Wah Yan College Kowloon
F.2 Mathematics Scheme of Work (2017-2018)

Textbook	1. New Progress in Junior Mathematics 2A (with Skills Drilling Exercises, Second Edition) 2. New Progress in Junior Mathematics 2B (with Skills Drilling Exercises, Second Edition)
Other Resources	

◆Repertoire of Self-directed Learning Skills:

1. reading to learn, 2. notes-taking, 3. looking up words in the dictionary, 4. pre-lesson preparation, 5. group discussion, 6. group presentation, 7. initiative to ask questions, 8. setting learning objectives and doing reflection, 9. eLearning platform with instant feedback, 10. flipped classroom, 11. peer assessment, 12. searching for information on the internet, 13. project learning, 14. training of higher-order thinking skills, etc.

SL: Scheduled number of lessons
AL: Actual number of lessons

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
First Term (3/9/2017-30/12/2017, Weeks 1-17)	1-2	**Chapter 1** **Manipulations and Factorization of Polynomials** Remarks: This section serves as an introduction of factorization. It mainly focuses on the discussion of the **reverse process** of expansion of multiplying	**1.4 Multiplication of Polynomials (pp.1.28 – 1.36)** • Working through Inspiring Task 1.3, students can discover the distributive law	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 1.4 • Workbook 1.4 • Ongoing Assessment Package: Quiz 1.4 • Test Bank 1.4			

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		- a binomial by a monomial, - a trinomial by a monomial, - a binomial by a binomial. We continue the discussion of some other question types in Book 3A. (Please refer to the Teacher's Notes on p.1.36 and p.1.38.)	of multiplication of a monomial and a binomial. • Working through Inspiring Task 1.4, students can discover the distributive law of multiplication of two binomials. • Students should learn to use the distributive law of multiplication to expand polynomials.						
			1.5 Factorization by Taking Out Common	3.5 periods /3.5	Demonstrating some examples and giving	• Worksheet 1.5 • Workbook			

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			Factors and Grouping Terms (pp.1.36 – 1.43) • Teachers can review the concept of factors with the students. • Teacher should illustrate factorization is the reverse process of expansion. • Students should be able to factorize expressions by taking out monomials or polynomials as factors.	periods	some classwork	1.5 • Ongoing Assessment Package: Quiz 1.5 • Test Bank 1.5			

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			• Students should be able to factorize polynomials with at most 4 terms						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – What is the Use of the Distributive Law of Multiplication? (p.1.53)** • This enrichment introduces the use of the distributive law of multiplication	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 1 • Test Bank (Multiple-choice Questions)			

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			to solve some complicated calculations.						
	3-4	**Chapter 2** **Identities and Factorization** • Explore the meaning of identities and distinguish between equations and identities • Discover the identities: difference of two squares, the perfect square expression, and use them for manipulation and factorization of polynomials	**Let's Warm Up (p.2.4)** • Teachers can ask students to review the method of substitution. • Teachers can ask students to review linear equation in one unknown. • Teachers can ask students to review addition, subtraction and multiplication of polynomials.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 2 • Test Bank 2.0			
			2.1 Meaning of Identities	2 periods	Demonstrating some examples	• Worksheet 2.1			

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			(pp.2.5 – 2.13) • Working through Inspiring Task 2.1, students should realize that some equations have many possible solutions. • Teachers should clearly point out the difference between an equation and an identity. • Students should be able to distinguish whether an equation is an identity. • Students should	/2 periods	and giving some classwork	• Workbook 2.1 • Ongoing Assessment Package: Quiz 2.1 • Test Bank 2.1			

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			be able to find the unknowns of an identity through comparing the coefficients of like terms.						
			2.2 Difference of Two Squares (pp.2.14 – 2.20) • The geometric interpretation of the difference of two squares is demonstrated by Inspiring Task 2.2. • Students should be able to expand algebraic expression and evaluate value	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 2.2 • Workbook 2.2 • Ongoing Assessment Package: Quiz 2.2 • Test Bank 2.2			

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			by applying the difference of two squares.						
			2.3 Perfect Square (pp.2.20 – 2.26) • The geometric interpretation of the perfect square is demonstrated by Inspiring Task 2.3. • Students should be able to expand algebraic expression and evaluate value by applying the perfect square.	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 2.3 • Workbook 2.3 • Ongoing Assessment Package: Quiz 2.3 • Test Bank 2.3			
		Remarks: Similar to that in	**2.4 Factorization by Using**	2 periods	Demonstrating some examples	• Worksheet 2.4			

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		Chapter 1, this section serves as an introduction of factorization using identities. We continue the discussion of some other question types in Book 3A. For details, please refer to Book 3A.	**Identities (pp.2.26 – 2.29)** • Teacher should remind students again that factorization is the reverse process of expansion. • Students should be able to factorize expressions by using the identities learnt in this chapter. • Students should also be able to factorize expressions by first taking out a number factor, and then by	/2 periods	and giving some classwork	• Workbook 2.4 • Ongoing Assessment Package: Quiz 2.4 • Test Bank 2.4			

