

Wah Yan College Kowloon
F.6 Mathematics (Core&M2) Scheme of Work (2016-2017)

Textbook	1. New Progress in Senior Mathematics 6A (Compulsory Part) (with Public Exam Essentials and Student's Revision CD,) 2. New Progress in Senior Mathematics (Extended Part) Module 2 Book 1 3. New Progress in Senior Mathematics (Extended Part) Module 2 Book 2
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- 30/12/201 7, Weeks 1-17)	1-3	Chapter 21 Measures of Dispersion <ul style="list-style-type: none"> • To understand the concept of dispersion • To understand the concepts of range and inter-quartile range • To construct 	Let's Review (pp.176 – 177) <ul style="list-style-type: none"> • Teachers may ask students to review the techniques for collecting and organizing data, and use statistical graphs to represent frequency distribution and different measures of central tendency. 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> • Worksheet 21.0 (Sets 1 & 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*
		<p>and interpret box-and-whisker diagrams and use them to compare the distributions of different sets of data</p> <ul style="list-style-type: none"> • To understand the concept of standard deviation • To compare the dispersion of different sets of data using appropriate measures <p><i>Non-foundation</i></p> <ul style="list-style-type: none"> • To understand the applications of the standard 							

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*
		deviation in real-life problems <i>Non-foundation</i> <ul style="list-style-type: none"> To explore and make conjecture on the effects of dispersion in different situations 							
			21.1 Range and Inter-quartile Range (pp.178 – 188) <ul style="list-style-type: none"> Teachers can remind students the difference in calculating range and inter-quartile range of grouped and ungrouped data. 	2 hours /2 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 21.1 – 21.5 Worksheet 21.1 (Sets 1 & 2) Ongoing Assessment Package: Quiz 21.1 Test Bank 21.1 			

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*
			<p>21.2 Box-and-whisker Diagrams (pp.189 – 198)</p> <ul style="list-style-type: none"> Teachers can illustrate the general configuration of a box-and-whisker diagram. Teachers can teach students how to use box-and-whisker diagrams to compare different sets of data. Teachers can help students develop their information technology skills in drawing the box-and-whisker diagram by using a spreadsheet. 	3 hours /3 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 21.6 – 21.7 Worksheet 21.2 (Sets 1 & 2) Ongoing Assessment Package: Quiz 21.2 Test Bank 21.2 			
			<p>21.3 Standard Deviation (pp.198 – 209)</p> <ul style="list-style-type: none"> Teachers can use two 	3 hours /3 hours	Demonstrating some examples and giving	<ul style="list-style-type: none"> Additional Examples 21.8 – 21.11 			

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*
			sets of data with the same mean but different dispersions to point out the meaning of standard deviation of the data.		some classwork	<ul style="list-style-type: none"> Worksheet 21.3 (Sets 1 & 2) Ongoing Assessment Package: Quiz 21.3 Test Bank 21.3 			
			<p><i>Non-foundation</i></p> <p>21.4 Applications of Standard Deviation (pp.210 – 218)</p> <ul style="list-style-type: none"> Teachers can tell students to use the formula for standard score to find the standard deviation. Teachers can ask students what a standard deviation of 0 represents. 	2.5 hours /2.5 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 21.12 – 21.15 Worksheet 21.4 (Sets 1 & 2) Ongoing Assessment Package: Quiz 21.4 Test Bank 21.4 			
			<i>Non-foundation</i>						

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*
			<p>21.5 Effects on the Dispersion with a Change in Data (pp.218 – 227)</p> <ul style="list-style-type: none"> Teachers can discuss with students about the change on the dispersion of data after making different changes to data values. 	2 hours /2 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 21.16 – 21.17 Worksheet 21.5 (Sets 1 & 2) Ongoing Assessment Package: Quiz 21.5 Test Bank 21.5 			
			<p>Enrichment Mathematics – Applications of the Coefficient of Variation (pp.246 – 247)</p> <ul style="list-style-type: none"> Teachers can point out that the standard deviation is commonly used to compare different sets of data in daily life. 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork				

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*
	3-4	Chapter 22 Uses and Abuses of Statistics <ul style="list-style-type: none"> • To recognize different techniques in survey sampling and the basic principles of questionnaire design • To discuss and recognize the uses and abuses of statistical methods in various daily-life activities or investigations • To assess statistical 	Let's Review (p.250) <ul style="list-style-type: none"> • Teachers can ask students to review sampling techniques and different methods of data collection. 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork				

