



## Correlation of *Core Knowledge*<sup>®</sup> *Sequence* & Colorado Grade Level Expectations

Core Knowledge <sup>®</sup> Content (Mathematics-Kindergarten)	Colorado Grade Level Expectations (Kindergarten-Mathematics)
<b>I. Patterns and Classification</b>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.2.1.A recognize, construct, and extend patterns in a variety of motions, colors, designs, sounds, rhythms, music, positions, sizes, or quantities K.2.2.A sort, classify, describe, and order collections of objects in a variety of ways (for example, sort buttons into two groups and explain why he/she sorted them this way)
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.2.2.A sort, classify, describe, and order collections of objects in a variety of ways (for example, sort buttons into two groups and explain why he/she sorted them this way)
<ul style="list-style-type: none"> <li>▪</li> </ul>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.2.1.A recognize, construct, and extend patterns in a variety of motions, colors, designs, sounds, rhythms, music, positions, sizes, or quantities K.2.3.A recognize when a pattern exists, describe the pattern verbally, reproduce the pattern, and create a new pattern (for example, describe red, blue, red, blue as an AB, AB pattern)
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.2.1.A recognize, construct, and extend patterns in a variety of motions, colors, designs, sounds, rhythms, music, positions, sizes, or quantities
<b>II. Numbers and Number Sense</b>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.1.B using two or more sets of objects, demonstrate which set is equal to, less than, or greater than the other set K.1.3.B use one-to-one correspondence to count and compare sets of objects containing 0 to 10 members K.1.5.B describe a relationship between two sets of quantities with more, less, or equal numbers of objects K.3.2.A use "more" and "fewer" or "most," "same," and "fewest" to describe sets of manipulatives, pictures, or object graphs
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.3.A count from 1 to 50 K.1.3.C starting with any whole number less than 50, count forward to 50
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.2.A read and write numerals from 0 to 10 in meaningful contexts
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.2.B group objects into sets of ten
<ul style="list-style-type: none"> <li>▪</li> </ul>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.3.D use ordinal positions for first through tenth
<ul style="list-style-type: none"> <li>▪</li> </ul>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.3.1.A read and display simple picture and real object graphs
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.1.C using concrete materials, demonstrate the meaning of wholes and parts ( <i>for example, halves</i> )
<b>III. Money</b>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.1.D name pennies, nickels, dimes, quarters, and dollars
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.1.1.D name pennies, nickels, dimes, quarters, and dollars
<ul style="list-style-type: none"> <li>▪</li> </ul>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	
<b>IV. Computation</b>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	K.6.4.A add and subtract whole numbers by combining and separating objects
<ul style="list-style-type: none"> <li>▪</li> </ul>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	

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<b>V. Measurement</b>	
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▪	K.4.3.A measure the lengths of the sides of triangles, squares, and rectangles using non-standard units (for example, cubes or paper clips) K.5.1.C estimate and measure length in non-standard units (for example, use cubes to measure the length of a hand) K.5.1.D estimate the measurement of weight by “heavier” and “lighter” K.5.2.A compare objects according to the measurable attributes of length and weight K.5.2.B order objects according to the measurable attributes of length and weight
▪	K.5.1.A tell time to the nearest hour, using an analog and digital clock K.5.1.B describe the units for measuring time K.5.2.C compare and order various times (for example, morning comes before lunch)
<b>VI. Geometry</b>	
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▪	K.4.4.B indicate positions of three or more objects or pictures (for example, left to right, top to bottom, next, last)
▪ I identify and sort basic plane figures: square, rectangle, triangle, circle.	K.4.2.A recognize and identify circles, triangles, squares, rectangles, ovals (ellipses), and diamonds (rhombuses)
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▪	K.4.1.A place manipulatives on pictures of shapes congruent to the manipulatives
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<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
This can be covered in many other areas	K.1.1.A using objects and pictures, represent whole numbers from 0 to 50 in a variety of ways
This can be covered in many other areas	K.1.3.E sequence whole numbers from 0 to 10 (for example, 5 is before 7; 5 is after 4)
This can be covered in many other areas	K.1.4.A describe the concept of zero
This can be covered in many other areas	K.1.5 estimate a reasonable quantity for a given number of objects less than 20
Grade 1: Mathematics: Numbers and Number Sense	K.3.1.B gather data relating to familiar experiences by counting and tallying
Grade 1: Mathematics: Numbers and Number Sense	K.3.3.A flip a two-colored counter or coin to generate and tally results
This can be covered in many other areas	K.4.2.B using manipulatives (for example, straws or string loops) build circles, triangles, squares, rectangles, ovals (ellipses), and diamonds (rhombuses)
This can be covered in many other areas	K.4.4.A use geometric shapes to solve a problem (for example, use geometric shapes to create a house)
This can be covered in many other areas	K.4.4.C combine triangular manipulatives to make a square, and square manipulatives to make a rectangle
This can be covered in many other areas	K.5.5.A select the appropriate units of measurement of time and length
This can be covered in many other areas	K.6.4.B draw pictures to form sets of up to ten items
<b>Core Knowledge® Content (Mathematics-Grade 1)</b>	<b>Colorado Grade Level Expectations (Grade 1-Mathematics)</b>
<b>I. Patterns and Classification</b>	
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▪	1.2.1.A create and extend patterns using concrete materials (for example, use pattern blocks to create a pattern and has another student extend the pattern)

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<b>II. Numbers and Number Sense</b>	
▪	1.1.1.A using objects and pictures, represent whole numbers from 0 to 100 in a variety of ways 1.1.2.A read and write numerals from 0 to 100 in meaningful contexts
▪	1.1.3.A count from 1 to 20 by 2's 1.1.3.B count from 1 to 100 by 1's, 5's and 10's 1.1.3.C starting with any whole number less than 100, count forward to 100
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▪	1.3.1.B display and explain data from a bar graph or tallies
▪	1.1.3.D use ordinal positions for first through twentieth
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▪	1.1.2.D order according to place value (for example, given 9 ones and 2 tens, the student can write the number 29; given the number 29 the student can show 2 tens and 9 ones)
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▪	1.1.1.B using objects, demonstrate the meanings of equal, less than, and greater than with the whole numbers 0 to 100 1.1.1.C apply equalities using the "=" symbol
▪	1.1.1.D using concrete materials, demonstrate the meanings of halves, thirds, and fourths of sets and wholes
▪	1.3.1.B display and explain data from a bar graph or tallies 1.3.2.A using a bar graph, interpret data for "more" and "fewer" or "most," "same," and "fewest" 1.3.3.A use survey data to make a prediction displayed on a bar graph
<b>III. Money</b>	
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▪	1.1.1.E demonstrate the value of nickels, dimes, quarters, and dollars in terms of pennies (for example, 25 pennies = 1 quarter) 1.5.1.H tell the number of minutes in an hour, days in a week, pennies in a nickel, dime, quarter, and dollar
<b>IV. Computation</b>	
<b>A. Addition (using concrete objects, and paper and pencil)</b>	1.6.1.A demonstrate the operations of addition and subtraction of whole numbers with concrete materials
▪	1.6.1.B link the operations of addition and subtraction, & equality with mathematical terms (for example, add, subtract, & equal) & mathematical symbols (for example, +, -, =)
▪	1.6.1.B link the operations of addition and subtraction, & equality with mathematical terms (for example, add, subtract, & equal) & mathematical symbols (for example, +, -, =)
▪	1.6.3.A demonstrate understanding of basic addition sums to 20 and subtraction differences of 10
▪	1.1.4.A know the commutative property of addition of whole numbers
▪	1.1.4.B verify the addition and subtraction properties of zero with whole numbers
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▪	1.6.4.C using paper and pencil, demonstrate simple single-digit addition and subtraction
<b>B. Subtraction (using concrete objects, and paper and pencil)</b>	1.6.1.SA demonstrate the operations of addition and subtraction of whole numbers with concrete materials
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▪	1.6.1.B link the operations of addition and subtraction, & equality with mathematical terms (for example, add, subtract, & equal) & mathematical symbols (for example, +, -, =)
▪	1.6.1.B link the operations of addition and subtraction, & equality with mathematical terms (for example, add, subtract, & equal) & mathematical symbols (for example, +, -, =)
▪	1.6.3.A demonstrate understanding of basic addition sums to 20 and subtraction differences of 10
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<b>C. Solving Problems and Equations</b>	
▪	1.6.5.A given a real-world problem-solving situation, use the correct operation (addition or subtraction with concrete materials) and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
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<b>V. Measurement</b>	
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▪	1.3.1.A gather data about recurring and quantifiable events (for example, daily temperature or attendance) 1.4.3.A measure the length of the sides of triangles, squares, rectangles to the nearest inch and centimeter 1.5.1.C estimate and measure the length of objects to the nearest inch, foot, and centimeter 1.5.1.D estimate and measure the capacity of a container in cups 1.5.1.E estimate and weigh an object on a balance with a non-standard unit 1.5.1.F measure temperature to the nearest 10 degrees Fahrenheit 1.5.1.G describe the units for measuring time, length, capacity, and temperature 1.5.2.A compare objects according to the measurable attributes of length, capacity, weight, and temperature 1.5.4.A use familiar objects as referents for measurement (for example, the length of the student's index finger is about two paper clips) 1.5.5.A select the appropriate units of measurement of time, length, capacity, and temperature
▪	1.4.4.A draw a picture or diagram to solve a problem (for example, use a circle to create a clock face; fold a rectangle to show one half) 1.5.1.A tell time to the nearest hour and half-hour, using an analog and digital clock 1.5.1.B name the days of the week in order 1.5.1.H tell the number of minutes in an hour, days in a week, pennies in a nickel, dime, quarter, and dollar 1.5.2.C compare and order various times
<b>VI. Geometry</b>	
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▪	1.4.2.B draw triangles, squares, rectangles, and circles 1.4.4.B manipulate pattern blocks to form a variety of geometric shapes
▪	1.4.2.A describe the number of sides in triangles and in quadrilaterals such as squares and rectangles
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▪	1.4.1.A recognize two-dimensional congruent figures in different positions 1.4.1.B create simple designs using concrete materials such as tangrams and pattern blocks

