

## **SEPTEMBER 2012 UPDATE:**

- 1. Is it possible for a student to upgrade their mark for Math A30 (B30 or C30) now that the new 30 level pathways are implemented?*

Departmental exams have been developed for the 2012-2013 school year for mathematics A30, B30, and C30. Therefore, students that have already received a mark for a grade 12 math (A30, B30, C30) can write a supplemental examination to improve their mark.

**Note:** The 2012-2013 school year is the last year this will be available.

## **SECONDARY MATHEMATICS RENEWED CURRICULUM FREQUENTLY ASKED QUESTIONS DECEMBER, 2009**

- 1. Are Saskatchewan teachers teaching the Western Northern Canadian Protocol (WNCP) or the SK curriculum?*

Teachers in Saskatchewan schools teach the provincial curriculum developed by the Ministry of Education. Provincial mathematic curricula are based on the WNCP framework. The WNCP did not create a curriculum; it created a framework for K-9 mathematics, and a framework for 10-12 mathematics. This framework may be used by each jurisdiction within the WNCP (and now outside the WNCP – all of Atlantic Canada is also adopting the framework) as the basis for the development of their local curricula. In Saskatchewan, the Ministry of Education is adapting the framework to align with the Ministry's curriculum renewal.

- 2. How is SK mathematics curricula different from the WNCP framework?*

There are three main ways the SK curricula differ from the WNCP framework.

Firstly, in the WNCP framework, there are some outcomes which are very closely related to each other, but written as separate outcomes. Part of the focus in the Ministry's curriculum renewal is to create rich outcomes that will bring about deep understanding. For this reason, some outcomes in the WNCP framework have been combined into single outcomes in the SK curricula. In addition, the topics within the outcomes in the SK curricula are no longer spread across multiple grades, and these topics provide a wider focus than the topics contained within our original objectives.

Secondly, the indicators in the WNCP do not include pedagogy. Words like "share", "analyze", and "generalize" could not be used because they were seen to dictate how teachers were to teach. The result is that very few, if any, indicators in the WNCP go beyond the lowest three levels of Bloom's taxonomy (knowledge, comprehension, and application). As a part of the Ministry's renewed curricula, one of the aims is to move student learning into deep understanding or, in other words, into the higher levels of Bloom's taxonomy. In the SK curricula, the indicators have been rewritten to demonstrate this higher level of thinking.

Finally, the SK mathematics curricula foundationally include First Nations and Métis content, perspectives, and ways of knowing throughout the documents.

**3. *How do the new Math Pathways at the Secondary Level align with other Provinces and Territories?***

- BC, the Territories, and Manitoba: 100% match
- Alberta: nearly a 100% match, but their Foundations of Mathematics pathway contains additional topics
- Atlantic Provinces: some are considering or are in the process of adopting the WNCP framework.
- Ontario and Quebec: continue to work with their own provincial curricula

**4. *How will students know which pathway to choose?***

The Ministry is recommending that students enrol in both Grade 10 pathways. This will allow students to identify the math that is most suitable for them, as well as allow students to complete any single pathway in one year. The most important thing to understand about the pathways is that they are **PATHWAYS** and **NOT STREAMS**. Think of the pathways like the sciences in grades 11 and 12. There is no intended hierarchy among biology, chemistry, and physics. Similarly, there is no hierarchy among Workplace and Apprenticeship, Foundations of Mathematics, and Pre-calculus. They are different types of mathematics for different purposes.

Students **MUST NOT** be routed into any pathway based on their math ability. Students choose the appropriate math pathway(s) based on what they currently believe will best meet their interests and needs after high school. There are many ways that schools can support students to come to better understand which pathway(s) is the best fit for them. One way is to use the new Career Education courses in Grades 6-9 to support student understanding.

**5. *How is information explaining the new Secondary Level Math Pathways being communicated to parents?***

The Ministry has created a parent pamphlet that explains all three Secondary Level pathways. This pamphlet has been distributed electronically to school divisions.

**6. *What do the students who require a modified math take?***

Students who legitimately need to have a modified math program (i.e., the decision to place the student in modified math is based on the student's knowledge and ability rather than on the student's behaviour, attendance, or attitude) should continue with the current Math 11 and 21 courses. In the future, the Ministry will support the development of courses that will meet the needs of students who require modified programming.

**7. *Can a student take more than one pathway?***

Yes, they will receive credits for all courses taken. Students can also take courses from different pathways at the same time, but not courses from the same pathway concurrently.

**8. What if a student decides to change pathways?**

In order to take any grade 11 course, the student must have the pre-requisite grade 10 course from that pathway; similarly, in order to take any grade 12 course, the student must have the pre-requisite grade 11 course from that pathway. Much of the content in one grade of a pathway builds upon the content of the previous grade of that pathway.

