

GRADE 10 Cross Referenced Support Materials

Table of Contents

Academic 10, Catholic Profile

- Unit 1 Modelling Linear Systems
- Unit 2 Analytic Geometry
- Unit 3 Quadratics
- Unit 4 Similarity and Applied Trigonometry

Academic 10, Public Profile

- Unit 1 Similar Triangles and Trigonometry
- Unit 2 Analytic Geometry
- Unit 3 Linear Systems
- Unit 4 Quadratic Function

Applied 10, Public Profile

- Unit 1 Proportional Reasoning
- Unit 2 Similar Triangles and Trigonometry
- Unit 3 Linear Systems
- Unit 4 Quadratic Function
- Unit 5 Review and Summative Assessment

Applied 10, Catholic Profile

- Unit 1 Modelling in Business and Finance
- Unit 2 Modelling with Quadratics
- Unit 3 Similarity and Applied Trigonometry
- Unit 4 Summative Assessment Activities

Unit 1 Academic 10 Catholic Profile: Modelling Linear Systems

Activity/ Skill	Topic	Time (min)	Nelson Text	Addision-Wesley Text	McGraw-Hill Text
Activity 1.1	Peace and Development Fundraiser: Intersection of Linear Models [construction of linear graphs from tables of values: interpolation: intersection of lines: formula development and evaluation (word and algebraic equations)]	75	p. 50 # 2 – 29 p. 60 # 5,6,9	p. 27 # 5 – 9 p. 45 # 1 – 10 p. 72 Investigation 2	p. 12 # 1 - 5
Activity 1.2	Bottled Water Dilemma [use of technology in graphing; intersection of lines; subtraction of equations]	75	p 54, 55 (Think, Do, Discuss) p. 74, 75, 76		p. 14 # 17
Follow-up skills	Finding the intersection of lines using graphing calculators or graphing software; solving contextual problems	75	p 54, 55 (Think, Do, Discuss)	p. 124 # 1 - 10	p. 43 # 1 - 23
Activity 1.3	The Calculator Workshop [algebraic method of elimination]	75	p. 101 # 1 - 10		p. 30 # 1 – 15 p. 34, 35
Follow-up skills	Practice with the elimination method; introduce the substitution method; practice with realistic situations	375	p. 92 # 1 – 12 p. 101 # 11 - 25	p. 129 # 1 - 16	
Follow-up skills		150			
Activity 1.4	Battle of the Bands: Introduction to Quadratics [construction of graphs from tables of data: maximization of revenue and area; graphing a product of binomials; quadratic regression; connect product of binomials with $ax^2 + bx + c$]	75	p. 310 – 314 p. 288 # 1 – 5 p. 290 # 1 – 6 p. 293 (Think, Do, Discuss)	p. 170 # 1 - 7	
Follow-up Skills	Expand and simplify second degree polynomial expressions (squaring and expanding binomials)	75	p. 294 (Think, Do, Discuss #1, #2)		p. 131 # 7 – 12 p. 137 # 1 – 16 P. 142 # 5,6

Unit 2 Academic 10 Catholic Profile: Analytic Geometry

Activity/ Skill	Topic	Time (min)	Nelson Text	Addision-Wesley Text	McGraw-Hill Text
Activity 2.1	Delta Force: Determine distances between places on a community map. Determine midpoints.	150	p. 151 # 1 – 16 p. 162 # 1 - 10		p. 71 # 1, 6, 9, 17
Skills	Finding midpoints and lengths of line segments	75	p. 166 p. 173 # 1 - 19	p. 79 # 1 – 18 P. 89 # 1 - 15	p. 78 # 1 - 18
Activity 2.2	Circular Thinking: Determine equation of a circle	75	p. 155 # 1 - 13	p. 109 # 1 - 11	p. 71 # 2, 16
Skills	Equations and graphs of circles	75	p. 155 # 1 - 13	p. 109 # 1 - 11	p. 71 # 3, 4, 13
Activity 2.3	Watered Down Music: Use right bisectors of a chord.	110			
	test				
Activity 2.4	Freedom on the Beach: Application of medians, slopes, triangle types, altitudes, right bisectors, etc	110	p. 182 # 1 – 19 p. 203 # 1 - 18	p. 104 # 1 - 14	p. 72 # 5, 10 p. 96 # 14, 18, 20
Skills	Applications of lengths, midpoints, centroids, etc	110	p. 194 # 1 - 21		p. 96 # 15,17 p. 77
Activity 2.5	Cell Power: Properties of Parallelograms	110	p. 203 # 18, 19		p. 95 # 1, 11, 13, 19
Skills	Skills with quadrilaterals	110	p. 203 # 1, 6, 7, 8, 9, 15, 18, 19		p. 95 # 4, 5, 10, 21, 24, 27
Activity 2.6	Oh Deer! Ticked! The relationship of midpoints of triangles	75	p. 194		p. 96 # 12
Skills	Verify geometric properties	75	p. 203 # 1 - 19		p. 95 # 2, 3, 6 – 9, 16, 22, 25, 26 p. 103 # 1 - 17
Activitiy 2.7	Portfolio presentations	75			
	Summative Assessment	75			

