Transition to Quantitative Literacy Unit Rubrics

Capstone

Standard	4 - Mastery	3 - Proficient	2 - Basic	1- Below Basic	0 - No Evidence
QL-A1.A Use variables to accurately represent quantities or attributes in a variety of authentic tasks.	A: Analyze authentic tasks to interpret variables and quantities.	A: Create an expression from any authentic task. Including naming the variable.	A: Create an expression from an authentic task- linear. Including naming the variable. A: Match correct expression to given task.	A: Identify parts of an expression. ie term, coefficient, variable. A: Given an authentic task student can identify the variable.	A: Not yet able to apply vocabulary to identify parts of an expression.
QL-A1.B Predict and then confirm the effect that changes in variable values have in an algebraic relationship.	B: Predict and confirm, with support, of changes for a variable.	B: Mathematically confirm predictions to authentic task changes	B: Predict what changes in an authentic task would do to an expression.	B: Can complete one of the following: either predict or confirm what changes in an authentic task would do to an expression.	B: Not yet able to predict or confirm what changes in an authentic task would do to an expression.
QL-A1-C Interpret parts of expressions such as terms, factors, and coefficients.	C: Interpret and communicate the parts of an expression in comparison to an authentic task.	C: Interpret parts of an expression in comparison to an authentic task.	C: Identify the parts of an expression needed for an authentic task.	C: Group types of expressions discussing similarities - linear, radical, rational, and quadratic.	C: Not yet able to identify the parts of an expression needed for an authentic task.
QL-A1-D Write expressions and/or rewrite expressions in equivalent forms to solve problems.	D: Create multiple equivalent expressions including radical. D: Interpret and communicate how expressions are equivalent given an authentic task.	D: Create multiple equivalent expressions - linear, rational. D: Identify and create equivalent expressions - linear, quadratic, rational, and radical. D: Create an expression from an authentic task rational, radical, quadratic, and linear	D: Identify and create only linear equivalent expressions.	D: Identify only linear equivalent expressions given a set of expression.	D:Not yet able to identify equivalent expressions
QL-A2-A Perform arithmetic operations (addition, subtraction, multiplication) on polynomials in authentic tasks.	A: Perform addition, subtraction, and multiplication of 4th degree polynomials. A: Set-up and perform addition, subtraction, and multiplication with 3rd degree polynomials from an authentic task.	A: Perform addition, subtraction, and multiplication of 3rd degree polynomials. A: Set-up and perform addition, subtraction, and multiplication with 1st and 2nd degree polynomials from an authentic task with no errors.	A: Perform addition, subtraction, and multiplication of 2nd degree polynomials. A: Set-up and perform addition, subtraction, and multiplication with 1st and 2nd degree polynomials from an authentic task; may have minor errors.	A: Perform addition, subtraction, and multiplication of 1st degree polynomials. A: Identify which operation would need to be performed given an authentic task.	A: Not yet able to identify like terms, combine like terms, and apply addition and multiplication properties. A: Not yet able to identify which operation would need to be performed given an authentic task.
QL-A2-B Demonstrate the relationship between zeros and factors of polynomials.	B: Factor and solve 3rd and 4th degree polynomials with Integer and Rational roots.	B: Factor and solve 2nd degree polynomials with Rational roots. B: Find and interpret meanings of zeros from 1st and 2nd degree authentic tasks	B: Factor and solve 2nd degree polynomials with Integer roots. B: Interpret meaning of zeros from a 1st and 2nd degree authentic task.	B: Find zeros from a graph or visual representation. B: Determine that a zero is needed to be found for a task	B: Not yet able to find zeros from a graph or visual representation. B: Not yet able to determine that a zero is needed to be found for a task.
QL-A3.A Create equations and inequalities that describe numbers or relationships.	A: Create and solve their own authentic task for equations.	A: Explain if an authentic task would be set-up as an equation or inequality.	A: Match the appropriate equation or inequality given an authentic task.	: Create an appropriate equation or inequality given an authentic task.	A: Not yet able to describe a relationship or a system. A: Not yet able to solve an equation or inequality.