**9. When should school divisions expect textbooks and curriculum documents?**

The table below provides the dates for the implementation of the grades 10 -12 courses, a date when recommended resources will be officially listed, and the projected dates for curriculum documents which will be available online in both English and French. Because Calculus does not fall under the WNCP, the development and/or approval of resources does not have a time frame.

Implementation (French and English)	Date	Resources Listed	Curriculum Documents
Grade 10: Fall 2010		April 2010	April 2010
Grade 11: Fall 2011		April 2011	December 2010
Grade 12: Fall 2012		April 2012	April 2011
Calculus: Feb. 2013		?	December 2012

**10. What resources will be available for each of the courses?**

All recommended resources will be listed on the WNCP website: [www.wncp.ca](http://www.wncp.ca)

Available Spring 2010:

Workplace and Apprenticeship 10: One resource in both English in French.

Foundations of Mathematics and Pre-calculus 10: Two resources; only one in French.

Available Spring 2011: One resource for each 20 level course in English and French.

Available Spring 2012: One resource for each 30 level course in English and French.

**11. What is the plan for French Immersion? Are all the resources going to be available in French?**

The French and the English curricula and resources will be available at the same time. The resources available in English will also be available in French, with the exception of a second resource for Foundations of Mathematics and Pre-calculus 10.

**12. What is happening with accreditation and credit requirements?**

No changes at this time. Students still require a 20 level math credit to graduate and the process for becoming accredited remains the same.

**13. What will the post-secondary mathematics entrance requirements be?**

The post-secondary institutions are currently determining their entrance requirements. Once we receive this information it will be provided to schools via their school division offices.

**14. How much longer will schools be able to offer the old math courses? For example, will schools be able to offer Math 10 during the 2010/2011 school year, and Math 20 next year and Math A30 the year after for those students who are still on the old curriculum?**

Math 10 will no longer be available after the 2009/2010 school year. Math 20 will no longer be available after the 2010/2011 school year. Math A30, Math B30, and Math C30 will no longer be available after the 2011/2012 school year.

**15. What pre-requisites will students need if they are transitioning from the old math program to the new math program?**

The table below describes possible transitions from Math 10/20/A30/B30/C30 to the New Math Pathways. **Additional chart showing pre-requisites and possible transitions.**

If a student has received a credit for:	They may choose from the following courses:	They cannot get credit for:
Math 10	<ul style="list-style-type: none"> <li>• Workplace and Apprenticeship 10</li> <li>• Foundations of Mathematics 20</li> <li>• Workplace and Apprenticeship 20*</li> <li>• Pre-calculus 20</li> </ul>	<ul style="list-style-type: none"> <li>• Foundations of Mathematics and Pre-calculus 10</li> </ul>
Math 20	<ul style="list-style-type: none"> <li>• Workplace and Apprenticeship 10</li> <li>• Workplace and Apprenticeship 20*</li> <li>• Foundations of Mathematics 20</li> <li>• Foundations of Mathematics 30*</li> <li>• Workplace and Apprenticeship 30*</li> <li>• Pre-calculus 20</li> </ul>	<ul style="list-style-type: none"> <li>• Foundations of Mathematics and Pre-calculus 10</li> </ul>
Math A30	<ul style="list-style-type: none"> <li>• Workplace and Apprenticeship 10</li> <li>• Workplace and Apprenticeship 20*</li> <li>• Foundations of Mathematics 30</li> <li>• Workplace and Apprenticeship 30*</li> <li>• Pre-Calculus 30*</li> </ul>	<ul style="list-style-type: none"> <li>• Foundations of Mathematics and Pre-calculus 10</li> <li>• Foundations of Mathematics 20</li> </ul>
Math B30	<ul style="list-style-type: none"> <li>• Workplace and Apprenticeship 10</li> <li>• Workplace and Apprenticeship 20*</li> <li>• Workplace and Apprenticeship 30*</li> <li>• Pre-calculus 30</li> </ul>	<ul style="list-style-type: none"> <li>• Foundations of Mathematics and Pre-calculus 10</li> <li>• Foundations of Mathematics 20</li> <li>• Foundations of Mathematics 30</li> <li>• Pre-Calculus 20</li> </ul>
Math C30	<ul style="list-style-type: none"> <li>• Workplace and Apprenticeship 10</li> <li>• Workplace and Apprenticeship 20*</li> <li>• Workplace and Apprenticeship 30*</li> <li>• Calculus 30</li> </ul>	<ul style="list-style-type: none"> <li>• Foundations of Mathematics and Pre-calculus 10</li> <li>• Foundations of Mathematics 20</li> <li>• Foundations of Mathematics 30</li> <li>• Pre-calculus 20</li> <li>• Pre-calculus 30</li> </ul>

\* Teachers will need to supplement the content of this course with content from the previous grade or grades in this pathway.

