SCOPE & SEQUENCE   **PETERSBURG CITY PUBLIC SCHOOLS**

Calculus Scope and Sequence															
Part I			**Part II**			**Part III**			**Part IV**						
Unit	Instructional Focus	Weeks Days	Unit	Instructional Focus	Weeks Days	Unit	Instructional Focus	Weeks Days	Unit	Instructional Focus	Weeks Days				
Functions	Review of Functions Trigonometric Functions Inverse Functions Exponential and Logarithmic Functions	1week 3 days	**Applications of the Derivative**	Related Rates Linear Approximations and Differentials Maxima and Minima The Mean Value Theorem Derivatives and the Shape of a Graph Limits at Infinity and Asymptotes Applied Optimization Problems L'Hôpital's Rule Newton's Method Antiderivatives	5 weeks 12 days	**Applications of Integration**	Areas between Curves Determining Volumes by Slicing Volumes of Revolution: Cylindrical Shells Arc Length of a Curve and Surface Area Physical Applications Moments and Centers of Mass Integrals, Exponential Functions, and Logarithms Exponential Growth and Decay Calculus of the Hyperbolic Functions	3 weeks 8 days	**Sequences and Infinite Series**	Sequences Infinite Series The Divergence and Integral Tests Comparison Tests Alternating Series Ratio and Root Tests	3 weeks 5 days				
Limits	Limits Intro Computing Limits Infinite Limits Limits at Infinity Continuity Precise Definitions of Limits	4 weeks 10 days	**Integration**	Approximating Areas The Definite Integral The Fundamental Theorem of Calculus Integration Formulas and the Net Change Theorem Substitution Integrals Involving Exponential and Logarithmic Functions Integrals Resulting in Inverse Trigonometric Functions	3 weeks 7 days	**Integration Techniques**	Integration by Parts Trigonometric Integrals Trigonometric Substitution Partial Fractions Other Strategies for Integration Numerical Integration Improper Integral	3 weeks 7 days	**Power Series**	Power Series and Functions Properties of Power Series Taylor and Maclaurin Series Working with Taylor Series	3 weeks 5 days				
The Derivative	Defining the Derivative The Derivative as a Function Differentiation Rules	5 weeks 12 days	**Applications of Integration**	Areas between Curves Determining Volumes by Slicing Volumes of Revolution: Cylindrical	1 week 3 days	**Differential Equations**	Basics of Differential Equations Direction Fields and Numerical Methods	3 weeks 7 days	**Polar, Parametric, and Vector**	Parametric Equations Calculus of Parametric Curves Polar Coordinates	3 weeks 6 days				

Derivatives as Rates of Change Derivatives of Trigonometric Functions The Chain Rule Derivatives of Inverse Functions Implicit Differentiation Derivatives of Exponential and Logarithmic Functions			Shells Arc Length of a Curve and Surface Area Physical Applications Moments and Centers of Mass Integrals, Exponential Functions, and Logarithms Exponential Growth and Decay Calculus of the Hyperbolic Functions			Separable Equations The Logistic Equation First-order Linear Equations	**Curves**	Area and Arc Length in Polar Coordinates Conic Sections