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*
		investigations presented in different sources such as the news media, research reports, etc							
			22.1 Statistical Surveys (pp.250 – 255) <ul style="list-style-type: none"> Teachers can ask students to discuss in groups about the strengths and weaknesses of various methods of surveys. 	2 hours /2 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Worksheet 22.1 (Sets 1 & 2) 			
			22.2 Sampling Methods (pp.256 – 264) <ul style="list-style-type: none"> Teachers can discuss with students about the reasons of using sampling method as a statistical method. Teachers can point out 	3 hours /3 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 22.1 – 22.3 Worksheet 22.2 (Sets 1 & 2) 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*
			the difference between probability sampling and non-probability sampling.			Package: Quiz 22.2 • Test Bank 22.2			
			<p>22.3 Statistical Investigations (pp.265 – 273)</p> <ul style="list-style-type: none"> Through reading various statistical reports, teachers can discuss the credibility of the reports with students. Teachers can also ask the students to assess the statistical investigations in groups. 	2 hours /2 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 22.4 – 22.5 Worksheet 22.3 (Sets 1 & 2) Ongoing Assessment Package: Quiz 22.3 Test Bank 22.3 			
			<p>Enrichment Mathematics – Population Census and By-census in Hong Kong (pp.286 – 287)</p>	0.5 hour /0.5 hour	Demonstrating some examples and giving some				

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*
			<ul style="list-style-type: none"> Teachers can ask students to find out some data from population census and do a project. 		classwork				
	4-6	<p>Chapter 23</p> <p>Locus</p> <ul style="list-style-type: none"> To understand the concept of loci and describe and sketch the locus of points under given conditions To describe the locus of points with algebraic equations To understand the equation of a circle <p><i>Non-foundation</i></p>	<p>23.1 Concept of Loci (pp.290 – 300)</p> <ul style="list-style-type: none"> Teachers can help students investigate the locus of a moving point by geometric software 'winggeom'. Teachers can teach the students how to use algebraic equations to describe the simple locus of a moving point. 	7 hours /7 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 23.1 – 23.6 Worksheet 23.1 (Sets 1 & 2) Ongoing Assessment Package: Quiz 23.1 Test Bank 23.1 			

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*
		<ul style="list-style-type: none"> To find the number and coordinates of the points of intersection of a straight line and a circle <p>Non-foundation</p> <ul style="list-style-type: none"> To find the equations of tangents to a circle 							
			<p>23.2 Equations of Circles (pp.300 – 312)</p> <ul style="list-style-type: none"> Teachers can deduce the equation of circle and transform the equation in the form of $x^2 + y^2 + Dx + Ey + F = 0$ or $(x - h)^2 + (y - k)^2 = r^2$. Teachers may remind students that the coefficients of x^2 and y^2 	5 hours /5 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 23.7 – 23.12 Worksheet 23.1 (Sets 1 & 2) Ongoing Assessment Package: Quiz 23.1 Test Bank 23.1 			

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*
			must be equal.						
			<p><i>Non-foundation</i></p> <p>23.3 Intersection of a Straight Line and a Circle (pp.313 – 319)</p> <ul style="list-style-type: none"> Teachers may point out the conditions of the intersection of a straight line and a circle. Teachers can ask students to review how to solve the simultaneous equations. 	5 hours /5 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 23.13 – 23.15 Worksheet 23.3 (Sets 1 & 2) Ongoing Assessment Package: Quiz 23.3 Test Bank 23.3 			
			<p>Enrichment Mathematics – Loci in a Parabola (pp.332 – 333)</p> <ul style="list-style-type: none"> Teachers can point out the properties of parabola. Teachers can introduce 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork				

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 focus and directrix of parabola.						
	6-8	Chapter 24 Inequalities and Linear Programming <ul style="list-style-type: none"> To solve compound linear inequalities in one unknown To solve quadratic inequalities in one unknown by the graphical method <i>Non-foundation</i> <ul style="list-style-type: none"> To solve quadratic inequalities in one unknown by the 	Let's Review (p.336) <ul style="list-style-type: none"> Teachers may review the method of solving a linear inequality in one unknown. Teachers may review the properties of inequalities. 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Worksheet 24.0 (Sets 1 & 2) Test Bank 24.0 			

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*
		algebraic method <i>Non-foundation</i> <ul style="list-style-type: none"> To represent the graphs of linear inequalities in two unknowns on a plane <i>Non-foundation</i> <ul style="list-style-type: none"> To solve systems of linear inequalities in two unknowns <i>Non-foundation</i> <ul style="list-style-type: none"> To solve linear programming problems 							
			24.1 Compound Linear Inequalities in One Unknown (pp.337 – 346) <ul style="list-style-type: none"> Teachers can introduce 	2 hours /2 hours	Demonstrating some examples and giving some	<ul style="list-style-type: none"> Additional Examples 24.1 – 24.5 Worksheet 			