Unit 3 Academic 10 Catholic Profile: Quadratics

Activity/ Skill	Topic	Time (min)	Nelson Text	Addision-Wesley Text	McGraw-Hill Text
3.1	Winds of Change (An Introduction to Quadratics in realistic situations)	150	p. 246 Parts 1 - 2	p. 202 # 11 - 13	
Follow-up Skills	Algebra Skills: expand and simplify second degree polynomials	150	p. 294 Think/Do/Discuss p. 287 - 289	p. 224 # 1 – 12	
Follow-up Skills		75			
3.2	The Twelve Days of Christmas	75			
3.3	Quadratic or Not	150			
3.4	Braking Distance (Determining the Equation of a Parabola using finite differences)	75		p. 288 Inves. 2 p. 292 # 6, 7	p. 242 # 1 - 8
Follow-up Skills	Determining the Equation of a Parabola	75	p. 321 # 1 – 23 p. 298 # 8, 10	p. 306 # 14	
3.5	Graphs on the Move (Transformations on the Parabola $y = a(x - h)^2 + k$)	225	p. 357 Parts 1 – 4 p. 363 # 1 - 11	p. 306 # 1 – 12 p. 314 # 1 - 15	
3.6	What Goes Up Must Come Down / Ramp Cart	150	p. 409 Exper 2	p. 181	
3.7	Quadratic Highs and Lows (Determining x and y intercepts, maximum and minimum values)	75	p. 266 # 1 – 17 p. 280 # 1 - 20		
Follow-up Skills	Interpret Real and non-Real roots graphically Common Factor, Trinomial factors, Difference of Squares	75	p. 307 # 1 – 15	p. 217 # 1 – 11 p. 235 # 1 – 12 p. 243 # 1 – 16 p. 248 # 1 – 4	p. 150 # 1 – 6 p. 156 # 1 – 15 p. 163 # 1 – 7 p. 167 # 1 - 9
Follow-up Skills		150			
Follow-up	Transformations	150			p. 201

Skills					
3.8	Graphing Quadratics in $ax^2 + bx + c$ form using the x intercepts (quadratics that can be factored)	75	p. 403 # 7		p. 214 # 6, 7
Follow-up Skills	Solve quadratic equations graphically and by factoring	150	p. 315 # 1 – 19	p. 255 # 1 – 10	p. 275 # 1 – 22 p. 241 p. 213 # 1 – 18 p. 182 # 1 – 35
3.9	Graphing Non-Factorable Quadratic Equations in $ax^2 + bx + c$ form using the x-intercepts	75	p. 383 letters a - f	p. 321 # 1 – 12 p. 326 # 1 – 8	p. 197 # 1 – 23
3.10	Max/Min problems	150	p. 316 # 4 - 19		
Follow-up Skills	Max/Min problems with and without realistic contexts	150	p. 334 # 19, 20 p. 338 # 8 - 10		
3.11	A Square Deal! (Graphing Quadratics in $ax^2 + bx + c$ form by changing to $a(x + h)^2 + k$ form)	75			p. 227 # 1 – 27
Follow-up Skills	Completing the square to graph a parabola, Solving Max/Min problems by completing the square	150	p. 390 # 9 - 19		p. 234 # 1 – 23
3.12	Root of the Problem (Development and use of the Quadratic Formula	75	p. 403 # 1 – 4, 6, 12 - 29	p. 271 # 1 - 5	p. 292 # 1 – 25
Follow-up Skills	Solve quadratic equations using quadratic formula Interpret Real and non-Real roots, number of roots	75	p. 403 # 5		p. 292 # 1 – 25
3.13	Summative Assesment Activity (Paper and Pencil test)	150			

Unit 4 Academic 10 Catholic Profile: Similarity & Applied Trigonometry

Activity/ Skill	Topic	Time (min)	Nelson Text	Addision- Wesley Text	McGraw-Hill Text
Activity 4.1	It=s Similarity, My Dear Watson! Use geometer=s sketchpad to investigate and summarize the properties of similar triangles	75	p. 450 - 454	p. 350 - 354	p. 316 # 1- 16
Follow-up Skills:	Setting up proportions to solve for missing lengths, determine areas of similar triangles, solve problems with realistic situations using similar triangles, distinguish between similarity and congruency	150	p. 460 # 1 - 12	p. 361 # 1 – 12 p. 368 # 1 – 13 p. 378 # 1 - 14	p. 322 # 1 -14
Activity 4.2	Schoolyard Field Trip Students determine the height of inaccessible objects using similar triangles and using congruent triangles.	75 .	p. 474 # 1 - 14	p. 424 - 426	p. 359
Activity 4.3	Sine Field Group activity comparing the lengths of sides of right triangles and summarizing the results to develop the definitions of sine, cosine and tangent.	75	p. 485 # 1 - 17		p. 330 # 1 – 18 p. 338 # 1 – 14 p. 344 # 1 - 11
Follow-up Skills:	practice solving right triangles by finding angles and sides, applications of right triangles (including use of Pythagorean Theorem), angles of elevation and depression, reciprocal trig ratios etc...	225	p. 496 # 1 - 35	p. 399 # 1 – 16 p. 419 # 1 - 14	p. 348 # 1 - 10
Activity 4.4	Let=s Go to the Movies! Use tangent ratios in overlapping triangles to determine the best distance from a movie screen to allow the largest viewing area. (maximize the angle)	75	p. 509 # 1 - 20	p. 399 # 1 - 16	p. 348 # 1 - 10
Activity 4.5	Sines, Sines, Everywhere Sines! Use geometer=s sketchpad or paper and pencil calculations to	75	p. 545 # 1 - 21	p. 409 # 1 – 19 p. 447 # 1 - 14	p. 366 # 1 - 11