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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)	D: Create and solve their own authentic task for inequalities.	D: Develop and solve an appropriate equation or inequality given an authentic task.	D: Solve an equation or compound inequality with real solutions including no solution, infinite solutions, and compound inequalities	D: Solve an equation with integer solutions and solve a singular (as opposed to compound) inequality.	D: Not yet able to create and solve their own authentic task for inequalities.
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.	A-C. Use mathematical properties and statistical summaries to justify more advanced concepts.	A-C. Explain mathematical properties and statistical summaries	A-C. Use mathematical properties and statistical summaries.	A-C. Identify mathematical properties and statistical summaries.	A-C. Not yet able to use or identify mathematical properties or statistical summaries.
QL-N1.D Read, interpret, and make decisions based upon information from various data displays.	D. Create and use various representations of data.	D. Read and interpret representations of data and use this to make decisions.	D. Read and interpret various representations of data.	D. Read various representations of data.	D. Read only limited representations.
QL-N1.F Demonstrate measurement sense that includes predicting, estimating, and then solving problems using appropriate units.	E-F. Explain why and how units are affected by operations	E-F. Choose, convert and apply appropriate units and forms of numbers to solve problems in real world context.	E-F. Convert units of measurement or between forms of numbers (scientific notation, decimal form, etc.) while solving	E-F. Choose appropriate units of measurement and form of number (scientific notation, decimal form, etc) for a given situation.	E-F. Not yet able to take units into account when solving.
QL-N2.B Apply quantitative reasoning to solve problems involving quantities or rates.	B. Analyze methods used by others to solve similar problems	B. Justify choice of problem- solving strategy and identify pros and cons.	B. Choose and apply an appropriate problem solving strategy.	B. Apply a given problem solving strategy.	B. Not yet able to apply a problem solving strategy.
QL-FM1.A Use variables in a variety of mathematical contexts to represent quantities or attributes.	A. Make general statements about translating mathematical sentences or situations into equations Make general statements about independent and dependent variables	A. Translate a given mathematical sentence or situation into an equation with appropriate numbers and variables Identify the independent and dependent variable in authentic tasks.	A. Translate a given mathematical sentence into an equation using appropriate numbers and variables Identify the independent and dependent variable.	A. Identifies that a variable is necessary Translates given mathematical sentences into equations accurately 50% of the time.	A. Not yet able to identify when a variable should be used.
QL-FM1-C Understand the concept of a function	C. Create examples of functions and non-functions in a variety of representations.	C. Identifies a function in two or more representations (graph, table, equation) and can explain why it is or is not a function in the context of the situation	C. Identifies a function in one or more representations (graph, table, equation) and can explain why it is or is not a function.	C. Identifies a function in one of the representations (graph, table, equation) not able to explain why it is a function.	C. Not yet able to identify functions.

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QL-FM2.A Translate problems from a variety of contexts into mathematical representations and vice versa.	A. Choose and efficient model to analyze problems in a variety of context.	A. Translate between tables, graphs, equations, and written descriptions in a variety of authentic tasks.	A. Translate between visual representations (tables/graphs), equations, and sometimes written descriptions.	A. Translate between tables and graphs (between two visual representations) and sometimes equation.	A. Not yet able to translate problems into any other form of representation.
QL-FM2.B Build a function that models a relationship between two quantities. QL-FM2.C Build new functions from existing functions.	B/C Identify and model relationships between two quantities in a variety of functions, build new functions, and justify their choice of function.	B/C. Identify and model the relationship between two quantities in linear, quadratic, and exponential functions. Students can build needed additional functions from these existing functions, and use those functions to solve real-world problems.	B/C. Identify and model the relationship between two quantities in both linear and quadratic functions.	B/C. Identify the relationship between two quantities and build a linear function to represent it.	B/C. Identify a relationship between two quantities but is unable to build a function to represent it.
QL-FM2.E Interpret expressions for functions in terms of the situation they model.	E. Defend and analyze interpretations of function and what the answer means in the context of an authentic text.	E. Solve situations mathematically and provide an interpretation of the function as a whole as well as what the answer means in the context of the situation.	E. Solve situations and provide an interpretation for individual pieces of the function/expression.	E. Solve situations mathematically but are not yet able to interpret pieces of the expression.	E. Not yet able to mathematically solve situations.
QL-FM2.F Apply geometric concepts in modeling situations.	F. Identify and model a variety of geometric concepts and justify their properties and applications.	F. Identify and apply multiple geometric relationships needed to solve an authentic task.	F. Identify multiple geometric relationships needed to solve an authentic task.	F. Identify a geometric relationship and able to apply it given the task and the geometric application needed.	F. Identify a geometric relationship but unable to apply it.