MATHEMATICS

Mathematical Reasoning

Grade 7		
1. Students make decisions about how to approach problems. 7.1.1 Analyze problems by identifying relationships, discriminating relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns 7.1.2 Formulate and justify mathematical conjectures based upon a general description of the mathematical question or problem posed 7.1.3 Determine when and how to break a problem into simpler parts	**2. Students use strategies, skills and concepts in finding solutions.** 7.2.1 Use estimation to verify the reasonableness of calculated results 7.2.2 Apply strategies and results from simpler problems to more complex problems 7.2.3 Estimate unknown quantities graphically and solve for them using logical reasoning, and arithmetic and algebraic techniques 7.2.4 Make and test conjectures using both inductive and deductive reasoning 7.2.5 Use a variety of methods such as words, numbers, symbols, charts, graphs, tables, diagrams and models to explain mathematical reasoning 7.2.6 Express the solution clearly and logically using appropriate mathematical notation and terms and clear language, and support solutions with evidence, in both verbal and symbolic work 7.2.7 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy 7.2.8 Make precise calculations and check the validity of the results from the context of the problem	**3. Students determine a solution is complete and move beyond a particular problem by generalizing to other situations.** 7.3.1 Evaluate the reasonableness of the solution in the context of the original situation 7.3.2 Note method of deriving the solution and demonstrate conceptual understanding of the derivation by solving similar problems 7.3.3 Develop generalizations of the results obtained and the strategies used and extend them to new problem situations