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			using identities.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – What is the Meaning of the Last Digit of Identity Card Number? (p.2.37)** • This enrichment introduces the letter inside the brackets in the identity card is used for verification.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 2 • Test Bank (Multiple-choice Questions)			
	5-7	**Chapter 3** **Formulas** • Investigate,	**Let's Warm Up (p.3.4)**	0.5 period	Demonstrating some examples	• Warm-up Worksheet 3			

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		appreciate and observe the patterns of various number sequences such as polygonal numbers, arithmetic and geometric sequences, Fibonacci sequence • Use algebraic symbols to represent the number patterns • Obtain a preliminary idea of function such as input-processing-output concept • Manipulate algebraic fractions with linear factors as denominators • Explore familiar formulas and	• Teachers can ask students to review the concept of formula and the method of substitution. • Teachers can ask students to review the concept of and the basic methods of factorization.	/0.5 period	and giving some classwork	• Test Bank 3.0			

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		substitute values of formulas • Perform change of subject in simple formulas							
			3.1 Sequences (pp.3.5 – 3.14) • Teachers can help students to investigate and appreciate the patterns of different sequences. • Working through Inspiring Tasks 3.1 and 3.2, students should be able to appreciate the square number and the	4 periods /4 periods	Demonstrating some examples and giving some classwork	• Worksheet 3.1 • Workbook 3.1 • Ongoing Assessment Package: Quiz 3.1 • Test Bank 3.1			

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			triangular number sequences. • Students should be able to find the general term of a sequence. • Students should be able to find the terms of a sequence by observation or from general term. • Teachers should point out there may be more than one form of general term for a particular sequence.						
			3.2 Introduction to Functions (pp.3.15 –	1.5 periods /1.5	Demonstrating some examples and giving	• Worksheet 3.2 • Workbook			

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			3.18) • Teachers can use the 'input-process-output' relationship to illustrate the concept of function. • Students can find the corresponding output of a function for the input. • Students can apply the concept of functions in solving real-life problems.	periods	some classwork	3.2 • Ongoing Assessment Package: Quiz 3.2 • Test Bank 3.2			
			3.3 Algebraic Fractions (pp.3.18 – 3.25)	4 periods /4 periods	Demonstrating some examples and giving some classwork	• Worksheet 3.3 • Workbook 3.3			

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			• Students should be able to simplify, multiply or divide algebraic fractions by using factorization. • Students should be able to add or subtract algebraic fractions with linear factors as denominators. • Teachers should remind students that there are other ways of expressing the answer, such as $\frac{-11}{y-2}$ or $\frac{11}{2-y}$ in Follow-up 9.			• Ongoing Assessment Package: Quiz 3.3 • Test Bank 3.3			

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			3.4 Formulas and Method of Substitution (pp.3.26 – 3.30) • Students should be able to find the unknown of a formula by the method of substitution and solve real-life problems.	1 period /1 period	Demonstrating some examples and giving some classwork	• Worksheet 3.4 • Workbook 3.4 • Ongoing Assessment Package: Quiz 3.4 • Test Bank 3.4			
			3.5 Change of Subject (pp.3.30 – 3.35) • Students should learn and perform change of subject of formulas by integrating the	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 3.5 • Workbook 3.5 • Ongoing Assessment Package: Quiz 3.5 • Test Bank 3.5			

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			knowledge they have learnt, including taking out the common factor and the manipulations in algebraic fractions. • Teachers should remind students that there are other ways of expressing the answer, such as $m = \frac{Tr}{v-g}$ or $m = \frac{-Tr}{g-v}$ in Follow-up 14.						
			Chapter Summary **Assess Your Progress** **Revision Exercise**	0.5 period	Demonstrating some examples	• Workbook • TSA			

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			Enrichment Mathematics – How Many Ways to Cross a River? (p.3.45) • This enrichment leads students to explore the method in constructing the Fibonacci sequence.	/0.5 period	and giving some classwork	Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 3 • Test Bank (Multiple-choice Questions)			
	8-10	**Chapter 4** **Laws of Integral Indices** • Extend and explore the meaning of negative indices • Explore, understand and use the laws of integral indices to simplify simple	**Let's Warm Up (p.4.4)** • Teachers can ask students to review the concept of index notation and the important rules	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 4 • Test Bank 4.0			

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		algebraic expressions (NF) Understand and compare numbers expressed in various bases in real-life situations (NF) Recognize the place values in different numeral systems (NF) Inter-convert between simple binary/ hexadecimal numbers to decimal numbers	of law of indices. • Teachers can ask students to review the concept of place values.						
			4.1 Simplifying Algebraic Expressions Involving Indices (pp.4.5 – 4.12) • Students should understand the	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 4.1 • Workbook 4.1 • Ongoing Assessment Package: Quiz 4.1 • Test Bank			