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i>	Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i> , but can be covered in other areas
Grade 2: Mathematics: Numbers and Number Sense	1.1.2.B read the number words for zero to ten
This can be covered in many other areas	1.1.2.C group objects by ones and tens
Grade 2: Mathematics: Numbers and Number Sense	1.1.2.E write one- and two-digit whole numbers in expanded form (for example, $29 = 20 + 9$ )
Grade 2: Mathematics: Numbers and Number Sense	1.1.3.E sequence selected whole numbers from 1 to 100
This can be covered in many other areas	1.1.5.A estimate a reasonable quantity for a given number of objects from 0 to 100
This can be covered in many other areas	1.2.2.A continue the pattern given in a table of data using numbers and/or concrete materials
This can be covered in many other areas	1.2.3.A continue a pattern from a table and verbally describe the pattern
This can be covered in many other areas	1.2.4.A using concrete or pictorial patterns, determine how the changes in one variable affects the change in another (for example, how changing the number of bicycles changes the number of wheels)
Grade 3: Mathematics: Numbers and Number Sense	1.3.3.B spin a spinner such as to generate and record results
Grade 3: Mathematics: Numbers and Number Sense	1.3.3.C analyze the results from flipping a two-colored counter or coin
Grade 3: Mathematics: Numbers and Number Sense	1.3.4.A determine the number of outcomes when flipping a coin
Grade 3: Mathematics: Numbers and Number Sense and Grade 5: Mathematics: Probability and Statistics	1.3.4.B using manipulatives or pictures, determine the possible combinations of matching a set containing one element with a set containing two elements
This can be covered in many other areas	1.5.2.B order objects according to the measurable attributes of length, capacity, weight, and temperature
Grade 4: Mathematics: Fractions	1.6.2.A using concrete materials or pictures, add and subtract halves, thirds, and fourths
<b>Core Knowledge<sup>®</sup> Content (Mathematics-Grade 2)</b>	<b>Colorado Grade Level Expectations (Grade 2-Mathematics)</b>
<b>I. Numbers and Number Sense</b>	
▪	2.1.1.A using objects and pictures, represent whole numbers including odds and evens from 0 to 1,000 2.1.2.A read and write numerals from 0 to 1,000 in meaningful contexts
▪	2.1.2.B read and write the number words for zero to one hundred
▪	2.1.1.B apply equalities and inequalities with whole numbers from 0 to 1,000 using the symbols =, <, > 2.1.3.E sequence selected whole numbers from 0 to 1,000
▪	2.1.3.A count by 1's, 2's, 5's, and 10's 2.1.3.B count from 1 to 1,000 by 100's 2.1.3.C starting with any whole number less than 1,000, count forward to 1,000
▪	2.1.3.F locate and label the halfway point between whole numbers on the number line
▪	2.3.1.B display data using tallies, bar graphs, pictographs, or tables
▪	2.1.3.D use ordinal positions for first through thirty-first
▪	2.1.1.A using objects and pictures, represent whole numbers including odds and evens from 0 to 1,000
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▪	2.1.2.D order according to place value (for example, given 9 ones, 5 tens, and 4 hundreds, the student can write the number 459; given the number 459, the student can show 4 hundreds, 5 tens, and 9 ones)
▪	2.1.2.E write three-digit numbers in expanded form (for example, $459 = 400 + 50 + 9$ ) 2.1.2.D order according to place value (for example, given 9 ones, 5 tens, and 4 hundreds, the student can write the number 459; given the number 459, the student can show 4 hundreds, 5 tens, and 9 ones)
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▪	2.3.1.B display data using tallies, bar graphs, pictographs, or tables

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▪	2.2.1.A verbally describe patterns 2.2.1.B create and extend patterns using symbols, such as words and numbers
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<b>II. Fractions</b>	
▪	2.1.1.C using concrete materials, demonstrate the meanings of fractions, including halves, thirds, fourths, eighths, and tenths of sets and wholes
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<b>III. Money</b>	
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▪	2.1.1.D demonstrate equivalencies of coins (for example, 5 nickels = 1 quarter) 2.1.1.E combine coins up to \$1.00 (for example, 20¢ = 2 dimes = 1 dime + 2 nickels = 4 nickels)
▪	
<b>IV. Computation</b>	
<b>A. Addition</b>	
▪	2.6.3.A demonstrate understanding of basic addition and subtraction facts 2.6.3.B demonstrate automatic recall of basic addition and subtraction facts
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▪	2.1.5.A estimate sums and differences first by rounding to the nearest ten prior to performing the operation, and then using the estimate to determine the reasonableness of the solution 2.6.4.A use estimation techniques such as rounding and compatible number (numbers whose sum is 10) before performing operations
▪	2.6.1.A using concrete materials, demonstrate and verbally explain addition of whole numbers with regrouping for two-digit numbers 2.6.4.B using paper-and-pencil, demonstrate addition of two-digit whole numbers with and without regrouping
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<b>B. Subtraction</b>	
▪	2.6.1.E using concrete materials or pictures, demonstrate the inverse relationship of addition and subtraction of whole numbers
▪	2.6.3.C use sums on an addition facts table to locate all addends for a particular sum (for example, $7 = 0 + 7$ , $7 = 1 + 6$ )
▪	2.6.3.A demonstrate understanding of basic addition and subtraction facts 2.6.3.B demonstrate automatic recall of basic addition and subtraction facts
▪	2.1.5.A estimate sums and differences first by rounding to the nearest ten prior to performing the operation, and then using the estimate to determine the reasonableness of the solution 2.6.4.A use estimation techniques such as rounding and compatible number (numbers whose sum is 10) before performing operations
▪	

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▪	2.6.1.B using concrete materials, demonstrate and verbally explain subtraction of whole numbers without regrouping for two-digit numbers 2.6.4.C using paper-and-pencil, demonstrate subtraction of two-digit whole numbers without regrouping
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<b>C. Introduction to Multiplication</b>	
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▪	2.6.1.C using concrete materials or pictures, demonstrate multiplication without regrouping of whole numbers (for example, using arrays or grouping sets of objects)
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<b>D. Solving Problems and Equations</b>	
▪	2.4.4.A draw a picture or diagram to solve a problem (for example, draw a map of the room to show how to get from a desk to the reading area; draw a map of the neighborhood) 2.6.5.A given a real-world problem-solving situation, use the correct operation (addition or subtraction) and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
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<b>V. Measurement</b>	
<b>A. Linear Measure</b>	
▪	2.5.1.C estimate and measure the length of objects to the nearest half inch, foot, yard, centimeter, and meter 2.5.1.H describe the units for measuring time, length, capacity, weight, and temperature 2.5.5.A select the appropriate units of measurement of time, length, capacity, weight, and temperature
▪	2.5.1.I know the number of hours in a day, months in a year, inches in a foot, feet in a yard, and cups in a pint
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▪	2.4.3.A measure the lengths of the sides of triangles, squares, and rectangles to the nearest half inch and centimeter 2.5.1.C estimate and measure the length of objects to the nearest half inch, foot, yard, centimeter, and meter
▪	2.5.1.C estimate and measure the length of objects to the nearest half inch, foot, yard, centimeter, and meter
<b>B. Weight (Mass)</b>	
▪	2.5.2.A compare objects according to the measurable attributes of length, capacity, weight, and temperature
▪	2.5.1.F estimate and weigh an object on a balance with a non-standard unit and use a scale to measure an object to the nearest pound 2.5.1.H describe the units for measuring time, length, capacity, weight, and temperature 2.5.5.A select the appropriate units of measurement of time, length, capacity, weight, and temperature
<b>C. Capacity (Volume)</b>	
▪	2.5.1.E estimate and measure the capacity of a container in cups, pints, quarts, and gallons
▪	2.5.1.E estimate and measure the capacity of a container in cups, pints, quarts, and gallons 2.5.1.H describe the units for measuring time, length, capacity, weight, and temperature 2.5.5.A select the appropriate units of measurement of time, length, capacity, weight, and temperature
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<b>D. Temperature</b>	

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▪	2.5.1.G measure temperature to the nearest 2 degrees and 10 degrees Fahrenheit 2.5.1.H describe the units for measuring time, length, capacity, weight, and temperature 2.5.5.A select the appropriate units of measurement of time, length, capacity, weight, and temperature
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<b>E. Time</b>	
▪	2.5.1.A tell time to the nearest fifteen minutes, using an analog and digital clock 2.5.1.H describe the units for measuring time, length, capacity, weight, and temperature 2.5.5.A select the appropriate units of measurement of time, length, capacity, weight, and temperature
▪	2.5.1.B use AM and PM
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▪	2.5.1.H describe the units for measuring time, length, capacity, weight, and temperature
▪	
<b>VI. Geometry</b>	
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▪	2.4.2.A describe attributes of circles, triangles, and quadrilaterals such as squares and rectangles
▪	2.4.3.B measure the perimeter of triangles, squares, and rectangles using non-standard and standard units 2.5.1.D estimate and measure the perimeter of a figure using non-standard and standard units
▪	2.4.2.C recognize the three-dimensional figures: cubes, spheres, cylinders, cones, and pyramids
▪	2.4.1.A identify congruent figures from a selection of similar figures
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▪	2.4.1.C describe symmetry 2.4.1.D identify lines of symmetry of squares and rectangles 2.4.4.C investigate and predict the geometric shapes that result from cutting along a line of symmetry
<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
Grade 1: Mathematics: Patterns and Classification	2.1.2.C group objects by ones, tens, and hundreds
Grade 4: Mathematics: Numbers and Number Sense	2.1.3.G locate and label a point in the first quadrant of the coordinate plane (for example, locate the point (4,1))
Grade 1: Mathematics: Computation and Grade 5: Mathematics: Computation	2.1.4.A verify the commutative and associative properties of addition of whole numbers
This can be covered in many areas	2.1.4.B verify that subtraction of whole numbers is not commutative
This can be covered in many areas	2.2.1.C find missing elements of a repeating pattern (for example, 1, 3, __, 7)
Grade 4: Mathematics: Numbers and Number Sense	2.2.2.A match tables and graphs of points on a coordinate plane
This can be covered in many areas	2.2.3.A verbally describe the relationship between a graph and a table
This can be covered in many areas	2.2.4.A using concrete or pictorial patterns, determine how the change in one variable affects the change in another (for example, how changing the number of hands changes the number of fingers)
This can be covered in many areas	2.3.1.A design a survey and collect data
This can be covered in many areas	2.3.1.C transfer the same set of data to different displays (for example, from a table to a bar graph)
This can be covered in many areas	2.3.2.A interpret and compare data from displays, using the terms "least often," "most often," and "how much more" or "how much less"

