









# AP Calculus

What will we teach your child?

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## Arenas, Sprints, and Belts

Arena 1		Arena 2	
			
White Belt 1	White Belt 2	Yellow Belt 1	Yellow Belt 2
6 Weeks	6 Weeks	6 Weeks	6 Weeks
3 Months		3 Months	
Program Completion Time: 12 Months			
Arena 3		Arena 4	
			
Green Belt 1	Green Belt 2	Blue Belt 1	Blue Belt 2
6 Weeks	6 Weeks	6 Weeks	6 Weeks
3 Months		3 Months	

# AP Calculus

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White Belt 1	
#	Sprints (6 Weeks)
1	Estimating Limit Values From Graphs & Tables
2	Limits of Combined & Composite Functions
3	Limits By Direct Substitution
4	Limits Of Trigonometric & Piecewise Functions
5	Limits By Factoring, Rationalizing & By Pythagorean Identity
6	Review/Assessment



**White Belt 1**

White Belt 2	
#	Sprints (6 Weeks)
1	Selecting Procedures For Determining Limits
2	Squeeze Theorem & Intermediate Value Theorem
3	Discontinuities - Defining Continuity At A Point & Removing Discontinuities
4	Limits At Infinity & Horizontal Asymptotes

Yellow Belt 1	
#	Sprints (6 Weeks)
1	Connecting differentiability and continuity
2	Determining derivatives for elementary functions
3	Applying differentiation rules
4	The chain rule for differentiating composite functions
5	Implicit differentiation
6	Review/Assessment



**Yellow Belt 1**

Yellow Belt 2	
#	Sprints (6 Weeks)
1	Differentiation of general and particular inverse functions
2	Determining higher-order derivatives of functions
3	Identifying relevant mathematical information in verbal representations of real-world problems involving rates of change
4	Applying understandings of differentiation to problems involving motion

# AP Calculus

## What will we teach your child?

5	Defining the derivative of a function at a point and as a function
6	Review/Assessment



**White Belt 2**

5	Generalizing understandings of motion problems to other situations involving rates of change
6	Review/Assessment



**Yellow Belt 2**

Green Belt 1	
#	Sprints (6 Weeks)
1	Solving related rates problems
2	Local linearities and approximation
3	L'Hospital's rule
4	Mean Value Theorem and Extreme Value Theorem
5	Derivatives and properties of functions
6	First derivative test, second derivative test, and candidates test
7	Review/Assessment



**Green Belt 1**

Blue Belt 1	
#	Sprints (6 Weeks)
1	The Fundamental Theorem of Calculus, and definite integrals
2	Antiderivatives and indefinite integrals
3	Properties of integrals and integration techniques
4	Interpreting verbal descriptions of change as separable differential equations
5	Sketching slope fields and families of solution curves
6	Solving separable differential equations to find general and particular solutions
7	Review/Assessment



**Blue Belt 1**

<b>Green Belt 2</b>
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<b>Blue Belt 2</b>
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# AP Calculus

## What will we teach your child?

#	Sprints (6 Weeks)
1	Sketching graphs of functions and their derivatives
2	Solving optimization problems
3	Behaviors of Implicit relations
4	Using definite integrals to determine accumulated change over an interval
5	Approximating integrals using Riemann Sums
6	Accumulation functions
7	Review/Assessment



**Green Belt 2**

#	Sprints (6 Weeks)
1	Deriving and applying a model for exponential growth and decay
2	Determining the average value of a function using definite integrals
3	Modeling particle motion
4	Solving accumulation problems
5	Finding the area between curves
6	Determining volume with cross-sections, the disc method, and the washer method
7	Review/Assessment



**Blue Belt 2**