# Secondary Mathematics Curriculum and Instruction Overview

Use the link below to go directly to that course:

| Middle School | High School |
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| ❖ Math 6 (IM)<br>❖ Accelerated Math 6+ (IM)<br>❖ Math 7 (IM)<br>❖ Accelerated Math 7+ (IM)<br>❖ Math 8 (IM) | ❖ Algebra 1 (IM)<br>❖ Geometry (IM)<br>❖ Algebra 2 (C2.0)<br>❖ PreCalculus (C2.0)<br>❖ Statistics and Math Modeling<br>❖ Honors Statistics |

*IM denotes the curriculum resource is Illustrative Mathematics. Illustrative Math also provides **Lesson Summary Videos**.

**C2.0 denotes that the curriculum resource is MCPS Curriculum

| **Math 6** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Area and Surface Area<br>● Reasoning to Find Area<br>● Parallelograms<br>● Triangles<br>● Polygons<br>● Surface Area<br>● Squares and Cubes | Unit 1 - Learning Targets |
| | 2 - Introducing Ratios | Unit 2 - Learning Targets |

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| | • What are Ratios?<br>• Equivalent Ratios<br>• Representing Equivalent Ratios<br>• Solving Ratio and Rate Problems<br>• Part-Part-Whole Ratios | |
| MP 2 | 3 - Unit Rates and Percentages<br>• Units of Measurement<br>• Unit Conversion<br>• Rates<br>• Percentages | Unit 3 - Learning Targets |
| | 4 - Dividing Fractions<br>• Making Sense of Division<br>• Meanings of Fraction Division<br>• Algorithm for Fraction Division<br>• Fractions in Lengths, Areas, and Volumes | Unit 4 - Learning Targets |
| MP 3 | 5 - Arithmetic in Base Ten<br>• Warming Up to Decimals<br>• Adding and Subtracting Decimals<br>• Multiplying Decimals<br>• Dividing Decimals | Unit 5 - Learning Targets |
| | 6 - Expressions and Equations<br>• Equations in One Variable<br>• Equal and Equivalent<br>• Expressions with Exponents<br>• Relationships Between Quantities | Unit 6 - Learning Targets |
| MP 4 | 7 - Rational Numbers<br>• Negative Numbers and Absolute Value | Unit 7 - Learning Targets |

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| | • Inequalities<br>• The Coordinate Plane<br>• Common Factors and Common Multiples | |
| | 8 - Data Sets and Distributions<br>• Data, Variability, and Statistical Questions<br>• Dot Plots and Histograms<br>• Mean and MAD<br>• Median and IQR | Unit 8 - Learning Targets |

| **Acceleration Math 6+ (Acc6+)** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Areas<br>• Reasoning to Find Area<br>• Parallelograms<br>• Triangles<br>• Surface Area | Unit 1 - Learning Targets |
| | 2 - Ratios, Rates, and Percentages<br>• What are Ratios?<br>• Representing Equivalent Ratios<br>• Rates | Unit 2 - Learning Targets |
| MP 2 | 2 - Rations, Rates, and Percentages<br>• Percentages | |
| | 3 - Fractions and Decimals<br>• Making Sense of Division<br>• Dividing Fractions | Unit 3 - Learning Targets |

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| | • Fractions in Lengths, Area, and Volumes<br>• Warming Up to Decimals<br>• Dividing Decimals | |
| | 4 - Equations and Expressions<br>• Equations in One Variable | Unit 4 - Learning Targets |
| MP 3 | 4 - Equations and Expressions<br>• Equal and Equivalent<br>• Expressions with Exponents<br>• Relationships Between Quantities | |
| | 5 - Proportional Relationships<br>• Representing Proportional Relationships with Equations<br>• Comparing Proportional and Nonproportional Relationships<br>• Representing Proportional Relationships with Graphs<br>• Circumference of a Circle<br>• Area of Circle | Unit 5 - Learning Targets |
| | 6 - Percentage Increase and Decrease<br>• Proportional Relationships with Fractions<br>• Percent Increase and Decrease | Unit 6 - Learning Targets |
| MP 4 | 6 - Percentage Increase and Decrease<br>• Applying Percentages | |
| | 7 - Rational Numbers<br>• Negative Numbers and Absolute Value<br>• Adding and Subtracting Rational Numbers<br>• The Coordinate Plane<br>• Multiplying and Dividing Rational Numbers<br>• Equations with Rational Numbers | Unit 7 - Learning Targets |

