

Grade 6 Mathematics

The grade 6 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 tangrams, a protractor, a ruler with 1/16 inch and millimeter intervals, and a calculator (four-function calculator availability is required for most 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.

Advanced (532 and above)

At the beginning of sixth grade, students performing at the Advanced level communicate mathematical ideas using correct vocabulary and terminology, and connect mathematical processes to real-world situations. They analyze real-world problems to obtain relevant information necessary for deriving and explaining strategies used to solve two-step problems. Students analyze and solve multiple step problems with whole numbers, add and simplify fractions with unlike denominators, and identify equivalent fractions, decimals and percents. Students identify types of angles in geometric shapes, analyze and apply concepts of symmetry, and determine coordinates of missing vertices. Students convert within a system of measurement and calculate elapsed time. They find mean, median, mode and range from data displayed in complex graphs, charts and number sets, and determine the probability of outcomes of an event. They use reasoning and logic to find patterns, translate geometric patterns into numeric patterns, compare functional relationships, and extend numeric and geometric patterns up to the eighth term when given the first four terms. Students use the distributive property to solve two-step equations with one variable.

Proficient (485-531)

At the beginning of sixth grade, students performing at the Proficient level explain mathematical strategies used to solve two-step problems and provide detailed explanations and justifications using mathematical terminology, numbers and symbols. Students solve two and three-digit multiplication and division problems within context and compare and order whole numbers, fractions, decimals and percents. Students describe angles using appropriate attributes, compare nets (flat patterns) to corresponding three-dimensional shapes, and identify, locate and name ordered pairs for vertices of geometric shapes located on the first quadrant of a coordinate grid. Students measure everyday objects to the nearest 1/8 inch or

millimeter, convert minutes to seconds, and calculate area in real-world situations. Students determine median, mode and range; make reasonable conclusions and predictions from data displayed in bar graphs, circle graphs, tables and number sets; and analyze probability of a single event using fractions. Students describe rules used in functional relationships involving multiplication, solve two-step equations using two operations, and use the distributive property to solve problems in context.

Basic
(464-484)

At the beginning of sixth grade, students performing at the Basic level communicate mathematical ideas involved in single-step problems using numbers, basic symbols and limited mathematical terminology. Students recognize place values for whole numbers to the ten thousands place, use basic multiplication and division facts to solve real-world problems without a calculator, and match fractions to illustrations of fractions. Students distinguish between different types of angles, identify geometric shapes with one line of symmetry, and locate and label ordered pairs on a first quadrant coordinate grid. Students read simple scales to identify the weight of objects and convert liquid capacity within US customary units. Students draw simple conclusions from data displayed in bar graphs, tables and number sets; identify the mode and range of a limited set of numbers; and determine the probability of simple events. Students identify consecutive missing terms in numeric patterns and solve equations using order of operations with parenthesis.

Minimal Performance
(463 and below)

At the beginning of sixth grade, students performing at the Minimal Performance level communicate mathematical ideas and problem solving strategies with some details. Students use place value to express four-digit numbers in expanded notations, solve three and four-digit addition and subtraction problems, and use basic facts to solve multiplication and division problems without a calculator. Students may identify angles, polygons and lines of symmetry, as well as the x- and y-axis on a coordinate grid. Students may convert within the US customary system of measurement using a conversion table. Students may find simple information displayed in graphs, charts and number sets, and determine probable outcomes using terms such as likely, equally likely, least likely and most likely. Students may extend simple numeric or geometric patterns and solve equations with single digits using the commutative property of multiplication.