

## Mathematics - Subject Overviews – MYP 4



\* 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	<b>Representing Quantities within Data Sets</b>	Relationships  Representation Quantity	Orientation in space and time  Trends in a population	How quantities are represented can help to establish underlying relationships and trends in a population.	<p><b>Factual:</b> What ways can we represent quantities? What makes a good representation?</p> <p><b>Conceptual:</b> How can we represent relationships and trends in a population?</p> <p><b>Debatable:</b> Could we improve our decision-making on the environment by looking at trends with various representations of quantities? How do individuals stand out in a crowd?</p>	<p><b>Criterion C:</b> i, ii, iii, iv, v</p> <p><b>Criterion D:</b> i, ii, iii, iv, v</p> <p><b>ATL Skills</b> Communication Critical-thinking</p>	<p>Scatter plot Histograms Box plots Central tendency and variance measurements Type of variables, models Correlation Causation Linear fit Sample surveys Making inferences</p> <p>Texts/Resources: DeltaMath Desmos Clark Creative</p>
Unit 2	<b>Simplifying Algebraic Expressions</b>	Form  Simplification Change	Scientific and technical innovation  Processes and solutions	By simplifying, we can uncover changes in form, enabling us improve processes and find solutions.	<p><b>Factual:</b> How do algebraic expressions represent mathematical relationships?</p>	<p><b>Criterion A:</b> i, ii, iii</p> <p><b>ATL Skills</b> Organization Critical-thinking</p>	<p>Quadratic expressions Factorizing Solving equations Flowcharts Quadratic formula Completing the square</p>

				<p>What are the key principles of simplifying algebraic expressions?</p> <p><b>Conceptual:</b> How does the concept of simplification relate to resource sustainability, and how can it be applied in real-world scenarios?</p> <p><b>Debatable:</b> Which form of algebraic expression is best use in what scenario?</p>		<p>Texts/Resources: DeltaMath Desmos Clark Creative</p>
<p><b>Unit 3</b></p>	<p><b>Generalizing Trends in Data to Make Predictions</b></p>	<p>Logic Generalization Validity</p>	<p>Fairness and development Democracy, politics, government, and civil society</p>	<p>Using representative sampling and identifying trends in data, inference can be used to make logically valid generalizations about democracy, politics, government, and civil society.</p>	<p><b>Factual:</b> What methods can we use to create representative samples for surveys?</p> <p><b>Conceptual:</b> What is the role of inference in making generalizations based on data trends? How can we ensure the validity of data collected through surveys?</p>	<p><b>Criterion C:</b> i, ii, iii, iv, v <b>ATL Skills</b> Information literacy Communication</p> <p>Parallel box plots Univariate and bivariate statistics Drawing conclusions Comparing datasets</p> <p>Texts/Resources: DeltaMath Desmos Clark Creative</p>

					<b>Debatable:</b> Should policymakers rely on generalized trends in data to inform decision-making, or are there inherent risks in doing so?		
<b>Unit 4</b>	<b>Exploring Patterns &amp; Generalizing Solutions</b>	Form Patterns	Personal and cultural expression  Cultural identity	Exploring geometric patterns in traditional architecture showcases how form reflects cultural identity.	<b>Factual:</b> What are geometric patterns?  <b>Conceptual:</b> How do geometric patterns reflect cultural identity? How can we describe and generalize geometric patterns found in cultural designs?  <b>Debatable:</b> Should cultural identity be preserved through the representation of geometric patterns in architecture?	<b>Criterion B:</b> i, ii, iii  <b>Criterion D:</b> i, ii, iii, iv, v  <b>ATL Skills</b> Communication Media literacy Critical-thinking	Transformations (rotations, reflections, translations, dilations) Symmetry Congruence Geometric patterns Tessellation  Texts/Resources: DeltaMath Desmos Clark Creative
<b>Unit 5</b>	<b>Functions</b>	Relationships Models	Globalization and sustainability  Sustainable development	Modeling plans for sustainable development goals using functions provides valuable insights.	<b>Factual:</b> What are the different types of functions to describe relationships?  <b>Conceptual:</b> How can mathematical models aid in predicting and	<b>Criterion A:</b> i, ii, iii  <b>Criterion D:</b> i, ii, iii, iv, v  <b>ATL Skills</b> Critical-thinking Creative thinking	Function notation, Sequence notation Rate of change Graphing Transform function Linear Quadratic Exponential models  Texts/Resources:

				<p>analyzing outcomes in sustainable development initiatives? How do mathematical functions facilitate to explore and understand complex relationships?</p> <p><b>Debatable:</b> Should mathematical models be the primary tool for decision-making in sustainable development planning?</p>		<p>DeltaMath Desmos Clark Creative</p>
<p><b>Unit 6</b></p>	<p><b>Puzzling Problems</b></p>	<p>Logic Systems</p>	<p>Identities and relationships Self-esteem</p>	<p>Tackling perplexing problems and enigmatic scenarios through the lens of logic and systems analysis fosters a sense of accomplishment and confidence, contributing to the development of self-esteem.</p> <p><b>Factual:</b> What is an educated guess? What are strategies for interpreting a worded problem? What are some popular logic puzzles?</p> <p><b>Conceptual:</b> How can algebra support problem solving? How can a puzzle be simplified?</p> <p><b>Debatable:</b> Does working in a group</p>	<p><b>Criterion A:</b> i, ii, iii <b>Criterion B:</b> i, ii, iii <b>ATL Skills</b> Creative thinking Affective</p>	<p>Constant of proportionality Inequalities Problem-solving strategies Creating algebraic expressions Direct or inverse proportion System of equations</p> <p>Texts/Resources: DeltaMath Desmos Clark Creative</p>

					make it easier or more challenging to solve a problem?		
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