	determine triangle inequalities and the Sine Law	.			
Follow-up Skills:	Practice using sine law to solve problems, revisit overlapping triangle solution to the Movies problem, introduce cosine law when sine law cannot be applied, practice using cosine law etc...	300	p. 555 # 1 – 11 p. 566 # 1 - 22	p. 455 # 1 - 16	p. 373 # 1 - 17
Activity 4.6	Touring With Trig Use trigonometry to solve practical problems involving lengths and angles within the school environment.	75		p. 461 # 1 - 13	
Follow-up Skills:	Practice solving triangles that use combinations of all of the trig methods studied thus far.	75	p. 574 # 1 - 19		
Activity 4.7	Trigs of the Trade Students research a career or application that uses trigonometry. Research is presented at a Math Fair.	150			

Unit 1 Academic 10 Public Profile: Similar Triangles and Trigonometry

Activity/ Skill	Description/Resource Reference	Time (min.)	Nelson Text	Addision- Wesley Text	McGraw-Hill Text
Activity 1.1 Similar vs Congruent Triangles	Review: vocabulary 'similar' and 'congruent', log-on procedures for the computer lab, Geometer's Sketchpad commands Identifying conditions for similar and congruent triangles	150	p. 450 – 454 p. 465 # 1 - 4	p. 350 – 354	p. 316 # 1 - 16
Follow-up skills	'More or Less Equal' set of problems to practise skills Textbook questions.	75		p. 346 # 1 – 14 p. 361 # 1 – 12 p. 368 # 1 - 13	p. 332 # 1 - 14
Activity 1.2 Reaching New Heights	Learning 4 methods for finding heights of tall objects using measurement and approximation techniques	75	p. 474 # 1 - 16	p. 424 - 426	
Follow-up skills	Applying these methods at various stations, and to textbook questions involving similar triangles	150	p. 460 # 1 - 12	p. 378 # 1 - 14	p. 355 # 1 - 17
Activity 1.3 SOHCAHT OA	Introducing primary trig ratios; developing memory aids for the trig ratios;	75	p. 496 # 1 - 35	p. 399 # 1 – 16 p. 409 # 1 - 19	p. 330 # 1 – 18 p. 338 # 1 – 14 p. 344 # 1 - 11
Follow-up:	Solve for missing sides of a right-angled triangle Extension: Vector Toy	135	p. 509 # 1 – 20	p. 419 # 1 - 14	p. 348 # 1 - 10
Activity 1.4 In the Clouds	Finding missing sides and angles in right triangles using SOHCAHTOA	75	p. 509 # 1 - 20	p. 429 # 1 - 14	p. 348 # 1 - 10
Activity 1.5 Sines and Sides – It's the Law	Relationship between angles and sides using Sketchpad: solving triangles, with and without real-world context	75			p. 360, 361
Activity 1.6 Up, Up, and Not Away	Applying trigonometry to find heights of distant objects	75	p. 474 # 1 - 14	p. 461 # 1 - 13	p. 359
Activity 1.7	Investigating, how, as a triangle changes from right-angled to				

Cos I Said So	changes from right-angled to acute, the hypotenuse shortens	75			
Activity 1.8 Going to the Fair	Presenting and questioning projects on trigonometric applications	150			
Activity 1.9 Social Climber	Investigating the link between the slope of a line and the tangent ratio	75	p. 485 # 1 - 17		

Unit 2 Academic 10 Public Profile: Analytic Geometry

Activity/ Skill	Description/Resource Reference	Time (min.)	Nelson Text	Addision-Wesley Text	McGraw-Hill Text
Activity 2.1 How Far, Exactly?	Distance between Two Points	75	p. 151 # 1 – 16 p. 162 # 1 - 10	p. 79 # 1 - 18	p. 71 # 1, 6, 7, 17
Activity 2.2 Full Service?	Keeping distance to a point constant, equation of a circle	75	p. 155 # 1 - 13	p. 109 # 1 - 11	p. 71 # 2, 16
Activity 2.3 Meet Me Halfway	Finding midpoints and applying them. Homework preparation for next activity: Match These. [Recognizing triangles and quadrilaterals and their features]	75	p. 166 p. 173 # 1 - 19	p. 89 # 1 - 15	p. 77 # 1 - 18
Follow-up Skills		150			
Activity 2.4 Show Me the Proof!	Proving, in a particular case, what was hypothesized and confirmed, inductively, in general, in grade 9; setting the stage for proof in general	75			
Activity 2.5 Design an Herb Garden	Classifying triangles and quadrilaterals from their vertex coordinates	150	p. 182 # 1 – 19 p. 203 # 1 - 18	p. 104 # 1 - 14	p. 72 # 5, 10 p. 95 # 1 - 26
Review		225			
Activity 2.6 Quiet! Hospital Zone	Finding the intersection of perpendicular bisectors using technology and verifying it algebraically; setting stage for linear systems	75			
Activity 2.7	Summative Assessment Activities – themes like What’s the Shortest Distance?, Will It Fit?	225			

