

Threshold Achievement Level Descriptors Grade 8 Mathematics

The student who just enters Level 2 should be able to:	
<p>CONCEPTS AND PROCEDURES Target A: The Number System</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Identify numbers as rational or irrational.
<p>CONCEPTS AND PROCEDURES Targets B, C, and D: Expressions and Equations</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Find the cube of one-digit numbers and the cube root of perfect cubes (less than 1,000). <input type="checkbox"/> Use appropriate tools (e.g., calculator, pencil and paper) to translate large numbers from scientific to standard notation. <input type="checkbox"/> Identify the y-intercept and calculate the slope of a line from an equation or graph. <input type="checkbox"/> Graph a system of linear equations and identify the solution as the point of intersection.
<p>CONCEPTS AND PROCEDURES Targets E and F: Functions</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Identify whether an input/output pair satisfies a function. <input type="checkbox"/> Compare properties of two linear functions represented in the same way (algebraically, graphically, or in a table). <input type="checkbox"/> Construct a table to represent a linear relationship between two quantities. <input type="checkbox"/> Qualitatively describe a graph of a linear function.
<p>CONCEPTS AND PROCEDURES Targets G and H: Geometry</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Construct reflections across an axis and translations of figures in a coordinate plane.
<p>CONCEPTS AND PROCEDURES Target I: Geometry</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Identify the appropriate formula for the volume of a cylinder and connect the key dimensions to the appropriate location in the formula.
<p>CONCEPTS AND PROCEDURES Target J: Statistics and Probability</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Identify what a linear pattern looks like from a given scatter plot.
<p>PROBLEM SOLVING & MODELING AND DATA ANALYSIS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Select tools to solve a familiar and moderately scaffolded problem and apply them with partial accuracy. <input type="checkbox"/> Use the necessary elements given in a problem situation to solve a problem. <input type="checkbox"/> Apply mathematics to propose solutions by identifying important quantities and by locating missing information from relevant external resources.
<p>COMMUNICATING REASONING</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Find and identify the flaw in an argument.

The student who just enters Level 3 should be able to:	
<p>CONCEPTS AND PROCEDURES Target A: The Number System</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Convert from fractions to repeating decimals. <input type="checkbox"/> Use rational approximations of familiar irrational numbers to make numerical comparisons.
<p>CONCEPTS AND PROCEDURES Targets B, C, and D: Expressions and Equations</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Solve simple quadratic monomial equations and represent the solution as a square root. <input type="checkbox"/> Work with and perform operations with scientific notation of large numbers. <input type="checkbox"/> Identify unit rate of change in linear relationships (i.e., slope is the rate of change). <input type="checkbox"/> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms and equations with infinitely many solutions or no solution. <input type="checkbox"/> Solve a system of linear equations with integer coefficients using an algebraic strategy.
<p>CONCEPTS AND PROCEDURES Targets E and F: Functions</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Classify functions as linear or nonlinear on the basis of the algebraic representation. <input type="checkbox"/> Determine the rate of change and the initial value of a function. <input type="checkbox"/> Know linear equations of the form $y = mx + b$ are functions. <input type="checkbox"/> Compare properties of two linear functions represented in different ways (algebraically, graphically, or in a table).
<p>CONCEPTS AND PROCEDURES Targets G and H: Geometry</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Predict the location of point P after a transformation. <input type="checkbox"/> Know that sequences of translations, rotations, and reflections on a figure always result in a congruent figure. <input type="checkbox"/> Construct rotations of figures in a coordinate plane.
<p>CONCEPTS AND PROCEDURES Target I: Geometry</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Calculate the volume of a cylinder in direct and familiar mathematical and real-world problems.
<p>CONCEPTS AND PROCEDURES Target J: Statistics and Probability</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Describe outliers for a given scatter plot.
<p>PROBLEM SOLVING & MODELING AND DATA ANALYSIS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Use appropriate tools to accurately solve problems arising in everyday life, society, and the workplace. <input type="checkbox"/> Apply mathematics to solve problems by identifying important quantities and mapping their relationship and by stating and using logical assumptions.
<p>COMMUNICATING REASONING</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Use stated assumptions, definitions, and previously established results and examples to identify and repair a flawed argument. <input type="checkbox"/> Use previous information to support his or her own reasoning on a routine problem.

The student who just enters Level 4 should be able to:	
<p>CONCEPTS AND PROCEDURES Target A: The Number System</p>	<p><input type="checkbox"/> Approximate irrational numbers between two integers to a specified level of precision.</p>
<p>CONCEPTS AND PROCEDURES Targets B, C, and D: Expressions and Equations</p>	<p><input type="checkbox"/> Write a system of two linear equations with two variables to represent a context.</p>
<p>CONCEPTS AND PROCEDURES Targets E and F: Functions</p>	<p><input type="checkbox"/> Interpret the rate of change and initial value of a linear function in terms of its graph.</p>
<p>CONCEPTS AND PROCEDURES Targets G and H: Geometry</p>	<p><input type="checkbox"/> Describe the impact of two transformations, including a dilation, on a figure.</p> <p><input type="checkbox"/> Identify or draw the relevant right triangle in a three-dimensional figure, given coordinates or a diagram.</p>
<p>CONCEPTS AND PROCEDURES Target I: Geometry</p>	<p><input type="checkbox"/> Solve unfamiliar or multi-step problems involving volumes of cylinders.</p>
<p>CONCEPTS AND PROCEDURES Target J: Statistics and Probability</p>	<p><input type="checkbox"/> Use the trend line or line of best fit to make predictions in real-world situations.</p>
<p>PROBLEM SOLVING & MODELING AND DATA ANALYSIS</p>	<p><input type="checkbox"/> Analyze and interpret the context of an unfamiliar situation for problems of increasing complexity.</p> <p><input type="checkbox"/> Begin to solve problems optimally.</p> <p><input type="checkbox"/> Construct multiple plausible solutions and approaches.</p>
<p>COMMUNICATING REASONING</p>	<p><input type="checkbox"/> Begin to construct chains of logic about abstract concepts autonomously.</p>