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 methods of solving compound linear inequalities.		classwork	24.1 (Sets 1 & 2) • Ongoing Assessment Package: Quiz 24.1 • Test Bank 24.1			
			<p>24.2 Quadratic Inequalities in One Unknown (pp.346 – 354)</p> <ul style="list-style-type: none"> Teachers can review solving inequalities graphically. <p><i>Non-foundation</i></p> <ul style="list-style-type: none"> Teachers may teach the skills of solving an inequality by the algebraic method. 	3 hours /3 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 24.6 – 24.9 Worksheet 24.2 (Sets 1 & 2) Ongoing Assessment Package: Quiz 24.2 Test Bank 24.2 			
			<p><i>Non-foundation</i></p> <p>24.3 Linear Inequalities in Two Unknowns</p>	3 hours /3 hours	Demonstrating some	<ul style="list-style-type: none"> Additional Examples 24.10 – 24.12 			

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*
			<p>(pp.354 – 366)</p> <ul style="list-style-type: none"> Teachers may explain to students when to use solid line or dotted line in solving linear inequalities in two unknowns. 		<p>examples and giving some classwork</p>	<ul style="list-style-type: none"> Worksheet 24.3 (Sets 1 & 2) Ongoing Assessment Package: Quiz 24.3 Test Bank 24.3 			
			<p><i>Non-foundation</i></p> <p>24.4 Linear Programming (pp.367 – 376)</p> <ul style="list-style-type: none"> Teachers can remind students that under the same constraints, the optimal solutions may differ from different objective functions. Teacher may ask students to verify the result by using a computer software like 'Winplot'. 	<p>3 hours /3 hours</p>	<p>Demonstrating some examples and giving some classwork</p>	<ul style="list-style-type: none"> Additional Examples 24.13 – 24.14 Worksheet 24.4 (Sets 1 & 2) Ongoing Assessment Package: Quiz 24.4 Test Bank 24.4 			

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*
			<p><i>Non-foundation</i></p> <p>24.5 Applications of Linear Programming (pp.376 – 385)</p> <ul style="list-style-type: none"> Teachers can discuss with students about examples of linear programming in modeling real-life problems. 	4 hours /4 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 24.15 – 24.17 Worksheet 24.5 (Sets 1 & 2) Ongoing Assessment Package: Quiz 24.5 Test Bank 24.5 			
			<p>Enrichment Mathematics – Understanding the Concepts of Operations Research (pp.402 – 403)</p> <ul style="list-style-type: none"> Teacher may introduce the development of linear programming. 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork				

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*
	8-10	Chapter 11 (M2) Matrices and Determinants <ul style="list-style-type: none"> To understand the concepts, operations and properties of matrices To recognize the concepts and properties of determinants of order 2 and order 3 To understand the concepts, operations and properties of inverse matrices of order 2 and order 3 	11.1 Matrices (pp.166 – 183) <ul style="list-style-type: none"> Students should learn the representation of numbers in the form of an $m \times n$ matrix and some special types of matrices. Students should be able to do operations of matrices, which include addition, subtraction, scalar multiplication, multiplication of matrices and transpose. 	4 hours /4 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 11.1 – 11.8 Worksheet 11.1 (Sets 1 & 2) Ongoing Assessment Package: Quiz 11.1 Test Bank 11.1 			
			11.2 Determinants	3.5 hours	Demonstrati	<ul style="list-style-type: none"> Additional 			

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*
			<p>(pp.184 – 205)</p> <ul style="list-style-type: none"> Students should be able to simplify and factorize determinants by the properties of determinants, and evaluate determinants of order 2 and 3. 	/3.5 hours	ng some examples and giving some classwork	<p>Examples 11.9 – 11.19</p> <ul style="list-style-type: none"> Worksheet 11.2 (Sets 1 & 2) Ongoing Assessment Package: Quiz 11.2 Test Bank 11.2 			
			<p>11.3 Inverses of Square Matrices (pp.206 – 218)</p> <ul style="list-style-type: none"> Students should be able to find the inverses for non-singular matrices. Students should also learn the simple properties of inverses. 	4 hours /4 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 11.20 – 11.25 Worksheet 11.3 (Sets 1 & 2) Ongoing Assessment Package: Quiz 11.3 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*
						11.3			
			Enrichment Mathematics – Application of Matrix: Rotation on the Coordinate Plane (p.231) <ul style="list-style-type: none"> This enrichment introduces an application of matrix to two dimensional geometry, which is rotation. Teachers may introduce to students other applications of matrix to two dimensional geometry, such as translation, reflection, enlargement and reduction. 	0.5 hour /0.5 hour	Demonstrating some examples and giving some classwork				
	11-12	Chapter 12 (M2) System of Linear Equations <ul style="list-style-type: none"> To solve the 	12.1 System of Linear Equations (p.234) <ul style="list-style-type: none"> Teachers can review the 	0.5 hour /0.5 hour	Demonstrating some examples				