Unit 3 Academic 10 Public Profile: Linear Systems

Activity/Skill	Description/Resource Reference	Time (min.)	Nelson Text	Addison-Wesley Text	McGraw-Hill Text
Activity 3.1 Analyzing Systems of Equations	Review graphing by intercepts, m & b, finding points of intersection graphically & using various strategies to check. Establish need for exactness from contexts.	75	p. 50 # 2 – 29 p. 60 # 5, 6, 9	p. 124 # 1 - 10	p. 5 # 1, 2 p. 12 # 1 - 5
Follow-up skills	More or Less Equal set of problems to practise skills	75			p. 13 # 8 p. 21 # 6, 8 p. 32 # 10, 11 p. 43 # 1 - 23
Activity 3.2 Footloose	Solving systems by making substitutions. Assign extra practice questions from the text.	75	p. 92 # 1 – 12 p. 101 # 11 - 25	p. 129 # 1 - 16	p. 21 # 1 - 4
Activity 3.3 Convergence!	Solving systems by elimination	75	p. 101 # 1 - 10	p. 142 # 1 - 14	p. 30 # 1 - 9
Follow-up practice	Decide which variable to eliminate, which method is best to solve a system, how to use the CALC menu on the TI83+	150			p. 34 - 35
Activity 3.4 Planes that Cross in the Night	The point of intersection does not imply contact; tell me a story. Follow-up homework: Track Me If You Can	75			
Follow-up Skills		75			
Activity 3.5 A Balancing Act!	Finding centroid, circumcentre, orthocentre	150	p. 194 # 1 - 21		p. 96 # 15, 17
Follow-up					

skills		75			
Extension	Find the Euler line or Nine Point circle	75			
Activity 3.6 How Many Solutions Are There?	Parallel and coincident lines need special attention Follow-up summary of the various types of linear systems	75			
Activity 3.7 Shortest Distance	Finding the distance from a point to a line Follow-up assignment to practise applying analytic geometry and linear systems	75	p. 151 # 1 – 16 p. 162 # 1 - 10		
Follow-up skills		75			
Activity 3.8 Shades of Solutions	This activity is a follow-up application of linear systems. Is a point on or off the line? Above or below? inside or outside a feasibility set?	75			
Activity 3.9 What's the Best You Can Do?	Optimization is a follow-up application that uses linear systems	75			
Review		60			

Unit 4 Academic 10 Public Profile: Quadratic Function

Activity/Skill	Description/Resource Reference	Time (min.)	Nelson Text	Addison-Wesley Text	McGraw-Hill Text
Activity 4.1 There's More to Life than Lines	Connecting lines to parabolas using segue activities: paper folding and re-visiting rates of change	75			
Activity 4.2 Oil's Not Well	First quadrant primary data gathering of clean data using formula for area of a circle. Realizing that if the rate of change is constant, linear; if rate of change is increasing at a constant rate, quadratic Follow-up journal entry re stages of the inquiry	75			
Follow-up Skills		75			
Activity 4.3 There and Back (Ron's Run)	Seeing that the same mathematical model can apply to very different problems. Using secondary quadratic data from a different type of context, running motion, to get both halves of a parabola that is transformed from the parabola in activity 4.2. Follow-up journal entry re rate of change in a quadratic relationship	75			
Follow-up Skills		75			
Activity 4.4 Stepping Up and Mirror, Mirror...	Investigating symmetry properties, 5-point 'no frills' parabola	75		p. 170 # 1 - 7	
Activity 4.5 Investigati	Understanding transformations on	150		p. 297 # 1 – 8 p. 314 # 1 - 15	

ng Transformations	circles, then applying the concepts to parabolas				
Follow-up activities	Use Green Globes on computers or TI83+ to practise, function aerobics	150			
Activity 4.6 Different Forms for Equations of a Parabola	Investigating which form for a quadratic function makes which properties easily apparent	75			
Follow-up skills: Expanding Binomials Factoring Completing the square	Expand binomials; Factor trinomials and difference of squares; Complete the square; Juggle forms of quadratic equations	375	p. 307 # 1 - 15	p. 217 # 1 – 11 p. 224 # 1 – 12 p. 235 # 1 – 12 p. 243 # 1 – 16 p. 248 # 1 - 4	p. 131 # 7 – 12 p. 137 # 1 – 16 p. 142 # 5, 6 p. 150 # 1 – 6 p. 156 # 1 – 15 p. 163 # 1 – 7 p. 167 # 1 - 9
Activity 4.7 Let's make a Profit!	Generating completed square forms that have meaning in contexts of optimization.	75	p. 390 # 9 - 19		p. 234 # 1 - 23
Follow-up skills	Practice solving optimization problems	195		p. 321 # 1 – 12 p. 326 # 1 - 8	
Activity 4.8 Rampify It!	Gathering dirty data; curve fitting; answering questions by interpolating and reading tables. Establishing need for quadratic formula.	150	p. 246 Parts 1 and 2	p. 201 # 1 – 10	p. 214 # 7 – 12
Follow up skills	Develop & use the quadratic formula. Link qualities of graph to qualities of equation (e.g., single, double roots, x coordinate of vertex is midpoint between roots)	150	p. 403 # 1 – 6, 12 - 29	p. 271 # 1 – 5	p. 292 # 1 - 25

