Reavis High School
Trigonometry Curriculum Snapshot

Unit 1: Functions, Equations, and Graphs

30 Days	Students will study functions, equations, and graphs. Functions will be examined to find their relationship with real-life phenomena. Concepts such as finding the domain, range, composite, inverse, and zeros will be explored. Students will also work with linear equations finding the slope, distance, and midpoint of a line as well as writing equations. Additionally, students will solve linear systems, quadratic, cubic, and higher-order polynomials. The nature of graphs, including linear, quadratic, cubic, rational functions, polynomials, inverses, asymptotes, critical points, continuity, and end behavior are explored.

Unit 2: Trigonometric Functions

18 Days	Students will be able to convert and work in radian and degree measure to find reference and co-terminal angles. Students will calculate the length of an arc, linear and angular velocity, and determine the area of a sector. They will find the values of the six trigonometric functions. Additionally, they will apply the Law of Sines and Cosines in solving triangles and finding their areas.

Unit 3: Trigonometric Graphs, Inverses, Identities, and Equations

20 Days	Students will study trigonometric functions with an emphasis on graphing. They will learn how to find the amplitude, period, and phase shift for a trigonometric function and apply these concepts to write and graph equations. Students will examine and use reciprocal identities, quotient identities, Pythagorean identities, symmetry identities, and basic trigonometric identities to verify and solve equations. Additionally, students will use sum, difference, double- and half-angle identities.

Unit 4: Vectors and Parametric Equations

| 15 Days | Students will study vectors and parametric equations. Students will learn to recognize equal, opposite, and parallel vectors. Students will use vector operations to find magnitude and to solve application problems. Additionally, they will graph vector and parametric equations and solve application problems related to motion. |

Unit 5: Exponential and Logarithmic Functions

| 15 Days | Students will be able to use the properties of logarithms to evaluate, graph, and simplify expressions containing rational exponents. They will examine the number e and its application to real life problems. In addition, students will use common and natural logarithms to solve equations. |

Unit 6: Sequences and Series

| 15 Days | Students will explore arithmetic and geometric sequences and learn how to find the nth term and sum. In addition, students will explore infinite series and find their limits and sums. Students will also use sigma notation and apply the Binomial Theorem to expand binomials. |

Unit 7: Combinatorics and Probablility

20 Days

Students will explore combinatorics and probability. Students will use combinations, permuatations, and the basic counting principle to help them find the probability of dependent and independent events. Additionally, they will find the probability and odds of mutually exclusive and inclusive events. Students will use the Binomial Theorem to solve probability problems.

Unit 8: Statistics and Data Analysis

20 Days

Students will be able to analyze statistics and data and apply it to real life situations. Students will use bar graphs, histograms, frequency distribution tables, stem and leaf charts, and box and whisker diagrams to organize and draw conclusions. Students will find the measures of central tendency including the mean, median, mode, range, interquartile range, and standard deviation. Additionally, students will explore the normal distribution curve, draw and analyze scatter plots, find lines of regression, and compute correlation values to determine goodness of fit.

Unit 9: Limits, Derivatives, and Integrals

15 Days

Students will be introduced to the study of calculus. Students will evaluate the limit of a polynomial function. They will find the derivative of a function. They will learn integration and apply the fundamental theorem of calculus to evaluate definite integrals and to find area.