MATH PATHS

Choosing The Right Path In Senior Years Math

Keep the doors open...

Sometimes there is a fear that a student will not be able to pursue some post-secondary programs or careers because they didn't take the appropriate mathematics course or they earned a low final grade. However, the door is never closed. Students determined to pursue a post-secondary education can:

• take a bridging course in math once enrolled at university. If successful, they can then go on to regular university mathematics courses.

• upgrade their courses through an additional semester of high school or through adult learning centres.

Consider post-secondary requirements

Applied or Pre-calculus mathematics are not pre-requisites for all university courses; choosing the Essential Mathematics pathway still opens many doors to post-secondary studies.

For example, here is what you can study at the University of Manitoba with Grade 12 Essential Mathematics:

• School of Agriculture (2 yr. diploma)

• School of Art (studio degree)

• School of Art (diploma)

• Environmental studies

• Geological Sciences

• Geography (B.A.)

• Fine Arts (art history)

• Human Ecology

• Kinesiology and Recreation Management

• Law (admission based on two years of university course work...)

• Occupational Therapy

• Nursing

• Social Work

• Music

Most Red River College programs require a Manitoba graduation diploma (any mathematics course is accepted). They include:

• Aboriginal Education

• Business Education (except Aviation and Health Information Management)

• Community Services

• Computers and Information Technology (except Network Technology)

• Creative Arts

• Health Sciences

• Hospitality

• Teacher Education

• Trades and Technology (except Power Engineering Technology)

• Transportation Technology

For more information visit:

http://umanitoba.ca/student/media/FINAL_MB_Mini-Wall_2012-2013.pdf

http://www.rrc.mb.ca/files/file/admissions/VIEWBOOK_20122013_WEB.pdf

or check admission requirements at the post-secondary institution of your choice.

For further reading about the senior high mathematics curriculum, go to the Manitoba Education website at: http://www.edu.gov.mb.ca/k12/cur/parents/senior/math.html

For more information about the math courses at your school, speak to the mathematics teacher.
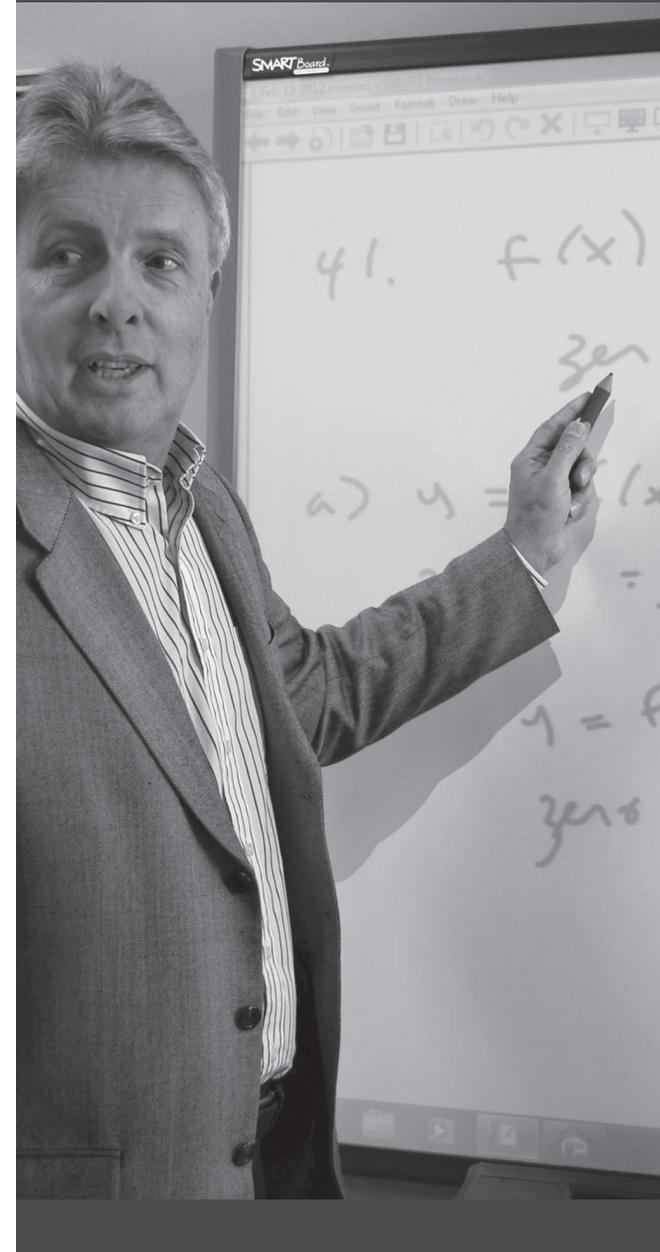
River East Transcona
SCHOOL DIVISION

This guide is designed to help you choose the mathematics course that is the best fit for your son or daughter. It provides information about the different pathways (Applied, Essential, Pre-Calculus), typical post-secondary requirements, and suggestions for considering your son's or daughter's interests and abilities.

