

DOES NOT MEET THE STANDARDS

Students at this level of mathematics succeed at few of the most fundamental mathematics skills of the Minnesota Academic Standards. Some of the skills these students demonstrate inconsistently include the following:

- **Mathematical reasoning skills** such as representing the problem with numbers or a picture; selecting the correct mathematical processes to find the solution
- **Number sense and computation skills** as embedded in algebra, probability, and geometry
- **Pattern and algebraic skills** such as applying order of operations to generate and solve algebraic expressions; recognizing slope on graphs; using slope to determine if lines are parallel or perpendicular; reading graphs of quadratic functions
- **Data and probability skills** such as computing mean, median, and mode; understanding the relationship between experimental and theoretical probability; identifying approximate lines of best fit on scatter plots
- **Spatial, geometry, and measurement skills** such as recognizing three-dimensional objects from different perspectives

PARTIALLY MEETS THE STANDARDS

Students at this level of mathematics partially meet the mathematics skills of the Minnesota Academic Standards. Some of the skills these students can demonstrate frequently include the following:

- **Mathematical reasoning skills** such as communicating how to solve problems using a mathematical sentence and a visual representation that support the results; providing a partial understanding of the solution
- **Number sense and computation skills** as embedded in algebra, probability, and geometry
- **Pattern and algebraic skills** such as translating among equivalent forms of equations; applying the concept of rate of change in linear models; determining the equation of lines given 2 points; applying laws of exponents to perform operations on expressions; applying basic concepts of exponential functions; evaluating functions at a point; using a variety of models to represent functions
- **Data and probability skills** such as recognizing the influence that a change in data has on mean, median, and range; calculating theoretical probability; applying appropriate counting procedures
- **Spatial, geometry, and measurement skills** such as using proportional reasoning to solve problems; using theorems about parallel lines cut by a transversal to solve problems; recalling properties of special right triangles; applying basic concepts of right triangle trigonometry to solve problems; identifying cross sections of three-dimensional objects; using symbolic representation of translations; relating the measure of central angles to the measure of arcs in circles

MEETS THE STANDARDS

Students at this level of mathematics meet the mathematics skills of the Minnesota Academic Standards. Some of the skills these students can demonstrate consistently include the following:

- **Mathematical reasoning skills** such as organizing and recording mathematical processes used in solving problems logically; communicating why solution steps are valid to determine a logical solution
- **Number sense and computation skills** as embedded in algebra, probability, and geometry
- **Pattern and algebraic skills** such as recognizing a function; solving multi-step linear equations; understanding the effects of coefficient changes on linear functions; modeling linear functions in real-world problems; using recursive formulas to solve problems
- **Data and probability skills** such as recognizing the impact of outliers on a data set; recognizing the effect of sample size on experimental probability; recognizing distortion in data displays; comparing outcomes of voting methods
- **Spatial, geometry, and measurement skills** such as using theorems about parallel lines to justify facts about geometric figures; applying the Pythagorean theorem and properties of special triangles to solve problems; determining the distance between two points on a coordinate grid; analyzing the effect of a change of scale on the volume of a solid

EXCEEDS THE STANDARDS

Students at this level of mathematics exceed the mathematics skills of the Minnesota Academic Standards. Some of the skills these students demonstrate very consistently include the following:

- **Mathematical reasoning skills** such as evaluating the reasonableness of a solution; interpreting results of a problem; organizing, recording, and communicating math ideas coherently
- **Number sense and computation skills** as embedded in algebra, probability, and geometry
- **Pattern and algebraic skills** such as graphing absolute value and inequalities; modeling exponential growth and decay
- **Data and probability skills** such as using counting principles and combinations to solve complex problems; solving problems involving expected value; solving problems involving complex probability
- **Spatial, geometry, and measurement skills** such as applying right triangle trigonometry when solving problems; relating the measure of an inscribed angle to the measure of its intercepted arc; applying the interconnectedness between algebra, geometry, and measurement

November, 2006