PARENT MASTERY GUIDE
CALCULUS

FIRST TERM	SECOND TERM
During the first nine weeks of Calculus the students will study and apply the following concepts: - Work with the graphs of various types of functions and equations using graphing calculators. - Predict and explain the behavior of a graph. - Calculate and estimate limits using substitution, graphs, and tables. - Describe and understand asymptotes, infinite limits and limits at infinity. - Compare changes in functions. - Demonstrate an understanding of continuous and discontinuous functions in terms of limits and graphs. - Represent, interpret, and define the concept of derivative in various ways. - Compare relationships between differentiability and continuity and compare the characteristics of the graphs of a function and its derivative. - Compute derivatives using basic differentiation rules. - Use the chain rule and implicit differentiation to find the derivatives of more complex functions. - Apply derivatives to real-world situations.	During the second nine weeks of Calculus the students will study and apply the following concepts: - Demonstrate an understanding of the Mean Value Theorem. - Use first and second derivatives to obtain and understand characteristics of the graph such as increasing and decreasing behavior, concavity, points of inflection, and extrema. - Compare the characteristics of the graphs of a function and its first and second derivatives. - Use derivatives to solve real-world problems in areas such as business, production, electronics, relative motion, and engineering. - Apply techniques of antidifferentiation. - Use antidifferentiation to solve problems involving motion, etc. - Communicate the relationship between a Riemann Sum and a definite integral. - Apply basic properties of definite integrals. - Evaluate definite integrals using the Fundamental Theorem of Calculus. Use Riemann Sums and the Trapezoidal Rule to approximate definite integrals of functions.