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*
		systems of linear equations of order 2 and order 3 by Cramer's rule, inverse matrices and Gaussian elimination	method of substitution and method of elimination for solving simultaneous equations. <ul style="list-style-type: none"> Students should learn some terminologies and basic concepts about the systems of linear equations. 		and giving some classwork				
			12.2 Solving Equations by Inverses of Matrices (pp.234 – 240) <ul style="list-style-type: none"> Students should be able to solve systems of linear equations by using the method of inverse matrix, and identify the conditions for the existence and uniqueness of solutions for a system of linear equations in two or 	1 hour /1 hour	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 12.1 – 12.3 Worksheet 12.2 (Sets 1 & 2) Ongoing Assessment Package: Quiz 12.2 Test Bank 12.2 			

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*
			three unknowns.						
			12.3 Solving Equations by Cramer’s Rule (pp.240 – 245) <ul style="list-style-type: none"> Teachers may introduce the general form of Cramer’s rule. Teachers may ask students to compare the two methods introduced. Students should be able to solve systems of linear equations by using Cramer’s rule. 	1 hour /1 hour	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 12.4 – 12.6 Worksheet 12.3 (Sets 1 & 2) Ongoing Assessment Package: Quiz 12.3 Test Bank 12.3 			
			12.4 Solving Equations by Gaussian Elimination (pp.245 – 256) <ul style="list-style-type: none"> Students should understand the limitations of the previous two methods. 	2 hours /2 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 12.7 – 12.10 Worksheet 12.4 (Sets 1 & 2) 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*
			<ul style="list-style-type: none"> Students should be able to solve systems of linear equations by using Gaussian elimination, and determine the number of solutions of a system of linear equations. 			Package: Quiz 12.4 <ul style="list-style-type: none"> Test Bank 12.4 			
			<p>12.5 Homogeneous Systems of Linear Equations (pp.257 – 263)</p> <ul style="list-style-type: none"> Students should be able to solve homogeneous systems of linear equations, and determine the existence of non-trivial solutions for homogeneous systems of linear equations. 	1 hour /1 hour	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 12.11 – 12.13 Worksheet 12.5 (Sets 1 & 2) Ongoing Assessment Package: Quiz 12.5 Test Bank 12.5 			
			Enrichment Mathematics –	0.5 hour /0.5 hours	Demonstrating some				

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*
			<p>Application of Systems of Linear Equations: Traffic Flow (p.275)</p> <ul style="list-style-type: none"> This enrichment introduces an application of system of linear equations in transportation, which is a traffic flow problem. Teachers may ask students to design new cases with other settings of roads and traffic flow. 		<p>examples and giving some classwork</p>				
	13-14	<p>Chapter 13 (M2) Vectors in Two-dimensional Space</p> <ul style="list-style-type: none"> To understand the concepts of vectors and scalars To understand the operations 	<p>13.1 Concepts of Vectors and Scalars (pp.278 – 279)</p> <ul style="list-style-type: none"> Students should learn the definitions of a vector and a scalar, graphical and written representations of vectors. 	0.5 hour /0.5 hour	<p>Demonstrating some examples and giving some classwork</p>				

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*
		<p>and properties of vectors</p> <ul style="list-style-type: none"> To understand the representation of a vector in the rectangular coordinate system To understand the definition and properties of the scalar product of vectors To understand the applications of vectors 	<ul style="list-style-type: none"> The terms zero vector, unit vector, negative vector and free vector should be defined. 						
			<p>13.2 Operations and Properties of Vectors (pp.280 – 291)</p> <ul style="list-style-type: none"> Students should learn 	<p>3 hours /3 hours</p>	<p>Demonstrating some examples and giving some</p>	<ul style="list-style-type: none"> Additional Examples 13.1 – 13.5 Worksheet 13.2 			

