

Mathematics 10 to 12

- Foundations of Math
- Workplace and Apprenticeship Math
- Pre-Calculus

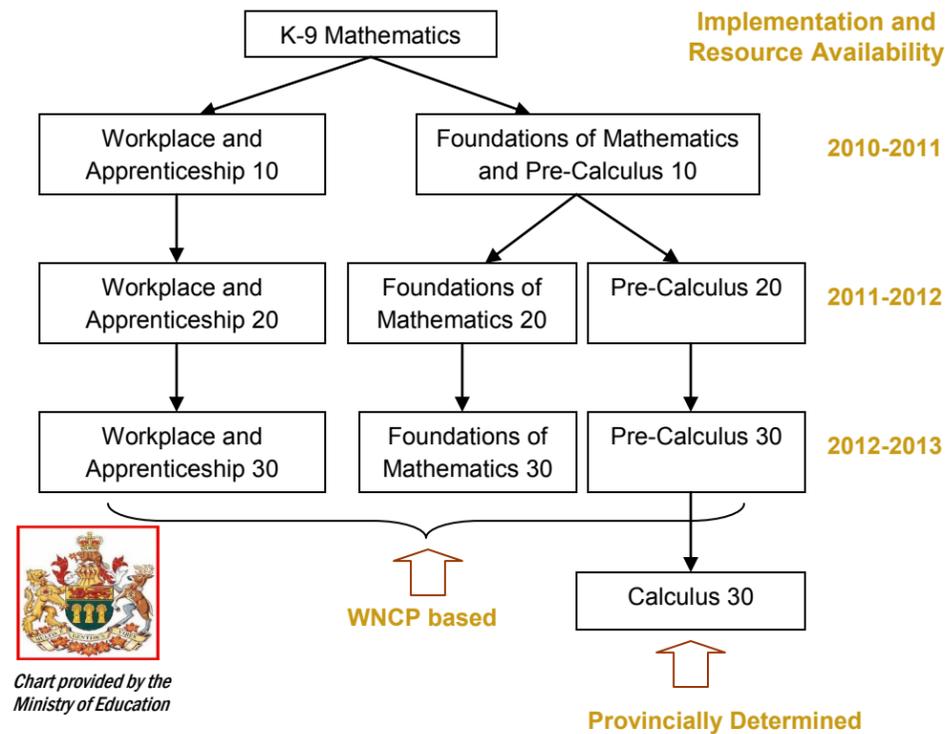


Chinook School Division

IMPLEMENTATION PLAN

Mathematics 10 to 12

Three Mathematics Pathways



Implementation Background

The Saskatchewan Ministry of Education worked with the Western and Northern Canadian Protocol (WNCN) partners to establish a common framework for the entire K-12 math curriculum. This common framework means that the curriculum will be similar across all of Western Canada. This new curriculum was in-

troduced in our K-9 classrooms starting in 2007. It will be introduced in grade 10 for the start of the 2010 school year.

Planning and work toward implementing this new math curriculum has

been lead in Chinook by the Division Math Committee. A principal focus group is also working to identify challenges faced by schools and solutions as we move forward

with implementation in our high schools.

Ministry Website
www.education.gov.sk.ca

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Special points of interest:

- Grade 12 graduation requirements will continue to be a Math 20 class.
- The Ministry recommends that grade 10 students take both Workplace and Apprenticeship and the Common Foundations of Mathematics and Pre-calculus 10 classes.
- The Grade 10 curriculum and resources will be available in winter 2010

Winter 2010

Overview of the Three Pathways

The three mathematics pathways proposed by the WNCP resulted from extensive research with post-secondary institutions, business and employers across Western and Northern Canada. The pathways are based on the types of mathematics required in different categories of post-secondary education or employment.

