Ontario	**Ontario Ministry of Education** www.edu.gov.on.ca /eng/	Toronto District School Board	**Toronto District School Board** *www.tdsb.on.ca*		**R.H. KING ACADEMY** *http://schools.tdsb.on.ca/rhking/*

COURSE OF STUDY OUTLINE			
Department	*Mathematics*	**Course Type**	*University/ College*
Curriculum Leader	*B. Leszcz*	**Grade**	*11*
Course Title	*Grade 11 Functions and Applications*	**Credit Value**	*One*
Course Code	*MCF3M*	**Prerequisites**	*MFM2D/ MPM2P*
Ministry Document	*The Ontario Curriculum. http://www.edu.gov.on.ca/eng/curriculum/secondary/math.html*		
Learning Resources	(Mathpower 10, Ontario Edition, McGraw Hill, 2000		

Functions and Applications Grade 11, (MCF3M)
R.H. King Academy, TDSB

2017-2018

Curriculum Leader: B. Leszcz

Policy Document: *The Ontario Curriculum Grade 11 and 12 (2007 Revised)*

Prerequisites: Principles of Mathematics, Grade 10, Academic, *or* Foundations of Mathematics, Grade 10, Applied

Value: 1 Credit

Textbook: Functions and Applications 11; Nelson 2008

Overall Goals: This course introduces basic features of the function by extending students' experiences with quadratic relations. It focuses on quadratic, trigonometric, and exponential functions and their use in modelling real-world situations. Students will represent functions numerically, graphically, and algebraically; simplify expressions; solve equations; and solve problems relating to applications. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

Curriculum:

Quadratic Functions

- expand and simplify quadratic expressions, solve quadratic equations, and relate the roots of a quadratic equation to the corresponding graph;
- demonstrate an understanding of functions, and make connections between the numeric, graphical, and algebraic representations of quadratic functions;
- solve problems involving quadratic functions, including problems arising from real-world applications.

Exponential Functions

- simplify and evaluate numerical expressions involving exponents, and make connections between the numeric, graphical, and algebraic representations of exponential functions;
- identify and represent exponential functions, and solve problems involving exponential functions, including problems arising from real-world applications;
- demonstrate an understanding of compound interest and annuities, and solve related problems.

Trigonometric Functions

- solve problems involving trigonometry in acute triangles using the sine law and the cosine law, including problems arising from real-world applications;
- demonstrate an understanding of periodic relationships and the sine function, and make connections between the numeric, graphical, and algebraic representations of sine functions;
- identify and represent sine functions, and solve problems involving sine functions, including problems arising from real-world applications.

Learning Skills:

The learning skills (Responsibility, Organization, Independent Work, Collaboration, Initiative, and Self Regulation) are critical for the achievement of the curriculum expectations and student success. Students are expected to attend every class, complete all homework and insure that assignments are completed and handed in on time.

Strategies:

Students will have the opportunity to learn in a variety of ways –individually, cooperatively, independently, with teacher direction, through hands-on experience, and through examples followed by practice. The approaches and strategies used in the classroom to help students meet the expectations of this curriculum will vary according to the objectives of the learning and the needs of the students. It is important for students to take every opportunity to learn the material covered prior to the evaluation.

Evaluation:

Seventy per cent of the grade will be based on evaluations conducted throughout the course. Evaluations will be in the form of tests, quizzes, and assignments. Assignments for evaluation may include rich performance tasks, demonstrations (board work), and projects. This portion of the grade will reflect the student's most consistent level of achievement throughout the course.

Thirty per cent of the grade will be based on a final assessment administered towards the end of the course. The final exam allows the student an opportunity to demonstrate comprehensive achievement of the overall expectations for the course.
Students will be given numerous and varied opportunities to demonstrate the full extent of their achievement of the curriculum expectations (content standards) across all four categories of knowledge and skills.
Teachers will ensure that student learning is assessed and evaluated in a balanced manner with respect to these four categories:

1. **Knowledge and Understanding** Subject specific content acquired in each course, and the comprehension of its meaning and significance.
2. **Thinking** The use of critical and creative thinking skills and/or processes.
3. **Communication** The conveying of meaning through various forms.
4. **Application** The use of knowledge and skills to make connections within and between various contexts.

Term Grades for Provincial Reports Throughout the Year:

The midterm mark will be based on the evaluations that have been conducted to that point in the course and will be preliminary and tentative. This mark will be based on the most consistent level of achievement to that point in time, but some of the overall expectations, strands, and units will not have been addressed and the student's grades will most likely change when the student's entire work is evaluated by the end of the course.

Evaluation Plan

Functions and Applications, Grade 11 (MCF3M)

Term Work- 70% Final Evaluation – 30%

- Quizzes, assignments, projects 10%
- Tests 50%
- Independent Study Assignments* 10%
- *At RH King one of our unique features is a focus on ISUs, or Independent Study Units. In Grade 11 Mathematics, an ISU is a small assignment that is given to students to complete., 4-5 times through the semester. The assignments are based upon extensions of the content being learned in the classroom at the time the assignment is given. In most cases students are given a week to complete the 1-1.5 hour worksheet. Support is provided during Clinic, after school, or even during class time, at the students' request. The intent is to facilitate learning the responsibility required to complete a task, on time, and learning to seek out help, should it be needed, to be able to complete the task. These skills promote the students' growth towards becoming independent learners.

Course Work

Unit 1: Review Prerequisite Skills	(2 weeks)
Unit 2: Graphing Parabolas; Max/Min Applications	(3 weeks)
Unit 3: Quadratic Equations and Applications	(2 weeks)
Unit 4: Trigonometric Functions	(2 weeks)
Unit 5: Periodic and Sine Functions	(2 weeks)
Unit 6: Exponential Functions	(3 weeks)
Unit 7: Compound Interest and Annuities	(2 weeks)
Review and Preparation for Evaluations:	(1 week)