

*Course Title*

**Grade 11 Applied Math**

*Course Description*

Grade 11 Applied Mathematics is directed to students planning to enter science, engineering or the high-tech world of work. This course is available to students planning to pursue post-secondary studies in mathematics and science. Grade 11 Applied Mathematics is data driven. Students collect data in experiments and activities, and develop mathematical concepts from analysis of that data.

***Mathematics - General Learning Outcomes***

1. Value the importance of mathematics in a wide variety of situations.
2. Investigate mathematical situations and present results using mathematical language.
3. Work both individually and cooperatively in small group situations.
4. Solve problems using a variety of techniques and communicate solutions in oral and written forms.
5. Use technology to learn new mathematical content.
6. Take personal responsibility for the mastery of concepts and skills.
7. Be able to use metric and imperial units of linear measure.
8. Demonstrate facility with technical communication.

**Note:** These learning outcomes are common through the 3 levels of Applied Mathematics and once acquired in Grade 10 Applied, will be extended in Applied 11 and 12. For example, the degree of student independence expected in Applied grade 12 is higher than that of Applied grade 10, where this skill has first been developed.

## Units of Study:

1. Technical Communication ( Integrated in units 2 through 10)
2. Graphing/Systems of Linear Equations
3. Linear Programming
4. Quadratic Functions
5. Non Linear Equations
6. Personal Finance: Section A
7. Personal Finance: Section B
8. Data Management
9. Circle Geometry
10. Precision Measurement

**Note:** A student work book is provided to each student. This work book includes most of the assignments used during the course and has answer keys with detailed explanations for many of these assignments.

## Evaluation Format:

Several types of evaluation will be used in the course. This will allow students to display their level of learning in a variety of manners and also expand their skill levels in different presentation methods. The approximate mark values for each of these methods will be as follows:

Unit Tests/Projects 50%  
(These tests will be used to monitor student's concept development and mastery. Testing will be **cumulative** to constantly encourage student's recall of the entire course at any point).

Take Home Assignments 25%  
(Will be used to assess student's skill development in use of technology, independent and group work skill, and quality of work). Assignments and projects will also be used to prepare students for the 40 Applied provincial assessment.

Final Exam 25%  
(To determine student's mastery of overall course content.)

## Unit Outlines

### Unit # 1 Title: Linear Equations

**Timeline:** February 2 – February 12

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Manipulation of linear equations
- Graphic production of linear equation
- Solving x and y intercepts
- Solving intersection of linear equations
- Application of linear equations to practical situations

**Assessment and Evaluation Descriptors:**

- Assignment - 25 marks
- **Unit Test # 1 – February 12** - 50 marks

**Resources:**

Graphing calculators  
Computers  
Applied Math Grade 11 Exercise Book

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### Unit # 2 Title: Linear Programming (Linear Inequalities)

**Timeline:** February 16 – February 25

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Graphing inequalities in one variable
- Graphing linear inequalities in 2 variables
- How to prepare solutions on graphing calculator
- Solving systems of linear in equations
- Practical applications of systems of in equations

**Assessment and Evaluation Descriptors:**

- Assignment - 25 marks
- **Unit Test # 2– February 25** - 50 marks

**Resources:**

Graphing calculators  
Computers  
Applied Math Grade 11 Exercise Book

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### Unit # 3 Title: Quadratic Functions

**Timeline:** March 1 – March 12

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Concept of quadratic function.
- Introduce parabolic curve, vertex, x intercept(s), y intercept, axis of symmetry, maximum or minimum values
- Look at situation that result in maximum or minimum values using computer
- Applications involving maximum or minimum situations using graphing calculator

**Assessment and Evaluation Descriptors:**

- Assignments - 25 marks
- **Unit Test # 3 – March 12** - 50 marks

**Resources:**

Graphing calculators  
Computer  
Applied Math Grade 11 Exercise Book

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### Unit # 4 Title: Other Non Linear Functions

**Timeline:** March 15 – March 26

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Concept of Cubic functions
- Concept of Exponential functions
- Exponential Growth vs. decay
- Step or Piece Wise Functions

**Assessment and Evaluation Descriptors:**

- Assignments - 25 marks
- **Unit Test # 4 – March 26** - 50 marks

**Resources:**

Graphing calculators  
Computers  
Applied Math Grade 11 Exercise Book

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## Unit # 5 Title: Personal Finance (Part 1)

**Timeline:** April 5 – April 22

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Gross pay vs. Net pay
- Deductions of Net pay (CPP, EI, and Tax)
- Property Tax
- Currency Exchange
- Unit Pricing
- Balancing a chequebook
- Cheque reconciliation
- Cash proofs

**Assessment and Evaluation Descriptors:**

- |                                   |   |          |
|-----------------------------------|---|----------|
| • Assignment                      | - | 25 marks |
| • <b>Unit Test # 5 – April 22</b> | - | 50 marks |

**Resources:**

Graphing calculators  
Computers  
Applied Math Grade 11 Exercise Book

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## Unit # 6 Title: Personal Finance (Part 2)

**Timeline:** April 23 – May 5

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Budgeting
- Simple Interest
- Compound Interest
- Use of Calculator for Finance questions involving investment/loan situations
- Exponential Data

**Assessment and Evaluation Descriptors:**

- |                                |   |          |
|--------------------------------|---|----------|
| • Assignment                   | - | 25 marks |
| • <b>Unit Test # 6 – May 5</b> | - | 50 marks |

**Resources:**

Graphing calculators  
Applied Math Grade 11 Exercise Book

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## **Unit # 7 Title: Data Management**

**Timeline:** May 6 – May 14

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Review of graphical presentations of data
- Time series data and its analysis
- Deceptive graphs
- Glyphs

**Assessment and Evaluation Descriptors:**

- Assignments - 25 marks
- **Unit Test # 7 – May 14** - 50 marks

**Resources:**

Graphing calculators  
Internet  
Word Processing  
Geometer's Sketchpad  
Applied Math Grade 11 Exercise Book

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## **Unit # 8 Title: Circle Geometry**

**Timeline:** May 17 - May 28

**Teacher:** Mr. S. S. Bath

**Specific Learning Outcomes:**

- Terminology of circle geometry: radius, diameter, inscribed vs. central angle, arc length, arc angle, tangent line.
- The various rules of circle geometry are taught using computer software to help students prepare detailed notes of each lesson

**Assessment and Evaluation Descriptors:**

- Assignments - 25 marks
- **Unit test # 8 – May 28** - 50 marks

**Resources:**

Graphing calculators  
Computers  
Applied Math Grade 11 Exercise Book

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## **Unit # 9 Title: Precision Measurement**

**Timeline:** May 31 – June 11

**Teacher:** Mr. S. S. Bath

### **Specific Learning Outcomes:**

- Scale diagrams
- Precision vs. accuracy
- Greatest possible error in measurement
- Tolerance, tolerance limits, and percent tolerance
- Allowance (Clearance vs. Interference)

### **Assessment and Evaluation Descriptors:**

- Assignments - 25marks
- **Unit Test # 9 – June 11** - 50 marks

### **Resources:**

Graphing calculators  
Applied Math Grade 11 Exercise Book

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**EXAM REVIEW – June 14 → June ????**

**EXAM DATE: TBA**