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This can be covered in many areas	2.3.3.A use survey data to make predictions about a larger similar population (for example, from a class survey make a prediction about all second graders in the school)
Grade 3: Mathematics: Numbers and Number Sense	2.3.3.B roll a number cube to generate and record results
This can be covered in many areas	2.3.3.C analyze the results (including likely, more likely, less likely, and unlikely outcomes) of spinning a spinner
This can be covered in many areas	2.3.3.D recognize if different spinners are fair or unfair
Grade 3: Mathematics: Numbers and Number Sense	2.3.4.A determine the number of outcomes when spinning a spinner
This can be covered in many areas	2.3.4.B using manipulatives or pictures, determine the possible combinations of matching a set containing two elements with a different set containing two elements
This can be covered in many areas	2.4.1.B slide, flip, and turn concrete materials such as tangrams and pattern blocks to create and reproduce simple designs
Grade 3: Mathematics: Geometry	2.4.2.B identify right angles and not-right angles
Grade 3: Mathematics: Geometry	2.4.2.D draw right angles and not-right angles
This can be covered in many areas	2.4.4.B investigate and predict which pattern block shapes can be formed from the pattern block triangles
This can be covered in many areas	2.5.2.B order objects according to the measurable attributes of length, capacity, weight, and temperature
This can be covered in many areas	2.5.2.C compare and order various times
Grade 1: Mathematics: Measurement	2.5.4.A use familiar objects as referents for measurement (for example, the length of the student's index finger is about two paper clips)
Grade 3: Mathematics: Computation: Division	2.6.1.D using concrete materials or pictures, demonstrate division of whole numbers without remainders as partitioning of sets
This can be covered in many areas	2.6.1.F using concrete materials or pictures, demonstrate multiplication of whole numbers as repeated addition
Grade 4: Mathematics: Fractions and Decimals	2.6.2.A using concrete materials or pictures, add and subtract halves, thirds, and fourths
Grade 3: Mathematics: Money	2.6.2.B find the total value of coins not to exceed \$1.00
This can be covered in many areas	2.6.5.B determine from real-world problems whether an estimated or exact sum or difference is acceptable
<b>Core Knowledge® Content (Mathematics-Grade 3)</b>	<b>Colorado Grade Level Expectations (Grade 3-Mathematics)</b>
<b>I. Numbers and Number Sense</b>	
▪	3.1.2.A read and write numerals from 0 to 10,000 in meaningful contexts 3.1.2.B read and write the number words for selected numbers from zero to one thousand
▪	3.1.2.C order according to place value (for example, given 9 ones, 5 tens, 4 hundreds, and 7 thousands, the student can write the number 7,459; given the number 7,459, the student can show 7 thousands, 4 hundreds, 5 tens, and 9 ones) 3.1.2.D identify place value through ten thousands (for example, in 86,243, '6' is in the thousands place)
▪	3.1.1.B apply equalities and inequalities with whole numbers from 0 to 10,000 using the symbols =, <, > 3.1.3.C sequence selected whole numbers from 0 to 10,000
▪	3.1.3.A count forward from any even number by 2's; and from any number by 10's and 100's (for example, 216, 316, 416, 516, ...)
▪	3.1.2.E write four-digit numbers in expanded form (for example, 7,459 = 7,000 + 400 + 50 + 9)
▪	3.1.3.D locate and label ½'s and multiples of ¼'s between whole numbers on the number line
▪	3.1.3.B use ordinal positions for selected whole numbers greater than thirty-first
▪	3.1.1.A using objects and pictures, represent whole numbers including odds and evens from 0 to 10,000
▪	3.1.5.A estimate sums and differences first by rounding to the nearest ten and hundred prior to performing the operation and, then, using the estimate to determine the reasonableness of the solution 3.1.5.B estimate products by rounding to the nearest ten prior to performing the operation, and then using the estimate to determine the reasonableness of the solution
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▪	3.3.1.A select the appropriate type of graph to use in various problem-solving situations 3.3.1.C use a computer to create bar and circle graphs
▪	3.3.1.B collect and display data using surveys, tallies, bar graphs, dot plots, pictographs, or tables 3.3.3.B analyze the results of rolling a number cube 3.3.4.A determine the number of outcomes when rolling a number cube
<b>II. Fractions and Decimals</b>	
▪	
▪	
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▪	
▪	3.1.1.C using concrete materials (for example, fraction strips), compare and order fractions with like denominators, such as halves, thirds, fourths, eighths, and tenths
▪	
▪	
<b>III. Money</b>	
▪	
▪	3.1.1.E using concrete materials, make change up to \$1.00
▪	3.6.2.B using coins as models, add and subtract decimals in which sums and differences may exceed \$1.00
▪	
<b>IV. Computation</b>	
<b>A. Addition</b>	
▪	3.6.3.C continue automatic recall of basic addition and subtraction facts
▪	3.1.5.A estimate sums and differences first by rounding to the nearest ten and hundred prior to performing the operation and, then, using the estimate to determine the reasonableness of the solution 3.6.4.A use estimation techniques such as front-end rounding, rounding, and compatible numbers (numbers whose sum is 10, 100, 100, 1,000, . . .) before performing operations
▪	
▪	3.6.1.A using concrete materials, demonstrate and verbally explain addition and subtraction of whole numbers with regrouping for up to four-digit numbers 3.6.4.B using paper-and-pencil, demonstrate the four basic operations of whole numbers including: a) addition and subtraction of four digits, b) multiplication of two digits by one digit, regrouping included, and c) division of two digits by a one-digit divisor obtaining one-digit quotients
<b>B. Subtraction</b>	
▪	3.6.1.D using paper-and pencil, demonstrate the inverse relationship of addition and subtraction of whole numbers
▪	3.6.3.C continue automatic recall of basic addition and subtraction facts
▪	3.1.5.A estimate sums and differences first by rounding to the nearest ten and hundred prior to performing the operation and, then, using the estimate to determine the reasonableness of the solution 3.6.4.A use estimation techniques such as front-end rounding, rounding, and compatible numbers (numbers whose sum is 10, 100, 100, 1,000, . . .) before performing operations

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	
▪	3.6.1.A using concrete materials, demonstrate and verbally explain addition and subtraction of whole numbers with regrouping for up to four digit numbers 3.6.4.B using paper-and-pencil, demonstrate the four basic operations of whole numbers including: a) addition and subtraction of four digits, b) multiplication of two digits by one digit, regrouping included, and c) division of two digits by a one-digit divisor obtaining one-digit quotients
<b>C. Multiplication</b>	
▪	3.6.3.A demonstrate understanding of basic multiplication and division facts of 1's, 2's, 3's, 5's, and 10's 3.6.3.B demonstrate automatic recall of basic multiplication facts of 1's, 2's, 3's, 5's, and 10's
▪	
▪	3.6.1.B using concrete materials or pictures, demonstrate multiplication with regrouping of whole numbers 3.6.4.B using paper-and-pencil, demonstrate the four basic operations of whole numbers including: a) addition and subtraction of four digits, b) multiplication of two digits by one digit, regrouping included, and c) division of two digits by a one-digit divisor obtaining one-digit quotients
▪	
▪	3.1.5.B estimate products by rounding to the nearest ten prior to performing the operation, and then using the estimate to determine the reasonableness of the solution 3.6.4.A use estimation techniques such as front-end rounding, rounding, and compatible numbers (numbers whose sum is 10, 100, 100, 1,000, . . .) before performing operations
▪	
<b>D. Division</b>	
▪	
▪	
▪	3.6.3.A demonstrate understanding of basic multiplication and division facts of 1's, 2's, 3's, 5's, and 10's
▪	
▪	
▪	3.6.4.B using paper-and-pencil, demonstrate the four basic operations of whole numbers including: a) addition and subtraction of four digits, b) multiplication of two digits by one digit, regrouping included, and c) division of two digits by a one-digit divisor obtaining one-digit quotients
▪	3.6.1.C using concrete materials, demonstrate division of whole numbers with remainders as partitioning of sets
▪	
<b>E. Solving Problems and Equations</b>	
▪	
<b>V. Measurement</b>	
<b>A. Linear Measure</b>	
▪	3.5.5.A select the appropriate units of measurement of time, length, area, capacity, weight, and temperature
▪	3.5.1.I describe the units for measuring time, length, area, capacity, and temperature 3.5.1.J know the number of seconds in a minute, hours in a day, days in a month, days in a year, pints in a quart, quarts in a gallon, and <b>centimeters in a meter</b>
▪	3.4.3.A measure the sides and perimeters of geometric shapes to the nearest half inch and centimeter
▪	3.5.1.C estimate and measure the length of objects 3.5.1.D estimate and measure the perimeter of an object with a string measured in U.S. customary and metric units

