

Yearly Plan for MYP 3 Math

Unit	Area of Interaction (AOI)	Significant Concept	Objectives	Concepts/Skills	Assessment
Reviewing Math Basics	<u>Approaches to Learning (ATL)</u> – Remembering and applying previously learned skills	Basic operations with whole numbers, fractions and decimals are used to solve problems in our everyday world.	A – 1,2,3 C – 1 D – 1, 2	<ul style="list-style-type: none"> • Add, subtract, and multiply with whole number numbers; Solve problems with one, two, three or four digit components and with zeros in a variety of places • Divide with one or two digit divisors; Generate quotients with remainders, terminating or repeating decimals or rounded answers; Justify the choice • Recognize and relate a variety of forms of fractions: proper, improper, mixed numbers, equivalent fractions, simplest form, common denominators • Add, subtract, multiply and divide with fractions and mixed numbers, putting answers in simplest form • Use order of operations to solve problems 	<ul style="list-style-type: none"> • Problem solving • Test
Representation Algebraic	<u>Approaches to Learning (ATL)</u> – Interpreting the world around us in the symbolic language of algebra	We can represent/model many real world situations using the symbolic language of algebra.	A – 1,2,3 C – 1,2,3 D – 1,4	<ul style="list-style-type: none"> • Use expressions and formulas to model real world situations • Evaluate expressions that contain variables • Use patterns to discover properties related to number patterns • State the distributive property using words and in algebraic symbols • Apply the distributive property to evaluate expressions • Identify and combine similar terms • Solve simple one and two step equations by doing the same thing to both sides (using opposite operations to undo a step) • State and use the equality properties for addition, subtraction, multiplication and division • Justify the steps taken in solving an equation by using the properties of equality • Write and solve simple equations for real life problems 	<ul style="list-style-type: none"> • Problem set • Poster • Justified solutions to equations • Real world application • Test

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Coordinate Integers and the Axis	<p><u>Approaches to Learning (ATL)</u></p> <p>–Using integers to represent real world situations</p> <p><u>Environment</u></p> <p>–Interpreting the world around us in terms of integers</p>	<p>Many values in the real world can be represented with integers.</p> <p>Various things can be defined as the zero, such as sea level, ground floor, present location, no money or points, etc.</p>	<p>A – 1,2,3</p> <p>B – 1</p> <p>C – 1,3</p> <p>D – 1, 4</p>	<ul style="list-style-type: none"> • Model integers • Find the opposite of a number and understand it as the additive inverse • Find the absolute value of a number and understand it as the distance from zero • Add integers • Subtract integers by adding the opposite • Multiply and divide integers • Solve real life problems involving integers • Solve equations involving integers • Plot points on a coordinate axis using all 4 quadrants. 	<ul style="list-style-type: none"> • Integer problem set • Integers in equations • Real world situation + justified solution • Quiz
Multiple Step Equations	<p><u>Approaches to Learning (ATL)</u></p> <p>–Formulating and implementing strategies based on properties to find a solution</p>	<p>Equations can be solved to give information on the value of a variable.</p> <p>Solving equations gives us a way to find information about real world situations.</p>	<p>A – 1,2,3</p> <p>C – 1,3</p> <p>D – 1,4</p>	<ul style="list-style-type: none"> • (Review) Know and use the properties of equality to solve a simple equation • Devise and share strategies to solve 2-step equations • Check possible solutions to an equation • (Review) Understand and use the distributive property to simplify expressions • Solve equations involving the distributive property • Solve equations that need simplification at the beginning • Solve equations that have the variable on both sides • Solve equations in which the variable is being subtracted • Solve equations involving decimals or fractions • Check solutions by inserting in original equation and checking for reasonableness • Write and solve equations involving area and perimeter • Justify the steps of a solution using mathematical properties 	<ul style="list-style-type: none"> • Problem sets of various kinds of equations • Illustrated solution with justification • Test

