Units of Study

The Quantitative Literacy course features four units of instruction and a capstone project. This document clearly articulates the premise of each unit of study; the recommended period for instruction; and a list of the key performance indicators that are included in the units. Key performance indicators are coded as **major** areas of focus for the unit (green) or **supporting** (blue).

Units	Competencies/Performance Indicators
Unit 1: Personal Finance *In this unit, students learn about relevant financial skills like managing salary, buying a car and avoiding debt.* 5 weeks/1,125 minutes	**QL-A1-A** Use variables to accurately represent quantities or attributes in a variety of authentic tasks.
	QL-A1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship.
	QL-A1-C Interpret parts of expressions such as terms, factors, and coefficients.
	QL-A1-D Write expressions and/or rewrite expressions in equivalent forms to solve problems.
	QL-A3-B Compare and contrast expressions and equations. (given an expression for something when it would be equal to another expression, compare and answer question about the task)
	QL-A3-D Develop and solve equations and inequalities in one variable. (Set-up and solving - single variable equation from an authentic task, showing and defending work)
	QL-N1-A Demonstrate operation sense and the effects of common operations on numbers in words and symbols.
	QL-N1-B Apply mathematical properties in numeric and algebraic contexts.
	QL-N2-B Apply quantitative reasoning to solve problems involving quantities or rates.
	QL-N3-A Use estimation skills.
	QL-N3-B State convincing evidence to justify estimates.
	QL-FM1-A Use variables in a variety of mathematical contexts to represent quantities or attributes.

	QL-FM1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship
	QL-FM1-C Understand the concept of a function
	QL-FM1-D Interpret functions
	QL-FM2-A Translate problems from a variety of contexts into mathematical representations and vice versa.
	QL-FM2-B Build a function that models a relationship between two quantities.
	QL-FM2-C Build new functions from existing functions.
	QL-FM2-D Construct and compare models such as linear and nonlinear models and use them to solve problems.
	QL-FM2-E Interpret expressions for functions in terms of the situation they model.

Unit 2: Statistics & Predictions in Everyday Life *Working with data and statistics provides the opportunity for students to understand that mathematics is sensible, useful, and worthwhile. Manipulating and displaying data calls on students to draw from and apply their knowledge in the areas of reasoning, modeling, working with patterns, precise calculating, problem solving, and communicating. In turn, data and statistics help us explain and predict events in our daily lives.* 6 weeks/1,350 minutes	**QL-A1-A** Use variables to accurately represent quantities or attributes in a variety of authentic tasks.
	QL-A1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship.
	QL-N1-A Demonstrate operation sense and the effects of common operations on numbers in words and symbols.
	QL-N1-B Apply mathematical properties in numeric and algebraic contexts.
	QL-N1-C Use different types of mathematical summaries of data, such as mean, median, and mode.
	QL-N1-D Read, interpret, and make decisions based upon information from various data displays.
	QL-N3-A Use estimation skills.
	QL-N3-B State convincing evidence to justify estimates.
	QL-FM2-A Translate problems from a variety of contexts into mathematical representations and vice versa.
	QL-FM3-A Identify the reasonableness of a linear model for given data and consider alternative models.

Unit 3: Constructing Our World *Students describe and plan for their physical world using mathematical ideas and properties* 8 weeks/1,800 minutes	**QL-A1-A** Use variables to accurately represent quantities or attributes in a variety of authentic tasks.
	QL-A1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship.
	QL-A1-D Write expressions and/or rewrite expressions in equivalent forms to solve problems.
	QL-A2-A Perform arithmetic operations (addition, subtraction, multiplication) on polynomials in authentic tasks. (2nd degree polynomial with rational roots; 3rd &4th degree polynomial with integer and rational roots)
	QL-A2-B Demonstrate the relationship between zeros and factors of polynomials.
	QL-N1-A Demonstrate operation sense and the effects of common operations on numbers in words and symbols.
	QL-N1-B Apply mathematical properties in numeric and algebraic contexts.
	QL-N1-E Demonstrate competency in the use of magnitude in the contexts of place values, fractions, and numbers written in scientific notation.
	QL-N1-F Demonstrate measurement sense that includes predicting, estimating, and then solving problems using appropriate units.
	QL-N2-A Perform arithmetic operations on whole numbers, integers, fractions, and decimals including basic operations without a calculator.
	QL-N3-A Use estimation skills.
	QL-N3-B State convincing evidence to justify estimates.
	QL-FM1-A Use variables in a variety of mathematical contexts to represent quantities or attributes.
	QL-FM1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship
	QL-FM1-C Understand the concept of a function.