***16. Which of the new mathematics courses will be accepted as a pre-requisite for Physics 30?***

Until the Physics 20 and 30 curricula are renewed, Physics 30 can be taken if a student has received credit for any of the new 20 level mathematics courses. Physics 20 and Math A30 also continue to serve as a pre-requisite. The pre-requisites will be re-examined when the Physics curricula is renewed.

***17. Many schools in our division currently offer a Math 10/20 course (Math 10 and Math 20 over three semesters). This year we have several sections of Math 10/20 starting in the second semester. This means that students will be taking Math 10 for 1.5 semesters and the Math 10 final mark will not be sent to the ministry until January 2011. Will the Ministry grant the credit for Math 10?***

Yes, provided your school division has contacted student records and obtained permission to submit the Math 10 mark for those specified students in January of 2011.

***18. In my division, there are some Grade 9 students who are currently taking Grade 10 math this semester. Will these students be able to obtain credits for Math 10, Workplace & Apprenticeship 10, and Foundations and Pre-calculus 10?***

Students can obtain credit for Math 10 and Workplace and Apprenticeship 10 but they may not receive credit for Math 10 and Foundations and Pre-calculus 10. These students could also take Math 20 and move ahead if they are in the AP program and are planning on taking Math A30, Math B30 and Math C30 during their grade 11 year.

***19. Is the Calculus curriculum changing as well?***

Yes, the Ministry is planning to renew the Calculus curriculum for the 2012 school year. The changes in the content of the Pre-calculus pathway have caused parts of the current Calculus curriculum to be redundant. These redundancies will be addressed in the new Calculus curriculum, along with a shift in the philosophy and design to align the curriculum with the new pathways. Additional content will not be added to the new curriculum.

***20. In order to offer the AP Calculus option to students, students need the full Grade 12 year to prepare for the exam in May. Will school divisions still be able to offer the AP Calculus option under this new framework? Are school divisions able to offer Pre-calculus 30 early (in the second semester of 2011 – 2012)?***

Yes, AP Calculus is still viable under this new framework; however, students cannot receive credit for any of the new Secondary Level courses prior to the year of implementation (2010-2011 for grade 10, 2011-2012 for grade 11, and 2012-2013 for grade 12). School divisions may not offer Pre-calculus 30 early. Below is an implementation plan that the Ministry will support.

This schedule involves students taking Math B30 and Math C30 concurrently. Each of these courses is designed so that they could be taken concurrently. Just as taking two

math courses from different pathways, or taking two arts classes, two science classes, or two social science classes in the same semester, this option is doable.

Fall 2010 Grade 10 Students Starting 3 Year Program

Year	Grade	Courses Taken
2010 – 2011	10	Foundations of Mathematics and Pre-calculus 10 (New) Math 20 (Current)
2011 – 2012	11	Math A30 (Current) Math B30 (Current) Math C30 (Current)
2012 – 2013	12	AP Calculus

(Current) – refers to the mathematics courses: Math 10, 20, A30, B30, C30.

(New) – refers to the three Math Pathways: Workplace and Apprenticeship, Foundations of Mathematics, and Pre-calculus.

Note: A variation to this option is to take 3 mathematics courses during the grade 10 year.

Fall 2011 Grade 10 Students Starting 3 Year Program

Year	Grade	Courses Taken
2011 – 2012	10	Foundations of Mathematics and Pre-calculus 10 Pre-calculus 20
2012 – 2013	11	Pre-calculus 30
2013 – 2014	12	AP Calculus

Note: Students would also be able to take Foundations of Math or Workplace and Apprenticeship in addition tot Pre-Calculus.

***21. Will Grade ten students who start on the new pathways in 2010 / 2011 in the first semester be able to take the ‘old’ math and take Math 20 in the second semester?***

Yes, you may go ahead with this plan; however, it is not recommended by the Ministry. The Ministry recommends that most students beginning the new math pathways in the 2010 / 2011 school year take the two grade ten courses in alternate semesters. The students taking Math 20 in the second semester should be your AP students who are planning on taking Math A30, Math B30, and Math C30 in their Grade 11 year. The exception to this statement is those students in the 2010/2011 year who are entering grade 10 in an AP program. For those students, it may be necessary for them to move between the “old” and “new” math programs because credits for the “new” programs cannot be received ahead of the implementation schedule.

***22. What types of creative timetabling could be used to accommodate the schools with limited staff?***

Options may include:

- Distance learning.

- Alternating the years that Workplace and Apprenticeship and Foundations of Mathematics are offered in grades 11 and 12. Offering pathways in alternating years. For example Physics and Chemistry are sometimes offered this way.
- Multi-graded classroom