

Colorado Academic Standards - Mathematics
Fourth Grade Proficiency Level Descriptions

Standard: Number Sense, Properties, and Operations			
<p>Grade Level Expectation: The decimal number system describes place value patterns and relationships that are repeated in large and small numbers and forms the foundation for efficient algorithms</p> <p>DCSD Progress Report: <i>Uses numbers to 100,000; knows place value to hundredths</i></p>			
<p align="center">1: Beginning Understanding</p> <p>Reads and writes numbers from one to 10,000 and explains place value for four-digit numbers with help and difficulty; Composes and decomposes multi-digit numbers; Reads or writes numbers to the hundredths place with help; Does not properly identify the value of any given digit in a number with decimals to the hundredths place.</p>	<p align="center">2: Meets Some Aspects of GLE</p> <p>Reads and writes numbers from one to 10,000 and explain place value for four-digit numbers; Composes and decomposes multi-digit numbers based on place value with help; Reads or writes numbers to the hundredths place; Identifies the value of any given digit in a number with decimals to the hundredths place with help.</p>	<p align="center">3: Meets GLE</p> <p>Reads and writes numbers from one to 100,000 and explain place value for five-digit numbers; Composes and decomposes multi-digit numbers based on place value; Reads and writes numbers to the hundredths place; Identifies the value of any given digit in a number with decimals to the hundredths place.</p>	<p align="center">4: Exceeds GLE</p> <p>Reads and writes numbers from one to 1,000,000 and explain place value for six-digit numbers; Composes and decomposes multi-digit numbers based on place value and understands how the number system would change if we changed to a base 5 system or used time as our base; Reads and writes numbers to the thousandths place; Identifies the value of any given digit in a number with decimals to the thousandths place and can explain why there is not a oneths place.</p>

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Standard: Number Sense, Properties, and Operations			
Grade Level Expectation: Formulate, represent, and use algorithms to multiply and divide with flexibility, accuracy, and efficiency DCSD Progress Report: <i>Multiples/Divides efficiently, accurately, and flexibly</i>			
1: Beginning Understanding	2: Meets Some Aspects of GLE	3: Meets GLE	4: Exceeds GLE
<p>Uses a single method of computing to solve two- or three-digit by one-digit multiplication or division problems without understanding why the method works; Estimate using one strategy such as front end or rounding and does not make a connection to the reasonableness of solutions to problems; Working on fluency with multiplication facts and their related division facts to 10; Does not clearly explain, even with help, why multi-digit multiplication and division procedures work based on place value properties and use them to solve problems.</p>	<p>Uses flexible and efficient methods of computing including standard algorithms to solve two- or three-digit by one-digit multiplication or division problems; Estimate using strategies such as front end or rounding to justify the reasonableness of solutions to problems with help; Demonstrates fluency with multiplication facts and their related division facts to 10; Explains why multi-digit multiplication and division procedures work based on place value properties and use them to solve problems with help.</p>	<p>Uses flexible and efficient methods of computing including standard algorithms to solve three- or four-digit by one-digit multiplication or division problems; Estimate using strategies such as front end or rounding to justify the reasonableness of solutions to problems; Demonstrates fluency with multiplication facts and their related division facts 0 to 12; Explains why multi-digit multiplication and division procedures work based on place value properties and use them to solve problems.</p>	<p>Uses flexible and efficient methods of computing including standard algorithms to solve three- or four-digit by two-digit multiplication or division problems understanding how using the value of numbers helps justify reasonableness of solutions to problems; Estimate using strategies such as front end or rounding to justify the reasonableness of solutions to problems; Demonstrates fluency with multiplication facts and their related division facts 0 to 12; Explains why multi-digit multiplication and division procedures work based on place value properties and use them to solve problems explaining ways to make multiplication and division of large numbers easier to solve.</p>

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Standard: Number Sense, Properties, and Operations			
Grade Level Expectation: Different models and representations can be used to compare fractional parts			
DCSD Progress Report: <i>Uses models and representations to compare fractions/decimals/%</i>			
1: Beginning Understanding	2: Meets Some Aspects of GLE	3: Meets GLE	4: Exceeds GLE
Solves comparison problems using models of fractions with like and unlike denominators through 5; With help can estimate solutions to problems involving comparison of fractions; Demonstrates equivalent fractions, decimals, and percents using drawings or models and is still having difficulty understanding what equivalence means.	With help, solves comparison problems using models of fractions with like and unlike denominators through 10; Estimates solutions to problems involving comparison of fractions; Demonstrates equivalent fractions, decimals, and percents using drawings and models with help and difficulty.	Solves comparison problems using models of fractions with like and unlike denominators through 10; Estimates and justifies the reasonableness of solutions to problems involving comparison of fractions; Demonstrates equivalent fractions, decimals, and percents using drawings and models.	Solves comparison problems using models and drawings of fractions with like and unlike denominators through 50; Estimates using an appropriate method and justifies the reasonableness of solutions to problems involving comparison of fractions; Demonstrates equivalent fractions, decimals, and percents using drawings and models and justify that they are equivalent and why you would use one representation over the other (ex. 4/8 instead of 1/2).

