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Leading
MATH
Success

TIPS4RM Targeted Implementation
and Planning Supports for
Revised Mathematics

Grade 10 Applied

Grade 10 Applied: Content and Reporting Targets

Explore the Grade 10 Applied mathematics program and connect to school, work, and home contexts and to possible Grade 11 and 12 pathways. This is an opportunity to help students develop pride in their chosen pathway and to recognize various Grade 11 opportunities they can choose from and prepare for.

Unit 1 – Similar Triangles	Unit 2 – Trigonometry	Unit 3 – Equations of Lines
Measurement and Trigonometry • Similar Triangles	Measurement and Trigonometry • Trigonometry of Right Triangles	Modelling Linear Relations • Equations of Lines
Rationale		
Positioning similar triangles first: • Similar triangles activities provide the opportunity for authentic tasks that appeal to kinaesthetic learners, appropriate at the beginning of the Grade 10 Applied program. • This unit extends the ‘proportional relationships’ and ‘proportional reasoning’ sub-groupings from earlier grades. • Teachers can observe students’ reasoning, representing, and problem-solving skills in contexts that can be illustrated with concrete materials and visual representations. • Segue from constant ratios of corresponding sides in similar triangles to the primary trigonometric ratios.	Positioning trigonometry of right triangles after similar triangles: • Students make and use clinometers in doing authentic tasks. • Students formalize trigonometric vocabulary. • Segue to Unit 3 – The tangent ratio for a triangle drawn on the plane is the slope of the line segment drawn on the plane.	Progression from Grade 9 and setting the stage for Unit 4: • Students gather data that can be represented as a linear relation and data that can be represented as a quadratic relation. • Students contrast the tables of values and the constant differences for linear and quadratic relations. • Students briefly revisit Grade 9 models for linear relationships to see the need to compare and analyse lines using m and b . • Move from context-connected to abstract examples of a line, then go back to contexts when introducing systems of lines. • Graphing lines from their equations leads to graphical solutions for systems of linear equations in Unit 4.

Unit 4 – Graphical Models and Solutions	Unit 5 – Linear Systems	Unit 6 – Surface Area and Volume	Unit 7 – Quadratic Relations of the Form $y = ax^2 + bx + c$
Quadratic Relations • Graphical Models of Quadratic Relationships Modelling Linear Relations • Solving Systems of Linear Equations Graphically	Modelling Linear Relations • Solving Systems of Linear Equations Algebraically	Measurement and Trigonometry • Surface Area and Volume	Quadratic Relations • Algebraic Models of Quadratic Relationships • Applications of Quadratics
Rationale			
Considering linear and quadratic relations together: • Some experiments will result in linear relations; others quadratic. • Constant differences in tables of values can be contrasted. Solving graphically before algebraically • Graphical solutions appeal to visual learners. • Students will be able to return to graphical methods to verify algebraic work in Units 5 and 7.	Positioning systems of linear equations here: • Algebraic methods are introduced as a means of finding exact solutions to linear systems. • This is another opportunity for students to develop concepts and skills connected to linear functions. In sequencing two more units after this one, time is available for providing remediation for students who have not yet mastered essential linear concepts and skills.	Positioning surface area and volume here: • Investigations and problem-solving activities in this unit provide the opportunity for authentic tasks that appeal to kinaesthetic learners.	Positioning quadratic relations here: • Further work on quadratic functions and other non-linear functions will be done in Grades 11 and 12.

Grade 10 Applied Year Outline – Planning Tool

- P** Number of planned lessons (including instruction, diagnostic and formative assessments, summative assessments other than included performance tasks)
- J** Number of jazz days
- SP** Summative task
- T** Total number of days (other than included performance tasks)

Unit	Cluster of Curriculum Expectation	Overall Expectations	P	J	T	SP
1	Similar Triangles	MTV.01 • use their knowledge of ratio and proportion to investigate similar triangles and solve problems related to similarity; LRV.01 • manipulate and solve algebraic equations, as needed to solve problems.	9 (4 included)	1	10	
2	Trigonometry	MTV.02 • solve problems involving right triangles, using the primary trigonometric ratios and the Pythagorean theorem; LRV.01 • manipulate and solve algebraic equations, as needed to solve problems.	10 (4 included)	1	11	
3	Equations of Lines	LRV.02 • graph a line and write the equation of a line from given information; LRV.01 • manipulate and solve algebraic equations, as needed to solve problems.	13 (0 included)	1	14	
4	Graphical Models and Solutions	QRV.02 • identify characteristics of quadratic relations; QRV.03 • solve problems by interpreting graphs of quadratic relations; LRV.03 • solve systems of two linear equations, and solve related problems that arise from realistic situations.	9 (8 included)	1	10	
5	Linear Systems	LRV.03 • solve systems of two linear equations, and solve related problems that arise from realistic situations.	8 (0 included)	1	9	
6	Surface Area and Volume	MTV.03 • solve problems involving the surface areas and volumes of three-dimensional figures, and use the imperial and metric systems of measurement; LRV.01 • manipulate and solve algebraic equations, as needed to solve problems.	17 (0 included)	1	18	
7	Quadratic Relations of the Form $y = ax^2 + bx + c$	QRV.01 • manipulate algebraic expressions, as needed to understand quadratic relations; QRV.02 • identify characteristics of quadratic relations; QRV.03 • solve problems by interpreting graphs of quadratic relations.	12 (8 included)	1	13	
	Total Number of Days		78	7	85	5

The number of prepared lessons represents the lessons that could be planned ahead based on the range of student readiness, interests, and learning profiles that can be expected in a class. The extra time available for “instructional jazz” can be taken a few minutes at a time within a pre-planned lesson or taken a whole class at a time, as informed by teachers’ observations of student needs.