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

<b>B. Weight (Mass)</b>	
▪	3.5.1.G estimate and weigh an object on a balance or scale to the nearest ounce 3.5.2.A compare objects according to the measurable attributes of length, area, capacity, <b>weight</b> , and temperature
▪	3.5.1.G estimate and weigh an object on a balance or scale to the nearest ounce 3.5.5.A select the appropriate units of measurement of time, length, area, capacity, weight, and temperature
▪	
<b>C. Capacity (Volume)</b>	
▪	3.5.1.F estimate and measure the capacity of a container in cups, pints, quarts, gallons, and liters 3.5.5.A select the appropriate units of measurement of time, length, area, capacity, weight, and temperature
▪	3.5.1.J know the number of seconds in a minute, hours in a day, days in a month, days in a year, <b>pints in a quart, quarts in a gallon</b> , and centimeters in a meter
▪	
<b>D. Temperature</b>	
▪	3.5.1.H measure temperatures in both Fahrenheit and Celsius 3.5.5.A select the appropriate units of measurement of time, length, area, capacity, weight, and temperature
▪	
▪	
<b>E. Time</b>	
▪	3.5.1.A tell time to the nearest five minutes, using an analog and digital clock 3.5.5.A select the appropriate units of measurement of time, length, area, capacity, weight, and temperature
▪	3.5.1.B estimate how long a minute is
▪	
▪	
<b>VI. Geometry</b>	
▪	
▪	3.4.2.A identify points, lines, line segments, and rays (rays are covered in 4 <sup>th</sup> grade)
▪	3.4.2.B recognize and identify hexagons, pentagons, and octagons
▪	3.4.2.C classify angles as obtuse, acute, or right (obtuse and acute angles are covered in 4 <sup>th</sup> grade)
▪	3.4.3.B measure the area of geometric figures using nonstandard units 3.5.1.E estimate and measure areas using nonstandard units 3.5.5.A select the appropriate units of measurement of time, length, area, capacity, weight, and temperature
▪	3.4.1.A compare similarities and differences between the concepts of similarity and congruence (more in depth in 5 <sup>th</sup> grade) 3.4.1.B make a pattern by rotating, flipping, and sliding a two-dimensional figure 3.4.1.C identify lines of symmetry of regular hexagons, pentagons, and octagons 3.4.4.D investigate and predict the geometric figures that result from cutting along a line of symmetry
▪	3.4.2.G identify cubes, spheres, cylinders, cones, and pyramids 3.4.2.H build cubes (for example, with marshmallows and toothpicks) and spheres (for example, soap bubbles)
<b>Grade level or other area</b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
Grade 2: Mathematics: Money	3.1.1.D demonstrate different combinations of coins for change (for example, 52¢ = 2 quarters and 2 pennies)
Grade 4: Mathematics: Numbers and Number Sense	3.1.3.E locate and label a point in the first quadrant of the coordinate plane (for example, locates the point (11,15))

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

Grade 1: Mathematics: Computation and Grade 5: Mathematics: Computation	3.1.4.A verify the commutative and associative properties of addition and multiplication of whole numbers
Grade 2: Mathematics: Computation	3.1.4.B verify the multiplication properties of zero and one with whole numbers
Grade 1: Mathematics: Patterns and Classification and Grade 2: Mathematics: Numbers and Number Sense	3.2.1.A reproduce, extend, create, and describe patterns, such as in common fractions, geometric shapes, money, measurement, addition, subtraction, and multiplication facts
Grade 1: Mathematics: Patterns and Classification and Grade 2: Mathematics: Numbers and Number Sense	3.2.1.B find missing elements of patterns and multiples
Grade 4: Mathematics: Numbers and Number Sense	3.2.2.A given data, extend a table and plot points on a coordinate plane
Grade 1: Mathematics: Computation and Grade 5: Mathematics: Computation	3.2.3.A identify a rule using addition or subtraction and solve a problem using the rule
This can be covered in many areas	3.2.4.A determine how the changes in one variable affects the change in the other by addition or subtraction
This can be covered in many areas (History)	3.3.1.D use a timeline to display a sequence of events
Grade 6: Mathematics: Probability and Statistics	3.3.2.A determine the median and mode from a data set
Grade 5: Mathematics: Probability and Statistics	3.3.2.B using various displays of data, interpret and draw conclusions
Grade 5 and 6: Mathematics: Probability and Statistics	3.3.3.A use survey data to make a prediction from various displays of data
Grade 5 and 6: Mathematics: Probability and Statistics	3.3.3.C predict the most likely outcome from spinners
Grade 5 and 6: Mathematics: Probability and Statistics	3.3.3.D analyze the fairness of different spinners
This can be covered in many areas	3.3.4.B using manipulatives or pictures, determine the possible combinations of matching a set containing two elements with a set containing three elements
Grade 4: Mathematics: Geometry	3.4.2.D draw obtuse, acute, and right angles
This can be covered in many areas	3.4.2.E compare what is the same and what is different between two)dimensional figures and three)dimensional figures
This can be covered in many areas	3.4.2.F draw rectangles and squares on a coordinate plane and identify the vertices with coordinates
This can be covered in many areas	3.4.4.A draw a picture or diagram to solve a problem (for example, use a number line to locate one half)
This can be covered in many areas	3.4.4.B investigate and predict geometric shapes by combining and subdividing groups of pattern blocks
This can be covered in many areas	3.4.4.C investigate and predict the result of changing the lengths of sides of polygons
This can be covered in many areas	3.5.2.B order objects according to the measurable attributes of length, area, capacity, weight, and temperature
This can be covered in many areas	3.5.2.C compare and order various times
Grade 1: Mathematics: Measurement	3.5.4.A use familiar objects as referents for measurement (for example, the width of the index fingernail equals approximately one centimeter; ten pennies weigh approximately an ounce)
This can be covered in many areas	3.6.1.E using paper-and pencil, demonstrate multiplication of whole numbers as repeated addition
Grade 4: Mathematics: Fractions and Decimals	3.6.2.A using concrete materials, demonstrate addition and subtraction of proper fractions with common denominators of ten or less
This can be covered in many areas	3.6.3.D use a multiplication facts table to locate all factors for a particular product (for example, $6 = 1 \times 6$ , $6 = 2 \times 3$ , . . .)
This can be covered in many areas	3.6.5.A given a real)world problem)solving situation, use the correct operation (addition, subtraction, or multiplication) and appropriate method (mental arithmetic, estimation, paper)and)pencil, calculator, or computer) to solve the problem
This can be covered in many areas	3.6.5.B determine from real)world problems whether an estimated or exact sum, difference, or product is acceptable
<b>Core Knowledge<sup>®</sup> Content (Mathematics-Grade 4)</b>	<b>Colorado Grade Level Expectations (Grade 4-Mathematics)</b>
<b>I. Numbers and Number Sense</b>	
<ul style="list-style-type: none"> <li>▪</li> </ul>	4.1.2.A read and write numerals from 0 to 1,000,000 in meaningful contexts 4.1.2.B read the number words for selected numbers from zero to one million 4.1.2.C write the number words for selected numbers from zero to one hundred thousand

## Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	4.1.2.D order according to place value (for example, given 9 ones, 5 tens, 4 hundreds, 7 thousands, and 8 hundred thousands, the student can write the number 807, 459; given the number 807, 459, the student can show 8 hundred thousands, 7 thousands, 4 hundreds, 5 tens, and 9 ones) 4.1.2.E identify place value through hundred thousands (for example, in 807,459, '8' is in the hundred thousands place)
▪	4.1.1.B apply equalities and inequalities with whole numbers from 0 to 1,000,000 using the symbols =, <, > 4.1.3.B sequence selected whole numbers from 0 to 100,000
▪	4.1.2.F write six-digit numbers in expanded form (for example, $807,459 = 800,000 + 7,000 + 400 + 50 + 9$ )
▪	4.1.3.C locate and label $\frac{1}{2}$ 's and multiples of $\frac{1}{4}$ 's and $\frac{1}{3}$ 's between whole numbers on the number line
▪	4.1.5.A estimate sums and differences by rounding to the nearest ten, hundred, and thousand prior to performing the operation, and then using the estimate to determine the reasonableness of the solution 4.1.5.B estimate products first by rounding to the nearest ten and hundred prior to performing the operation and, then, using the estimate to determine the reasonableness of the solution
▪	
▪	
▪	4.3.1.A select the appropriate type of graph to use in various problem-solving situations
▪	4.1.3.D locate and label a point in the first quadrant of the coordinate plane (for example, locates the point (27,15)) and on a city map (for example, (E23, 11)) 4.3.1.C use graph paper using the horizontal and vertical axes appropriately 4.5.1.J determine the distance between points on vertical and horizontal line segments on a coordinate plane 4.5.1.K given a distance, find pairs of points on the coordinate plane separated by that distance
▪	
<b>II. Fractions and Decimals</b>	
<b>A. Fractions</b>	
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▪	4.1.1.C using concrete materials (for example, fraction strips), compare and order fractions with like and unlike denominators, such as halves, thirds, fourths, eighths, and tenths
▪	
▪	4.6.2.A using concrete materials, demonstrate addition and subtraction of proper fractions with common denominators of ten or less
▪	
<b>B. Decimals</b>	
▪	4.1.1.D using concrete materials (for example, base ten blocks), represent the decimal fractions of tenths and hundredths
▪	4.1.2.G relate decimals and fractions (that is, tenths and hundredths) to one another using objects and pictures 4.1.1.E using concrete materials, equate terminating decimals to their common fraction equivalents (for example, $0.25 = \frac{1}{4}$ )
▪	
▪	