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			laws of integral indices - $a^m \times a^n = a^{m+n}$ (learnt in Ch 1) - $a^m \div a^n = a^{m-n}$ (learnt in Ch 1) - $(a^m)^n = a^{mn}$ - $(ab)^n = a^n b^n$ - $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ and use them to simplify simple algebraic expressions.			4.1			
			4.2 Zero and Negative Integral Indices (pp.4.13 – 4.20) • Students should understand the laws of integral indices $a^0 = 1$	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 4.2 • Workbook 4.2 • Ongoing Assessment Package: Quiz 4.2 • Test Bank 4.2			

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			and $a^{-n} = \frac{1}{a^n}$, and use them to simplify algebraic expressions involving zero and negative integral indices.						
			4.3 Simple Exponential Equations (pp.4.20 – 4.23) • Students should apply the laws of indices and other techniques to solve simple exponential equations.	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 4.3 • Workbook 4.3 • Ongoing Assessment Package: Quiz 4.3 • Test Bank 4.3			
			Non-foundation **4.4 Different Numeral**	3 periods	Demonstrating some examples	(NF) Worksheet 4.4			

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			Systems (pp.4.23 – 4.31) NF Teacher should introduce the concept of place values in different numeral systems. (Teachers should also extend this concept beyond the decimal point.) NF Students should be able to express a number in expanded form using index notation. NF Teachers can	/3 periods	and giving some classwork	NF Workbook 4.4 NF Ongoing Assessment Package: Quiz 4.4 NF Test Bank 4.4			

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			introduce the application of different numeral systems in real-life situations.						
			Non-foundation **4.5 Inter-conversion between Different Numeral Systems (pp.4.31 – 4.37)** (NF) Students should be able to convert binary/hexadecimal numbers into denary numbers using the expended	3 periods /3 periods	Demonstrating some examples and giving some classwork	(NF) Worksheet 4.5 (NF) Workbook 4.5 (NF) Ongoing Assessment Package: Quiz 4.5 (NF) Test Bank 4.5			

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			forms. (NF) Students should learn to use short division to convert the binary/hexadecimal numbers into denary numbers. (NF) Students should be able to use a calculator to inter-convert a number between different numeral systems.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment**	0.5 period /0.5	Demonstrating some examples and giving	• Workbook • TSA Supplementa			

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			Mathematics – Can You Read My Mind? (p.4.45) • This enrichment provides a game, which involves the application of place values in the binary numeral system, to help students consolidate their understanding of the binary system.	period	some classwork	ry Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 4 • Test Bank (Multiple-choice Questions)			
	11-12	**Chapter 5** **Approximation and Errors** • Learn the concepts and skills of rounding off	**Let's Warm Up (p.5.4)** • Teachers can ask students to review the	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 5 • Test Bank 5.0			

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		numbers to a required number of significant figures • Understand the meaning of scientific notation • Use scientific notation in practical problems • Be aware of the size of errors during estimation and approximation • Understand and calculate absolute errors, relative errors and percentage errors	concepts of place values (in index form) and rounding off a number. • Teachers can ask students to review the concept of estimation in numbers and measurement.						
			5.1 Significant Figures (pp.5.5 – 5.11) • Working through	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 5.1 • Workbook 5.1 • Ongoing Assessment			

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			Inspiring Task 5.1, students can have the basic idea of the first significant (the most important) figure. • Students should learn the way of counting the numbers of significant figures for integers and decimals. • Students should understand how to round off a number to a certain number of significant figures.			Package: Quiz 5.1 • Test Bank 5.1			
		Remarks:	**5.2 Scientific**	2	Demonstrating	• Worksheet			

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		Students should also learn the key-in sequence of a number expressed in scientific notation. Teachers can explain the meaning of the display on a calculator such as '1.66 ×10^-27'.	**Notation (pp.5.12 – 5.19)** • Working through Inspiring Task 5.2, students should be able to rewrite numbers as powers of 10 by observing number pattern. • Teachers should introduce the emphasis on the requirement of the representation. • Students should be able to apply the scientific notation in real-life	periods /2 periods	some examples and giving some classwork	5.2 • Workbook 5.2 • Ongoing Assessment Package: Quiz 5.2 • Test Bank 5.2			

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			situations.						
			5.3 Errors (pp.5.19 – 5.30) • Teachers should emphasis on the use of absolute error only when the actual value is known. • Working through Inspiring Task 5.3, students should understand the maximum absolute error depends on the scale interval of a measuring tool. • Working through	4 periods /4 periods	Demonstrating some examples and giving some classwork	• Worksheet 5.3 • Workbook 5.3 • Ongoing Assessment Package: Quiz 5.3 • Test Bank 5.3			

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			Inspiring Task 5.4, students should understand the relative error can describe how accurate a measurement is. • Students should be able to find percentage error from relative error.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – What is Engineering Notation? (p.5.38)** • This enrichment	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment			

