

Mathematics

General Performance Level Definitions

Student results on the MCAS tests are reported according to four performance levels: *Warning/Failing*, *Needs Improvement*, *Proficient*, and *Advanced*. The selected definitions below illustrate the kinds of knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No definitions are provided for the *Warning/Failing* performance level because student work at this level, by definition, does not meet the criteria of the *Needs Improvement* level.

Mathematics Curriculum Framework Core Concept: Students develop mathematical power through problem solving, communication, reasoning, and connections.

	<i>Needs Improvement</i> On MCAS, a student at this level:	<i>Proficient</i> On MCAS, a student at this level:	<i>Advanced</i> On MCAS, a student at this level:
Conceptual Understanding and Procedural Knowledge	<ul style="list-style-type: none"> demonstrates partial understanding of the numeration system performs some calculations and estimations identifies examples of basic math concepts reads and constructs graphs, tables, and charts 	<ul style="list-style-type: none"> demonstrates solid understanding of the numeration system performs most calculations and estimations defines concepts and generates examples and counterexamples of concepts represents data and mathematical relationships in multiple forms (e.g., equations, graphs) 	<ul style="list-style-type: none"> connects concepts from various areas of mathematics, and uses concepts to develop generalizations performs complex calculations and estimations selects the best representations for a given set of data and purpose
Problem Solving	<ul style="list-style-type: none"> applies learned procedures to solve routine problems 	<ul style="list-style-type: none"> applies learned procedures and mathematical concepts to solve a variety of problems, including multi-step problems 	<ul style="list-style-type: none"> generates unique strategies and procedures to solve non-routine problems
Mathematical Reasoning	<ul style="list-style-type: none"> applies some reasoning methods to solve simple problems 	<ul style="list-style-type: none"> uses a variety of reasoning methods to solve problems explains steps and procedures 	<ul style="list-style-type: none"> uses multiple reasoning methods to solve complex problems justifies strategies and solutions
Mathematical Communication	<ul style="list-style-type: none"> identifies and uses basic mathematical terms 	<ul style="list-style-type: none"> uses various forms of representation (e.g., text, graphs, symbols) to illustrate steps to a solution 	<ul style="list-style-type: none"> uses various forms of representation (e.g., text, graphs, symbols) to justify solutions and solution strategies