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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▪	4.6.2.C add and subtract decimals to the one-hundredths
<b>III. Money</b>	
▪	4.6.2.E determine change received for \$10.00 or less 4.1.1.G using concrete materials, count change from the cost of the item, where the item costs no more than \$10.00, up to the amount of the money received
▪	
<b>IV. Computation</b>	
<b>A. Multiplication</b>	
Teachers: By this grade level, children should have mastered all basic whole number operations for addition and subtraction. Review and reinforce topics from previous grades as necessary.	4.6.3.C continue automatic recall of basic addition and subtraction facts
▪	4.6.3.A demonstrate understanding of basic multiplication and division facts through 100 4.6.3.B demonstrate automatic recall of basic multiplication and division facts through 100
▪	
▪	
▪	4.6.4.B using paper-and-pencil, demonstrate the four basic operations of whole numbers including: a) multiplication of two digits by two digits and three digits by one digit with regrouping and b) division of two digits by a one-digit divisor
▪	
▪	4.1.5.B estimate products first by rounding to the nearest ten and hundred prior to performing the operation and, then, using the estimate to determine the reasonableness of the solution 4.6.4.A use estimation techniques such as front-end rounding, rounding, compatible numbers (numbers whose sum is 10, 100, 1,000...) and clustering (for example, $27 + 28 + 30 + 31$ equals approximately $4 \times 30 = 120$ ) before performing operations
▪	
▪	
▪	
<b>B. Division</b>	
▪	4.6.1.B demonstrate the inverse relationship of multiplication and division of whole numbers
▪	
▪	4.6.3.A demonstrate understanding of basic multiplication and division facts through 100 4.6.3.B demonstrate automatic recall of basic multiplication and division facts through 100
▪	4.1.4.A verify division of whole numbers is not commutative
▪	
▪	
▪	
▪	4.6.4.B using paper-and-pencil, demonstrate the four basic operations of whole numbers including: a) multiplication of two digits by two digits and three digits by one digit with regrouping and b) division of two digits by a one-digit divisor

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	
▪	
<b>C. Solving Problems and Equations</b>	
▪	
▪	
▪	4.2.3.A identify a rule using addition, subtraction, or multiplication, and solve a problem using the rule
▪	
<b>V. Measurement</b>	
▪	4.4.3.A measure the sides and perimeters of geometric shapes to the nearest fourth inch and centimeter 4.5.1.D estimate the perimeters of similarly-sized figures (for example, trapezoids, parallelograms, and rectangles), measure the sides, and determine the perimeters 4.5.1.F measure the lengths of the sides of cubes and determine the volumes
▪	4.5.1.H estimate and weigh objects on a balance to the nearest ounce and gram
▪	4.5.1.G estimate and measure the capacity of containers
▪	4.5.1.L describe the units for measuring length, area, volume, capacity, and temperature in U.S. customary and metric units 4.5.1.M know the number of years in a decade and a century, feet in a mile, millimeters and centimeters in a meter, ounces in a pound, and pounds in a ton 4.5.2.A compare objects according to the measurable attributes of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units 4.5.2.B order objects according to the measurable attributes of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units 4.5.5.B select the appropriate units of measurement of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units
▪	4.5.1.L describe the units for measuring length, area, volume, capacity, and temperature in U.S. customary and metric units 4.5.1.M know the number of years in a decade and a century, feet in a mile, millimeters and centimeters in a meter, ounces in a pound, and pounds in a ton 4.5.2.A compare objects according to the measurable attributes of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units 4.5.2.B order objects according to the measurable attributes of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units 4.5.5.B select the appropriate units of measurement of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units
▪	4.5.2.C compare and order various times 4.5.5.A select the appropriate units of measurement of time
<b>VI. Geometry</b>	
▪	
▪	4.4.2.A identify parallel, perpendicular, and intersecting lines
▪	4.4.2.G classify triangles by their angles (obtuse, acute, right) 4.4.4.B investigate and predict the changing of angles (for example, those made from the hands of a clock over time)

## Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	4.4.2.C recognize and identify polygons including quadrilaterals such as trapezoids, parallelograms, and rhombuses 4.4.3.D draw geometric polygons including quadrilaterals such as trapezoids, parallelograms, and rhombuses 4.4.2.E describe squares as rectangles
▪	
▪	4.4.2.B identify attributes of closed curves
▪	4.4.1.A define similarity and congruence 4.4.4.C investigate and predict what must occur for similar figures to become congruent figures
▪	4.4.3.B measure the area of geometric figures using standard units 4.5.1.E measure the lengths of the sides of squares and rectangles and determine the areas 4.5.5.B select the appropriate units of measurement of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units
▪	4.4.2.J identify rectangular prisms 4.5.1.F measure the lengths of the sides of cubes and determine the volumes 4.5.5.B select the appropriate units of measurement of length, area, volume, capacity, weight, and temperature in U.S. customary and metric units
<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
Grade 3: Mathematics: Numbers and Number Sense	4.1.1.A using objects and pictures, represent whole numbers including odds and evens from 0 to 1,000,000
Grade 2: Mathematics: Money	4.1.1.F demonstrate different combinations of currency and coins for change (for example, \$2.39 = 2 dollar bills, 1 quarter, 1 dime, and 4 pennies)
Grade 3: Mathematics: Numbers and Number Sense	4.1.3.A count forward from any number by 2's, 3's, 5's, 10's, and 100's
Grade 1: Mathematics: Computation and Grade 5: Mathematics: Computation	4.1.4.B continue to verify number properties from previous grades
Grade 1: Mathematics: Patterns and Classification and Grade 2: Mathematics: Numbers and Number Sense	4.2.1.A reproduce, extend, create, and describe patterns, such as in common fractions, geometric shapes, measurement, addition, subtraction, multiplication, and division facts
Grade 1: Mathematics: Patterns and Classification and Grade 2: Mathematics: Numbers and Number Sense	4.2.1.B find missing elements of a complex repeating pattern (for example, 1,1,2,3,5,__,13,..)
This can be covered in many areas	4.2.2.A match tables, graphs, and open sentences that represent the same numerical pattern
This can be covered in many areas	4.2.4.A determine how the change in one variable affects the change in the other by addition, subtraction, or multiplication
Grade 6: Mathematics: Probability and Statistics	4.3.1.D explain the basic concepts of sample bias and sample size when designing a survey
Grade 6: Mathematics: Probability and Statistics	4.3.2.A choose between median and mode to best describe the "middle" of a data set
Grade 6: Mathematics: Probability and Statistics	4.3.2.B transfer the use of median and mode to other curricular areas
Grade 5: Mathematics: Probability and Statistics	4.3.2.C using various displays of data, formulate questions, interpret, and draw conclusions
Grade 5 and 6: Mathematics: Probability and Statistics	4.3.3.A uses survey data to make and justify real-world decisions
Grade 3, 5 and 6: Mathematics: Probability and Statistics	4.3.3.B compare the outcomes of flipping a coin, spinning a spinner with four congruent sectors, and rolling a number cube
Grade 3, 5 and 6: Mathematics: Probability and Statistics	4.3.3.C analyze and predict which outcome is more likely from several events such as obtaining "heads" when flipping a coin, the spinner landing in one of its sectors, or rolling a "1" on a number cube
Grade 5 and 6: Mathematics: Probability and Statistics	4.3.3.D analyze the fairness of various chance devices
Grade 3, 5 and 6: Mathematics: Probability and Statistics	4.3.4.A determine the number of outcomes obtained from a variety of chance devices
Grade 6: Mathematics: Probability and Statistics	4.3.4.B using paper-and-pencil techniques (for example, tree diagrams), display the possible combinations of matching two sets of elements

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Grade 7: Mathematics: Geometry	4.4.1.B identify the transformation that occurs when a figure is translated, reflected, or rotated
Grade 6: Mathematics: Geometry	4.4.1.C identify the lines of symmetry of an equilateral triangle, parallelogram, and rhombus
Grade 5: Mathematics: Geometry	4.4.2.F describe a right angle as having a measure of 90E
Grade 5: Mathematics: Geometry	4.4.2.H draw obtuse, acute, and right triangles on a coordinate plane and identify the vertices with coordinates
Grade 7: Mathematics: Geometry	4.4.2.I compare what is the same and what is different between two-dimensional figures and three-dimensional figures
Grade 7: Mathematics: Geometry	4.4.2.K recognize and identify in three-dimensional figures the vertices, edges, and faces
Grade 7: Mathematics: Geometry	4.4.2.L build cubes, prisms, and pyramids (for example, using straws and string)
Grade 3: Mathematics: Geometry	4.4.4.D investigate and predict the geometric figures that result from cutting along a line of symmetry
This can be covered in many areas	4.4.4.C draw a picture of diagram to solve a problem (for example, uses triangular pattern blocks to create a star; uses pattern blocks to tile a plane)
Grade 3: Mathematics: Measurement	4.5.1.A tell time to the nearest minute, using an analog and digital clock
Grade 3: Mathematics: Measurement	4.5.1.B tell the number of minutes is a day, days in a year and when a leap year occurs
Grade 3: Mathematics: Measurement	4.5.1.C describes the units for measuring time
Grade 3: Mathematics: Measurement	4.5.1.I compare the relationship between the temperature in Fahrenheit and Celsius
This can be covered in many areas	4.5.4.A use familiar objects as referents for measurement (for example, one paper clip equals one gram; the length of the arm span equals approximately one meter)
This can be covered in many areas	4.6.1.A explain in writing what addition, subtraction, multiplication, and division of whole numbers means
This can be covered in many areas	4.6.1.C demonstrate division of whole numbers as repeated subtraction
Grade 5: Mathematics: Fractions and Decimals	4.6.2.B using concrete materials, demonstrate addition and subtraction of mixed numerals with common denominators of twelve or less
Grade 3: Mathematics: Money	4.6.2.D compute the total cost of items to \$10.00
This can be covered in many areas	4.6.5.A given a real-world problem-solving situation, use the correct operation (addition, subtraction, multiplication, or division) and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
This can be covered in many areas	4.6.5.B determine from real-world problems whether an estimated or exact sum, difference, product, or quotient is acceptable

### Core Knowledge® Content (Mathematics-Grade 5)

### Colorado Grade Level Expectations (Grade 5-Mathematics)

<b>I. Numbers and Number Sense</b>	
▪	
▪	
▪	
▪	5.1.3.C relate exponential notation to repeated multiplication (for example, $81 = 3 \times 3 \times 3 \times 3 = 81$ ) 5.1.3.D write whole numbers in expanded form without powers of ten (for example, $579 = 500 + 70 + 9 = (5 \times 100) + (7 \times 10) + (9 \times 1)$ )
▪	5.1.1.A locate commonly-used positive rational numbers, including fractions, mixed numbers, terminating decimals through thousandths, and percents, on the number line 5.1.1.B using concrete materials, demonstrate the meaning of integers
▪	5.1.1.A locate commonly-used positive rational numbers, including fractions, mixed numbers, terminating decimals through thousandths, and percents, on the number line 5.5.3.A read and interpret scales on number lines, graphs, and maps
▪	
▪	5.1.1.D pictorially, demonstrate the meaning of square numbers
▪	

