Transition to Quantitative Literacy Unit Rubrics

Personal Finance

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, 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-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).	B: Create and defend questions and analyze authentic tasks involving equations and expressions.	B: Answer questions about an authentic task and the equations and expressions used for solving the task.	B: Distinguish between an expression and an equation in an authentic task	B: Distinguish between an expression or an equation in an authentic task	B: Not yet able to distinguish between an expression and an equation in an authentic 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)	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.	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.

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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-N3-A Use estimation skills.	A. Justify choice of statistical methods used to create estimates.	A. Use statistical measures of estimation, including, but not limited to normal distribution, confidence intervals, and linear regression. A-B. Determine the accuracy of their estimation. (come back to later)	A. Use statistical measures of estimation, including, but not limited to measures of central tendency and linear regression. A-B. Create an estimate of a reasonable solution for a problem. (come back to later)	A. Use statistical measures of central tendency to estimate.	A. Not yet able to use estimation skills accurately.
QL-N3-B State convincing evidence to justify estimates	B. Compare estimations to find the most accurate and/or most reasonable solution.	B. Determine if solution is appropriate in context of the problem and justify. A-B. Determine the accuracy of their estimation. (come back to later)	B. Determine if solution is reasonable in context of the problem. A-B. Create an estimate of a reasonable solution for a problem. (come back to later)	B. Eliminate unreasonable solutions and estimates.	B. Not yet able to analyze solutions for reasonableness.
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.B Predict and then confirm the effect that changes in variable values have in an algebraic relationship	B. Analyze and correct others' predictions including what may have led them to that prediction.	B. Make a correct prediction, confirm the answer mathematically, and can interpret that answer in an authentic task	B. Make a correct prediction about the algebraic relationship and confirm the answer mathematically.	B. Not yet able to make a correct prediction about the algebraic relationship.	B. Not yet able to make a prediction about the algebraic relationship
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.
QL-FM1-D Interpret functions	D/G. Generalize key features of functions and how they are modelled in various representations (Example: what a y-intercept is on a graph, equation, table, or in a situation).	D/G. Identify key features given a function; interpret key features, model the function in another representation, and solve authentic tasks involving the function.	D/G. Identify key features given a function; interpret those features or can model the function in another representation.	D/G. Identify key features given a function.	D/G. Not yet able to identify any key features of a given function.
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.

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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-D Construct and compare models such as linear and nonlinear models and use them to solve problems.	D. Analyze problems and construct an appropriate model in an authentic task.	D. Construct a variety of models. Students can draw useful conclusions from comparing models. Students can use models and comparisons to solve authentic tasks.	D. Construct a variety of models. Students can draw some useful conclusions from comparing models.	D. Construct models in a few different representations.	D. Not yet able to construct or compare different models.
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.