The Asian International School Curriculum Mapping

<u>Grade: 10 (Upper-Intermediate)</u>　　　　　　<u>Subject: Mathematics</u>　　　　　　<u>School Year: 2018-2019</u>

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Aug.	2	8.6.3.A 8.8.1.A	Patterns, Functions, and Algebra	**Chapter 1: Basic Trigonometry** **Unit 1: Pythagorean Theorem** • Definition of the Pythagorean Theorem • Special right triangle 　○ $30^0 - 60^0 - 90^0$ 　○ $45^0 - 45^0 - 90^0$ • Quadratic Formula 　○ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	• Define and understand the concept of Pythagorean theorem • Calculate the measure of the unknown side of a right triangle • Use the special right triangle to calculate the unknown sides of a right triangle	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Aug. - Sept.	3	8.6.1.A	Patterns, Functions, and Algebra	**Chapter 1: Basic Trigonometry** **Unit 2: Trig Functions and Ratios** • Definitions 　o Sine (sin) 　o Cosine (cos) 　o Tangent (tan) 　o Cosecant (csc) 　o Secant (sec) 　o Cotangent (cot) • Proper notations for trigonometric ratios	• Define and understand the concept of sine, cosine, tangent, cosecant, secant, and cotangent • Use proper notations for the 6 trigonometric ratios	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets
Sept.	4	8.6.2.A	Patterns, Functions, and Algebra	**Chapter 1: Basic Trigonometry** **Unit 3: Trig Identities** • Trigonometric Identities	• Understand and derive fundamental identities • Simplify trigonometric expressions	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Oct.	4	8.6.2.A	Patterns, Functions, and Algebra	**Chapter 1: Basic Trigonometry** **Unit 4: Inverse Trig Functions** • Definitions ○ $\sin^{-1} x$ ○ $\cos^{-1} x$ ○ $\tan^{-1} x$ • Problem Solving • Word Problems involving trigonometry	• Understand how the inverse trig functions work. • Be able to solve standard and word problems using the inverse trig functions.	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets
	2		Patterns, Functions, and Algebra	**Chapter 1: Basic Trigonometry** **Comprehensive Project** • Comprehensive group project intended to demonstrate the students comprehensive understanding and functional knowledge of the material from Chapter 1.	• Students will demonstrate their functional knowledge of the material from Chapter 1.	• Comprehensive Group Project • Preferred for the students to do the project outside of class and present their results to the class.	• Presentation of the Group Project to the class.

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
	2		Patterns, Functions, and Algebra	**Review for Midterm Exam**	**Chapter 1: Basic Trigonometry** • Unit 1: Pythagorean Theorem • Unit 2: Trig Ratios • Unit 3: Trig Identities • Unit 4: Inverse Trig Functions		
MIDTERM EXAM								

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Nov.	3	7.17.1.A	Patterns, Functions, and Algebra	**Chapter 2: Trigonometry in the Circle** **Unit 1: Arcs and Angles** • Definitions o Unit circle o Arc o Radians o Angles in the circle • Calculating Arc Length • Representing Arcs in a Circle	• Define unit circle • Determine the degree and radian measure of a given angle in a unit circle • Determine the measure of an arc in a unit circle • Draw and represent a given arc in a circle	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets

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	3	7.17.2.A	Patterns, Functions, and Algebra	**Chapter 2: Trigonometry in the Circle** **Unit 2: Trigonometric Functions in the Unit Circle** • Define trigonometric functions in the circle • Supplement secant and cosecant	• Define the 6 trigonometric functions in a unit circle • Calculate values of trigonometric functions of a given angle	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets
	2	7.17.3.A	Patterns, Functions, and Algebra	**Chapter 2: Trigonometry in the Circle** **Unit 3: Trigonometric formula** • Sum and difference • Double angle • Product to sum and sum to product • Half angle (Supplement)	• Evaluate simple trigonometric expressions • Derive and apply the different trigonometric identities • Determine the value of a given angle using half angle identities	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Dec.	2		Patterns, Functions, and Algebra	**Chapter 2: Trigonometry in the Circle** **Comprehensive Project** Comprehensive group project intended to demonstrate the students comprehensive understanding and functional knowledge of the material from Chapter 2.	• Students will demonstrate their functional knowledge of the material from Chapter 2.	• Comprehensive Group Project • Preferred for the students to do the project outside of class and present their results to the class.	• Presentation of the Group Project to the class.
	2		Patterns, Functions, and Algebra	**Review for Final Exam**	**Chapter 2: Trigonometry in the Circle** • Unit 1: Trigonometric arcs and angles • Unit 2: Trigonometric values of Special arcs • Unit 3: Trigonometric formula		
FINAL EXAM							