Follow up skills	Carry out more data gathering activities	150		p. 275, 276 p. 288 Inves 2 P. 292 # 6, 7	p. 224 # 14 – 16, 25, 27 p. 241
Activity 4.9 It's No Problem!	Solving contextual problems by: creating a quadratic equation that models the conditions, using technology to solve the equation, interpreting the results from application of the quadratic formula.	150	p. 383 letters a - f	p. 170 # 1 – 7 p. 202 # 11- 13	

Unit 1 Applied 10, Public Profile: Proportional Reasoning

Activity/ Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 1.1 Getting to Know Each Other	Find ratios and percents using data gathered from the class and school records Follow-up homework : informal communication assessment piece	75	p. 10 # 1 - 9	p. 16 # 1 – 24 p. 21 # 1 – 24
Activity 1.2 Go Fish !	Simulate the tagging and releasing of fish; make a prediction about a population from a sample. Introduce the 'mathematics on the job' focus of the course Emphasize 'exploring' actions Follow-up homework: practice of skills and communication about the processes used.	75	p. 26	
Activity 1.3 Aerial Photography	Use a random sample and ratios to approximate large numbers	75	p. 33	p. 11 # 1 – 24
Follow-up performance task	an Inquiry	75	p. 36	
Activity 1.4 A Distorted View	Create proportional and distorted images; set up and solve proportions without a graph. Follow-up homework: Optimal Viewing and Fish Story	75		
Follow-up skills		75		
Activity 1.5 Design Problem	Preserve proportions while creating a scale drawing. Follow-ups: sharing of designs, journal entry	75	p. 195 # 1 – 19 p. 207 # 1 - 11	p. 26 # 1 – 24 p. 32 # 1 - 8
Activity 1.6 Master Mixer	Set up and solve proportions without a graph; introduce 'What's right and what's wrong?' scenarios which require confirmation or	75	p. 171 # 1 – 21 p. 182 # 1 – 15	p. 7 # 1 – 23 p. 36 # 1 – 12

	correction Follow-up homework: Students create and solve similar problems.			
Follow-up skills		75	p. 211 - 217	
Activity 1.7 Trip to Florida	Use ratios, rates and unit conversions Follow-up homework: currency exchanges by hand and using a spreadsheet	75		
Follow-up skills		105		
Activity 1.8 Pet Vet	Calculate drug doses; identify what's right and what's wrong in scenarios. No new expectations are addressed, so these problems could be used for review or for gathering assessment data	75	p. 214 # 13	p. 40 # 1 – 12
Activity 1.9 Catering	Summative Assessment	150		p. 42 # 1 – 14

Unit 2 Applied 10, Public Profile: Similar Triangles and Trigonometry

Activity/Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 2.1 Something Seems Similar	Measuring using Geometer's Sketchpad to discover proportionality between similar triangles Follow-up homework: apply knowledge about similar triangles, and identify similar triangles from given information about the triangles	75	p. 222 - 230	p. 206 – 211 p. 211 # 1 – 24
Follow up skills	Practice questions from the text	75	p. 235 # 1 – 14	
Activity 2.2 Reaching New Heights	Using similar triangles to calculate heights, lengths, and distances: 4 methods with 4 applications	75	p. 240 - 242	p. 219 # 1 – 16
Follow up skills	Practice questions from the text, or a performance task, depending on class readiness	225	p. 243 # 1 – 12	
Activity 2.3 SOH-CAH-TOA!	Relating the side lengths and angle measures in right-angled triangles	75	p. 246 – 253 p. 257, p. 262 – 267, p. 271	p. 256 # 1 – 23 p. 264 # 1 – 21 p. 271 # 1 – 22
Follow up skills	Finding sides and finding angles of right-triangles	150	p. 254 # 1 – 13 p. 259 # 1 – 11 p. 268 # 1 – 15 p. 273 # 1 – 15	p. 276 # 1 – 7
Activity 2.4 In the Clouds	Using trigonometry and Pythagorean Theorem to find measures around the school Follow-up:;	75	p. 276 - 278	p. 228 # 1 – 24
Follow up skills	More practice finding missing sides and angles in right-triangles	150	p. 281. # 1 - 9	p. 235 # 17 – 22 p. 280 – 283
Follow up perform	Apply this knowledge in a performance task	75		

ance

<p>Activity 2.5 Ships and Shingle s</p>	<p>Review and Summative Assessment Activities]</p>	<p>180</p>	<p>p. 285 – 287</p>	
---	--	------------	---------------------	--

Unit 3 Applied 10, Public Profile: Linear Systems

Activity/Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 3.1 Social Climber	Relate slope of a line to the tangent trig ratio	75		
Activity 3.2 Fraction Action	Solving linear equations involving fractional coefficients; isolating a variable in a formula involving first degree terms Textbook practise	150	p. 72 # 1 – 13 p. 105 # 1 - 8	p. 51 # 1 – 24 p. 57 # 1 – 24 p. 63 # 1 – 24 p. 68 # 1 – 24 p. 72 # 1 – 15 p. 116 # 1 – 24 p. 75 # 1 – 7
Follow-up skills	Playing a game of Ping Pong to practise equation rearrangement skills and identification of slope and y-intercept; playing another game to review translating English phrases into mathematical expressions	150	p. 65 # 1 - 11	p. 94 # 1 – 24 p. 102 # 1 – 24 p. 107 # 1 – 23 p. 112 # 1 – 21
Activity 3.3 Event Planner	Finding points of intersection, approximately, through graphical and numerical analyses, and establishing need for exactness through algebra.	75	p. 120 # 1 - 11	p. 171 # 1 – 24 p. 178 # 1 – 24
Activity 3.4 Entrepreneur	Finding a point of intersection by substitution, in a question whose answer cannot be read accurately using either a graphical or a numerical analysis	75	p. 129 # 1 - 10	p. 182 Discover p. 187 # 19 – 24
Follow-up skills	Solving systems without context; rearranging one equation to isolate a variable before substituting	150	p. 130 # 11, 12	p. 186 # 1 – 18
Activity 3.5 Elimination Method	Demonstrating that linear combinations of equations all pass through the same point of intersection, but that the linear combination which eliminates one	75	p. 131 - 134	p. 193 # 1 – 24

