ISTEP+ Performance Level Descriptors
Mathematics – Grade 6

Grade 6
Pass+

Pass+ students demonstrate advanced mathematical and problem-solving skills. Students solve complex problems with integers, fractions, and decimals, and demonstrate expertise in the areas of computation, geometry, measurement, data analysis, and statistics. *Pass*+ students display highly developed skills with algebra concepts and functions, including writing and solving equations and inequalities. *Pass*+ students solve sophisticated problems, support their solutions, and generalize the results to other situations.

Some examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Pass*+ level include:

- Solve complex problems involving any/all of the following: integers, fractions, decimals, money, ratios, proportions, and percents
- Use methods of greatest common factors and least common multiples to express the distributive property with two whole numbers
- Understand and use a unit rate to model real-world problems
- Apply and justify each step in the order of operations to evaluate complex numerical expressions
- Solve problems with integers by graphing points with rational number coordinates on a coordinate plane in all four quadrants
- Represent and analyze two quantities in a proportional relationship in real-world problems
- Summarize numerical data sets and create graphical representations to describe the overall pattern in the given data
- Analyze and solve problems by sequencing, prioritizing, and identifying relevant information; breaking complex problems into simpler ones; using words and symbols to support solutions; using simpler problems to solve more difficult ones; drawing mathematical conclusions; and determining reasonableness of solutions

Grade 6
Pass

Pass students demonstrate proficient mathematical and problem-solving skills. Students are capable of solving problems with integers, fractions, and decimals, and they are competent in the areas of computation, geometry, measurement, data analysis, and statistics. *Pass* students are skilled with algebra concepts, such as writing and solving equations. *Pass* students experience success when solving problems, communicating ideas, and applying mathematical knowledge to a variety of situations.

Some examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Pass* level include:

- Use positive and negative numbers to represent and compare quantities in real-world contexts
- Find and interpret the absolute value of real-world numbers
- Convert and compare common fractions, decimals, and percents
- Use ratios to model relative sizes between two quantities
- Write and solve equations and inequalities
- Convert between English and metric measurement systems
- Graph points with rational numbers on a coordinate plane in all four quadrants
- Use nets to compute the surface area of prisms
- Find the area of complex shapes composed of rectangles, parallelograms, triangles, and trapezoids
- Select and interpret graphical representations of numerical data
- Create statistical questions and create graphical representations to interpret the data
- Solve problems by breaking complex problems into simpler ones, making calculations in word problems, and determining reasonableness of solutions

Grade 6
Did Not Pass

Did Not Pass students demonstrate limited mathematical and problem-solving skills. Students may have difficulty when solving problems with integers, fractions, and decimals, and the complexity of algebra may be an obstacle for *Did Not Pass* students. Also, math topics including computation, geometry, measurement, data analysis, and statistics can be stumbling blocks for students. *Did Not Pass* students may have difficulty making decisions about how to approach problem-solving situations, how to communicate their ideas, and how to apply mathematical knowledge to other situations.

Some examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Did Not Pass* level include:

- Understand opposite signs of numbers indicating locations on opposite sides of 0 on a number line
- Compare and order rational numbers on a number line
- Identify prime and composite numbers
- Divide multi-digit whole numbers
- Solve real-world problems with positive fractions and decimals
- Evaluate basic numerical expressions
- Know the sum of the interior angles of any triangle and quadrilateral
- Find the area of complex shapes composed of rectangles
- Make calculations when solving basic word problems