Mathematics - Subject Overviews – MYP 5

** All units taught in MYP Years 1-5 are continuously being developed and improved to best meet the needs of the students at LIS. Therefore, the following Subject Overview is only a reflection of current plans for the course. Some changes to this document may occur as a result of planning done throughout the academic year.*

	Unit	Concepts	Global Context	Statement of Inquiry	Inquiry Questions	MYP Objectives ATL Skills	Content
Unit 1	**Equivalent Forms of Quadratic Equations**	Form Patterns, Equivalence	Scientific and technical innovation Systems, models and methods	Representing patterns with equivalent forms can lead to better systems, models and methods.	**Factual**: What are the different forms of quadratic equations? What real-life situations can be modeled using quadratic functions? **Conceptual**: Why do we have equivalent forms? **Debatable**: Could using various forms of quadratic equations lead to different conclusions in real-life applications?	**Criterion B**: i, ii, ii **ATL Skills** Critical-thinking Communication	Quadratic equations (standard form, vertex form, factored form) Properties of quadratic functions (vertex, axis of symmetry, roots) Graphing functions Texts/Resources: DeltaMath Desmos Clark Creative
Unit 2	**Transformations of Functions**	Relationships Change, Models	Globalization and sustainability Natural processes	Investigating natural processes involves recognizing relationships between variables, understanding how change influences	**Factual**: What specific modifications occur in function graphs during	**Criterion A:** i, ii, iii **Criterion B**: i, ii, ii **ATL Skills**	Transforming functions All types of functions (quadratic, radical, exponential, periodical, fractional) Inverse functions

				observations, and constructing models	transformations? **Conceptual**: How do changes in function parameters affect the behavior and appearance of the corresponding function graphs? How do function transformations contribute to the creation of accurate mathematical models for describing natural phenomena? **Debatable**: Can function transformations be universally applied to model changes in various natural phenomena, or are there inherent limitations to their effectiveness?	Collaboration Organization Communication	Texts/Resources: DeltaMath Desmos Clark Creative
Unit 3	**Probability**	Logic Systems	Personal and cultural expression	Exploring the logical foundations of probability within digital	**Factual**: What are some real-world examples of digital	**Criterion C:** i, ii, iii, iv, v	Probability, Sample space, Events, Probability rules,

			Digital identity	systems enhances our understanding of securing digital identities.	systems utilizing probability for enhancing security? **Conceptual**: How does understanding probability contribute to the development of secure digital systems? How does understanding the logic behind probability calculations contribute to our ability to assess risks in digital systems? **Debatable**: Why is it important to consider both logical reasoning and probability theory when addressing digital identity issues?	**Criterion D:** i, ii, iii, iv, v **ATL Skills** Critical-thinking Information literacy	Permutations and Combinations, Expected value Texts/Resources: DeltaMath Desmos Clark Creative
Unit 4	**Right Triangle Trigonometry**	Form Space, Approximation	Orientation in space and time Astronomical observations	Using spatial approximation in geometric forms helps us to find celestial distances and positions	**Factual**: What are the key geometric forms used in astronomy? What methods do	**Criterion A:** i, ii, iii **ATL Skills** Organization	Right triangle trigonometry Trigonometric ratios Pythagorean theorem Trigonometric functions

				in astronomy.	astronomers use to calculate celestial distances and positions? **Conceptual**: Why is right triangle trigonometry important in determining distances in space? **Debatable**: How does the use of approximation affect the accuracy of celestial measurements?	Creative thinking	And identities Law of Sines and Cosines Texts/Resources: DeltaMath Desmos Clark Creative
Unit 5	**Similarity, Congruency, & Proof**	Logic Validity	Identities and relationships Argumentation and debate	Employing logic within argumentation and debate is crucial for ensuring the validity of presented evidence and claims.	**Factual**: How do mathematicians use logical reasoning to construct proofs? What strategies are employed in argumentation and debate to support claims? **Conceptual**: How does logical reasoning contribute to the validity of	Criterion B: i, ii, ii **ATL Skills** Reflective Critical-thinking Creative thinking	Similarity and congruence Geometric proofs Inductive and deductive reasoning Strategies for constructing mathematical proofs Texts/Resources: DeltaMath Desmos Clark Creative

					geometric proofs? **Debatable**: Are there situations where logical reasoning may lead to incorrect conclusions in geometry?		
Unit 6	**Statistics**	Relationships Generalization	Globalization and sustainability Climate change	Analyzing trends in climate changes reveals generalized conclusions about the relationships between climate variables, aiding in understanding the overall impact of climate change.	**Factual**: What methods are used to generalize findings from a sample to a larger population **Conceptual**: How do statistical methods model relationships between variables? **Debatable**: Is it fair to generalize findings from one population to another	**Criterion C:** i, ii, iii, iv, v **Criterion D:** i, ii, iii, iv, v **ATL Skills** Collaboration Information literacy	Sampling Central tendency Variability Normal distribution Hypothesis testing Confidence intervals Texts/Resources: DeltaMath Desmos Clark Creative