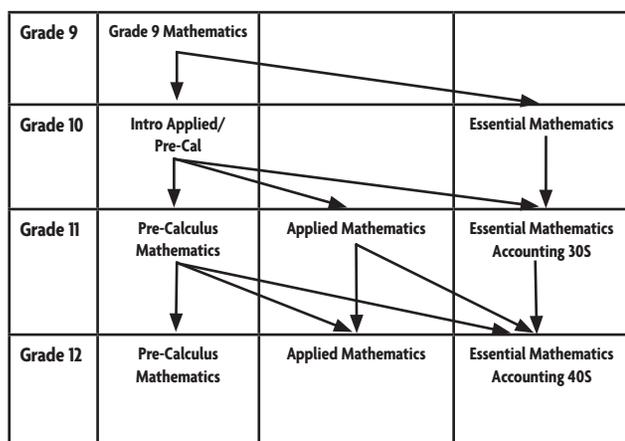## The Senior Years Mathematics Program

The senior years mathematics curriculum in Manitoba is divided into three pathways:

- Applied
- Essential
- Pre-Calculus

To graduate, students must earn four credits in mathematics over the course of their senior years.

Note: Accounting 30S and 40S may also be used for credit towards graduation.

The chart below shows possible pathways for students to follow as they move towards graduation.

Grade 9	Grade 9 Mathematics		
Grade 10	Intro Applied/ Pre-Cal		Essential Mathematics
Grade 11	Pre-Calculus Mathematics	Applied Mathematics	Essential Mathematics Accounting 30S
Grade 12	Pre-Calculus Mathematics	Applied Mathematics	Essential Mathematics Accounting 40S

Grade 9 Mathematics

This course begins to introduce more abstract math concepts. Algebra and the use of integers and fractions are critical skills. This is a time when establishing good work habits in math is critical to ensure future success.

Grade 10 Introduction to Applied/Pre-Calculus

This introductory course prepares students for both applied and pre-calculus mathematics. Number, linear functions, and trigonometry are key topics. It also includes an introduction to graphing technology (e.g., graphing calculator). Regular homework is expected.

Grade 10 Essential Mathematics

Topics include measurement, trigonometry, personal finance and consumer decisions. Most work is done in class with guidance from teachers.

Grade 11 Applied Mathematics

Topics include measurement, geometry, proofs of properties, statistics and functions. Regular homework is expected.

Grade 11 Essential Mathematics

Topics include interest and credit, managing money, 3-D geometry, statistics, relations and patterns, and trigonometry. Most work is done in class with guidance from teachers.

Grade 11 Pre-Calculus

Topics include sequences and series, quadratics equations, radicals, trigonometry and systems of equations. Skills learned in earlier grades are essential to success with these new topics. Regular practice and homework is essential.

Grade 12 Applied Mathematics

Topics include compound interest, investments, probability, polynomial functions, design and measurement. The provincial exam (final) is compulsory for students and includes a written test as well as a project section. Regular practice and homework is essential.

Grade 12 Essential Mathematics

Topics include vehicle finance, career life project, geometry and trigonometry, and probability. The provincial exam (final) is compulsory. Most work is done in class with guidance from teachers.

Grade 12 Pre-Calculus

Topics include trigonometric functions, exponents and logarithms, permutations and combinations. A solid foundation of skills from grades 10 and 11 are important to understanding these more complex ideas. A provincial exam (final) is compulsory for all students. Regular practice and homework is essential.

The adolescent learner

By the time your son or daughter reaches high school, they are typically capable of identifying how they learn, and where their strengths and interests lie. This knowledge will help them understand which math pathway will lead to the greatest success for them. Making the right course selection should be a joint decision between you and your son or daughter.

Set your goals high but...

Educators and parents hope for and encourage success in studies. Parents of struggling students are often hopeful their children will succeed through greater effort and engagement. Though this happens in some cases, in other cases it may not, for several reasons. Students' strengths and interests may lie in other areas. In that case, a more practical mathematics course will be helpful and still meet the course requirements for graduation and many post-secondary education opportunities.

The bottom line: telling a struggling learner to just try harder may actually do more harm than good. In this case, the emphasis should be on making a different course choice.