

Grade 4 Mathematics

The grade 4 mathematics assessment presents a variety of items representing the six strands of the Wisconsin Model Academic Standards for Mathematics: Mathematical Processes (*Reasoning, Communication, Connections, Representation, Problem Solving*), Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships. Assessment items in each category may appear without context and within the context of real-world situations. All test items are either selected-response (multiple-choice) or constructed response format. Some items require the use of mathematical tools including a set of pattern blocks, a pentomino (one asymmetrical shape used for transformational geometry) and a ruler with $\frac{1}{4}$ inch and millimeter intervals. Calculator use is prohibited for all sessions of the test. Students performing at each level draw on a broad range of mathematical knowledge while applying skills and strategies to solve real-world and nonroutine mathematical problems. Each proficiency level presumes mastery at previous levels. *The descriptions provide examples, rather than a complete list, of knowledge and skills students may demonstrate at each level.*

Performance Level	WKCE-CRT Performance Level Descriptions and Scale Score Ranges
Advanced 484 and above	<p>At the beginning of the year, students at the Advanced level demonstrate in-depth understanding of academic knowledge and skills tested on the WKCE-CRT by:</p> <ul style="list-style-type: none"> • providing clear and detailed explanations supporting mathematical ideas used to solve real-world problems. • identifying and applying place value concepts to problem solving situations. • solving problems involving estimation, arrays and fractions of sets by applying operations (+, −, ×, ÷). • applying concepts of multiplication as repeated addition or division as repeated subtraction. • identifying and discriminating between objects that have experienced single-motion geometry (slide, flip, and rotation). • locating, plotting and connecting points given the coordinates on the first quadrant of a coordinate grid. • explaining the results with the slide of an object in a first quadrant coordinate system. • determining area and perimeter of two-dimensional shapes. • differentiating between US customary and metric units of measurement. • comparing units of length using US customary or metric units of measurement. • converting units within the US customary system of measurement. • analyzing tables to find the functional relationship. • predicting the likelihood of simple events including coins or spinners. • extending numerical patterns by several steps using addition and subtraction. • analyzing and comparing data in pictographs where the symbol in the key represents more than one.
Proficient 438 – 483	<p>At the beginning of the year, students at the Proficient level demonstrate competency in the academic knowledge and skills tested on the WKCE-CRT by:</p> <ul style="list-style-type: none"> • communicating mathematical ideas to solve real-world problems using words, numbers or symbols. • applying place value concepts to sequential ordering of whole numbers. • solving real-world one-step problems involving multiplication.

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	<ul style="list-style-type: none"> • comparing attributes of two-dimensional figures. • predicting the results of combining two-dimensional figures. • explaining how an object on a first quadrant coordinate grid can be moved from one location to another. • reading and interpreting instruments of measurement involving US customary and metric units. • reading analog and digital clocks to the nearest minute. • estimating the measurement of objects using non-standard units. • identifying the same set of data displayed in different types of graphs and charts. • using and comparing data from tally charts and bar graphs. • interpreting a data table to determine occurrence of an event (e.g. most often) • predicting the likelihood of events involving spinners divided into unequal sections. • representing an addition equation with a pictorial representation. • evaluating a real-world problem to determine the appropriate equation needed to solve the problem. • finding equivalent equations using basic facts.
Basic 421 – 437	<p>At the beginning of the year, students at the Basic level demonstrate some academic knowledge and skills tested on the WKCE-CRT by:</p> <ul style="list-style-type: none"> • providing brief explanations about the mathematical ideas required to solve real-world problems. • using place value concepts to recognize numbers in word form and expanded notation. • using computation or estimation to solve real-world problems involving multiple digit addition and subtraction of whole numbers. • determining the number of sides, faces, edges, vertices (corners) of two-dimensional figures. • manipulating two-dimensional figures involving single motion geometry (slide, flip and turn). • creating two-dimensional figures by combining figures. • identifying a 3-dimensional geometric shape when given its net (flat pattern). • determining the coordinates of a point on a first quadrant coordinate grid. • identifying and applying appropriate US customary and metric units for measuring real-world objects. • reading and interpreting rulers using customary units to identify lengths of everyday objects. • determining the area in square units of a shape placed on a grid. • measuring horizontal and vertical lengths to the nearest half inch. • determining the difference between the measurements of two objects. • reading and using data found in bar graphs where the scale jumps by two. • comparing spinners that give equal or unequal chances. • identifying a two-digit odd number. • finding the missing steps in a geometric pattern. • identifying rules used to extend a numeric pattern involving skip counting. • finding the missing addend for an equation involving two-digit addends.

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Minimal Performance 420 and below	<p>At the beginning of the year, students at the Minimal level demonstrate very limited academic knowledge and skills tested on the WKCE-CRT by:</p> <ul style="list-style-type: none"> • explaining mathematical ideas required to solve simple one-step real-world problems. • identifying and applying a basic knowledge of place value. • solving addition problems involving double-digit and triple-digit addends. • identifying a two-dimensional figure when given an attribute. • matching congruent figures involving single motion geometry (slide only). • locating a point (ordered pair) on the first quadrant coordinate grid when given the coordinates. • identifying appropriate US customary units to use when measuring real-world objects. • measuring horizontal and vertical lengths to the nearest inch. • reading and interpreting analog and digital clocks to the nearest hour. • reading thermometers to the nearest 5 degrees. • comparing objects using terminology of longer, shorter, and taller. • reading data from simple bar graph. • distinguishing between spinners that give equal or unequal chances. • extending simple numeric patterns. • solving equations with one missing variable when the solution involves addition of one to any number.