

COURSE OUTLINE
Geometry and Applications in Mathematics 111/112
2011-2012

Teachers: Bryan Carter (P4), Denny Hamilton (P3) and Jill Johnston (Math 111-P1/P6, Math 112-P2/P4)

Textbooks: Mathematical Modeling Book 2, Mathematical Modeling Book 3.

Extra Resources: Curriculum Document, Principles & Process 10, 11, 12, FMT series.

<u>UNIT:</u>	<u>TIME-LINE:</u>	<u>TOPICS:</u>
<u>Co-ordinate Geometry</u>	3 weeks	<ul style="list-style-type: none">• Slope• Linear Equations ($y = mx+b$)• Parallel & Perpendicular Lines• Finding Linear Equations ($Ax + By + C = 0$)• Distance between Two Points• Midpoint of a Line Segment• Properties of Geometric Figures (Finding the equation of Median, Altitude & Right Bisector)• Finding the Point of Intersection of Two Lines• Properties of Parallel Lines (Alternate Angles, Corresponding Angles, Interior Angles)

<u>UNIT:</u>	<u>TIME-LINE:</u>	<u>TOPICS:</u>
<u>Circle Geometry</u>	5 weeks	<ul style="list-style-type: none">• Angles in a Circle (Angle Properties I, II, III)• Major / Minor Arcs (Definitions and Naming)• Chords and Circles (Chord Properties I, II, III)• Concyclic Points & Cyclic Quadrilaterals (Cyclic Quadrilateral Properties I, and II)• Relationships with Tangents (Tangent Properties I, II, III, and IV)• Sector Area / Radius Calculations / Cones• Length of Arc Calculations• Area of a Segment• Finding Equations of Circles/Transformation of Circles {Center (0, 0) and Center (h, k)}• Finding Equations of Ellipses/Transformation of Ellipses {Center (0, 0) and Center (h, k)}

<u>UNIT:</u>	<u>TIME-LINE:</u>	<u>TOPICS:</u>
<u>Probability</u>	4 weeks	<p><i>Section 1: Probability</i></p> <ul style="list-style-type: none">• Review of Grade 9 Probability<ul style="list-style-type: none">- Sample Space- Possible Outcomes- Experimental & Theoretical Probability- Tree Diagrams- Concept of 1 / Complement• Independent and Dependent Events• Mutually Inclusive and Exclusive Events

Section 2: Permutations & Combinations

- Fundamental Counting Principle
- Factorial Notation (Definition / Symbolism)
- Permutations
- Combinations
- Applying Permutations & Combinations to Probability
- Pascal's Triangle and Combinations
- Applying Probability and Combinations to Binomial Expansions

UNIT:

TIME-LINE:

TOPICS:

Statistics

3 weeks

- Frequency Distribution / Histograms
- Measures of Central Tendency (Mean, Median, Mode)
- Measures of Dispersion (Standard Deviation – Sample / Population)
- Normal Distribution
- Sampling Techniques (Simple Random, Stratified, Cluster, Systematic / Convenience, Voluntary Response)
- Central Limit Theorem
- Confidence Intervals

UNIT:

TIME-LINE:

TOPICS:

Algebra

(If time remains)

- Review of Laws of Exponents (Product / Quotient / Power / Zero / Negative)
- Expanding and Simplifying Polynomials
- Factoring
 - Greatest Common Factor
 - Grouping to obtain a Common Factor
 - Simple Trinomials – Inspection
 - Long Trinomials – Decomposition
 - Difference of Squares
 - Perfect Squares
 - Any combination of the above

EVALUATION ⇨ Math 112

Homework / Assignments	10%
Quizzes	20%
Tests	40%
Exam (Common in District 16)	30%

EVALUATION ⇨ Math 111

Homework	Incomplete ⇨ Deductions
Assignments	10%
Quizzes	20%
Tests	40%
Exam (Common in District 16)	30%