Reavis High School
AP Calculus Curriculum Snapshot

Unit 1: Preparation for Calculus
Review of Algebra II Honors and Precalculus

6 - 7 Days	In this unit, students will review concepts learned in Algebra II/Precalculus. Students will be graphing and writing equations of lines using various methods as well as applying these concepts in real-life situations. In addition, we will review evaluating functions and identify different types of transformations followed by obtaining appropriate lines for linear, quadratic, and cubic models to better understand the connections among these representations.

Unit 2: Limits and Their Properties

9 Days	In this unit, students will obtain an intuitive understanding of the limit process. We will be calculating limits using algebra and estimating those using graphs and tables of values, followed by finding asymptotes of different functions. Finally, we will investigate limits involving infinity and understand continuity of functions in terms of limits.

Unit 3: Differentiation

18 Days	In this unit, we will define and understand the meaning of derivatives in terms of rate of change and linear approximation. We will calculate derivatives of functions written in different forms using graphical, numerical, and analytical approaches. Finally, we will be able to apply this knowledge to solve real life problems using related rates.

Unit 4: Applications of Differentiation

20 - 21 Days

In this unit, we will apply our understanding of derivatives to analyze curves of different functions. As a result, we will be able to identify extrema of any function on both open and closed intervals and finally sketch the graph without using a calculator. In addition, we will use differentiation to solve optimization problems which will require us to use maximum and minimum values in real-life situations.

Unit 5: Integration

16 - 17 Days

In this unit, we will define integrals, both definite and indefinite. We will use and apply different properties of integration to find antiderivatives of various functions. As a result, we will understand and apply both First and Second Fundamental Theorems of Calculus. With all the integration techniques introduced in this chapter, we will be finding the area of a region using sums.

Unit 6: Logarithmic, Exponential, and Other Transcendental Functions

28 - 30 Days

In this unit, we will introduce properties, derivatives, and antiderivatives of both exponential and logarithmic functions. Consequently using all the different differential techniques of these functions, we will solve separable differential equations which we will eventually use to solve real-life growth and decay problems. In addition, we will focus on finding both general and particular solutions to homogenous differential equations and use them to model and solve different applied problems.

Unit 7: Application of Integration

11 Days	In this unit, students will apply all of the integration techniques introduced in earlier chapters to find the area of a region, as well as the volume of any solid of revolution. We will compare differences and similarities of disk, washer, shell, and cross sections methods for finding volume of any solid of revolution.

Unit 8: Integration Techniques

8 Days	In this unit, we will use integration by parts to find the antiderivatives of transcendentals and products involving functions. With integration by parts, we will solve trigonometric integrals involving powers of the six trigonometric functions.

Unit 9: Review for the AP Exam

16 Days	Students will review for the AP Exam.