AP Calculus AB UNIT PLANNER

Unit title	Unit 2 Derivatives (AP Calculus AB Units 2 & 3)	Unit duration	6 weeks

Essential Questions (OR GUIDING QUESTIONS?)

What is a derivative?
What is the relationship between the slopes of 2 parallel lines? What is the relationship between the slopes of 2 perpendicular lines?
How can we evaluate limits?
When does a limit exist?
What you do if you have 0/0 when evaluating a limit?

Assessments

Common Formative Assessment – Derivatives Rules quiz, Chain Rule quiz, Implicit Differentiation quiz
Common Summative Assessment – Derivatives test 1 and Derivatives test 2

Content Standards

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

Learning Activities and Experiences

Topic	Resource	Content Covered	Standards Addressed
Derivative Rules	Master Math Mentor pg. 27-28, 32-40	- Definition of Derivatives using limits - Power rule/Sum rule/ Constant Multiple Rule - Product Rule/Quotient Rule	2.1 - 2.9
	Master Math Mentor pg. 41-51	- Higher Order Derivatives - Derivatives of Trigonometric Functions - Chain Rule	2.10, 3.1, 3.3, 3.4
	Additional Resources:		
Derivative Rules	Master Math Mentor pg. 53-56	-Implicit Differentiation	3.2
	Master Math Mentor pg. 58-64	-Derivatives of Exponential -Derivatives of Logarithmic Functions	3.5, 3.6
	Additional Resources:		

Personalized Learning and Differentiation

Teachers differentiate by providing examples (work samples or task-specific clarifications of assessment criteria); structuring support (advance organizers, flexible grouping, peer relationships); establishing flexible deadlines, and adjusting the pace.

-SWD/504- Accommodations provided
-ELL- Five Principle ELL Curriculum Framework and Vocabulary Supports
-Intervention Support- Re-teaching Activities in Small Groups with Progress Monitoring
-Extensions- Enrichment Tasks and Projects

Resources

Master Math Mentor
Calculus Textbook (Ron Larson)
College Board AP materials and questions