	of the variables is easier to use			
Follow-up skills	Solving systems by elimination	150	p. 135 # 1 - 10	p. 199 # 12 – 16 p. 200 # 4 – 11
Follow-up skills	Playing a game of Math It Up to practise solving systems	75	p. 149 # 4, 6	
Activity 3.6 Hit or Miss?	Generating distance and time data for motion of two students, and realizing that the point of intersection of the linear system model does not suggest that the students collided, but rather that they were the same distance away at the same time	75	p. 146 - 147	
Follow-up skill	Applying this concept that the point of intersection does not imply collision to other contexts; solving systems in various contexts	75	p. 143 # 1 – 12	
Activity 3.7 Picking the Pieces	Creating a minimum cost function from a linear system; using a spreadsheet to create a graph of a piece-wise linear function	75	p. 90 # 1 - 11	
Follow-up skills	Sample assessment problem	75	p. 151 # 13	
Follow-up review	Review skills as needed	75	p. 150 # 1 – 12	
Activity 3.8 Drip, Drip ...	Connecting piece-wise linear functions to scenarios where the constant rate of change changes	75	p. 80 # 1 - 9	p. 143 # 1 – 21 p. 149 # 1 – 12
Follow-up activity	Application to $D=ST$ relationships, tell me a story activities	75		p. 156 # 1 – 24
Follow-up skills	Sample assessment problem and rating scale	75		
			p. 76	p. 136 # 1 – 21

Activity 3.9 Zippy Printing	Investigating a piece-wise linear function which is discontinuous Follow-up sample assessment activity to match graphs and descriptions	75		
Activity 3.10 Show Me the Money!	Describe piece-wise linear functions using linear equations for each segment, and identifying the intervals where each equation applies	75		p. 160 # 1 – 6 p. 162 # 1 – 7
Follow-up skills	Follow-up team activity for practice, using problems created by students and textbook	75		
Activity 3.11 Skiing in the Rockies	Summative assessment performance tasks	150		
Follow-up	Discuss solutions to performance tasks	45		

Unit 4 Applied 10, Public Profile: Quadratic Function

Activity/Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 4.1 There's More to Math than Lines	The length of each segment of a continuous piecewise linear graph reduces until a quadratic graph appears	75	p. 302 – 308 p. 321 - 325	
Activity 4.2 Oil is Not Well	Data gathered through use of formulas and measurement is analyzed numerically, graphically, and algebraically to contrast quadratic relationships from linear. A trigonometric setting is revisited	75	p. 309 # 1 – 10 p. 317 # 1 – 7 p. 326 # 1 – 6 p. 330	p. 291 # 1 - 20
Follow-up activity	Identifying quadratic relationships presented numerically, graphically, algebraically, and by verbal descriptions	75	p. 336 # 1, 2, 5, 6	
Activity 4.3 Properties of Parabolas	Graphing parabolas with and without technology; properties of a parabola Follow-up: textbook practice, preparing for a photo summary	75	p. 336 # 3, 4, 7	p. 297 # 1 – 21 p. 302 # 1 – 23 p. 308 # 1 – 22 p. 314 # 1 – 23 p. 318 – 321
Follow-up activity	An inquiry jigsaw	75	p. 398 – 405	
Follow-up games	What's My Curve?, Globs Green	75		
Activity 4.5 Don't Get Burned!	Convert $y = a(x - h)^2 + k$ to $y = ax^2 + bx + c$ form Textbook practice	150	p. 409 p. 413 # 1 – 10 p. 416 – 421 p. 422 # 1 - 14	p. 372 # 1 – 20
Follow-up activity	Analyze the photo summary	75	p. 425 – 428	

Follow-up skills	Sample problem for assessment opportunity	75	p. 406 # 1 – 10 p. 432	
Activity 4.6 Zero, Zip, Nada and Zilch	Finding zeros of a quadratic function, max and min points, intervals of increase and decrease	150	p. 385	p. 379 # 1 – 20
Follow-up skills	Sample homework problems for practice. Assign similar ones for further practice	75	p. 389 # 1 – 10 p. 429 # 1 – 10	p. 367 # 1 – 21 p. 385 # 1 – 9
Activity 4.7 Zeros/Roots: How to Find Them?	Factoring trinomials to solve equations. Assign textbook practice.	300	p. 352 # 1 – 12 p. 358 # 1 – 17 p. 367 # 1 – 16 p. 371 # 1 – 11 p. 376 # 1 – 14 p. 383 # 1 – 9	p. 328 # 1 – 16 p. 333 # 1 – 12 p. 336 # 7 – 16 p. 340 # 1 – 16 p. 344 # 1 – 8 p. 347 # 1 – 24 p. 351 # 1 – 24
Follow-up skills	Games for practice	75	p. 392 # 1 – 15	p. 354 – 355
Review	Assign extra practice.	150		
Activity 4.8 Performance Time!	Summative Assessment Activities	225		

