Overview of Year

Math 3 Mathematics Curriculum

SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
Unit 1 Probability Distributions - 10 days	Unit 2 Patterns of Change, Linear Functions - 13 days	Unit 3 Reasoning about Statistics: Standard Deviation and the Normal Distribution -8 days	Unit 4 Exponential Functions -6 days	Unit 5 Introduction to Graph Theory -10 days	Unit 6 Quadratic Functions -6 days	Unit 7 Matrices and Systems -13 days	Unit 8 Trigonometry: Solving Triangles -14 days		

Unit 1	**Understanding**	**Essential Question**
Probability Distributions	• Construct sample spaces for chance situations • Construct probability distribution A(and)B	What is a sample space and how can it be useful in finding probability? What is a probability distribution and how is it used? How can an area model be used to find probability? How does the relationship between two events affect What is expected value and how is it used?
Performance Task:		

Unit 2	**Understanding**	**Essential Question**

Patterns of Change, Linear Functions	Part A: • How variables are related • Multiple Representation • Patterns of Change • Recursive relationships Part B: • Determine relationships among graph, symbolic rule, table of values and related situation for a linear function • Interpret the slope and y-intercept in the context • Write rules for linear functions • Estimate the graph and function rule for a line of best fit by hand and using technology • Use a linear function to answer questions about situations • Writing rules for linear functions	Part A: How are variables related? How can multiple representation be used to make sense of functions? How can we describe the patterns of change of a relationship? What does it mean to represent a relationship recursively? How can technology be used as a tool to deepen our understanding? Part B: How can multiple representation be used to make sense of linear or exponential functions? How can data be modeled and the model used to answer questions about situations?
Performance Task:		

Unit 3	**Understanding**	**Essential Question**
Reasoning about Statistics: Standard Deviation and the Normal Distribution	• Variation • Standard Deviation • The effect of outliers • Normal distributions	What does the standard deviation tell you about a distribution? What is a normal distribution and how is it used to describe data?
Performance Task:		

Unit 4	**Understanding**	**Essential Question**

Exponential Functions	• Recognize and represent exponential growth and decay patterns • Use multiple representation to make sense of exponential models • Use reasoning, estimation and curve fitting to model data patterns exhibiting exponential patterns • Write rules describing exponential patterns • Use exponential rules to answer questions about situations • Compare linear & exponential functions	How can multiple representation be used to make sense of linear or exponential functions? How can data be modeled and the model used to answer questions about situations?
Performance Task:		

Unit 5	**Understanding**	**Essential Question**
Introduction to Graph Theory	• Use vertex-edge graphs to model problems • Use Euler circuits to solve problems • Use matrices to represent and analyze graphs • Use vertex coloring to solve a variety of problems • Use vertex edge graphs to solve problems involving optimization	How can vertex edge graphs be used to model and solve problems?
Performance Task:		

Unit 6	**Understanding**	**Essential Question**
Quadratic Functions	• Quadratic Relations and Equations: • Use context to make sense of quadratic relations; Solve quadratic	How can you recognize a quadratic relation?

	equations using tables, graphs, and the quadratic formula	How can multiple representation be used to make sense of quadratic relations?
Performance Task:		

Unit 7	**Understanding**	**Essential Question**
Matrices and Systems	Part A- • Solving Linear Systems is a review unit from 8th and Algebra, but emphasize using context, writing equations, using different strategies, as well as analyzing systems for no, one, and infinite number of solutions • Use graphing calculator as a tool as well as algebraic manipulation • Begin to discuss when to use what strategy (efficiency) Part B—Matrices • Constructing matrices to organize, display, interpret and analyze a situation • Understand. carry out and interpret matrix operations • Use matrix operations to solve problems • Examine the properties of operations and matrices and compare those with real numbers • Use matrices to solve systems of linear equations using technology	Part A: How can a system of equations be used to solve problems? Which method is more efficient when? How can you tell by examining a system how many solutions it has? Part B: How can matrices be used to describe, interpret, and analyze problem situations? How can matrix operations be used to solve problem situations? How can matrices be used to solve systems of linear equations?

Performance Task:

Unit 8	**Understanding**	**Essential Question**
Trigonometry: Solving Triangles	• Explore properties of sine, cosine and tangent ratios of acute angles in right triangles and use those ratios to solve applied problems. • Use the Law of Sines and Law of Cosines to solve a variety of applied triangles that involve triangulation. • (Optional: SSA special cases)	How can trigonometry be used to solve problems in context? How can the properties of sine, cosine and tangent ratios be used to solve applied problems?
Performance Task:		