



## AP Calculus AB UNIT PLANNER



Unit title	Unit 4 Integrals	Unit duration	8 weeks
<b>Essential Questions (OR GUIDING QUESTIONS?)</b>			
<p>What is an Integral? What is the relationship between Derivatives and Integrals? What is the LRS, RRS, MRS? What is the Trapezoid Sum? What did you learn about Integrals? What is the difference between indefinite and definite integrals? How can you find the integral of <math>f(x) = e^{3x+4}</math>? How can we find the intervals of increase/decrease for an accumulation function? What is the relationship between distance, velocity, and acceleration?</p>			
<b>Assessments</b>			
<p>Common Formative Assessment – Indefinite Integral TOD, Riemann Sum Quiz, Definite Integral quiz</p> <p>Common Summative Assessment – Integral test 1 and Integral test 2/Definite integral test 2 part B</p>			
<b>Content Standards</b>			
<p><b>AP Unit 6: Integration &amp; Accumulation of Change</b></p> <p>6.1 Exploring accumulations of change 6.2 Approximating areas with Reimann sums 6.3 Riemann sums, summation notation, and definite integral notation 6.8 Finding antiderivatives and indefinite integrals: basic rules and notation 6.14 Selecting techniques for antidifferentiation 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 6.9 Integrating using substitution 6.10 Integrating functions using long division and completing the square 6.11 Integrating using integration by parts</p>			

6.12 Using linear partial fractions  
 6.13 Evaluating improper integrals

**Learning Activities and Experiences**

Topic	Resource	Content Covered	Standards Addressed
Indefinite Integrals	Master Math Mentor - Indefinite Integrals and Riemann Sum FTC - Fundamental Theorem of Calculus Definite Integral - U-substitution	<ul style="list-style-type: none"> <li>• Intro to Indefinite Integral</li> <li>• U-Substitution</li> <li>• Riemann Sums</li> <li>• Definite Integrals</li> <li>• Fundamental Theorem of Calculus</li> <li>• Definite Integrals w/ U-substitution</li> </ul>	MC.I.1
	Master Math Mentor - Accumulation Function Integral of Transcendental Functions	<ul style="list-style-type: none"> <li>• Accumulation Function</li> <li>• Integrating Transcendental Functions</li> <li>• Straight Line Motion</li> </ul>	MC.I.1
	<b>Additional Resources:</b>		

**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