## Lucile Erwin Middle School an IB World School

Subject Group Overview: Mathematics (Level 1/Grade 6)

| Unit Length<br>Weeks | 6 weeks  | 8 weeks  | 6 weeks   | 5 weeks  |
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| Unit Name            | Unit 1 Chapters 1 and 2 Multiple Representations and Area How do we look at math?  | Unit 2<br>Chapters 3, 4, and 5<br>Portions, Variables and Fractions  | Unit 3 Chapters 6 and 7 Dividing Fractions, Rates and Expressions   | Unit 4 Chapters 8 and 9 Multiple Representations Part 2 and Volume   |
| Standard             | Geometry: Solve real-world and mathematical problems involving area, surface area, and volume.  The Number System: Apply and extend previous understandings of numbers to the system of rational numbers.  | Ratio and Proportional Reasoning: Understand ratio concepts and use ratio reasoning to solve problems.  Expressions and Equations: Reason about and solve one-variable equations and inequalities.  The Number System: Multiply and divide multi-digit numbers and find common factors and multiples.  | Expressions and Equations: Apply and extend previous understandings of arithmetic to algebraic expressions.  The Number System: Apply and extend previous knowledge of multiplication and division to divide fractions by fractions.  | Geometry: Solve real-world and mathematical problems involving area, surface area, and volume.  Statistics and Probability: Summarize and describe distributions.  |
| Key Concepts         | Relationships Relationships allow students to identify and understand connections and associations between properties, objects, people and ideas—including the human community's connections with the world in which we live. Any change in relationships brings consequences—some of which may occur on a small scale, while others may be far-reaching, affecting large systems like human societies and the planet as a whole.  Relationships in MYP mathematics refers to the connections between quantities, properties or concepts and these connections may be expressed as models, rules or statements. Relationships provide opportunities for students to explore patterns in the world around them. Connections between the student and mathematics in the real world are important in developing deeper understanding. | Form  Form is the shape and underlying structure of an entity or piece of work, including its organization, essential nature and external appearance.  Form in MYP mathematics refers to the understanding that the underlying structure and shape of an entity is distinguished by its properties. Form provides opportunities for students to appreciate the aesthetic nature of the constructs used in a discipline.  | Logic Logic is a method of reasoning and a system of principles used to build arguments and reach conclusions. Logic in MYP mathematics is used as a process in making decisions about numbers, shapes, and variables. This system of reasoning provides students with a method for explaining the validity of their conclusions. Within the MYP, this should not be confused with the subfield of mathematics called "symbolic logic."   | Relationships Relationships allow students to identify and understand connections and associations between properties, objects, people and ideas—including the human community's connections with the world in which we live. Any change in relationships brings consequences—some of which may occur on a small scale, while others may be farreaching, affecting large systems like human societies and the planet as a whole.  Relationships in MYP mathematics refers to the connections between quantities, properties or concepts and these connections may be expressed as models, rules or statements. Relationships provide opportunities for students to explore patterns in the world around them.  Connections between the student and mathematics in the real world are important in developing deeper understanding. |
| Related Concepts     | Model: A depiction of a real-life event using expressions, equations or graphs.  Space: The frame of geometrical dimensions describing an entity.  Justification: Valid reasons or evidence used to support a statement.   | Change: A variation in size, amount or behavior. Equivalence: the state of being identically equal or interchangeable, applied to statements, quantities, or expressions.  Quantity: an amount or number.  | Pattern: A set of numbers or objects that follow a specific rule or order.  Simplification: The process of reducing to a less complicated form.  System: A group of interrelated elements.  | Representation: The manner in which something is presented.  Measurement: A method of determining quantity, capacity or dimension using a defined unit Generalization: a general statement made on the basis of specific examples.   |
| Global Context       | Identities and relationships Who am I? Who are we?  Students will explore identity; beliefs and values; personal, physical, mental, social and spiritual health; human relationships including families, friends, communities and cultures; what it means to be human.  Possible explorations to develop  Competition and cooperation; teams, affiliation and leadership  Identity formation; self-esteem; status; roles and role models  Personal efficacy and agency; attitudes, motivation, independence; happiness and the   | Orientation in Space and Time What is the meaning of "where" and "when"?  Students will explore personal histories; homes and journeys; turning points in humankind; discoveries; explorations and migrations of humankind; the relationships between, and the interconnectedness of, individuals and civilizations, from personal, local and global perspectives.  Possible explorations to develop  Civilizations and social histories, heritage, pilgrimage, migration, displacement and exchange  pochs, eras, turning points and "big history"  Scale, duration, frequency and variability  Peoples, boundaries, exchange and interaction | Scientific and Technical Innovation How do we understand the world in which we live?  Students will explore the natural world and its laws; the interaction between people and the natural world; how humans use their understanding of scientific principles; the impact of scientific and technological advances on communities and environments; the impact of environments on human activity; how humans adapt environments to their needs.  Possible explorations to develop  Systems, models, methods; products, processes and solutions Adaptation, ingenuity and progress | Scientific and Technical Innovation How do we understand the world in which we live?  Students will explore the natural world and its laws; the interaction between people and the natural world; how humans use their understanding of scientific principles; the impact of scientific and technological advances on communities and environments; the impact of environments on human activity; how humans adapt environments to their needs.  Possible explorations to develop  Systems, models, methods; products, processes and solutions Adaptation, ingenuity and progress  |

|   | good life  • Physical, psychological and social development; transitions; health and wellbeing; lifestyle choices  • Human nature and human dignity; moral reasoning and ethical judgment; consciousness and mind | <ul> <li>Natural and human landscapes and resources</li> <li>Evolution, constraints and adaptation</li> </ul>  | <ul> <li>Opportunity, risk, consequences and responsibility</li> <li>Modernization, industrialization and engineering</li> <li>Digital life, virtual environments and the Information Age</li> <li>The biological revolution</li> <li>Mathematical puzzles, principles and discoveries</li> </ul> | <ul> <li>Opportunity, risk, consequences and responsibility</li> <li>Modernization, industrialization and engineering</li> <li>Digital life, virtual environments and the Information Age</li> <li>The biological revolution</li> <li>Mathematical puzzles, principles and discoveries</li> </ul> |
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| Criterion objectives/strand assessment task | Criterion B: Inquiring Through investigation students become risk-takers, inquirers, and critical thinker.  | Criterion A: Using Knowledge students must know and understand the concepts and skills of the prescribed framework in mathematics.                                       | Criterion C: Communicating Students are expected to use correct mathematical thinking, mathematical language, and representation when communicating mathematical ideas both orally and written.   | Criterion D: Applying Math to Real Life Context<br>Students are expected to transfer mathematical<br>knowledge into real-world situations, apply problem-<br>solving strategies, and draw valid conclusions.  |
| ATL Skill                                   | Social: Collaboration II: Working Effectively with others. Self Management: Organization Skills: Managing Time and tasks effectively  | Research: Information Literacy VI: Finding, interpreting, judging, and creating information. Thinking: Critical Thinking VIII: Analyzing and evaluating issues and ideas | Communication: Communication Skills I: Reading, writing and using language to gather and communicate information.  Thinking: Creativity and Innovation IX: The skills of invention-developing things and ideas that never existed before.   | Self-Management: Reflection V: (Re)Considering what has been learned; choosing and using ATL skills. Thinking: Transfer X: Utilizing skills and knowledge in multiple contexts.   |
| MDC   |   | Taxi Cab FAL   |   | Ice Cream FAL   |