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	5.1.3.A identify factors, multiples, and prime composite numbers
▪	5.1.3.B write the prime factorization of whole numbers up to 50 (for example, $36 = 2 \times 2 \times 3 \times 3$ )
▪	5.1.3.A identify factors, multiples, and prime composite numbers
▪	5.1.3.A identify factors, multiples, and prime composite numbers
<b>II. Ratio and Percent</b>	
<b>A. Ratio</b>	
▪	5.1.4.A demonstrate the meaning of ratio in different contexts 5.1.4.B use appropriate notation to express ratios, including $a/b$ , $a$ to $b$ , and $a:b$ 5.6.1.A use appropriate notations of ratio such as $a/b$ , $a$ to $b$ , and $a:b$
▪	
<b>B. Percent</b>	
▪	
▪	5.1.1.C using concrete materials, demonstrate the equivalence of commonly-used fractions, terminating decimals, and percents (for example, $7/10 = 0.7 = 70\%$ )
▪	5.6.1.B using concrete materials, determine commonly-used percentages (e.g., 25% and 50%) in real-world problems
<b>III. Fractions and Decimals</b>	
<b>A. Fractions</b>	
▪	5.6.2.I demonstrate how the value of a fraction changes as the denominator increases
▪	5.6.2.D demonstrate equivalencies and simplification of proper fractions
▪	5.6.2.D demonstrate equivalencies and simplification of proper fractions
▪	5.1.2.B compare commonly-used proper fractions and terminating decimals using the symbols $=$ , $<$ , $>$
▪	
▪	5.6.2.E using paper-and-pencil, demonstrate with proficiency addition and subtraction of proper fractions and mixed numerals with common denominators and without regrouping 5.6.2.F using concrete materials, demonstrate addition and subtraction of mixed numerals with common denominators with regrouping 5.6.2.H demonstrate the inverse relationship of addition and subtraction of proper fractions and mixed numerals with common denominators
▪	
▪	5.6.2.E using paper-and-pencil, demonstrate with proficiency addition and subtraction of proper fractions and mixed numerals with common denominators and without regrouping 5.6.2.G using concrete materials, demonstrate addition and subtraction of proper fractions with unlike denominators
▪	5.6.2.E using paper-and-pencil, demonstrate with proficiency addition and subtraction of proper fractions and mixed numerals with common denominators and without regrouping
▪	
▪	
<b>B. Decimals</b>	
▪	5.1.2.A read, write, and order positive rational numbers, including commonly-used fractions and terminating decimals through thousandths (fractions covered in grades 3 and 4)
▪	

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	5.1.1.A locate commonly-used positive rational numbers, including fractions, mixed numbers, terminating decimals through thousandths, and percents, on the number line
▪	
▪	
▪	5.6.2.J demonstrate with proficiency addition and subtraction of decimals
	5.6.2.K demonstrate the inverse relationship of addition and subtraction of decimals
▪	
▪	
<b>IV. Computation</b>	
<b>A. Addition</b>	
▪	5.1.5.A demonstrate the commutative, associative, and identity properties for addition and multiplication, and the multiplication property of zero for fractions
	5.6.2.A demonstrate order of operations with whole numbers
<b>B. Multiplication</b>	
▪	5.1.5.A demonstrate the commutative, associative, and identity properties for addition and multiplication, and the multiplication property of zero for fractions
	5.6.2.A demonstrate order of operations with whole numbers
▪	5.6.2.B demonstrate with proficiency multiplication of whole numbers of three digits by two digits and three digits by three digits
▪	
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▪	
<b>C. Division</b>	
▪	
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▪	
▪	5.6.2.C demonstrate with proficiency division of whole numbers with a two digit divisor
▪	
▪	
<b>D. Solving Problems and Equations</b>	
▪	
<b>V. Measurement</b>	
<u>Teachers:</u> Review and reinforce as necessary from grade 4 topics on linear measure, weight (mass), and capacity (volume). Also review various equivalences, which students should be able to recall from memory.	5.5.1.D continue to estimate and use the capacity, weight, and mass measurements from previous grades
	5.5.6.A select and use the appropriate units and tools to measure to the degree of accuracy required in a particular problem
	5.5.6.B measure the length of the sides and heights of rectangles, squares, triangles, and rectangular prisms to the nearest inch and nearest centimeter
▪	
▪	

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

VI. Geometry	
▪	5.4.2.B use correct geometric symbols for lines, segments, rays, and angles 5.4.2.C reason informally about properties of parallel lines, perpendicular lines, intersecting lines, line segments, and rays
▪	5.4.2.C reason informally about properties of parallel lines, perpendicular lines, intersecting lines, line segments, and rays
▪	5.4.2.A know that the measurement of an acute angle is less than 90E, a right angle is 90E, and an obtuse angle is greater than 90E 5.5.6.C measure and draw angles using a protractor (for example, 30E, 45E, 60E, 90E, 120E, 150E, 180E)
▪	5.4.2.D reason informally about properties (including lines of symmetry) of rectangles, squares, triangles (named by both lengths of sides and angles), and rectangular prisms 5.5.6.C measure and draw angles using a protractor (for example, 30E, 45E, 60E, 90E, 120E, 150E, 180E)
▪	5.4.2.E reason informally about congruence involving rectangles, squares, triangles, and rectangular prisms (some of this covered in grade 4)
▪	5.4.2.D reason informally about properties (including lines of symmetry) of rectangles, squares, triangles (named by both lengths of sides and angles), and rectangular prisms
▪	5.4.2.D reason informally about properties (including lines of symmetry) of rectangles, squares, triangles (named by both lengths of sides and angles), and rectangular prisms
▪	
▪	5.2.3.A in any functional relationship involving whole numbers and common proper fractions, describe how a change in one quantity affects the other
▪	5.4.5.A solve problems involving perimeter and area of rectangles, squares, and triangles (perimeter covered in grade 6) 5.4.5.B solve problems involving volume of rectangular prisms 5.5.4.A develop and use formulas for perimeter and area of rectangles, squares, and triangles using appropriate units (perimeter covered in grade 6) 5.5.4.B develop and use the formula for volume of rectangular prisms using appropriate units 5.5.5.A describe how changes in one of the dimensions of a rectangle affects its perimeter and area 5.5.5.B using graph paper, demonstrate the changes in area of a rectangle having a constant perimeter and variable side lengths
VII. Probability and Statistics	
▪	5.3.5.B assign a number between 0 and 1, inclusive, to the probability of an event
▪	5.3.1.A differentiate between categorical and numerical data 5.3.1.B organize and display data using appropriate graphs, such as line, bar, circle, dot plots, frequency tables, and stem-and-leaf
▪	5.2.2.A solve problems from patterns involving whole numbers and common proper fractions using tables, graphs, and rules 5.3.1.C read, interpret, and draw conclusions from various displays of data 5.5.3.A read and interpret scales on number lines, graphs, and maps 5.5.3.B select the appropriate scale for a given problem
▪	5.3.2.A determine the mean of a set of data using manipulatives
▪	5.4.4.A set up a coordinate graph (include axes, origin, and scale) and use it to mark and read coordinate pairs in the first quadrant
▪	5.2.4.A graph discrete linear and nonlinear functions 5.2.4.B match a description of a situation with its continuous graph

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

VIII. Pre-Algebra	
▪	5.2.1.B recognize that a variable is used to represent an unknown quantity
▪	
▪	
<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
This can be covered in many areas	5.1.3.E demonstrate the divisibility rules for 2, 5, and 10
This can be covered in many areas	5.1.3.F demonstrate $a^n = a \times a \times \dots \times a$ , where 'a' and 'n' are counting numbers
This can be covered in many areas (Fractions and Decimals)	5.1.6.A estimate sums and differences of fractions and decimals using benchmarks (for example, $5/6 + 7/8$ must be equal to an amount less than 2, since each fraction is less than 1)
This can be covered in many areas	5.1.6.B estimate, using appropriate techniques, determine, and, then, justify the reasonableness of solutions to problems involving whole numbers
This can be covered in many areas	5.2.1.A represent, describe, and analyze patterns for relationships involving whole numbers and common proper fractions
Grade 6: Mathematics: Pre-Algebra	5.2.5.A solve problems involving linear relationships in whole numbers
Grade 6: Mathematics: Pre-Algebra	5.2.5.B solve simple linear equations with coefficients of 1 by informal methods using manipulatives, tables, graphs, or technology
Grade 6: Mathematics: Probability and Statistics	5.3.2.B informally distinguish between mean, median, and mode
Grade 6: Mathematics: Probability and Statistics	5.3.2.C determine the range of a set of data
Grade 6: Mathematics: Probability and Statistics	5.3.2.D given various displays of the same set of data (line, bar, circle, and stem-and-leaf), determine which measure of central tendency is most evident
This can be covered in many areas	5.3.3.A critically evaluate line graphs, bar graphs, pictographs, or dot plots which do not begin at zero
This can be covered in many areas	5.3.4.A distinguish between a census and a survey
Grade 6: Mathematics: Probability and Statistics	5.3.4.B explain why there may be differences in the data of two or more samples
This can be covered in many areas (Probability and Statistics)	5.3.5.A apply probability terms such as events, outcome, trials, and sample space
Grade 6: Mathematics: Probability and Statistics	5.3.5.C perform experiments of independent compound events to estimate probability
Grade 6: Mathematics: Probability and Statistics	5.3.6.A predict the probability of independent compound events, such as tossing two coins or determining the gender of two children in a family, and conduct an experiment or simulation to determine the probability
Grade 7: Mathematics: Probability and Statistics	5.3.6.B demonstrate that the sum of the probabilities equals one (as applied to the sample space)
This can be covered in many areas (Probability and Statistics)	5.3.6.C using one chance device, such as a number cube or a spinner, design a fair game and an unfair game, and write the directions for each game
Grade 6: Mathematics: Probability and Statistics	5.3.7.A determine the number of outcomes of independent compound events, such as tossing two coins or determining the gender of two children in a family by making a list or tree diagram
Grade 6: Mathematics: Geometry	5.4.1.A using a straight edge and a compass, paper folding, or computer software application, demonstrate the geometric constructions of copying a segment and copying an angle
This can be covered in many areas	5.4.1.B build models of rectangular prisms including their nets
This can be covered in many areas	5.4.1.C given a three-dimensional model built with cubes, draw the two dimensional orthogonal drawings (that is, the front view, right side view, and top view) and, conversely, given the orthogonal drawings, build the model
This can be covered in many areas (Geometry)	5.4.4.B from a scenario, choose the correct graph from given possible graph representations
This can be covered in many areas (Geometry)	5.4.4.C given a distance, find pairs of points on the coordinate plane in the first quadrant separated by that horizontal or vertical distance
This can be covered in many areas (Geometry)	5.4.6.A use pattern blocks to tile a plane
Grade 3: Mathematics: Geometry	5.4.6.B show lines of symmetry of geometric shapes