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			introduces an alternative to express very large or small numbers other than scientific notation.			5 • Test Bank (Multiple-choice Questions)			
	12-13	**Chapter 6** **More about Statistical Diagrams and Graphs** • Construct and interpret histograms, frequency polygons and curves, cumulative frequency polygons and curves • Be able to differentiate between histograms and bar charts • Read data from given frequencies in	**Let's Warm Up (p.6.4)** • Teachers can ask students to review the classification of two types of numerical data. • Teachers can ask students to review the method of organizing data in a frequency distribution table.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 6 • Test Bank 6.0			

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		graphs (including percentiles, quartiles, median) • Identify sources of deception in misleading graphs and their accompanying statements • Recognize the dangers of misinterpreting data	• Teachers can ask students to review the basic knowledge of percentages.						
			6.1 Organization of Continuous Data (pp.6.4 – 6.13) • Students should learn some terminology in organizing data. • Students should be able to	3.5 periods /3.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 6.1 • Workbook 6.1 • Ongoing Assessment Package: Quiz 6.1 • Test Bank 6.1			

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			organize data and construct frequency distribution table with class limits, class marks and class boundaries, and interpret frequency distribution table.						
			6.2 Histograms, Frequency Polygons and Frequency Curves (pp.6.13 – 6.25) • Students should be able to construct and interpret histograms,	3.5 periods /3.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 6.2 • Workbook 6.2 • Ongoing Assessment Package: Quiz 6.2 • Test Bank 6.2			

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			frequency polygons and frequency curves. • Teachers should emphasis on the labelling of the horizontal axis of each kind of graph.						
			6.3 Cumulative Frequency Polygons and Cumulative Frequency Curves (pp.6.26 – 6.38) • Working through Inspiring Task 6.1, students should realize the appearance	4.5 periods /4.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 6.3 • Workbook 6.3 • Ongoing Assessment Package: Quiz 6.3 • Test Bank 6.3			

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			of a cumulative frequency polygon. • Students should be able to construct and interpret cumulative frequency polygon/ curve. • Teachers should emphasis on the labelling of the horizontal axis of the polygon/curve. • Students should learn the terms ‘quartile’, ‘percentile’ and ‘median’ and be able to solve problems related to them.						

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			6.4 Abuses of Statistics (pp.6.38 – 6.45) • Students should learn at least three ways that readers can be misled in a diagram/graph: - the use of the axes - the ratio of the sizes of figures - the actual frequencies of data	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 6.4 • Workbook 6.4 • Ongoing Assessment Package: Quiz 6.4 • Test Bank 6.4			
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics –**	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises			

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			What Is a Polar-Area Diagram? (p.6.59) • This enrichment provides some historic information about the Crimean War and introduces the use of polar-area diagram to illustrate the number of deaths in the war.			• Intensive Practice • Ongoing Assessment Package: Formative Assessment 6 • Test Bank (Multiple-choice Questions)			
Second Term (31/12/2017-18/7/2018, Weeks 18-46)	18-20	**Chapter 7** **Linear Equations in Two Unknowns** • Plot and explore the graphs of linear equations in 2 unknowns	**Let's Warm Up (p.7.4)** • Teachers can ask students to review the algebraic	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 7 • Test Bank 7.0			

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		• Formulate and solve simultaneous equations by algebraic and graphical methods • Recognize the approximate nature of the graphical method	equations in one unknown. • Teachers can ask students to review the method of substitution and the change of subject of a formula. • Teachers can ask students to review the concept of the coordinates of a point.						
			7.1 Linear Equations in Two Unknowns and Their Graphs (pp.7.5 – 7.16)	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 7.1 • Workbook 7.1 • Ongoing Assessment Package: Quiz 7.1			

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			• Teachers should introduce the concept of linear equations in two unknowns. • Students should be able to determine whether an ordered pair is a solution of a linear equation in two unknowns. • Working through Inspiring Task 7.1, students should recognize - the shape of the graphs of linear			• Test Bank 7.1			

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			equations in two unknowns, and - the relation between a solution (ordered pair) and the point on the graph of a linear equation in two unknowns. • Students should be able to draw the graphs of linear equations in two unknowns. • Teachers should point out the importance of the change of						

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			subject before finding ordered pairs, and the reason for finding three points for drawing graphs. • Students should be able to find the solutions of linear equations in two unknowns by reading graphs.						
			7.2 Solving Simultaneous Linear Equations in Two Unknowns by the Graphical Method (pp.7.16 – 7.25)	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 7.2 • Workbook 7.2 • Ongoing Assessment Package: Quiz 7.2 • Test Bank 7.2			

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			• Working through Inspiring Task 7.2, students should recognize that there is only one solution for a pair of simultaneous linear equations in two unknowns. • Students should be able to solve a pair of simultaneous linear equations in two unknowns graphically. • Teachers may point out that it is necessary to						