Unit 5 Applied 10, Public Profile: Review and Summative Assessment

Activity/Ski II	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 5.1 Logo A Go Go	This performance task requires students to apply proportional reasoning and trigonometry in 3 inquiries.	150	p. 156 Indoor Skiing	p. 39 Refurnish a Room
Activity 5.2 The Heat's in the Kitchen	Questions posed address linear systems and piecewise graphs, requiring numerical, graphic and algebraic skills. Knowledge and Application are featured.	75	p. 292 Medicine Doses	p. 119 Box Girder Bridge p. 197 Mapping Roads
Activity 5.3 Wages in Step	Students use linear functions to solve problems. Application and Communication are ighlighted.	75		p. 389 Bouncing Balls
Activity 5.4 Peaking profits?	Application of quadratic skills is featured. Knowledge and Communication are also assessed.	75	p. 444 Curve Stitching	
*	Review and final exam	135		

Unit 1 Applied 10 Catholic Profile: Modelling in Business and Finance

Activity/Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 1.1	Cyber Blueprints [scale drawings; percent change; conversions (currency and measurement); area; proportional reasoning; distortion]	375 minutes	1.1, 4.1, 4.2, 4.4, 4.5	p. 39, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 p. 8 # 20, p.7 # 1-9
Follow-up Skills	Interest calculations; estimation	75 minutes	p. 195 # 1 – 19 p. 171 # 1 – 21 p. 182 # 1 - 15	
Activity 1.2	Getting Paid [graphical interpretation; interpolation, extrapolation; slope as a rate; graphing from tables of values]	90 minutes	1.1	p. 77 Chapter Problem
	Descriptive work with linear and piecewise linear graphs (e.g.gas bill analysis; distance-time graphs); misleading graphical data		2.3, 2.4, 2.5, 2.6	4.1, 4.2, 4.3, 4.4 p. 129 Chapter Problem
Follow-up Skills		225 minutes	p. 10 # 1 – 9 p. 80 # 1 – 9 p. 90 # 1 – 10	p. 7 # 10 – 18 p. 8 # 21 – 24 p. 155 # 1 – 24 p. 160 – 163 p. 136 # 1 – 19 p. 143 # 1 – 21 p. 149 # 1 – 12
Activity 1.3	Peace and Development Fundraiser: Intersection of Linear Models [construction of linear graphs from tables of values; interpolation; intersection of lines; formula development and evaluation (word and algebraic equations)]	90 minutes	1.3, 2.7	p. 165 Chapter Problem 5.3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
Follow-up Skills	Solving 1st-degree equations; equations with fractional coefficients; working with formulae	300 minutes		2.1 p. 48, 2.2, 2.3, 2.4, p. 51, p.54, p. 60 p. 65, p. 72 – 75, p. 87, p. 101, p. 112,p. 116, p. 120 – 123 p. 186, p. 198 - 201
Activity 1.4	Bottled Water Dilemma [use of technology in graphing; intersection of lines; subtraction of equations]	75 minutes	3.1	5.2
			p. 120 # 1 - 11	5.1

Follow-up Skills	Finding the intersection of lines using graphing calculators or graphing software; solving contextual problems	150 minutes		
Activity 1.5	The Rewards of Design [algebraic method of elimination]	150 minutes	3.3	5.4
Follow-up Skills	Practice with the elimination method; introduce method of substitution; re-arrange equations from the form $y = mx + b$ to the form $Ax + By + C = 0$ and vice versa]	300 minutes	p. 135 # 1 – 10 p. 143 # 1 – 13 p. 146 # 1 – 5 p. 148 # 1 - 12	p. 193 # 1 – 24 p. 178 # 1 – 24 p. 171 # 1 - 24
Activity 1.6	Battle of the Bands: Introduction to Quadratics [construction of graphs from tables of data; maximization of revenue and area; graphing a product of binomials; quadratic regression; connect product of binomials with $ax^2 + bx + c$]	150 minutes	8.4	8.1
Follow-up Skills	Expand and simplify polynomial expressions involving the multiplying and squaring of binomials	150 minutes	7.1	9.1, p. 291 # 1 – 20 p. 328 # 1 – 24 p. 333 # 1 – 24 p. 335 # 1 - 24
Activity 1.7	Summative Activities	225 minutes		

Unit 2 Applied 10 Catholic Profile: Modelling With Quadratics

Activity/Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 2.1	The Twelve Days of Christmas [a graphical exercise, where students construct tables of values and generate graphs of non-linear relationships.]	120 minutes	6.1	p. 285 Chapter Problem
Activity 2.2	Quadratic or Not [collect data, graph with technology, determine characteristics of quadratic graphs and equations]	150 minutes	6.2	8.2
Activity 2.3	Larger than Life [generate table of values from a realistic situation, graph the relation, model with the equation $y=ax^2+b$, explore the effects of Aa@ and Ab@ on the equation]	150 minutes	p. 318 # 6 6.3, 6.4,	8.1
Follow-up skills	Paper practice with the equation $y=ax^2+b$ Inequalities	150 minutes	6.1	8.3 p. 297 # 1- 21
Activity 2.4	Graphs on the Move [investigate transformations (stretches, reflections, shifts) of the graph of $y=a(x-h)^2+k$]	225 minutes	6.5, 8.1	8.4, 8.5
Follow-up skills	roles of a, h, k - paper practice			p. 302 # 1 – 16 p. 308 # 1 – 22 p. 314 # 1 – 23
	Assessment: Patterning with Parabolas [create own patterns using graphs of quadratic relations with graphing calculators or graphing software]			
Activity 2.5	Part A: What Goes Up, Must Come Down Part B: Ramp Cart [collect data with the CBR , graph using technology , use $y=ax^2+bx+c$ and $y=a(x-h)^2+k$ forms of the quadratic,	150 minutes	8.2, 8.3	8.4
Follow-up				

