



AP Calculus UNIT PLANNER



Unit title	Unit 5 Applications of Integrals	Unit duration	6 weeks
Essential Questions (OR GUIDING QUESTIONS?)			
How to find the area between 2 curves? How Integral can be use to find the area between 2 curves? How can Integral be use to find the volume of a solid of revolution? What are the relationships between position, velocity and acceleration? How can integrals be use to evaluate these quantities given initial conditions? What is separable differential equations? How integral can be use to f? What is a slope field?			
Assessments			
Common Formative Assessment – Common Quizzes Common Summative Assessment – Common Test			
Content Standards			
AP Unit 8: Applications of Integration 8.1 Finding the average value of a function on an interval 4.2 Straight-line motion: Connecting position, velocity, and acceleration 4.3 Rates of change in applied contexts other than motion 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	AP Unit 7: Differential Equations 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 7.5 Approximating solutions using Euler’s method 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 7.9 Logistic models with differential equations		

Learning Activities and Experiences

Topic	Resource	Content Covered	Standards Addressed
Applications of Integrals	Master Math Mentor - Area between Regions	<ul style="list-style-type: none"> Point of Intersection between 2 functions Area of Region Between 2 Functions 	MC.I.1
	Master Math Mentor - Volume of Solid Revolution	<ul style="list-style-type: none"> Volume of Revolution 	MC.I.1
	Master Math Mentor - Straight Line Motion	<ul style="list-style-type: none"> Straight line Motion 	MC.I.1
	Master Math Mentor - Separable Differential Equations	<ul style="list-style-type: none"> Separable Differential Equations 	MC.I.1
	Master Math Mentor - Slope Fields	<ul style="list-style-type: none"> Slope Field 	MC.I.1
	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