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Standard: Patterns, Functions, and Algebraic Structures			
Grade Level Expectation: Number patterns and relationships can be represented by symbols			
<i>DCSD Progress Report:</i> Uses symbols to represent unknown quantities in equations/sequences			
1: Beginning Understanding	2: Meets Some Aspects of GLE	3: Meets GLE	4: Exceeds GLE
Uses a symbol to represent and find an unknown quantity in a problem situation	Uses number relationships to find the missing number in a sequence; Uses a symbol to represent and find an unknown quantity in a problem situation	Uses number relationships to find the missing number in a sequence; Uses a symbol to represent and find an unknown quantity in a problem situation; Completes input/output tables; Finds the unknown in simple equations.	Uses number relationships to find the missing number in a sequence; Uses a symbol to represent and find an unknown quantity in a problem situation; Completes input/output tables (Can find the input given an output and find an output given an input); Finds the unknown in complex equations.

**Colorado Academic Standards - Mathematics
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Standard: Patterns, Functions, and Algebraic Structures			
Grade Level Expectation: Number properties and relationships can be used to solve problems			
DCSD Progress Report: <i>Uses # patterns, properties, inverse relationships to solve problems</i>			
1: Beginning Understanding	2: Meets Some Aspects of GLE	3: Meets GLE	4: Exceeds GLE
<p>Uses and describes number patterns for counting by a few of the following 2, 5, 9, 10, and 11 from a given starting number; Uses the commutative or associative properties of multiplication to solve problems.</p>	<p>Uses and describes number patterns for counting by 2, 5, 9, 10, and 11 from a given starting number; Communicates the inverse relationship between multiplication and division; Uses the commutative and associative properties of multiplication to solve problems.</p>	<p>Uses and describes number patterns for counting by 2, 5, 9, 10, and 11 from a given starting number; Communicates the inverse relationship between multiplication and division, and uses this relationship to efficiently solve and check problems; Uses the commutative and associative properties of multiplication to solve problems.</p>	<p>Uses and describes number patterns for counting by any number from a given starting number; Communicates the inverse relationship between multiplication and division, and uses this relationship to efficiently solve and check problems; Uses the commutative and associative properties of multiplication to solve complex problems.</p>

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Standard: Data Analysis, Statistics, and Probability			
Grade Level Expectation: Visual displays of classroom data can be used to summarize information across the content areas			
DCSD Progress Report: <i>Collects, represents data; describes data based on visual model</i>			
1: Beginning Understanding	2: Meets Some Aspects of GLE	3: Meets GLE	4: Exceeds GLE
Collects data from class experiments or multi-classroom surveys; Creates a data display to represent the data	Collects data from class experiments or multi-classroom surveys; Creates data displays appropriate to data collected; Describes data using the concept of shape of the distribution.	Composes questions to generate data related to grade level areas of study; Collects data from class experiments or multi-classroom surveys; Creates data displays appropriate to data collected; Describes data using the concept of shape of the distribution.	Composes questions to generate data related to grade level areas of study; Collects data from class experiments or multi-classroom surveys; Creates data displays appropriate to data collected; Explain why the data display they chose is the best to represent the data collected; Describes data using the concept of shape of the distribution.