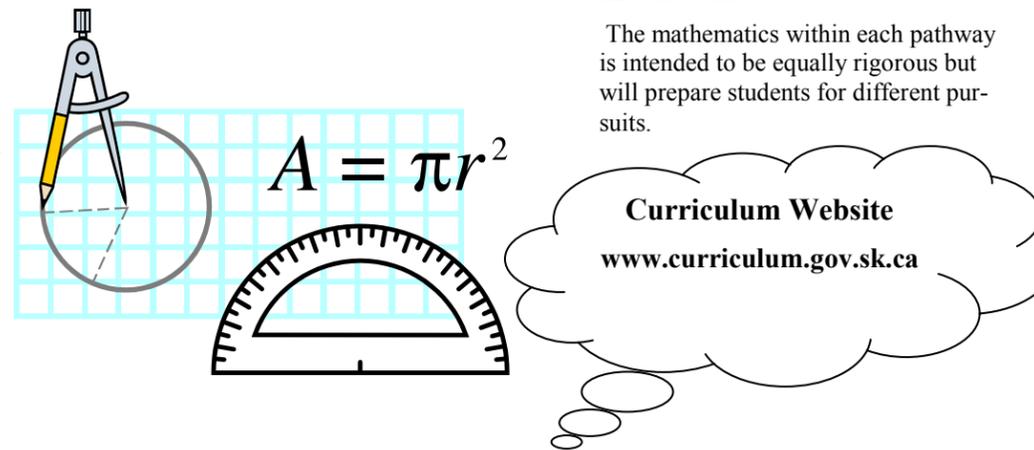
Those students who plan to enter the trades or work force are advised to take Workplace and Apprenticeship Mathematics. Topics in this pathway include algebra, geometry, measurement, number, statistics and probability.

For students entering post-secondary studies that do not

require the study of calculus, the Foundations of Mathematics strand is recommended. Topics in this pathway include financial mathematics, geometry, measurement, number, logical reasoning, relations and functions, statistics and probability.

The Pre-calculus pathway is recommended for students entering post-secondary programs that require the study of calculus. Topics include algebra and number, measurement, relations and functions, trigonometry, and permutations, combinations and binomial theorem.

The mathematics within each pathway is intended to be equally rigorous but will prepare students for different pursuits.



Staffing and Timetabling

The process for a staff member to receive accreditation will continue as it is at present as outlined in the Accreditation (Initial and Renewal): Policies and Procedures, June 2002 document.

Those staff members that are accredited with the prior Math 30 classes will continue to be accredited with the new Math 30 pathways in that their accreditation will be grandfathered.

Although larger high schools in our division may not require assistance in offering all math classes, some of our smaller student population high schools may. As a result, Chinook will begin to offer courses on-line, making all pathways available to all students in the Chinook School Division,

“On-line learning will ensure that all pathways are accessible to all students in Chinook”

regardless of the size of the school they attend. At present, Calculus 30 is offered in this manner in our school division and this service will be expanded to include additional math classes as they are needed.

Resources

The Ministry is advocating a multi-resource approach, however, key resources are being developed by proposal to the WNCP governing body.

For the Workplace and Apprenticeship pathway, the Pacific Educational Press has been awarded a contract to produce resources for all three courses, 10, 20 and 30.

For the Common 10 (Foundations and Pre-Calculus 10) proposals have been

accepted by both McGraw Hill Ryerson and Pearson.

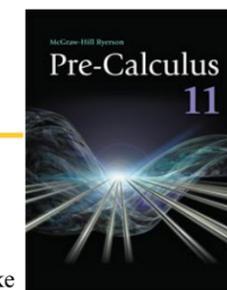
McGraw Hill Ryerson has been awarded the contract to produce resources for both Pre-Calculus 20 and 30.

The key resource contract has yet to be announced for the Foundations of Mathematics 20 and 30 courses.

The curriculum and key resources for the grade 10 math pathways will be available in February of 2010. At this point, the

Division Math Committee will lead a review of the resources and with feedback from schools will make a recommendation as to which text will be purchased by the division.

Addition support and manipulative materials will also be provided as those lists are developed by the Ministry.



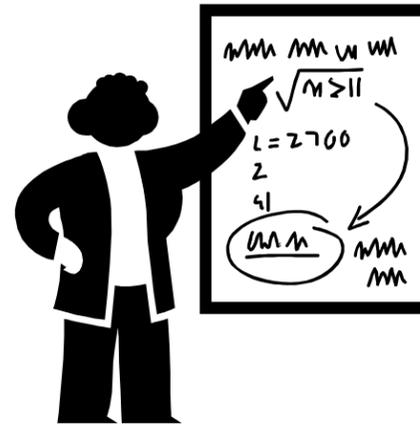
Mathematics Courses for Grades 10, 11, and 12

The Ministry is recommending that grade 10 students take both the Workplace and Apprenticeship class as well as the Common 10 (Foundations and Pre-Calculus combined) class. These courses will be offered next year in all of our schools. This will give students an opportunity to experience all three pathways and allow them to choose any of the pathways in their grade 11 year.