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Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Jan	3	5.1.3.A	Vectors and Matrices	**Chapter 3: Vectors** **Unit 1: Concept of Vector** • Length of vectors • Equal vectors • Zero vectors	• Define and understand the concept of vectors • Illustrate geometrically parallel vectors and vectors with the same direction • Define and understand equal and zero vectors	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets
Feb.	2	8.3.2.A	Vectors and Matrices	**Chapter 3: Vectors** **Unit 2: Addition and Subtraction of Vectors** • Adding and Subtracting Vectors • Scalar multiple of a vector	• Define and understand vector sum • Perform addition and subtraction of vectors	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
	3	8.6.3.A	Vectors and Matrices	**Chapter 3: Vectors** **Unit 3: Dot Product and Cross Product of Vectors** • Dot Product • Cross Product • Parallel Vectors	• Define and understand the properties of dot products of two vectors • Define and understand the properties of cross products of two vectors • Understand how dot product relates to parallel vectors	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets
	2		Vectors and Matrices	**Chapter 3: Vectors** **Comprehensive Project** Comprehensive group project intended to demonstrate the students comprehensive understanding and functional knowledge of the material from Chapter 3.	• Students will demonstrate their functional knowledge of the material from Chapter 3.	• Comprehensive Group Project • Preferred for the students to do the project outside of class and present their results to the class.	• Presentation of the Group Project to the class.
Mar.	2		Vectors and Matrices	**Review for Midterm Exam**	**Chapter 3: Vectors** • Unit 1: Concept of Vector • Unit 2: Addition and Subtraction of vectors • Unit 3: Dot product		

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				MIDTERM EXAM			
Mar.	**3**	9.1.1.A 9.2.2.A 9.6.1.A	Statistics and Probability	**Chapter 4: Statistics** **Unit 1: Frequency and Relative Frequency Tables** • Frequent tables • Relative frequency tables • Graphs 　o Histograms 　o Broken line graphs • Pie charts	• Set up an ungrouped frequency and relative frequency table of a given data • Set up a grouped frequency and relative frequency table of a given data • Create the graph of a given frequency table or relative frequency table	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets

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Apr.	3	9.1.2.A 9.1.3.A	Statistics and Probability	**Chapter 4: Statistics** **Unit 2: Measures of Central Tendencies and Dispersion** • Mean • Median • Mode • Variance • Standard Deviation	• Define and understand the different measures of central tendencies • Determine the mean, median, and mode of a given ungrouped data • Define and understand the concept of variance and standard deviation • Set up a column for deviation from the mean of a given set of data • Calculate the variance and standard deviation of a given data set	• Group Work • Mini-Research Projects • Computer Projects • Worksheets	• Group Presentations • Individual Presentations • Worksheets
	3		Statistics and Probability	**Chapter 4: Statistics** **Comprehensive Project** Comprehensive group project intended to demonstrate the students comprehensive understanding and functional knowledge of the material from Chapter 4.	• Students will demonstrate their functional knowledge of the material from Chapter 4.	• Comprehensive Group Project • Preferred for the students to do the project outside of class and present their results to the class.	• Presentation of the Group Project to the class.

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
	2		Statistics and Probability	**Review for Final Exam**	**Chapter 4: Statistics** • Unit 1: Frequency and relative frequency table • Unit 2: Measures of Central Tendencies and Dispersion		
FINAL EXAM							