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Forms and Patterns	<p><u>Environment</u> –Various kinds, forms, and patterns of numbers (such as irrational numbers and scientific notation) are constantly around us as a part of our everyday environment</p>	<p>Irrational numbers are mathematically important and are a part of many calculations.</p> <p>Exponents and powers are used to express repeated multiplications.</p> <p>Scientific notation helps us express very large and very small numbers.</p>	<p>A – 1,3 B – 2,3,4 C – 1,2,3 D – 1,3,4</p>	<ul style="list-style-type: none"> • Evaluate powers • Use x^2 and $\sqrt{\quad}$ keys on the calculator • Estimate square roots • Continue numerical patterns • Express numerical patterns using variables • Explore and express the Fibonacci sequence • State the Square Root Property and use it to solve equations • Define irrational numbers and explain in the context of the real number system (9.1) • Express irrational numbers exactly and with an estimate • Order irrational numbers and locate them on a number line • Define and do operations involving zero and negative exponents • Convert positive and negative powers of ten to standard form and vice versa (6.8) • Write large numbers in scientific notation and convert to standard form • Write very small numbers in scientific notation • Convert small numbers in scientific notation to standard form 	<ul style="list-style-type: none"> • Powers and roots problem set • Fibonacci lab report • Scientific Notation page • Ordering irrational numbers • Test

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Proportions and Percents	<u>Environment</u> -Finding the percent of increase or decrease in various segments of the school population -Using ratios and proportions to construct a scale drawing	Percent is a way of expressing the part of a whole, by representing what part of 100 something is. We often use rates and ratios to describe similar relationships.	A – 1,2,3 C – 1,2,3 D – 1,2,3,4	<ul style="list-style-type: none"> • Write, simplify and compare ratios • Define and use rates • Find a unit rate • Write a proportion to represent a real life situation • Develop strategies to solve a proportion • Solve problems involving scale drawings • Solve problems involving similar polygons • Define percent and interpret in terms of a proportion • Use proportions to solve problems involving percents • Use English-to-math translation to solve percent problems with an equation • Relate and convert forms: decimal, fraction and percent • Express percentages greater than 100 or less than 1 in decimal form • Choose a method to solve problems • Find the percent of increase or decrease and solve real world problems 	<ul style="list-style-type: none"> • Analysis of school data • Strategy display • Scale drawing • Quiz
Sets and Matrices	<u>Health and Social Education</u> –We can represent groups and their interactions using overlapping sets	Groups can be defined and compared using set theory.	A – 1 C – 1,2,3 D - 1	<ul style="list-style-type: none"> • Define and use sets and subsets • Write sets using set notation • Understand and use set operations of union and intersection • Represent sets with Venn diagrams • Write a set of data in the form of a matrix (14.4) • Add and subtract matrices 	<ul style="list-style-type: none"> • Display • Problem set • Quiz

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Exploring Data	<u>Health and Social Education</u> -Representing events in our history -Analyzing organisms and diseases	Data can be presented in many different formats that give different impressions to the onlooker.		<ul style="list-style-type: none"> • Make a pictograph • Make a time line • Select intervals and make a histogram • Choose an appropriate graph for the data • Choose and construct appropriate scales for bar graphs and line graphs • Use Excel to make various kinds of graphs on the computer • Recognize and identify faults in misleading graphs • Make a line plot • Make a scatter plot • Find measure of central tendency: mean, median, mode • Find range, least & greatest values and quartiles • Make a stem-and-leaf plot • Make a box-and-whisker plot 	<ul style="list-style-type: none"> • Time line • Chosen graphs • Stem and leaf plots with box and whisker plot • Comparison of graphs
Counting Probability and	<u>Environment</u> –Analyzing events around us and making predictions	We use probability calculations to estimate the likelihood of an event.		<ul style="list-style-type: none"> • Determine simple probability of a single event • Group equally likely outcomes • Differentiate between theoretical and experimental probability • Construct a tree diagram to list possible combinations • State and use the counting principle to determine the number of combinations • Define permutation • Understand the procedure called factorial. Solve by hand and with a scientific calculator. • Understand how permutations may be counted by using factorial. • Generate Pascal's triangle and use it to count combinations possible from a larger set. • Explain how to calculate the probability of multiple independent events • Distinguish between independent and dependent events. • Calculate the probability of dependent events. • Determine if a game is fair or unfair by calculating expected values for each player. • Create a fair and an unfair game and verify with mathematical analysis. 	<ul style="list-style-type: none"> • Labs with analysis of results • Practice problems with simple probability and combinations • Generate Pascal's triangle • Problems with multiple events • Test