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This can be covered in many areas (Geometry)	5.5.1.A estimate the length of the sides and height of rectangles, squares, triangles, and rectangular prisms
This can be covered in many areas (Geometry)	5.5.1.B estimate the perimeter and area of rectangles, squares, and triangles
This can be covered in many areas (Geometry)	5.5.1.C estimate the volume of rectangular prisms
This can be covered in many areas (Geometry)	5.5.1.E estimate the measures of angles (for example, 30E, 45E, 60E, 90E, 120E, 150E, 180E)
This can be covered in many areas (Geometry)	5.5.2.A compare the estimates and direct measurements obtained in benchmarks 5.1, 5.4, and 5.6
Grade 4: Mathematics: Money	5.6.2.L make change from any dollar denomination
This can be covered in many areas	5.6.3.A determine from real-world problems whether an estimated or exact answer is acceptable
This can be covered in many areas	5.6.3.B use estimation techniques before performing operations
This can be covered in many areas	5.6.4.A determine whether information given in a problem-solving situation is sufficient, insufficient, or extraneous
This can be covered in many areas	5.6.4.B given a real-world problem-solving situation, use the correct operation and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
This can be covered in many areas	5.6.4.C given a math sentence using the four operations with whole numbers, create and illustrate a real-world problem
This can be covered in many areas	5.6.4.D in a problem-solving situation, determine whether the results are reasonable and justify those results with correct computations
<b>Core Knowledge® Content (Mathematics-Grade 6)</b>	<b>Colorado Grade Level Expectations (Grade 6-Mathematics)</b>
<b>I. Numbers and Number Sense</b>	
▪	
▪	
▪	6.1.1.A continue to locate commonly-used positive rational numbers, including fractions, mixed numbers, terminating decimals through thousandths, and percents, on the number line 6.1.1.B locate integers on the number line 6.1.1.C identify subsets of integers, including counting and whole numbers 6.5.3.A read and interpret scales on number lines, graphs, and maps
▪	
▪	
▪	6.1.2.A read, write, and order positive rational numbers, including commonly-used fractions and terminating decimals through thousandths 6.1.2.B compare positive fractions and decimals using the symbols =, <, >
▪	6.1.3.E determine the greatest common factor and least common multiple of a pair of whole numbers
▪	6.1.3.E determine the greatest common factor and least common multiple of a pair of whole numbers
▪	6.1.1.E pictorially, demonstrate the meaning of square roots of perfect square numbers through 100 6.1.3.B write whole numbers in expanded form with powers of ten (for example, $579 = 500 + 70 + 9 = 5 \times 100 + 7 \times 10 + 9 \times 1$ ) 6.1.3.C write large whole numbers using scientific notation (for example, $246,000,000 = 2.46 \times 10^8$ ; $2.46 \times 10^8 = 246,000,000$ )
<b>II. Ratio, Percent, and Proportion</b>	
<b>A. Ratio and Proportion</b>	
▪	
▪	6.1.4.B demonstrate the similarities and differences between ratios and fractions 6.1.4.C interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities using appropriate notations, including a/b, a to b, a:b
▪	

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

▪	
<b>B. Percent</b>	
▪	6.1.1.D demonstrate the equivalence of commonly-used fractions, decimals, and percents
▪	6.6.1.A demonstrate the equivalence of fractions, decimals, and percents
▪	6.6.1.B using concrete materials, determine commonly-used percentages in real-world problems
▪	
▪	
▪	
<b>III. Computation</b>	
<b>A. Addition</b>	
▪	6.6.2.E using paper-and-pencil, demonstrate with proficiency addition and subtraction of fractions including mixed numerals
▪	6.6.2.A demonstrate order of operations including exponents with whole numbers
<b>B. Multiplication</b>	
▪	6.6.2.A demonstrate order of operations including exponents with whole numbers
▪	
▪	
▪	6.6.2.F using concrete materials, demonstrate multiplication and division of a common proper fraction and a whole number
▪	6.6.2.G using concrete materials, demonstrate multiplication and division of proper fractions
▪	6.6.2.H using concrete materials, demonstrate the meaning of multiplication and division of decimals by whole numbers
<b>C. Division</b>	
▪	6.6.2.I demonstrate, by modeling, the inverse relationship of multiplication and division of common proper fractions
▪	
▪	
▪	6.6.2.F using concrete materials, demonstrate multiplication and division of a common proper fraction and a whole number
▪	6.6.2.G using concrete materials, demonstrate multiplication and division of proper fractions
▪	<b>6.6.2.H using concrete materials, demonstrate the meaning of multiplication and division of decimals by whole numbers</b>
<b>D. Solving Problems and Equations</b>	
▪	
▪	
<b>IV. Measurement</b>	
<u>Teachers:</u> Students should know all information regarding measurement presented in grades 4 and 5; review and reinforce as necessary.	6.5.1.E continue to estimate and use the capacity, weight, and mass measurements from previous grades
▪	6.5.6.A select and use the appropriate units and tools to measure to the degree of accuracy required in a particular problem
▪	6.5.6.B measure the length of the sides and heights of parallelograms and rhombuses to the nearest inch and nearest centimeter
▪	
▪	

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▪	
<b>V. Geometry</b>	
▪	6.4.2.B use correct geometric symbols for parallelism, perpendicularity, and triangles
▪	
▪	
▪	6.5.6.C measure angles and draw complements and supplements, where possible, using a protractor
▪	6.4.2.B use correct geometric symbols for parallelism, perpendicularity, and triangles
▪	6.4.2.C reason informally about the properties (including lines of symmetry) of parallelograms, rhombuses, and triangular prisms 6.4.2.D reason informally about congruence involving parallelograms, rhombuses, and triangular prisms
▪	6.4.5.A solve problems involving perimeter and area of parallelograms and rhombuses 6.5.4.A develop and use formulas for perimeter and area of parallelograms and rhombuses using appropriate units 6.5.5.A describe how changes in the base of a triangle affect its area when its height is constant 6.5.5.B describe how changes in one of the dimensions of a rectangular prism affect its volume
▪	
▪	6.4.5.B solve problems involving volume of triangular prisms 6.5.4.B develop and use the formula for volume of triangular prisms using appropriate units
<b>VI. Probability and Statistics</b>	
▪	6.3.2.A determine the mean of a set of data by using an algorithm 6.3.2.B formally distinguish between mean, median, and mode
▪	6.3.2.C given various displays of the same set of data (line, bar, circle, stem-and-leaf, and histograms), determine which measure of central tendency is most evident
▪	6.3.3.A recognize a misleading display of data due to scaling 6.3.3.B critically evaluate biased sampling of a survey
▪	6.3.5.B assign 0% to an impossible event and 100% to a certain event 6.3.5.C perform experiments of independent compound events to estimate probability
▪	
▪	6.2.2.A solve problems from patterns involving positive rational numbers using tables, graphs, and rules 6.3.1.B read, interpret, and draw conclusions from various displays of data 6.3.6.A predict the probability of independent compound events, such as the sum of two number cubes, conduct an experiment or simulation to determine the probability, and assign the probability to all possible sums of two number cubes 6.5.3.A read and interpret scales on number lines, graphs, and maps 6.5.3.B select the appropriate scale for a given problem
▪	6.3.2.B formally distinguish between mean, median, and mode
▪	6.3.1.A organize and display data using appropriate graphs, such as line, bar, circle, dot plots, frequency tables, stem-and-leaf, and histograms 6.3.7.A determine the number of outcomes of independent compound events, such as the sum of tossing two number cubes by making a list or tree diagram