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*
			the operations of vectors, position vectors, and the rules on operations of vectors.		classwork	(Sets 1 & 2) • Ongoing Assessment Package: Quiz 13.2 • Test Bank 13.2			
			<p>13.3 Vectors in the Rectangular Coordinate System (pp.291 – 300)</p> <ul style="list-style-type: none"> • Students should be able to represent vectors and find the magnitude and direction of vectors in the rectangular coordinate system. • Students should be able to do operations of vectors in the rectangular coordinate system. • Students should be able 	2 hours /2 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> • Additional Examples 13.6 – 13.11 • Worksheet 13.3 (Sets 1 & 2) • Ongoing Assessment Package: Quiz 13.3 • Test Bank 13.3 			

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*
			to solve problems involving unit vectors and point of division.						
			<p>13.4 Applications of Vectors (pp.300 – 307)</p> <ul style="list-style-type: none"> Students should be able to solve problems involving the parallelism of vectors and verify whether a set of vectors are collinear. Students should be able to find the ratio of line segments on a straight line by vectors. 	1.5 hours /1.5 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 13.12 – 13.15 Worksheet 13.4 (Sets 1 & 2) Ongoing Assessment Package: Quiz 13.4 Test Bank 13.4 			
			<p>13.5 Scalar Products (pp.307 – 317)</p> <ul style="list-style-type: none"> Students should be able to find the scalar product of two vectors, the scalar product in the rectangular coordinate system and angles 	3 hours /3 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 13.16 – 13.19 Worksheet 13.5 (Sets 1 & 2) 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*
			between two vectors.			Assessment Package: Quiz 13.5 • Test Bank 13.5			
			13.6 Applications of Scalar Products (pp.317 – 323) <ul style="list-style-type: none"> Students should be able to find the projection of vectors, solve problems involving the orthogonality by vectors, and use the orthogonality to prove the properties of plane figures. 	1.5 hours /1.5 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 13.20 – 13.23 Worksheet 13.6 (Sets 1 & 2) Ongoing Assessment Package: Quiz 13.6 Test Bank 13.6 			
			Enrichment Mathematics – Vectors in Mechanics (p.335) <ul style="list-style-type: none"> This enrichment introduces an 	0.5 hour /0.5 hour	Demonstrating some examples and giving some				

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*
			application of vectors in mechanics, which is the work done by forces on a particle.		classwork				
	15-16	Chapter 14 (M2) Vectors in Three-dimensional Space <ul style="list-style-type: none"> To understand the operations and properties of vectors in \mathbf{R}^3 To understand the definition and properties of vector product in \mathbf{R}^3 To understand the definition and properties of scalar triple product in \mathbf{R}^3 To understand 	14.1 Vectors in Three-dimensional Rectangular Coordinate System (pp.338 – 350) <ul style="list-style-type: none"> Teachers can point out that all the properties of vectors in \mathbf{R}^2 can also be applied in \mathbf{R}^3. Students should be able to perform basic operations of vectors, and solve problems involving unit vectors and scalar products in three-dimensional space. 	2.5 hours /2.5 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 14.1 – 14.10 Worksheet 14.1 (Sets 1 & 2) Ongoing Assessment Package: Quiz 14.1 Test Bank 14.1 			

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*
		the applications of vectors							
			14.2 Vector Product and Scalar Triple Product (pp.351 – 363) <ul style="list-style-type: none"> Students should be able to apply vector product to solve problems involving the orthogonality of vectors, and to find the areas of parallelograms and triangles. Students should also be able to apply scalar triple product to find the volume of parallelepiped. 	3 hours /3 hours	Demonstrating some examples and giving some classwork	<ul style="list-style-type: none"> Additional Examples 14.11 – 14.15 Worksheet 14.2 (Sets 1 & 2) Ongoing Assessment Package: Quiz 14.2 Test Bank 14.2 			
			Enrichment Mathematics – Direction Ratios and Direction	0.5 hour /0.5 hour	Demonstrating some examples and giving				

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*
			<p>Cosines (p.371)</p> <ul style="list-style-type: none"> This enrichment introduces the concepts of direction ratios and direction cosines. Teachers may ask students to find the direction and magnitude of a vector in \mathbf{R}^3 by the knowledge of that in \mathbf{R}^2. 		some classwork				
Second Term (31/12/2017-18/7/2018, Weeks 18-46)	18-24 26	Revisions			Demonstrating some examples and giving some classwork				

* 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	<ol style="list-style-type: none"> Accept & feel positive about himself Appreciation & Gratitude Empathy & Compassion 	<ol style="list-style-type: none"> Forgiveness & Reconciliation Service 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