Unit Topic	Calculus Unit 6 - Applications of Differentiation
Standards	

Unit Essential Question	How do you use calculus to analyze graphs of functions?

Lesson 1 Focus Extrema on an Interval **Standards** **Students Will Know… (Key Vocabulary)**	**Students Will Be Able To…** 1. Understand the definition of extrema of a function on an interval 2. Find extrema on a closed interval	**Lesson Essential Question 1** How do we find extrema on a closed interval?
Lesson 2 Focus Rolle's Theorem and the Mean Value Theorem **Standards** **Students Will Know… (Key Vocabulary)**	**Students Will Be Able To…** 1. Understand and use Rolle's Theorem 2. Understand and use the Mean Value Theorem	**Lesson Essential Question 2** How do we use Rolle's Theorem and the MVT?
Lesson 3 Focus Increasing and Decreasing Functions and the First Derivative Test **Standards** **Students Will Know… (Key Vocabulary)**	**Students Will Be Able To…** 1. Determine intervals on which a function is increasing or decreasing 2. Apply the First Derivative Test to find relative extrema of a function	**Lesson Essential Question 3** What does the First Derivative Test find for us in calculus?
Lesson 4 Focus Concavity and the Second Derivative Test **Standards** **Students Will Know… (Key Vocabulary)**	**Students Will Be Able To…** 1. Determine intervals on which a function is concave upward or concave downward 2. Find any points of inflection of the graph of a function 3. Apply the second derivative test to find rel extrema of a function	**Lesson Essential Question 4** What is the difference between using the 2nd derivative to find concavity and the Second Derivative Test?
Lesson 5 Focus Limits at Infinity **Standards** **Students Will Know… (Key Vocabulary)**	**Students Will Be Able To…** 1. Determine (finite) limits at infinity 2. Determine the horizontal asymptotes, if any, of the graph of a function 3. Determine infinite limits at infinity	**Lesson Essential Question 5** How do we find horizontal asymptotes?

Major Unit Assignment	