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			extend the lines until a point of intersection is obtained. • Working through Inspiring Task 7.3, students should recognize that the solutions obtained by the graphical method are approximations only.						
			7.3 Method of Substitution (pp.7.25 – 7.30) • Teachers should demonstrate the steps in solving equations by the	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 7.3 • Workbook 7.3 • Ongoing Assessment Package: Quiz 7.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			method of substitution. • Students should be able to solve equations by the method of substitution.			• Test Bank 7.3			
			7.4 Method of Elimination (pp.7.30 – 7.35) • Teachers should demonstrate the steps in solving equations by the method of elimination. • Students should be able to solve equations by the method of elimination. • Teachers may summarize the	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 7.4 • Workbook 7.4 • Ongoing Assessment Package: Quiz 7.4 • Test Bank 7.4			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			methods in solving equations using the Consolidation Task on p.7.34.						
			7.5 Applications of Simultaneous Linear Equations in Two Unknowns (pp.7.36 – 7.43) • Students should be able to solve word problems involving simultaneous equations. • Teachers may point out that some simple	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 7.5 • Workbook 7.5 • Ongoing Assessment Package: Quiz 7.5 • Test Bank 7.5			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			situations can also be solved using linear equations in one unknown (such as using x and $(13 - x)$ in Example 13), however, a great care is needed in setting up the equation.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – Is There Always a Common Solution? (p.7.53)** • This enrichment	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			introduces two special cases in which the equations are inconsistent or have infinitely many solutions.			Package: Formative Assessment 7 • Test Bank (Multiple-choice Questions)			
	21-23	**Chapter 8** **Angles in Rectilinear Figures** • Explore and use the properties of lines and angles of triangles • Explore and use the formulas for the angle sum of the interior angles and exterior angles of polygons • Explore regular polygons that tessellate	**Let's Warm Up (p.8.4)** • Teachers can ask students to review the angles related to intersecting lines and parallel lines. • Teachers can ask students to review the concepts of different types of polygons and	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 8 • Test Bank 8.0			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
		(NF) Appreciate the past attempts in constructing some special regular polygons with minimal tools at hand (NF) Construct some special regular polygons using straight edges and compasses	the angle sum of a triangle.						
			8.1 Angles of Triangles (pp.8.5 – 8.13) • Students should be able to solve problems by using the sum of interior angles of a triangle. • Working	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 8.1 • Workbook 8.1 • Ongoing Assessment Package: Quiz 8.1 • Test Bank 8.1			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			through Inspiring Task 8.1, students should obtain the relation between an exterior angle of a triangle and its interior opposite angles. • Students should be able to solve problems by using the exterior angle of a triangle.						
			8.2 Special Triangles (pp.8.14 – 8.25) • Teachers should introduce the terminologies of isosceles	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 8.2 • Workbook 8.2 • Ongoing Assessment Package: Quiz 8.2			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			triangles. • Working through Inspiring Task 8.2, students should recognize that the base angles of an isosceles triangle are equal. • Teachers may relate the properties of an isosceles triangle with reflectional symmetry. • Students should be able to solve problems related to isosceles triangles.			• Test Bank 8.2			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			• Teachers should point out that the converse is also true. • Students should be able to make simple deductions. • Working through Inspiring Task 8.3, students should recognize that the interior angles of an equilateral triangle are equal. • Students should be able to solve problems related to equilateral						

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			triangles.						
			8.3 Sum of Interior Angles of Polygons (pp.8.26 – 8.32) • Working through Inspiring Task 8.4, students should be able to relate the sum of the interior angles of a polygon with its number of sides. • Students should be able to solve problems related to the interior angles of polygons.	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 8.3 • Workbook 8.3 • Ongoing Assessment Package: Quiz 8.3 • Test Bank 8.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			8.4 Sum of Exterior Angles of Polygons (pp.8.33 – 8.38) • Working through Inspiring Task 8.5, students should be able to relate the sum of the exterior angles of a polygon with its number of sides. • Students should be able to solve problems related to the exterior angles of polygons.	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 8.4 • Workbook 8.4 • Ongoing Assessment Package: Quiz 8.4 • Test Bank 8.4			
			8.5 Tessellation	0.5	Demonstrating				

