Curriculum Units and Learning Outcomes

Content Area: Honors Calculus	**Grade Level: 11-12**
Unit 6: Methods of Integration	
Unit Summary: This unit continues the work on integration, focusing primarily on more sophisticated methods of integration (U-substitution, trigonometric substitution, Partial fractions and Integration by Parts). How to use a Table of Integrals as a reference is briefly discussed. The concept of integration is reinforced further via Disk Method for finding volume.	
Massachusetts Standards: ● Massachusetts Math Frameworks do not have standards for Calculus	
Enduring Understandings: ● The definite integral of a function over an interval is a mathematical tool with many interpretations and applications involving accumulation. ● There can be many integral properties and algebraic manipulations employed when finding the antiderivative of a function.	
Essential Questions: ● How do I integrate a given function? ● How do I determine which method of integration to use? ● How can I use Calculus to determine area and volume?	

Students will demonstrate KNOWLEDGE of:	**Students will be SKILLED at**:
● Slope fields ● trigonometric identities ● decomposing rational expressions ● volume of a cylinder ● how to sketch a 3D solid ● how to sketch the approximation of volume of a 3D solid using cylindrical disks.	● using the method of Separation of Variables in order to solve a differential equation. ● using the methods of U-substitution, trigonometric substitution, Partial fractions and Integration by Parts in order to determine an indefinite integral or evaluate a definite integral. ● using Table of Integrals to determine an antiderivative ● representing a 3D solid graphically ● approximating volume using cylindrical disks ● calculate volume using integration (Disk method only)

Estimated Duration: 5-6 weeks