	QL-FM1-D Interpret functions.
	QL-FM1-E Analyze functions using different representations (descriptions, tables, graphs, and equations).
	QL-FM1-F Represent common types of functions using words, algebraic symbols, graphs, and tables.
	QL-FM1-G Identify important characteristics of functions in various representations.
	QL-FM2-A Translate problems from a variety of contexts into mathematical representations and vice versa.
	QL-FM2-F Apply geometric concepts in modeling situations.
	QL-FM3-B Use reasoning that supports that abstract mathematical models used to characterize real-world scenarios or physical relationships are not always exact and may be subject to error from many sources. (how a mathematical model (or when) a mathematical model does not represent a real world situation physics lab.)

Math in Decision Making *This unit will give students further experiences with statistical information and summaries; an opportunity to analyze various decision-making processes; modeling of data; basic financial, logistics, and safety-related decisions; and use network models for making informed decisions.* 5 weeks/1,125 minutes	**QL-A1-A** Use variables to accurately represent quantities or attributes in a variety of authentic tasks.
	QL-A1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship.
	QL-A1-C Interpret parts of expressions such as terms, factors, and coefficients.
	QL-A3-A Create equations and inequalities that describe numbers or relationships. (Set-up and then solve with technology - more than 1 relationship such as a system, or equation more than one variable...include systems with lines with another function and system of linear equations within an authentic task. Linear programing - task application (system inequalities))
	QL-A3-C Use and justify reasoning while solving equations.
	QL-N1-A Demonstrate operation sense and the effects of common operations on numbers in words and symbols.
	QL-N1-B Apply mathematical properties in numeric and algebraic contexts.
	QL-N1-D Read, interpret, and make decisions based upon information from various data displays.
	QL-N2-A Perform arithmetic operations on whole numbers, integers, fractions, and decimals including basic operations without a calculator.
	QL-N2-B Apply quantitative reasoning to solve problems involving quantities or rates.
	QL-N3-A Use estimation skills.
	QL-N3-B State convincing evidence to justify estimates.
	QL-FM1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship
	QL-FM2-A Translate problems from a variety of contexts into mathematical representations and vice versa.

	QL-FM2-D Construct and compare models such as linear and nonlinear models and use them to solve problems.
	QL-FM2-E Interpret expressions for functions in terms of the situation they model.

CAPSTONE PROJECT: Starting a Business *In this unit, students learn to become successful businessmen and women while applying math competencies in a culminating fashion. Students will research and create their own business plans to present to potential investors at the conclusion of the unit of instruction. Students will apply mathematical concepts and skills by developing budgets; projecting purchasing price, cost price, and selling price; designing office*	**QL-A1-A** Use variables to accurately represent quantities or attributes in a variety of authentic tasks.
	QL-A1-B Predict and then confirm the effect that changes in variable values have in an algebraic relationship.
	QL-A1-C Interpret parts of expressions such as terms, factors, and coefficients.
	QL-A1-D Write expressions and/or rewrite expressions in equivalent forms to solve problems.
	QL-A2-A Perform arithmetic operations (addition, subtraction, multiplication) on polynomials in authentic tasks.
	QL-A2-B Demonstrate the relationship between zeros and factors of polynomials.
	QL-A3-A Create equations and inequalities that describe numbers or relationships. (Set-up and then solve with technology - more than 1 relationship such as a system, or equation more than one variable...include systems with lines with another function and system of linear equations within an authentic task. Linear programing - task application (system inequalities))
	QL-A3-D Develop and solve equations in one variable. (Set up and solving - single variable equations from an authentic task, showing and defending work)
	QL-N1-A Demonstrate operation sense and the effects of common operations on numbers in words and symbols.
	QL-N1-B Apply mathematical properties in numeric and algebraic contexts.
	QL-N1-C Use different types of mathematical summaries of data, such as mean, median, and mode.
	QL-N1-D Read, interpret, and make decisions based upon information from various data displays.
	QL-N1-F Demonstrate measurement sense that includes predicting, estimating, and then solving problems using appropriate units.
	QL-N2-B Apply quantitative reasoning to solve problems involving quantities or rates.

space; and considering future expansion efforts. *8-9 weeks/1,800-2,025 minutes*	**QL-FM1-A** Use variables in a variety of mathematical contexts to represent quantities or attributes.
	QL-FM1-C Understand the concept of a function
	QL-FM2-A Translate problems from a variety of contexts into mathematical representations and vice versa.
	QL-FM2-B Build a function that models a relationship between two quantities.
	QL-FM2-C Build new functions from existing functions.
	QL-FM2-E Interpret expressions for functions in terms of the situation they model.
	QL-FM2-F Apply geometric concepts in modeling situations.