Quantitative Reasoning Rubric

Criteria	Exemplary = 4	Achieving = 3	Developing = 2	Beginning = 1
Performing basic calculations and measurements	Calculations and measurements attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations and measurements are also presented elegantly (clearly, concisely, etc.)	Calculations and measurements attempted are essentially all successful and sufficiently comprehensive to solve the problem	Calculations and measurements attempted are either unsuccessful, incorrectly selected, or represent only a portion of the calculations required to comprehensively solve the problem	Calculations are attempted but are both unsuccessful and are not comprehensive
Applying quantitative methods and using the resulting evidence to solve problems	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work
Reading, interpreting, tables, graphs, charts, and other representations of quantitative material.	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. *For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events*	Provides accurate explanations of information presented in mathematical forms. *For instance, accurately explains the trend data shown in a graph*	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. *For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line*	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. *For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends*
Constructing tables, graphs, charts, and other representations of quantitative material.	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding	Competently converts relevant information into an appropriate and desired mathematical portrayal	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate	Is unable to complete conversion of information or completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate
Critically evaluating quantitative methodologies and data.	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate	Explicitly describes assumptions	Attempts to describe assumptions
Constructing cogent arguments utilizing quantitative material	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)
Using appropriate technology to collect, analyze, and produce quantitative materials	Is able to adeptly select the appropriate mode of technology for the data (e.g., excel), masters the use of the technology, and interprets its output correctly	Is able to select the appropriate mode of technology for the data (e.g., excel) and either uses the technology or interprets its output with no more than minor problems or errors	Is able to select the appropriate mode of technology (e.g., excel) but does not fully comprehend its use or makes errors in using the technology or in interpreting its output (e.g., misinterpreting a spreadsheet)	Is unable to correctly select the appropriate mode of technology or program (e.g., excel) or is unable to use the selected technology appropriately