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| | 8 - Data Sets and Distributions<br>● Dot Plots and Histograms<br>● Measures of Center and Variability<br>● Sampling<br>● Probabilities of Single-Step Events | Unit 8 - Learning Targets |

| Math 7 | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Scale Drawings<br>● Scaled Copies<br>● Scale Drawings | Unit 1 - Learning Targets |
| | 2 - Introducing Proportional Relationships<br>● Representing Proportional Relationships with Tables<br>● Representing Proportional Relationships with Equations<br>● Comparing Proportional Relationships with Nonproportional Relationships.<br>● Representing Proportional Relationships with Graphs | Unit 2 - Learning Targets |
| MP 2 | 3 - Measuring Circles<br>● Circumference of a Circle<br>● Area of a Circle | Unit 3 - Learning Targets |
| | 4 - Proportional Relationships and Percentages<br>● Proportional Relationships with Fractions<br>● Percent Increase and Decrease<br>● Applying Percentages | Unit 4 - Learning Targets |
| | 5 - Rational Number Arithmetic<br>● Interpreting Negative Numbers | Unit 5 - Learning Targets |

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| | • Adding and Subtracting Rational Numbers<br>• Multiplying and Dividing Rational Numbers<br>• Four Operations with Rational Numbers<br>• Solving Equations When There Are Negative Numbers | |
| MP 3 | 6 - Expressions, Equations and Inequalities<br>• Representing Situations of the Form $px+q=r$ and $p(x+q)=r$<br>• Solving Equations of the Form $px+q=r$ and $p(x+q)=r$ and Problems That Lead to Those Equations<br>• Inequalities<br>• Writing Equivalent Expressions | Unit 6 - Learning Targets |
| | 7 - Angles, Triangles and Prisms<br>• Angle Relationships<br>• Drawing Polygons with Given Conditions<br>• Solid Geometry | Unit 7 - Learning Targets |
| MP 4 | 8 - Probability and Sampling<br>• Probability of Single-Step Events<br>• Probability of Multi-step Events<br>• Sampling<br>• Using Samples | Unit 8 - Learning Targets |
| | 9 - Putting It All Together | N/A |

| **Acceleration Math 7+ (Acc7+)** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Rigid Transformations and Congruence<br>• Rigid Transformations<br>• Properties of Rigid Transformations | Unit 1 - Learning Targets |

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| | • Congruence<br>• Angles in a Triangle<br>• Drawing Polygons with Given Conditions | |
| | 2 - Scale Drawings, Similarity, and Slope<br>• Scaled Copies<br>• Scale Drawings<br>• Dilation | Unit 2 - Learning Targets |
| MP 2 | 2 - Scale Drawings, Similarity, and Slope<br>• Similarity<br>• Slope | |
| | 3 - Writing and Solving Equations<br>• Representing Situations of the Form $px+q=r$ and $p(x+q)=r$<br>• Solving Equations of the Form $px+q=r$ and $p(x+q)=r$ and Problems That Lead to Those Equations | Unit 3 - Learning Targets |
| | 4 - Inequalities, Expressions, and Equations<br>• Inequalities<br>• Writing Equivalent Expressions<br>• Equations in One Variable | Unit 4 - Learning Targets |
| MP 3 | 5 - Linear Relationships<br>• Proportional Relationships<br>• Representing Linear Relationships<br>• Finding Slopes and Linear Equations<br>• Systems of Linear Equations<br>• Associations in Numerical Data<br>• Associations in Categorical Data | Unit 5 - Learning Targets |
| | 6 - Functions and Volume<br>• Inputs and Outputs | Unit 6 - Learning Targets |

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| | • Representing and Interpreting Functions<br>• Linear Functions and Rates of Change | |
| MP4 | 6 - Functions and Volume<br>• Prisms, Cylinders, and Cones<br>• Dimensions and Spheres | |
| | 7 - Exponents and Scientific Notation<br>• Exponents Review<br>• Exponents Rules<br>• Scientific Notation | Unit 7 - Learning Targets |
| | 8 - Pythagorean Theorem and Irrational Numbers<br>• Side Lengths and Areas of Squares<br>• The Pythagorean Theorem<br>• Decimal Representation of Rational and Irrational Numbers | Unit 8 - Learning Targets |

| **Math 8** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Rigid Transformations and Congruence<br>• Rigid Transformations<br>• Properties of Rigid Transformations<br>• Congruence<br>• Angles in a Triangle | Unit 1 - Learning Targets |
| | 2 - Dilations, Similarity and Introducing Slope<br>• Dilations<br>• Similarity | Unit 2 - Learning Targets |

