

Math Support 9 2011-2012 Benchmark Blueprint

Green Dot Public Schools

Assessments

Number Sense		1	2	3
2.0	Students calculate and solve problems involving addition, subtraction, multiplication, and division.			
2.3	Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.	3		
1.0	Students know the properties of, and compute with, rational numbers expressed in a variety of forms.			
1.1	Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation. •1: only integers	3	3	
1.2	Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers. •1: only integers •2: 3 decimals, 3 fractions	3	6	
1.3	Convert fractions to decimals and percents and use these representations in estimations, computations and applications.		3	3
1.6	Calculate percent of increases and decreases of a quantity.		3	
1.7	Solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest.		3	
2.0	Students use exponents, powers, and roots and use exponents in working with fractions.			
2.5	Understand the meaning of the absolute value of a number; interpret the absolute value as the distance of the number from zero on a number line; and determine the absolute value of real numbers.	3		
Algebra and Functions				
1.0	Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs.			
1.1	Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A).	3		
1.2	Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)$.	3		
1.3	Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used.	3		
1.4	Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly.	3		3



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Algebra and Functions (continued)		1	2	3
1.5	Represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in the situation represented by the graph.		3	
3.0	Students graph and interpret linear and some nonlinear functions.			
3.1	Graph functions of the form $y = nx^2$ and $y = nx^3$ and use in solving problems.		3	
3.3	Graph linear functions, noting that the vertical change (change in y -value) per unit horizontal change (change in x -value) is always the same and know that the ratio ("rise over run") is called the slope of a graph.		6	3
4.0	Students solve simple linear equations and inequalities over the rational numbers.			
4.1	Solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution or solutions in the context from which they arose, and verify the reasonableness of the results.	3		3
4.2	Solve multistep problems involving rate, average speed, distance, and time or direct variation.		3	
Measurement and Geometry				
1.0	Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems.			
1.1	Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimeters).			3
2.0	Students compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects. They know how perimeter, area, and volume are affected by changes of scale.			
2.1	Use formulas routinely for finding the perimeter and areas of basic two-dimensional figures and the surface area and volume of basic three-dimensional figures, including rectangles, parallelograms, trapezoids, squares, triangles, circles, prisms, and cylinders.			3
2.2	Estimate and compute the area of more complex or irregular two- and three-dimensional figures by breaking the figures down into more basic geometric objects.			3
2.3	Compute the length of the perimeter, the surface area of the faces, and the volume of a three-dimensional object built from rectangular solids. Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.			3



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Measurement and Geometry (continued)		1	2	3
3.0	Students know the Pythagorean theorem and deepen their understanding of plane and solid geometric shapes by constructing figures that meet given conditions and by identifying attributes of figures.			
3.2	Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them, and determine their image under translations and reflections.			3
3.3	Know and understand the Pythagorean theorem and its converse and use it to find the length of the missing side of a right triangle and the lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement.			3
3.4	Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures.			3
Total Number of Items		27	33	33