

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 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 non routine mathematical problems. Each proficiency level presumes mastery at previous levels.

Advanced (484 and above)

At the beginning of the fourth grade, students performing at the Advanced level clearly communicate mathematical ideas by providing a plan of action and explanations that include mathematical reasoning. Students apply place value concepts to identify numbers with specific attributes such as the largest number, identify number sentences that show how to use addition or subtraction to solve real-life problems, and apply operations of computation, representing multiplication as repeated addition or arrays and representing division as repeated subtraction or sharing. Students solve problems involving single motion geometry (slide, flip or rotation), locate, plot and connect points given the coordinates on the first quadrant of a coordinate grid, and explain the movement of an object in the first quadrant coordinate grid. Students determine area and perimeter of two-dimensional shapes, differentiate between US customary and metric units of measurement, and compare and convert lengths between inches, feet and yards. They analyze information from pictographs where the symbol in the key represents more than one object, predict outcomes using mathematical vocabulary related to probability, and determine the probability of events using coins or spinners that are divided into equal or unequal sections. Students extend a number pattern in a table by determining the addition or subtraction rule being used.

Proficient (438-483)

At the beginning of fourth grade, students performing at the Proficient level communicate mathematical ideas using written, numerical and symbolic reasoning. They apply place value concepts to order four-digit numbers, solve two-step problems using addition and subtraction, solve one-step real-world problems using basic multiplication facts, and identify a fractional part of a set. Students compare two-dimensional shapes, predict the results of transformations involving a slide, a flip or a turn, and locate and plot

points on the first quadrant coordinate grid. Students measure real-world objects using US customary and metric measurements, estimate measurement with non-standard units, and read analog and digital clocks to the nearest minute. Students identify bar graphs that display identical information represented by tally charts and use terms such as “most often” when comparing data. They extend numeric patterns by a few steps, recreate patterns from rules in a given pattern and find a missing variable to balance a simple equation

Basic
(421-437)

At the beginning of fourth grade, students performing at the Basic level provide brief explanations for how they solve problems. They match numbers in word, numeric and expanded form, identify two-digit odd and even numbers, and use computation and estimation to solve multi-digit addition and subtraction problems. Students identify three-dimensional figures from nets (flat patterns); manipulate two-dimensional figures using slides, flips and turns; and determine the coordinates of a point in a first-quadrant coordinate grid. Students measure (to the nearest $\frac{1}{2}$ inch) and compare the length and weight of objects, find the area of simple shapes drawn on grids, and read and compare analog and digital clocks nearest minute. Students compare similar information displayed in tally charts and bar graphs and make comparisons in terms of simple probability using descriptions such as “most likely” and “least likely.” Students extend numeric or geometric patterns with several missing steps, determine the rule used in a pattern, determine the missing number in a subtraction equation with the unknown to the right of the equal sign, and find the missing addend in an equation with two-digit numbers.

Minimal Performance
(420 and below)

At the beginning of fourth grade, students performing at the Minimal level provide simple explanations of how they solve problems. Students apply basic knowledge of place valued to solve two and three-digit addition problems and use addition and subtraction to solve one-step problems in real-world situations. Students identify two-dimensional shapes when given an attribute, match congruent figures using single-motion geometry (slide), and locate an object on a first quadrant coordinate grid when given the coordinates (letter, number). Students identify appropriate units for measuring objects, measure real-world objects to the nearest inch, and compare objects using terms such as longer or shorter. They read analog and digital clocks to the nearest hour and thermometers to the nearest five degrees. Students interpret data from simple bar graphs and distinguish between situations (e.g. spinners) that give equal or unequal chances. Students extend simple numeric patterns, solve addition equations with one missing variable and may identify equations that are correct or incorrect.