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| | • Slope | |
| MP 2 | 3 - Linear Relationships<br>• Proportional Relationships<br>• Representing Linear Relationships<br>• Finding Slopes<br>• Linear Equations | Unit 3 - Learning Targets |
| | 4 - Linear Equations and Linear Systems<br>• Puzzle Problems<br>• Linear Equations in One Variable<br>• Systems of Linear Equations | Unit 4 - Learning Targets |
| MP 3 | 5 - Functions and Volume<br>• Inputs and Outputs<br>• Representing and Interpreting Functions<br>• Linear Functions and Rates of Change<br>• Cylinders and Cones<br>• Dimensions and Spheres | Unit 5 - Learning Targets |
| | 7 - Exponents and Scientific Notation<br>• Exponent Review<br>• Exponent Rules<br>• Scientific Notation | Unit 7 - Learning Targets |
| MP 4 | 8 - Pythagorean Theorem and Irrational Numbers<br>• Side Lengths and Areas of Squares<br>• The Pythagorean Theorem<br>• Side Lengths and Volumes of Cubes<br>• Decimal Representation of Rational and Irrational Numbers | Unit 8 - Learning Targets |
| | 6 - Associations in Data | Unit 6 - Learning Targets |

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| | ● Does This Predict That?<br>● Associations in Numerical Data<br>● Associations in Categorical Data | |

| **IM Algebra I** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 2 - Linear Equations, Inequalities and Systems<br>● Writing and Modeling with Equations<br>● Manipulating Equations and Understanding Their Structure<br>● Systems of Linear Equations in Two Variables<br>● Linear Inequalities in One Variable<br>● Linear Inequalities in Two Variables<br>● Systems of Linear Inequalities in Two Variables | Unit 2 - Learning Targets |
| MP 2 | 4 - Functions<br>● Functions and Their Representations<br>● Analyzing and Creating Graphs of Functions<br>● A Closer Look at Inputs and Outputs<br>● Inverse Functions | Unit 4 - Learning Targets |
| | 5 - Introduction to Exponential Functions<br>● Looking at Growth<br>● A New Kind of Relationship<br>● Exponential Functions<br>● Percent Growth and Decay<br>● Comparing Linear and Exponential Functions | Unit 5 - Learning Targets |

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| MP 3 | 6 - Introduction to Quadratic Functions<br>• A Different Kind of Change<br>• Quadratic Functions<br>• Working with Quadratic Expressions<br>• Features of Graphs and Quadratic Functions | Unit 6 - Learning Targets |
| MP 4 | 7 - Quadratic Equations<br>• Finding Unknown Inputs<br>• Solving Quadratic Equations<br>• Completing the Square<br>• The Quadratic Formula<br>• Vertex Form Revisited | Unit 7 - Learning Targets |
| | 1 - One-Variable Statistics<br>• Getting to Know You<br>• Distribution of Shapes<br>• How to Use Spreadsheets<br>• Manipulating Data<br>• Analyzing Data | Unit 1 - Learning Targets |
| | 3 - Two-Variable Statistics<br>• Two-way Tables<br>• Scatterplots<br>• Correlation Coefficients<br>• Estimating Lengths | Unit 3 - Learning Targets |
| *Please note that the Algebra I units will not follow the traditional sequential order. Instead, it will follow 2, 4, 5, 6, 7, 1, 3. | | |

| **IM Geometry** |
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| Marking Period | Unit | Learning Targets |
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| MP1 | 1 - Congruence and Rigid Transformations<br>● Constructions<br>● Rigid Transformations<br>● Evidence & Proof<br>● Designs | Unit 1 - Learning Targets |
| MP2 | 2 - Congruence<br>● Congruent Triangles<br>● About Quadrilaterals<br>● Putting it All Together | Unit 2 - Learning Targets |
| | 3 - Similarity<br>● Properties of Dilations<br>● Similarity Transformations and Proportional Reasoning<br>● Similarity in Right Triangles<br>● Putting it All Together | Unit 3 - Learning Targets |
| MP3 | 4 - Right Triangle Trigonometry<br>● Angles and Steepness<br>● Trigonometric Ratios | Unit 4 - Learning Targets |
| | 5 - Solid Geometry<br>● Cross-Sections, Scaling, and Area<br>● Scaling Solids<br>● Prism & Cylinder Volumes<br>● Putting it All Together | Unit 5 - Learning Targets |
| MP4 | 6 - Coordinate Geometry<br>● Transformations in the Plane<br>● Distances, Circles & Parabolas<br>● Proving Theorems Algebraically | Unit 6 - Learning Targets |