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Standard: Data Analysis, Statistics, and Probability			
Grade Level Expectation: Mathematical models are used to test predictions about the likelihood of events DCSD Progress Report: <i>Designs tests using chance devices; states results in words/fractions</i>			
1: Beginning Understanding	2: Meets Some Aspects of GLE	3: Meets GLE	4: Exceeds GLE
<p>Conducts an experiment using chance devices, such as coins, spinners, and number cubes, to test predictions; Represents the outcomes of experiments with fractions.</p>	<p>Formulates a question to test a prediction, and conducts an experiment using chance devices, such as coins, spinners, and number cubes, to test predictions; Represents the outcomes of experiments with fractions, and describes using the concepts of impossible, unlikely, likely, and certain.</p>	<p>Formulates a question to test a prediction, and conducts an experiment using chance devices, such as coins, spinners, and number cubes, to test predictions; Represents the outcomes of experiments with fractions, and describes using the concepts of impossible, unlikely, likely, and certain. Describe the likelihood of real-life situations using the concepts of impossible, unlikely, likely and certain (PFL)</p>	<p>Formulates a question to test a prediction, and conducts an experiment using chance devices, such as coins, spinners, and number cubes, to test predictions; Represents the outcomes of experiments with fractions, and describes using the concepts of impossible, unlikely, likely, and certain. Describe the likelihood of real-life situations using the concepts of impossible, unlikely, likely and certain (PFL)Discusses how the experiment can be changed to alter the real-life situation.</p>

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Standard: Shape, Dimension, and Geometric Relationships			
<p>Grade Level Expectation: Geometric figures are described by their attributes and specific location in the plane DCSD Progress Report: <i>Describes geometric figures using attributes/location on coordinate grid</i></p>			
<p align="center">1: Beginning Understanding</p> <p>Identifies parallel, perpendicular, or intersecting line segments in the plane and within geometric shapes; Creates geometric designs using transformations, reflections, translations, or rotations; Compares geometric figures according to the attributes of congruence, symmetry, or angle size.</p>	<p align="center">2: Meets Some Aspects of GLE</p> <p>Identifies parallel, perpendicular, or intersecting line segments in the plane and within geometric shapes; Creates geometric designs using transformations, reflections, translations, or rotations; Compares geometric figures according to the attributes of congruence, symmetry, or angle size; Names and locates points specified by ordered number pairs on a coordinate grid.</p>	<p align="center">3: Meets GLE</p> <p>Identifies parallel, perpendicular, and intersecting line segments in the plane and within geometric shapes; Creates geometric designs using transformations, reflections, translations, and rotations; Compares geometric figures according to the attributes of congruence, symmetry, and angle size; Names and locates points specified by ordered number pairs on a coordinate grid.</p>	<p align="center">4: Exceeds GLE</p> <p>Identifies parallel, perpendicular, and intersecting line segments in the plane and within geometric shapes; Apply concepts of parallel, perpendicular, congruence and line symmetry Creates geometric designs using transformations, reflections, translations, and rotations; Predict and describe the results of transformations: translations, reflections, rotations Compares geometric figures according to the attributes of congruence, symmetry, and angle size; Names and locates points specified by ordered number pairs on a coordinate grid.</p>

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Standard: Shape, Dimension, and Geometric Relationships			
Grade Level Expectation: Appropriate measurement tools, units, and systems are used to measure different attributes of objects and time DCSD Progress Report: <i>Converts units, identifies area/perimeter, time to quarter hour</i>			
<p align="center">1: Beginning Understanding</p> <p>Models area using square units; Distinguishes between area and perimeter; Converts using unit equivalencies within the standard measurement system (yards to feet and feet to inches, pounds to ounces, gallons to quarts); Estimates and measures elapsed time to the nearest quarter hour;</p>	<p align="center">2: Meets Some Aspects of GLE</p> <p>Models area using square units; Distinguishes between area and perimeter; Converts using unit equivalencies within the standard measurement system (yards to feet and feet to inches, pounds to ounces, gallons to quarts); Estimates and measures elapsed time to the nearest quarter hour; Selects an appropriate tool and unit for measuring length, weight, and capacity.</p>	<p align="center">3: Meets GLE</p> <p>Models area using square units; Distinguishes between area and perimeter; Converts using unit equivalencies within the standard measurement system (yards to feet and feet to inches, pounds to ounces, gallons to quarts); Converts using unit equivalencies within the metric measuring system (meters to centimeters, kilometers to meters, and liters to milliliters); Estimates and measures elapsed time to the nearest quarter hour; Selects an appropriate tool and unit for measuring length, weight, and capacity.</p>	<p align="center">4: Exceeds GLE</p> <p>Models area using square units; Distinguishes between area and perimeter; Estimates and converts using unit equivalencies within the standard measurement system (yards to feet and feet to inches, pounds to ounces, gallons to quarts); Estimates and converts using unit equivalencies within the metric measuring system (meters to centimeters, kilometers to meters, and liters to milliliters); Estimates and converts between the standard measurement system and the metric measuring system (feet to meters, liters to gallons) Estimates and measures elapsed time to the nearest quarter hour; Selects an appropriate tool and unit for measuring length, weight, and capacity.</p>