Grade 4 FCAT 2.0 Mathematics Achievement Level Descriptions

Florida Department of Education/Office of Assessment
January 2012

Grade 4 FCAT 2.0 Mathematics Reporting Category—Number: Operations and Problems	
Students performing at the mastery level of this reporting category will be able to use number concepts and computation skills to solve real-world problems. Students will be able to successfully create, analyze, and represent patterns and relationships using expressions, equations, and visual representations.	
Achievement Level	**Achievement Level Descriptions**
Level 5	<u>Students will consistently be able to</u> • multiply multi-digit whole numbers through four digits fluently, including solving real-world problems and checking reasonableness of results; • demonstrate understanding of the standard multiplication algorithm by analyzing partial products or errors; • use models and strategies to represent and solve real-world division problems without use of the standard division algorithm; • translate a word problem to a multiplication or division expression or equation; • identify an inverse equation or expression for division or multiplication problems; • translate a written description or a graphic representation to an expression or equation, which may include two operations and/or a variable, and vice versa; • identify factors and multiples for whole numbers; • represent, compare, order, and use whole numbers through the millions, including solving real-world problems; • use appropriate strategies to determine reasonable estimates or a range of numbers for real-world addition, subtraction, or multiplication problems; • determine whether an exact number or an estimate is more appropriate for a given real-world situation; • extend graphic and numeric patterns; and • describe and generalize an algebraic rule for a graphic or numeric pattern and/or relationship, including functions with two operations.

Level 4	<u>Students will usually be able to</u> • multiply multi-digit whole numbers through four digits, including solving real-world problems and checking reasonableness of results; • demonstrate understanding of the standard multiplication algorithm by analyzing partial products; • use models to represent and solve real-world division problems without use of the standard division algorithm; • translate a word problem to a multiplication or related division expression or equation; • identify an inverse equation or expression for division or multiplication problems; • translate a written description or a graphic representation to an expression or equation, which may include two operations and/or a variable, and vice versa; • identify factors and multiples for whole numbers; • represent, compare, order, or use whole numbers through the millions, including solving real-world problems; • use appropriate strategies to determine reasonable estimates or a range of numbers for real-world addition, subtraction, or multiplication problems; • determine if an estimate is appropriate for a given real-world situation; • extend a graphic or numeric pattern; and • describe and generalize an algebraic rule for a graphic or numeric pattern or relationship, including functions with two operations.

Level 3	<u>Students will generally be able to</u> • multiply multi-digit whole numbers through four digits; • solve real-world problems using multiplication and the related division facts; • use models to solve real-world division problems involving partitive division or successive subtraction which may include whole number remainders; • identify an inverse equation or expression for division or multiplication problems; • translate a written description or a graphic representation to an expression or equation, which may include a symbol to represent an unknown; • identify a factor or a multiple of a specified whole number; • identify, compare, and/or order whole numbers through the millions; • solve real-world one-step addition or subtraction problems with whole numbers through the millions; • use appropriate strategies to determine reasonable estimates for real-world addition or subtraction problems; and • identify the next or a missing figure in a graphic or numeric pattern and/or relationship.
Level 2	<u>Students may be able to demonstrate limited ability to</u> • multiply one-digit whole numbers through four digits; • solve real-world problems using multiplication and related division facts; • use models to solve real-world division problems using basic multiplication facts; • identify an inverse equation for basic multiplication or division problems; • identify an expression having one operation, which may include a symbol to represent an unknown; • identify a factor of a number which is a basic multiplication product or a multiple of a specified whole number less than 10; • identify and/or compare whole numbers through the millions; • solve real-world one-step addition problems with whole numbers through the millions; • identify the missing figure in a graphic or numeric pattern; and • identify the next element of a simple numeric or graphic pattern.
Level 1	Performance at this level indicates an inadequate level of success with the challenging content of the *Next Generation Sunshine State Standards* for mathematics.

Grade 4 FCAT 2.0 Mathematics Reporting Category—Geometry and Measurement	
Students performing at the mastery level of this reporting category will be able to describe and determine the area of two-dimensional shapes. Students will be able to successfully classify angles and describe the results of transformations. Students will also be able to successfully use spatial reasoning to solve geometric problems.	
Achievement Level	**Achievement Level Descriptions**
Level 5	<u>Students will consistently be able to</u> • describe and determine the area of a figure or region on a plane by counting units with or without grid lines shown through the figure or region; • justify the formula for the area of a rectangle; • identify or describe a situation that requires the use of the area formula in a real-world context; • determine the area of a rectangle or a composite shape composed from rectangles by multiplying the base times the height; • use appropriate tools and square units to estimate and solve real-world area problems; • use properties of rectangles to deduce the lengths of a side or sides of a rectangle given the area and/or the lengths of the remaining sides of the rectangle; • identify and classify angles using benchmark angle measurements that may include geometric notation; • identify acute, obtuse, right, or straight angles; • identify and describe a shape that is the result of one or more translations, reflections, or rotations of the given shape; • identify and build a three-dimensional object from a two-dimensional representation of the object and vice versa; and • identify two-dimensional views of a three-dimensional object.