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			of a Plane (pp.8.38 – 8.40) • Working through Inspiring Task 8.6, students should recognize that only some regular polygons can tessellate a plane.	period /0.5 period	some examples and giving some classwork				
			8.6 Constructions of Regular Polygons (pp.8.40 – 8.44) • Students should be able to construct regular	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 8.6 • Workbook 8.6 • Ongoing Assessment Package: Quiz 8.6 • Test Bank 8.6			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			polygons using a protractor. (NF) Students should be able to construct some special regular polygons using a pair of compasses.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – How to Obtain a Star Polygon? (p.8.55)** • This enrichment introduces different ways of constructing star-like	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			patterns.			8 • Test Bank (Multiple-choice Questions)			
	26-28	**Chapter 9** **Deductive Geometry** • Develop a deductive approach to study geometric properties through studying the story of Euclid and his book - *Elements* • Develop an intuitive idea of deductive reasoning by presenting proofs of geometric problems relating with angles and lines • Understand and use the conditions for congruent and	**Let's Warm Up (p.9.4)** • Teachers can ask students to review the angles related to intersecting lines, parallel lines, and triangles. • Teachers can ask students to review the properties of and the conditions for congruent and similar	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 9 • Test Bank 9.0			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
		similar triangles to perform simple proofs	triangles.						
			9.1 Introduction to Deductive Reasoning and Proofs (pp.9.6 – 9.8) • Teachers should point out the knowledge learnt before were obtained using an intuitive approach, whereas the aim of this chapter is to perform proofs using a deductive approach.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork				
			9.2 Deductive Proofs	3 periods	Demonstrating some examples	• Worksheet 9.2			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			Related to Lines and Triangles (pp.9.8 – 9.20) • Students should be able to prove results related to intersecting lines and parallel lines. • Teachers should demonstrate the way of using a converse theorem through Examples 2, 4, 5 and 6. • Students should be able to prove results related to the interior angles and the	/3 periods	and giving some classwork	• Workbook 9.2 • Ongoing Assessment Package: Quiz 9.2 • Test Bank 9.2			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			exterior angles of triangles.						
			9.3 Deductive Proofs Related to Congruent and Isosceles Triangles (pp.9.20 – 9.30) • Students should be able to prove results related to congruent triangles. • Teachers should demonstrate the base angles of isosceles triangles are equal and its converse by performing proofs related to	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 9.3 • Workbook 9.3 • Ongoing Assessment Package: Quiz 9.3 • Test Bank 9.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			congruent triangles. • Students should be able to prove results related to isosceles triangles.						
			9.4 Deductive Proofs Related to Similar Triangles (pp.9.30 – 9.35) • Students should be able to prove results related to similar triangles.	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 9.4 • Workbook 9.4 • Ongoing Assessment Package: Quiz 9.4 • Test Bank 9.4			
			Chapter Summary **Assess Your Progress** **Revision Exercise**	0.5	Demonstrating some examples	• Workbook			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			Enrichment Mathematics – What's That on My Head? (p.9.47) • This enrichment provides a game related to the use of deductive reasoning.	period /0.5 period	and giving some classwork	• TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 9 • Test Bank (Multiple-choice Questions)			
	29-33	**Chapter 10** **Square Roots and Pythagoras' Theorem** • Recognize the existence of irrational numbers and surds • Recognize and appre- ciate	**Let's Warm Up (p.10.4)** • Teachers can ask students to review the number line. • Teachers can ask students to	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 10 • Test Bank 10.0			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
		different proofs of Pythagoras' theorem • Use Pythagoras' theorem and its converse to solve problems • Explore the representations of irrational numbers in the number line (NF) Appreciate the dynamic element of mathematics knowledge through studying the story of the 1st crisis of mathematics (NF) Manipulate commonly encountered surds inclu- ding the rationalization of the denominator in	review the product of prime factors of numbers.						

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
		the form of $\sqrt{a}$ (NF) Appreciate the expressions of surds could be expressed in a more concise form							
			10.1 Square Roots and Surds (pp.10.4 – 10.10) • Students should be able to find the square roots of a number. • Teachers should demonstrate the use of a calculator in finding the positive square root of a number. • Teachers should introduce the	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 10.1 • Workbook 10.1 • Ongoing Assessment Package: Quiz 10.1 • Test Bank 10.1			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			concept of surd, and help students recognize the integral part of a surd, and the two consecutive integers that a surd lying between.						
			10.2 Pythagoras' Theorem and Its Proofs (pp.10.10 – 10.21) • Working through Inspiring Task 10.1, students should recognize the relation between the sides of a	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 10.2 • Workbook 10.2 • Ongoing Assessment Package: Quiz 10.2 • Test Bank 10.2			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			right-angled triangle. • Students should be able to use Pythagoras' theorem to find an unknown length in a right-angled triangle. • Working through Inspiring Task 10.2, students should be able to prove Pythagoras' theorem as what James Garfield did.						
			10.3 Applications of Pythagoras' Theorem	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 10.3 • Workbook 10.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			(pp.10.21 – 10.28) • Students should be able to use Pythagoras' theorem to solve real-life problems. • Teachers may review the concept of speed in this section.			• Ongoing Assessment Package: Quiz 10.3 • Test Bank 10.3			
			10.4 Converse of Pythagoras' Theorem and Its Applications (pp.10.29 – 10.35) • Working through Inspiring Task 10.3, students	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 10.4 • Workbook 10.4 • Ongoing Assessment Package: Quiz 10.4 • Test Bank 10.4			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			should recognize that the converse is also true. • Students should be able to use the converse of Pythagoras' theorem to solve problems.						
			10.5 Rational and Irrational Numbers (pp.10.35 – 10.43) • Teachers should introduce the concepts of rational number and irrational numbers. • Working through Inspiring Task	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 10.5 • Workbook 10.5 • Ongoing Assessment Package: Quiz 10.5 • Test Bank 10.5			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			10.4, students should be able to represent surds on a number line. NF Teachers should point out that the discovery of $\sqrt{2}$ led to the first crisis of mathematics.						
			Non-foundation **10.6 Properties and Operations of Surds (pp.10.43 – 10.54)** NF Working through Inspiring Tasks 10.5 and 10.6, students should recognize the	4.5 periods /4.5 periods	Demonstrating some examples and giving some classwork	NF Worksheet 10.6 NF Workbook 10.6 NF Ongoing Assessment Package: Quiz 10.6 NF Test Bank 10.6			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			two properties of surds. NF Teachers may demonstrate two different methods in simplifying surds. (Please refer to the two **Association** on p.10.44 – 10.45.) NF Teachers should introduce the concept of like surds (and unlike surds) before performing the four operations of surds. NF Teachers should introduce the concept of						

