has also changed. The content comes from WNCP (a collaboration of Ministries of Education from western provinces and territories) and WNCP has restructured Math instruction from K-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. These changes have been made purposefully to achieve consistent delivery of curriculum from K-12.

Students will experience new course names, new course content in different grades and a change in focus towards math topic understanding as well as procedural math understanding.