Level 4	<u>Students will usually be able to</u> • describe and determine the area of a figure or region on a plane by counting units with or without grid lines shown through the figure or region; • identify or describe a situation that requires the use of the area formula in a real-world context; • determine the area of a rectangle or a composite shape composed from rectangles by multiplying the base times the height; • use appropriate tools and square units to estimate and solve real-world area problems; • use properties of rectangles to deduce the lengths of a side or sides of a rectangle given the area and/or the lengths of the remaining sides of the rectangle; • identify and classify angles using benchmark angle measurements that may include geometric notation; • identify acute, obtuse, right, or straight angles; • identify a shape that is the result of one or more translations, reflections, or rotations of the given shape; • identify and build a three-dimensional object from a two-dimensional representation of the object; and • identify two-dimensional views of a three-dimensional object.

Level 3	<u>Students will generally be able to</u> • determine the area of a rectangle or a composite shape made only from rectangles on a plane by counting whole units with or without grid lines shown through the rectangle or composite shape; • recognize that the number of square units inside a rectangle is equal to the base times the height; • recognize that area is measured in square units; • determine the area of a rectangle by multiplying the base times the height when both dimensions are given; • identify acute, obtuse, right, or straight angles; • identify benchmark angles of 45°, 90°, 180°, or 360°; • identify a shape that is the result of one rotation or one reflection of the given shape; • identify a two-dimensional front or top view of a given three-dimensional figure; and • build a three-dimensional figure from a two-dimensional representation.
Level 2	<u>Students may be able to demonstrate limited ability to</u> • determine the area of a rectangle or a composite shape made only from rectangles on a plane by counting whole units with grid lines; • recognize that the number of square units inside a rectangle is equal to the base times the height using a grid or concrete materials; • determine the area of a rectangle by multiplying the base times the height when both dimensions are given on a grid or graphic; • identify acute, obtuse, and right angles; • identify the benchmark angle of 90°; and • identify a shape that is the result of one rotation of the given shape.
Level 1	Performance at this level indicates an inadequate level of success with the challenging content of the *Next Generation Sunshine State Standards* for mathematics.

Grade 4 FCAT 2.0 Mathematics Reporting Category—Number: Base 10 and Fractions	
Students performing at the mastery level of this reporting category will be able to identify and estimate decimals. Students will be able to successfully relate fractions, decimals, and percents. Students will also be able to successfully compare and order fractions and decimals.	
Achievement Level	**Achievement Level Descriptions**
Level 5	Students will consistently be able to • identify place value of decimals through the thousandths place, and recognize the relationship between place values; • identify a decimal, fraction, or mixed number between two numbers; • identify decimals and/or fractions from a graphic representation or a number line; • relate equivalent fractions and decimals with and without models; • compare and order fractions, mixed numbers, and decimals in the same or different forms; • estimate fractions, mixed numbers, and/or decimals in the same or different forms in real-world situations; • generate equivalent fractions or simplify fractions to lowest terms; • rename fractions as mixed numbers, or vice versa; and • relate halves, fourths, tenths, and hundredths to percents, and vice versa.

Level 4	Students will usually be able to •identify place value of decimals through the thousandths place, and recognize the relationship between place values; •identify a decimal, fraction, or mixed number between two numbers; •identify decimals and/or fractions from a graphic representation or a number line; •identify decimals that are equivalent to commonly used fractions or mixed numbers, including halves, fourths, tenths, and hundredths; •compare and order fractions, mixed numbers, and decimals in the same or different forms; •estimate fractions, mixed numbers, or decimals, in the same or different forms, to the nearest half or whole when given a graphic representation of the numbers being estimated; •generate equivalent fractions or simplify fractions to lowest terms; and •relate halves, fourths, tenths, and hundredths to percents, and vice versa.
Level 3	Students will generally be able to • identify place value of decimals through the thousandths place; • identify a decimal, fraction, or mixed number between two numbers; • identify decimals and/or fractions from a graphic representation or a number line; • identify decimals that are equivalent to commonly used fractions or mixed numbers, including halves, fourths, tenths, and hundredths; • compare and order decimals that have the same place value; • compare and order commonly used fractions; • estimate fractions, mixed numbers, or decimals, in the same form, to the nearest half or whole when given a graphic representation of the numbers being estimated; • identify an equivalent fraction when the given fraction is in simplest form; • identify the simplest form of a given fraction; • identify an equivalent percent given a decimal represented on a decimal grid, or identify an equivalent decimal represented on a decimal grid given a percent; and • relate halves and fourths to percents and percents to halves or fourths.

Level 2	<u>Students may be able to demonstrate limited ability to</u> • identify the place value of decimals through the hundredths place; • identify commonly used fractions or decimals (equivalent to halves or fourths only) between two consecutive numbers; • identify decimals and/or fractions from a graphic representation; • identify decimals that are equivalent to fractions (halves and fourths only) when given a graphic representation; • compare decimals, that have the same place value, through hundredths; • compare commonly used fractions; • estimate fractions or decimals, in the same form, to the nearest whole when given a graphic representation of the numbers being estimated; • identify an equivalent fraction when the given fraction is a commonly used fraction in simplest form; and • relate halves to percents and percents to halves.
Level 1	Performance at this level indicates an inadequate level of success with the challenging content of the *Next Generation Sunshine State Standards* for mathematics.