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			rationalization of the denominators.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – How Did Pythagoras Prove the Pythagoras' Theorem? (p.10.69)** • This enrichment provides a brief summary of how Pythagoras proved the Pythagoras' theorem.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 10 • Test Bank (Multiple-choice Questions)			
	34-36	**Chapter 11**							

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
		Trigonometric Ratios • Understand the sine, cosine and tangent ratios for angles between 0° to 90° • Apply trigonometric ratios to find measures of 2-D figures • Explore the exact value of trigonometric ratios on special angles 30°, 45°, 60° • Explore the properties and relations of trigonometric ratios	**Let's Warm Up (p.11.4)** • Teachers can ask students to review the concept of ratios. • Teachers can ask students to review the properties of similar triangles. • Teachers can ask students to review Pythagoras' theorem. • Teachers can ask students to review the concept of identities.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 11 • Test Bank 11.0			
			11.1 Introduction	0.5	Demonstrating				

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			to Trigonometric Ratios (pp.11.5 – 11.6) • Teachers should point out the 3 ratios to be discussed.	period /0.5 period	some examples and giving some classwork				
			11.2 Sine Ratio (pp.11.6 – 11.17) • Working through Inspiring Task 11.1, students should recognize that similar triangles have the same ratio of two sides. • Teachers should introduce the	3.5 periods /3.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 11.2 • Workbook 11.2 • Ongoing Assessment Package: Quiz 11.2 • Test Bank 11.2			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			sine ratio. • Students should be able to find - the value sine ratios, - sin θ from θ using a calculator, - θ from sin θ using a calculator, - the unknown lengths, and - the unknown angles. • Teachers should point out that different calculators have different the key-in sequences.						
			11.3 Cosine Ratio (pp.11.17 –	2.5 periods	Demonstrating some examples	• Worksheet 11.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			11.27) • Teachers should introduce the cosine ratio. • Students should be able to find - the value cosine ratios, - cos θ from θ using a calculator, - θ from cos θ using a calculator, - the unknown lengths, and - the unknown angles. • Teachers should also introduce the notation of the squares of the trigonometric	/2.5 periods	and giving some classwork	• Workbook 11.3 • Ongoing Assessment Package: Quiz 11.3 • Test Bank 11.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			ratios. (Please refer to p.11.19 for details.)						
			11.4 Tangent Ratio (pp.11.27 – 11.36) • Teachers should introduce the tangent ratio. • Students should be able to find - the value tangent ratios, - tan θ from θ using a calculator, - θ from tan θ using a calculator, - the unknown lengths, and - the unknown angles.	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 11.4 • Workbook 11.4 • Ongoing Assessment Package: Quiz 11.4 • Test Bank 11.4			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			• Teachers should point out that the tangent ratios may be greater than 1. (Please refer to p.11.28 for details.)						
			11.5 Trigonometric Ratios of Some Special Angles (pp.11.36 – 11.43) • Working through Inspiring Task 11.2, students should be able to find the exact values of the trigonometric ratios of 30°,	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 11.5 • Workbook 11.5 • Ongoing Assessment Package: Quiz 11.5 • Test Bank 11.5			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			45° and 60°. • Students should be able to find the unknown lengths and the unknown angles in a special right-angled triangle. (NF) Teachers may remind students about the rationalization of the denominator. • Teachers should introduce simple trigonometric equations.						
			11.6 Finding Trigonometric Ratios by Using	1.5 periods /1.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 11.6 • Workbook 11.6			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			Right-angled Triangles (pp.11.43 – 11.47) • Students should be able to find the other two trigonometric ratios from a given sine, cosine or tangent ratio by constructing a right-angled triangle.			• Ongoing Assessment Package: Quiz 11.6 • Test Bank 11.6			
			11.7 Basic Trigonometric Identities (pp.11.47 – 11.54) • Working through Inspiring Task 11.3, students	2.5 periods /2.5 periods	Demonstrating some examples and giving some classwork	• Worksheet 11.7 • Workbook 11.7 • Ongoing Assessment Package: Quiz 11.7 • Test Bank			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			should obtain two basic trigonometric identities. • Teachers should remind students some other forms of these identities. • Students should be able to - simplify expressions, - find values of expressions, - solve trigonometric equations, - prove other identities.			11.7			
