MCS AP Calculus AB Subject Group Overview

Unit Name	Unit 1: Limits & Continuity	Unit 2: Differentiation: Definition and Basic Derivative Rules	Unit 3: Differentiation: Composite, Implicit, and Inverse Function	Unit 4: Contextual Applications of Differentiation	Unit 5: Analytical Applications of Differentiation
Time Frame	5 Weeks	3-4 Weeks	2-3 Weeks	2-3 Weeks	3-4 Weeks
Standards	AP Calc AB 1.1-1.16	AP Calc AB 2.1-2.10	AP Calc AB 3.1-3.6	AP Calc AB 4.1-4.7	AP Calc AB 5.1-5.12
Content Specific Information	1.1 Introducing Calculus: Can change occur at an instant? 1.2 Defining limits and using limit notation 1.3 Estimating limit values from graphs 1.4 Estimating limit values from tables 1.5 Determining limits using algebraic properties of limits 1.6 Determining limits using algebraic manipulation 1.7 Selecting procedures for determining limits 1.8 Determining limits using the Squeeze Theorem 1.9 Connecting multiple representations of limits 1.10 Exploring types of discontinuities 1.11 Defining continuity at a point 1.12 Confirming continuity over an interval 1.13 Removing discontinuities 1.14 Connecting infinite limits and vertical asymptotes 1.15 Connecting limits at infinity and horizontal asymptotes 1.16 Working with the Intermediate Value Theorem (IVT)	2.1 Defining average and instantaneous rates of change 2.2 Defining the derivative of a function and using derivative notation 2.3 Estimating derivatives of a function at a point 2.4 Connecting differentiability with continuity 2.5 Applying the power rule 2.6 Derivative rules: constant, sum, difference, and constant multiple 2.7 Derivative of $\cos(x)$, $\sin(x)$, e^x, and $\ln(x)$ 2.8 The product rule 2.9 The quotient rule 2.10 Finding the derivatives of tangent, cotangent, secant, and/or cosecant functions	3.1 The chain rule 3.2 Implicit differentiation 3.3 Differentiation inverse functions 3.4 Differentiation inverse trigonometric functions 3.5 Selecting procedures for calculating derivatives 3.6 Calculative higher order derivatives	4.1 Interpreting the meaning of the derivative in context 4.2 Straight-line motion: Connecting position, velocity, and acceleration 4.3 Rates of change in applied contexts other than motion 4.4 Introduction to related rates 4.5 Solving related rates problems 4.6 Approximating values of a function using local linearity and linearization 4.7 Using L'Hospital's rule for determining limits of indeterminate forms	5.1 Using the mean value theorem 5.2 Extreme value theorem, global versus local extrema, and critical points 5.3 Determining intervals on which a function is increasing or decreasing 5.4 Using the first derivative test to determine relative (local) extrema 5.5 Using the candidates test to determine absolute (global) extrema 5.6 Determining concavity of functions over their domains 5.7 Using the second derivative test to determine extrema 5.8 Sketching graphs of functions and their derivatives 5.9 Connecting a function, its first derivative, and its second derivative 5.10 Introduction to Optimization Problems 5.11 Solving Optimization Problems 5.12 Exploring Behaviors of Implicit Relations

Common Assessments / Performance Projects	Homework Quizzes Formative Assessments Summative Assessment	Homework Quizzes Formative Assessments Summative Assessment	Homework Quizzes Formative Assessments Summative Assessment	Homework Quizzes Formative Assessments Summative Assessment	Homework Quizzes Formative Assessments Summative Assessment
Differentiation For Tiered Learners	Marietta City Schools teachers provide specific differentiation of learning experiences for all students. Details for differentiation for learning experiences are included on the district unit planners.				

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Unit Name	Unit 6: Integration & Accumulation of Change	Unit 7: Differential Equations	Unit 8: Applications of Integration
Time Frame	4-5 Weeks	2-3 Weeks	4-5 Weeks
Standards	AP Calc AB 6.1-6.10, 6.14	AP Calc AB 7.1-7.4, 7.6-7.8	AP Calc AB 8.1-8.12
Content Specific Information	6.1 Exploring accumulations of change 6.2 Approximating areas with Reimann sums 6.3 Riemann sums, summation notation, and definite integral notation 6.4 The fundamental theorem of calculus and accumulation functions 6.5 Interpreting the behavior of accumulation functions involving area 6.6 Applying properties of definite integrals 6.7 The fundamental theorem of calculus and definite integrals 6.8 Finding antiderivatives and indefinite integrals: basic rules and notation 6.9 Integrating using substitution 6.10 Integrating functions using long division and completing the square 6.14 Selecting techniques for antidifferentiation	7.1 Modeling situations with differential equations 7.2 Verifying solutions for differential equations 7.3 Sketching slope fields 7.4 Reasoning using slope fields 7.6 Finding general solutions using separation of variables 7.7 FInding particular solutions using initial conditions and separation of variables 7.8 Exponential models with differential equations	8.1 Finding the average value of a function on an interval 8.2 Connecting position, velocity, and acceleration of functions using integrals 8.3 Using accumulation functions and definite integrals in applied contexts 8.4 Finding the area between curves expressed as functions of y 8.5 Finding the area between curves expressed as functions of y 8.6 Finding the area between curves that intersect at more than two points 8.7 Volumes with cross sections: squares and rectangles 8.8 Volumes with cross sections: triangles and semicircles 8.9 Volume with disc method: revolving around the x- or y-axis 8.10 Volume with disc method: revolving around other axes 8.11 Volume with washer method: Revolving around the x- or y-axis 8.12 Volume with washer method: revolving around other axes
Common Assessments/ Performance Projects	Homework Quizzes Formative Assessments Summative Assessment	Homework Quizzes Formative Assessments Summative Assessment	Homework Quizzes Formative Assessments Summative Assessment
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Standards from AP COLLEGE BOARD linked below:

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