It is possible for a student to take more than one pathway of mathematics in grades 11 and 12 as long as they have the pre-requisite courses.

When transferring from province to province, students will find identical mathematics pathways in each of the provinces adopting the WNCP includ-

ing British Columbia, Alberta, Saskatchewan, Manitoba, the Territories and possibly even several of the Maritime provinces.



The current Math 11 and 21 courses will continue to be offered as they are at present until such a time as the Ministry has an opportunity to develop new modified courses.

Calculus 30 will continue to be offered as well until it can be renewed since several introductory units will become redundant to students entering from the Pre-calculus pathway.



Parent Information and Student Counseling

To ensure that students choose the pathway(s) most suitable to their needs, it will be necessary for them to receive relevant and timely information.

Currently, the Ministry has produced an informational brochure outlining the three pathways. This brochure will be distributed in January 2010 to each school. The schools will then forward the brochure to each grade 9 student.

Currently, the Ministry is developing a web link to which teachers and counselors can refer students and parents for information. The Ministry is also creating a Power Point presentation that can be used at parent informational evenings.

"Relevant and timely information will help students choose the pathway most suitable to their needs."

Information from post-secondary institutions in Saskatchewan regarding mathematics entrance requirements has not been released as it is in the developmental phase. As soon as the information is

available, it will be forwarded to all schools.

Professional Development Opportunities

The key resources for the three pathways will undoubtedly provide many useful teaching suggestions.

In additional professional development opportunities are planned to prepare teachers for the new curriculum. All grade 10 math teachers will be provided with three days of curriculum in-service this winter and spring.

Teachers will work in teams to "unwrap" the new curriculum. They will be lead

through the Understanding by Design process that has been used as the model for our middle years teachers as they have been introduced to their new curriculum this fall. Specific details will be coming out in January regarding these workshops

- | Workshop Dates | |
|----------------|------------------|
| • | February 8, 2010 |
| • | March 15, 2010 |
| • | May 17, 2010 |



Implementing the Three Pathways

First Year of Implementation			Year	
Workplace and Apprenticeship 10 <i>(new course)</i>	Foundations of Mathematics and Pre-Calculus 10 <i>(new course)</i>	Math 20 (where needed), Math A30, B30, C30 Math 11, 21 Calculus 30 <i>(may be offered on-line)</i>	2010-2011 Five or six math courses offered. plus Three offered as needed	
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Online Offerings To Be Determined</div>				
Second Year of Implementation				
Workplace and Apprenticeship 20 <i>(new course)</i>	Foundations of Mathematics 20 <i>(new course)</i>	Pre-Calculus 20 <i>(new course)</i>	Workplace and Apprenticeship 10, Foundations and Pre-Calculus 10, Math A30,(where needed), B30, C30 Math 11, 21 Calculus 30 <i>(may be offered on-line)</i>	2011-2012 Up to eight math courses offered. plus Three offered as needed
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Online Offerings To Be Determined</div>				
Third Year of Implementation				
Workplace and Apprenticeship 30 <i>(new course)</i>	Foundations of Mathematics 30 <i>(new course)</i>	Pre-Calculus 30 <i>(new course)</i>	Workplace and Apprenticeship 10 & 20, Foundations and Pre-Calculus 10, Foundations 20, Pre-Calculus 20 Math 11, 21 Calculus 30 <i>(also offered on-line)</i>	2012-2013 Eight math courses offered. plus Three offered as needed
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Online Offerings To Be Determined</div>				
Complete Implementation				
Workplace and Apprenticeship 10, 20, 30 Foundations of Mathematics and Pre-Calculus 10 Foundations of Mathematics 20, 30 Pre-Calculus 20, 30 Math 11, 21, Calculus 30			2013-2014 Eight math courses offered including two on-line courses, plus Three offered as needed	
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Online Offerings To Be Determined</div>				

Contact Information

I hope that this document proves useful for the needs of your school. Please contact me if I can provide you with additional information and/or support regarding the mathematics pathways for grades 10, 11 and 12.

Ed Varjassy
Curriculum Coordinator
Chinook School Division
 evarjassy@chinooksd.ca
 778-9200 ext 222