			11.8 Trigonometric Identities of	2 periods /2 periods	Demonstrating some examples and giving some classwork	• Worksheet 11.8 • Workbook 11.8			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			Complementary Angles (pp.11.54 – 11.59) • Working through Inspiring Task 11.4, students should obtain the trigonometric identities of complementary angles. • Teachers should remind students the other form of these identities. • Students should be able to - simplify expressions, - find values of			• Ongoing Assessment Package: Quiz 11.8 • Test Bank 11.8			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			expressions, - solve trigonometric equations, - prove other identities.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – What Is Special about 0° And 90°? (p.11.69)** • This enrichment introduces the trigonometric ratios of 0° and 90°.	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment 11 • Test Bank (Multiple-			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
						choice Questions)			
	38-39	**Chapter 12** **Area and Volume (II)** • Explore the formula for the area of a circle • Calculate circumferences and areas of circles • Calculate arc lengths and areas of sectors • Understand and use the formulas for surface areas and volumes of cylinders	**Let's Warm Up (p.12.4)** • Teachers can ask students to review the meaning of π. • Teachers can ask students to review the properties of similar figures. • Teachers can ask students to review Pythagoras' theorem. • Teachers can ask students to review the volumes and the total surface	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Warm-up Worksheet 12 • Test Bank 12.0			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			areas of prisms.						
			12.1 Circumferences and Areas of Circles (pp.12.5 – 12.17) • Teachers should help students consolidate the concepts about the perimeter of figures related to circles, semicircles, etc. • Working through Inspiring Task 12.1, students should recognize the way of finding the area of a circle.	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 12.1 • Workbook 12.1 • Ongoing Assessment Package: Quiz 12.1 • Test Bank 12.1			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			• Students should be able to find the areas of simple figures involving circles, semicircles, etc. • Teachers should discuss some other problems related to areas of circles through Examples 7 and 8.						
			12.2 Arcs and Sectors (pp.12.17 – 12.26) • Working through Inspiring Task 12.2, students should	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 12.2 • Workbook 12.2 • Ongoing Assessment Package: Quiz 12.2 • Test Bank			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			recognize the way of finding the arc length. • Teachers should introduce the formula for the area of a sector using the concept of ratio. • Students should be able find the perimeters and the areas of simple figures involving arcs and sectors, and solve problems related to arcs and sectors.			12.2			
			12.3 Volumes and Total Surface Areas of Cylinders (pp.12.27 –	3 periods /3 periods	Demonstrating some examples and giving some classwork	• Worksheet 12.3 • Workbook 12.3 • Ongoing			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			12.35) • Teachers should introduce the formula for the volume of a cylinder from that of a prism. • Students should be able to find the volumes of cylinders. • Teachers should discuss some problems related to number of objects, water level, etc. • Working through Inspiring Task 12.3, students should recognize the			Assessment Package: Quiz 12.3 • Test Bank 12.3			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			way of finding the area of the lateral face of a cylinder. • Students should be able to find the total surface areas of cylinders.						
			Chapter Summary **Assess Your Progress** **Revision Exercise** **Enrichment Mathematics – What Is the Symbolic Meaning of Circles? (p.12.45)** • This enrichment provides some information about the	0.5 period /0.5 period	Demonstrating some examples and giving some classwork	• Workbook • TSA Supplementary Exercises • Intensive Practice • Ongoing Assessment Package: Formative Assessment			

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Self-directed Learning Skills◆	Values#	Basic Law Education
			symbolic meaning of circles.			12 • Test Bank (Multiple-choice Questions)			

* The extended parts should be marked with asterisks. These parts should be more challenging and can be covered when the students can master the knowledge and skills covered in the conventional topics.

Core Values of Wah Yan College, Kowloon

I. Love and care	1. Accept & feel positive about himself 2. Appreciation & Gratitude 3. Empathy & Compassion	4. Forgiveness & Reconciliation 5. Service 6. Family as a basic unit of society; marriage is the foundation of a family
II. Strive for excellence	7. Reflective 8. Commitment 9. Perseverance	10. Curiosity & willingness to learn 11. Value imagination and creativity
III. Respect and Justice	12. Life is valuable and respectable 13. Openness to good in all things 14. Respect for himself & others	15. Integrity 16. Faithfulness
IV. Responsibility	17. Freedom & Self-discipline 18. Care for the environment	19. Social Identities: citizen identity, national identity and global citizen identity
V. Faith	20. Experience of God 21. Explore & practise one's faith	22. Appreciate religious liturgies