

Mathematics - Subject Group Overview

Unit Name	Key Concepts	Related Concepts	Global Context	Statement of Inquiry	Content	MYP Objectives	Approaches to Learning
Number: Discoveries and Developments	Relationships, Logic	<ul style="list-style-type: none"> Representation Equivalence Systems 	Scientific and technical innovation	Discovering relationships can lead to a better understanding of the systems represented by real numbers.	<ul style="list-style-type: none"> Solve problems involving rational numbers, including numbers in scientific notation Extend the understanding of rational numbers to irrational numbers Define irrational numbers within the real number system Locate an approximate value of a numerical expression involving irrational numbers on a number line Plot, order and compare rational and irrational numbers Solve real world problems involving order of operations with rational numbers Given an equation in the form of $x^2 = p$ and $x^3 = q$, where p is a whole number and q is an integer, determine the real solutions. 	<p>Year 3 Objectives</p> <p>■ Objective A: Knowing and understanding ■i. apply the selected mathematics successfully when solving problems</p> <p>■ Objective B: Investigating patterns ■ii. describe patterns as relationships and/or general rules consistent with findings ■iii. verify and justify relationships and/or general rules.</p> <p>■ Objective C: Communicating ■i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations ■ii. use appropriate forms of mathematical representation to present information ■iii. move between different forms of mathematical representation ■iv. communicate complete and coherent mathematical lines of reasoning ■v. organize information using a logical structure.</p>	<p>Communication skills</p> <p>■ Make inferences and draw conclusions</p> <p>■ Understand and use mathematical notation</p> <p>Organization skills</p> <p>■ Keep an organized and logical system of information files/notebooks</p>
Linear Relationships: Impact of Human Decision-Making	Relationships	<ul style="list-style-type: none"> Representation Change 	Globalization and sustainability	Representing patterns of change as relationships can help determine the impact of human decision-making on the environment.	<ul style="list-style-type: none"> Extend understanding of proportional relationships to two-variable linear equations Determine if a linear relationship is a proportional relationship Determine the slope of a linear relationship Write an equation in slope-intercept form Graph two-variable linear equations Determine and interpret the slope and y-intercept of two variable linear equations Develop an understanding of two-variable systems of equations Determine which ordered pairs satisfy a system of linear equations Determine if there is one solution, no solution or infinitely many solutions for a system of two linear equations Solve systems of two linear equations by graphing 	<p>Year 3 Objectives</p> <p>■ Objective C: Communicating ■i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations ■ii. use appropriate forms of mathematical representation to present information ■iii. move between different forms of mathematical representation ■iv. communicate complete and coherent mathematical lines of reasoning ■v. organize information using a logical structure.</p> <p>■ Objective D: Applying mathematics in real-life contexts ■i. identify relevant elements of authentic real-life situations ■ii. select appropriate mathematical strategies when solving authentic real-life situations ■iii. apply the selected mathematical strategies successfully to reach a solution ■iv. explain the degree of accuracy of a solution ■v. explain whether a solution makes sense in the context of the authentic real-life situation.</p>	<p>Media literacy skills</p> <p>■ Locate, organize, analyse, evaluate, synthesize and ethically use information from a variety of sources and media (including digital social media and online networks)</p> <p>Critical-thinking skills</p> <p>■ Identify obstacles and challenges</p>
Triangles: Principles, Processes and Solutions	Relationships	<ul style="list-style-type: none"> Models Approximation 	Scientific and technical innovation	Generalizing relationships between measurements can help develop principles, processes and solutions to model polygons.	<ul style="list-style-type: none"> Apply the Pythagorean Theorem to solve real world problems Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides Solve math problems involving the relationship between supplementary, complementary, vertical and adjacent angles Solve problems involving the relationships of interior and exterior angles of a triangle Develop and use formulas for the sums of the interior angles of regular polygons Identify a transformation that describes a relationship Identify a scale factor that describes a relationship Using the coordinate plane, describe and apply the effect of a single transformation on two-dimensional figures Solve real world problems involving proportional relationships between similar triangles 	<p>Year 3 Objectives</p> <p>Objective A: Knowing and understanding i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations iii. solve problems correctly in a variety of contexts.</p> <p>Objective B: Investigating patterns i. select and apply mathematical problem-solving techniques to discover complex patterns</p> <p>Objective D: Applying mathematics in real-life contexts ii. select appropriate mathematical strategies when solving authentic real-life situations iii. apply the selected mathematical strategies successfully to reach a solution iv. explain the degree of accuracy of a solution v. explain whether a solution makes sense in the context of the authentic real-life situation.</p>	<p>Communication skills</p> <p>■ Give and receive meaningful feedback</p> <p>Critical-thinking skills</p> <p>■ Test generalizations and conclusions</p>
Bivariate Data: What it means to be human	Relationships	<ul style="list-style-type: none"> Validity Quantity Models 	Identities and relationships	Modeling the relationship between quantities can highlight what it means to be human.	<ul style="list-style-type: none"> Represent and investigate numerical bivariate data Construct a scatter plot or line graph given a set of real-world bivariate data Given a scatter plot, describe patterns of association Given a scatter plot, informally fit a straight line Represent and find probabilities of repeated experiments Determine the sample space for a repeated experiment Find the theoretical probability of an event related to a repeated experiment Solve real-world problems involving probabilities, including making predictions based on theoretical probability 	<p>Year 3 Objectives</p> <p>■ Objective A: Knowing and understanding ■i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ■ii. apply the selected mathematics successfully when solving problems ■iii. solve problems correctly in a variety of contexts.</p> <p>■ Objective B: Investigating patterns ■i. select and apply mathematical problem-solving techniques to discover complex patterns ■ii. describe patterns as relationships and/or general rules consistent with findings ■iii. verify and justify relationships and/or general rules.</p> <p>■ Objective D: Applying mathematics in real-life contexts ■i. identify relevant elements of authentic real-life situations</p>	<p>Organization skills</p> <p>■ Select and use technology effectively and productively</p> <p>Media literacy skills</p> <p>■ Locate, organize, analyse, evaluate, synthesize and ethically use information from a variety of sources and media (including digital social media and online networks)</p>