Skills:	explore the effect a has on the equation] expand $y = a(x-h)^2+k$ into the form $y = ax^2+bx+c$	30 minutes		
Activity 2.6	If The Price is Right [determine the zeros, intervals, maximum and minimum values of a quadratic function and interpret their meaning in the context of a revenue/price problem]	150 minutes	8.4	10.1, 10.2, 10.3, 10.4
Follow-up skills	maximum/minimum problems factor (common, factoring trinomials in form x^2+bx+c , difference of squares) solve quadratic equations by factoring	375 minutes	7.2, 7.4, 7.5, 7.6, 7.7, 7.8	9.4, 9.5, 9.6, 9.7 p. 340, p. 344, p. 347, p. 351, p. 354 – 359, p. 367, p. 372, p. 385
Activity 2.7	Graphing the Factored Quadratic [graphical application of factoring]	75 minutes	p. 386 eg2 and eg4	
Follow-up skills	Solve quadratic equations by factoring Solve quadratic equations graphically using realistic situations	150 min		
Activity 2.8	Summative Assessment: Newton=s Apple	225 minutes		

Unit 3 Applied 10 Catholic Profile: Similarity and Applied Trigonometry

Activity/ Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 3.1	Romeo, Romeo, Wherefore Art Thou? Investigating a ladder that is sliding down a wall, using the Pythagorean Theorem.	75 minutes	p. 253	p. 203 Chapter Problem, 6.3
Follow-up Skills:	Pythagorean Theorem		p. 260 # 6b	p. 228 # 1 – 24
Activity 3.2	It's Similarity, My Dear Watson! Use geometer's sketchpad to investigate and summarize the properties of similar triangles	75 minutes	5.2	
Follow-up Skills:	Setting up proportions to solve for missing lengths, determine areas of similar triangles, solve problems with realistic situations using similar triangles	150 minutes	p. 235 # 1 -11	6.1, 6.2 p. 211 # 1 – 24 p. 219 # 1 – 13
Activity 3.3	Schoolyard Field Trip Students determine the height of inaccessible objects using similar triangles and using congruent triangles.	75 minutes	5.11	
Follow-up Skills:	More practice solving realistic situations with similar triangles		5.3, 5.4	p. 235 # 17 – 22 p. 238 – 241
Activity 3.4	Sine Field Group activity comparing the lengths of sides of right triangles and summarizing the results to develop the definitions of sine, cosine and tangent	150 minutes	5.7	p. 247 Chapter Problem 7.1, 7.2, 7.3
Follow-up Skills:	Practice solving right triangles by finding angles and sides, applications of right triangles (including use of Pythagorean Theorem), angles of elevation and depression, overlapping right	225 minutes	p. 243 # 1 – 12 p. 259 # 1 – 11	p. 256 # 1 – 23 p. 264 # 1 – 21 p. 271 # 1 – 22

	triangles			
Activity 3.5	Trig at the Track The tangent ratio is used to model the movement of the head as the eyes follow a moving object.	75 minutes	5.5, 5.6, 5.8	p. 279
Activity 3.6	Touring With Trig Use trigonometry to solve practical problems involving lengths and angles within the school environment.	150 minutes	5.9, 5.10, 5.12	7.4
Follow-up Skills:	Review of trig problems involving both lengths and angles		p. 254 # 1 – 13 p. 268 # 1 – 15 p. 273 # 1 – 15 p. 281 # 1 - 9	p. 276 # 1 – 7 p. 280 – 283
Activity 3.7	Trigs of the Trade Students research a career or application that uses trigonometry. Research is	300 minutes		p. 278
	Assessment: Paper and Pencil Test	75 min		

Unit 4 Applied 10 Catholic Profile: Summative Assessment Activities

Activity/ Skill	Description/Resource Reference	Time (min.)	Addison Wesley References	McGraw-Hill References
Activity 4.1	Where Should They Meet? Use linear equations and their intersection to solve the problem of where two people should meet in an amusement park	150 minutes	p. 112 Skydivers	p. 77 Chapter Problem P. 237 Rich Problem
Activity 4.2	Roller Coaster Use a variety of geometric (and algebraic) principles to construct a roller coaster	150 minutes		p. 389 Rich Problem
Activity 4.3	Tricky Trig Use proportional reasoning skills and the trigonometry of right triangles to investigate the length of ladders that the maintenance department must purchase	75 minutes		p. 279 Rich Problem
Activity 4.4	Treasures of Math (Diagnostic Review) Use mathematical clues that address many of the course expectations in order to find a buried treasure	150 minutes	Section 8.4	