Scope and Sequence
Mathematics
College Math Topics

Description: College Math Topics is a one year course emphasizing the practical link between mathematics, real world business activities, and technology. Some of the units to be included will be data analysis, mathematical modeling, geometric and trigonometric connections, probability and matrices. A graphing calculator is necessary for this course.

Departmental assessments are given to measure individual student, class, and grade level achievement in math. Data are collected by each teacher and used to monitor progress and make plans for instruction. At the grade level, the data are used to monitor and adjust curriculum and instruction. End of quarter, end of semester, and/or end of course exams may be used.

Unit Name/Description	Content and/or Skills
SAT Math	Will need to be redesigned to reflect new SAT
Probability & Statistics	Understand experimental/theoretical probability Use experimental probability to perform coin flip activity Understand probability of dice/cards Use theoretical probability to determine outcome of real-world applications Create probability models Calculate the expected value of an event Create a game and explain the probability Use addition rule to determine simple probability Apply addition rule when events are mutually exclusive Apply addition rule when events are not mutually exclusive Use multiplication rule to determine compound probability

		Calculate and determine outcomes with 50-50 probability
		Understand permutations and combinations
		Use TI-83 or TI-84 to calculate permutation and combinations
	Data Analysis	Compute measures of central tendency - mean, median, mode, range, midrange
		Determine lower/upper extremes, quartiles and interquartile range
		Identify outliers
		Use TI-83 or TI-84 to calculate mean, standard deviation and 5 number summary
		Construct box-and-whisker plots
		Construct stem-and-leaf plots
		Create frequency tables and histograms
		Understand the shape of data
		Use TI-83 or TI-84 to create box-and-whisker plots and histograms
		Complete data analysis project
		Calculate weighted mean
		Calculate and analyze z-scores
		Understand and interpret correlation coefficient and coefficient of determination
		Determine linear regression equation and graph
	Right Triangles	Apply the Pythagorean Theorem and its converse
		Use Pythagorean Theorem to determine type of triangle
		Find the sine, cosine and tangent of an acute angle
		Solve a right triangle
		Use trigonometry for right triangle applications
	Midterm	Departmental Review and Exam
	Investing	Introduction to stock market terminology
		Understand stock websites and company quotes
		Calculate debt-to-equity ratio, earnings per share and return on investment

	Complete sector project
	Complete stock project
Personal Finance	Understand basic credit card facts
	Compute credit card payments
	Calculate compound interest
	Understand basic car financing options
	Calculate monthly car payment
Financial Fluency	Investigate career options
	Determine budget options and calculate personal budget
	Investigate online calculators to compute credit card payments, monthly car payments and compound interest
	Write a financial fluency paper
Quadratics	Determine y-intercept
	Use quadratic formula/factoring to calculate x-intercepts
	Determine vertex
	Use TI-83 or TI-84 to calculation maximum/minimum and zeros
	Use matrices to determine quadratic equation to fit data
	Use quadratic modeling to solve real-world applications
	Use quadratic regression to determine equation to fit data
Vectors	Determine magnitude and direction
	Addition and subtraction
	Scalar multiplication
	Practical application/use vectors to analyze magnitude and direction in maps
Matrices	Introduce basic matrix operations - add, subtract and multiply
	Solve matrix equations

	Properties of matrix operations - associative, commutative and distributive
	TI-83 or TI-84 applications/solving systems
	Evaluate determinants of 2x2 matrices and find inverse matrices
	Use inverse matrices to solve matrix equations
	Use matrices to determine area of triangles
Final	Departmental Review and Exam