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| | • Putting it All Together | |
| | 7 - Circles<br>• Lines, Angles & Circles<br>• Polygons & Circles<br>• Measuring Circles<br>• Putting it All Together | Unit 7 - Learning Targets |
| | 8 - Conditional Probability (optional) | Unit 8 - Learning Targets |

| **C2.0 Algebra 2** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Functions and Their Inverses<br>• Inverse Relationships<br>• Radical Expressions and Equations<br>• Exponential and Logarithmic Expressions, Equations, & Functions | Unit 1 - Learning Targets |
| MP 2 | 2 - Polynomials and Rational Functions<br>• Quadratic Expressions & Equations<br>• Polynomial Expressions & Equations<br>• Rational Expressions & Equations | Unit 2 - Learning Targets |
| MP 3 | 3 - Introduction to Trigonometric Functions<br>• Modeling Circular Motion<br>• Graphing Trigonometric Functions | Unit 3 - Learning Targets |
| | 4 - Modeling with Functions<br>• The Modeling Cycle | Unit 4 - Learning Targets |

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| MP 4 | | |
| | 5 - Applications of Probability<br>● Conditional Probability and the Rules of Probability | Unit 5 - Learning Targets |
| | 6 - Inferences and Conclusions from Data (optional for Algebra 2, Honors Algebra 2)<br>● Normal Models<br>● Sample Surveys, Experiments, and Observational Studies | Unit 6 - Learning Targets |

| **C2.0 PreCalculus** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP 1 | 1 - Polynomials, Power, and Rational Function<br>● Piecewise-Defined Functions/Composition of Functions/*LImits (H)*<br>● Power Functions<br>● Graphs of Rational Functions Extended<br>● The Algebra of Rational Expressions/Equations/Inequalities/*Partial Fractions (H)* | Unit 1 - Learning Targets |
| MP2 | 2 - Exponential and Logarithmic Functions<br>● Extensions of any Base/Laws of Logarithms/Change of Base<br>● Solving Exponential and Logarithmic Equations | Unit 2 - Learning Targets |
| MP3 | 3 - Trigonometric Functions<br>● Special Angles and REciprocal Trigonometric Functions<br>● Inverse Trigonometric Functions<br>● Trigonometric Identities and Equations | Unit 3 - Learning Targets |

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| | ● Laws of Sines and Cosines | |
| | 4 - Vectors and Parametrics<br>● The Algebra of Vectors<br>4- Vectors and Parametrics, *and Polars (Honors)*<br>● The Algebra of Vectors<br>● Parametrically-Defined Functions/*Vector-Valued Functions (Honors)* | Unit 4 - Learning Targets |
| MP4 | 4 - Vectors and Parametrics<br>● Parametrically-Defined Functions<br>4 - Vectors and Parametrics (*Honors)*<br>● *Polar Curves/Complex Numbers in Polar Form (H)* | |
| | 5 - Systems and Matrices<br>● The Algebra of Matrices | Unit 5 - Learning Targets |
| | 6 - Discrete Math<br>● Combinatorics/Binomial Theorem<br>● Sequences and Series | Unit 6 - Learning Targets |
| | 7 - Analytic Geometry in Three Dimensions (Optional - Honors) | Unit 7 - Learning Targets |

| **Statistics & Mathematical Modeling** | | |
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| **Marking Period** | **Unit** | **Learning Targets** |
| MP1 | 1 - Logic<br>2 - Matrices<br>3 - Mathematical Decisions | Learning Targets |

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| MP2 | 4 - Data Displays<br>5 - Comparing Data Displays<br>6 - Regression | |
| MP3 | 7 - Probability<br>8 - Conditional Probability<br>9 - Discrete Probability | |
| MP4 | 10 - Functions<br>11 - Trigonometry<br>12 - Ready for more? | |

| **Honors Statistics** | | |
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| **Marking Period** | **Chapter** | **Learning Targets** |
| MP1 | 1 - Analyzing One-Variable Data<br>● Constructing and Interpreting Graphical Displays<br>● Summarizing Distributions of Univariate Data | Learning Targets |
| | 3 - Collecting Data<br>● Sampling and Surveys<br>● Observational Studies and Experiments | |
| MP2 | 4 - Probability<br>● Introduction to Probability<br>● Probability Rules and the Counting Principle | |
| | 5 - Random Variables<br>● Discrete Random Variables<br>● Continuous Random Variables | |

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| MP3 | 6 - Sampling Distributions<br>● Understanding Sampling Distributions<br>● Estimating Proportions and Means | |
| | 7 - Estimating a Parameter<br>● Confidence Intervals for Proportions<br>● Confidence Intervals for Means | |
| MP4 | 8 - Testing a Claim | |
| | 10 - Inference for Distributions and Relationships | |
| | 2 - Analyzing Two-Variable Data<br>● Exploring Bi-variate Data<br>● Creating and Analyzing Regression Models | |