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▪	6.4.4.A identify the four quadrants of the coordinate plane 6.4.4.B set up a coordinate graph (include axes, origin, and scale) and use it to mark and read coordinate pairs in all four quadrants 6.5.3.A read and interpret scales on number lines, graphs, and maps
<b>VII. Pre-Algebra</b>	
▪	6.2.1.B use variables such as boxes, letters, or other symbols to describe a general rule and to solve problems 6.2.3.A in any functional relationship involving positive rational numbers, describe how a change in one quantity affects the other
▪	6.2.1.B use variables such as boxes, letters, or other symbols to describe a general rule and to solve problems
▪	
▪	
▪	
<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
Grade 5: Mathematics: Numbers and Number Sense	6.1.3.A write the prime factorization of whole numbers in exponential form (for example, $36 = 2 \times 2 \times 2 \times 3$ )
This can be covered in many other areas	6.1.3.D demonstrate the divisibility rules for 2, 3, 5, 6, 9, and 10
Grade 5: Mathematics: Ratio and Percent	6.1.4.A represent fractions, decimals, and percents as ratios
Grade 5: Mathematics: Fractions and Decimals	6.1.5.A demonstrate multiplication inverses of positive rational numbers (for example, $1/9 \times 9 = 1$ )
This can be covered in many other areas (Division)	6.1.5.B demonstrate that division by zero is undefined
This can be covered in many other areas	6.1.6.A estimate, using appropriate techniques, determine, and then, justify the reasonableness of solutions to problems involving whole numbers and sums and differences of commonly-used fractions and decimals
This can be covered in many other areas	6.2.1.A represent, describe, and analyze patterns for relationships involving positive rational numbers
Grade 5: Mathematics: Probability and Statistics	6.2.4.A graph discrete linear and nonlinear functions
Grade 5: Mathematics: Probability and Statistics	6.2.4.B graph a continuous linear function for a given situation
This can be covered in many other areas	6.2.5.A solve problems involving linear relationships in positive rational numbers
This can be covered in many other areas	6.2.5.B solve simple linear equations with whole number coefficients by informal methods using manipulatives, tables, graphs, or technology
This can be covered in many other areas (Probability and Statistics)	6.3.4.A demonstrate the meaning of random sampling and biased versus unbiased samples
This can be covered in many other areas (Probability and Statistics)	6.3.5.A pictorially demonstrate the equivalence of probabilities as either a common fraction, decimal, or percent
This can be covered in many other areas (Probability and Statistics)	6.3.6.B demonstrate that the sum of all probabilities of two number cubes equals one
This can be covered in many other areas (Probability and Statistics)	6.3.6.C using two chance devices, such as two number cubes or two spinners, design a fair game, and write the directions for each game
This can be covered in many other areas	6.4.1.A using a straight edge and a compass, paper folding, or computer software applications, demonstrate the geometric construction of an angle bisector
This can be covered in many other areas	6.4.1.B build models of triangular prisms including their nets
This can be covered in many other areas	6.4.1.C given a three-dimensional model built with cubes, draw the orthogonal drawings (that is, the front view, right side view, and top view) and the foundation drawing (that is, the shape of the foundation, placement and the number of cubes that are built on this foundation) and, conversely, given the orthogonal and foundation drawing, build the model
Grade 7: Mathematics: Geometry	6.4.2.A describe complimentary and supplementary angles
Grade 5: Mathematics: Probability and Statistics	6.4.4.C draw a graph from a given scenario
This can be covered in many other areas (Probability and Statistics)	6.4.4.D given a distance, find pairs of points in the coordinate plane separated by that horizontal or vertical distance
Grade 7: Mathematics: Geometry	6.4.5.C solve problems involving surface area of rectangular prisms
This can be covered in many other areas (Geometry)	6.4.6.A tile a plane with polygons

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Grade 7: Mathematics: Geometry	6.4.6.B demonstrate clockwise and counterclockwise rotation with 90E, 180E, and 270E turns
This can be covered in many other areas (Geometry)	6.4.6.C using models, demonstrate the multiple transformations which occur to get from one congruent figure to the other, and give a written explanation of the transformations
This can be covered in many other areas (Geometry)	6.5.1.A estimate the length of sides and height of parallelograms and rhombuses
This can be covered in many other areas (Geometry)	6.5.1.B estimate the perimeter and area of parallelograms and rhombuses
This can be covered in many other areas (Geometry)	6.5.1.C estimate the volume of triangular prisms
This can be covered in many other areas (Geometry)	6.5.1.D estimate the surface area of rectangular prisms
This can be covered in many other areas (Geometry)	6.5.1.F estimate measures of angles
This can be covered in many other areas (Geometry)	6.5.2.A compare the estimates and direct measurements obtained in benchmarks 6.1, 6.4, and 6.6
Grade 5: Mathematics: Computation	6.6.2.B choose the appropriate representation of the remainder in a division problem
This can be covered in many other areas	6.6.2.C demonstrate equivalencies of mixed numerals and improper fractions
Grade 5: Mathematics: Fractions and Decimals	6.6.2.D simplify fractions
Grade 4: Mathematics: Money	6.6.2.J count change up to the given amount
This can be covered in many other areas	6.6.3.A determine from real-world problems whether an estimated or exact answer is acceptable
This can be covered in many other areas	6.6.3.B use estimation techniques before performing operations
This can be covered in many other areas	6.6.4.A determine whether information given in a problem-solving situation is sufficient, insufficient, or extraneous
This can be covered in many other areas	6.6.4.B given a real-world problem-solving situation, use the correct operation and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
This can be covered in many other areas	6.6.4.C given a math sentence with sums and differences of common fractions and decimals, create and illustrate a real-world problem
This can be covered in many other areas	6.6.4.D in a problem-solving situation, determine whether the results are reasonable and justify those results with correct computations
<b>Core Knowledge® Content (Mathematics-Grade 7)</b>	<b>Colorado Grade Level Expectations (Grade 7-Mathematics)</b>
<b>I. Pre-Algebra</b>	
<b>A. Properties of the Real Numbers</b>	
▪	7.1.5.B demonstrate the distributive property of multiplication over addition for whole numbers (also covered in Grade 6: Mathematics: Computation)
▪	
<b>B. Linear Applications and Proportionality</b>	
▪	
▪	
▪	
▪	7.2.3.A in any functional relationship involving positive rational numbers, describe how a change in one quantity affects the other
▪	
<b>C. Polynomial Arithmetic</b>	
▪	
<b>D. Equivalent Equations and Inequalities</b>	
▪	
▪	
▪	

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▪	7.2.5.B using formal methods, solve one step linear equations involving integers 7.2.5.C solve linear equations with variables and constants on both sides of the equation by informal methods using manipulatives, tables, graphs, or technology
▪	7.2.4.A graph discrete linear and nonlinear functions
<b>E. Integer Exponents</b>	
▪	
▪	
▪	
▪	7.1.3.B write rational numbers in expanded form without negative powers of ten (for example, $579.42 = 5 \times 100 + 7 \times 10 + 9 \times 1 + 4 \times 1/10 + 2 \times 1/100$ )
▪	
<b>II. Geometry</b>	
<b>A. Three-Dimensional Objects</b>	
▪	7.4.1.B build models of cones, cylinders, pyramids and their nets 7.4.5.C solve problems involving surface area of triangular prisms
▪	
▪	
▪	7.4.5.B solve problems involving volume of cylinders 7.5.4.D develop and use the formula for volume of cylinders using appropriate units
<b>B. Angle Pairs</b>	
▪	
▪	7.4.2.C identify and reason informally about angle relationships formed by intersecting lines (for example, adjacent and vertical angles) 7.5.6.C using a protractor, measure angles of adjacent and vertical angles of intersecting lines
<b>C. Triangles</b>	
▪	
<b>D. Measurement</b>	
▪	7.5.6.A select and use the appropriate units and tools to measure to the degree of accuracy required in a particular problem
▪	
▪	
▪	7.5.4.C develop a procedure to find the area and perimeter of irregularly-shaped polygons
▪	7.5.5.A describe how changes in the base of a parallelogram and rhombus affect its area when its height is constant 7.5.5.B describe how scale factor changes in the dimension of a rectangular prism affect its volume 7.5.5.C describe how changes in the distance between the bases of a triangular prism affect its volume
▪	7.5.1.B estimate the circumference and area of circles 7.5.4.B develop and use the formula for circumference and area of circles using appropriate units
▪	
<b>III. Probability and Statistics</b>	

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<ul style="list-style-type: none"> <li>▪</li> </ul>	7.3.1.A organize and display data using appropriate graphs, such as line, bar, circle, dot plots, frequency tables, stem-and-leaf, histograms, scatter plots, and box-and-whiskers (other graphs covered in earlier grades) 7.4.4.E describe the relationship between two different points on the coordinate plane
<ul style="list-style-type: none"> <li>▪</li> </ul>	7.3.2.A determine the quartiles of a data set
<ul style="list-style-type: none"> <li>▪</li> </ul>	7.3.6.C demonstrate that the sum of all the probabilities of the events in a sample space is equal to one
<ul style="list-style-type: none"> <li>▪</li> </ul>	7.3.6.A predict the probability of independent compound events with two different chance devices and conduct an experiment or simulation to determine the probability 7.3.6.B demonstrate that the probability of independent compound events is the same as the product of the probabilities of the two simple events
<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
Grade 6: Mathematics: Numbers and Number Sense	7.1.1.A locate integers and positive rational numbers in the number line (for example, $-6$ , $\frac{3}{4}$ , 1.81)
This can be covered in many other areas	7.1.1.B identify subsets of rational numbers, including counting and whole numbers and integers
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.1.1.C demonstrate equivalence of positive fractions, decimals, and percents
Grade 6: Mathematics: Geometry	7.1.1.D demonstrate the relationship of the circumference to the diameter of a circle as approximating
Grades 4, 5, and 6: Mathematics: Numbers and Number Sense	7.1.1.E demonstrate the meaning of square roots of perfect square numbers
Grades 4, 5, and 6: Mathematics: Numbers and Number Sense	7.1.2.A read, write, and order integers and positive rational numbers
Grades 4, 5, and 6: Mathematics: Numbers and Number Sense	7.1.2.B compare integers and positive rational numbers using the symbols =, <, >
This can be covered in many other areas	7.1.3.A express 100 as 1
This can be covered in many other areas	7.1.3.C demonstrate the divisibility rules for 2, 3, 4, 5, 6, 9, and 10
Grade 6: Mathematics: Numbers and Number Sense	7.1.3.D determine the greatest common factor and least common multiple for whole numbers using prime factorization
This can be covered in many other areas	7.1.3.E demonstrate the meaning of $an$ , where 'a' is a positive rational number and 'n' is a counting number
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.1.4.A demonstrate the equivalent relationships among fractions, decimals, and percents
Grades 5 and 6: Mathematics: Numbers and Number Sense	7.1.5.A demonstrate properties for integers
This can be covered in many other areas	7.1.6.A estimate, using appropriate techniques, determine, and, then, justify the reasonableness of solutions to problems involving positive rational numbers
This can be covered in many other areas	7.2.1.A represent, describe, and analyze patterns with positive rational numbers and integers
This can be covered in many other areas	7.2.1.B identify the algebraic terms 'expression,' 'equation,' 'term,' 'variable,' 'coefficient,' and 'constant'
This can be covered in many other areas	7.2.2.A solve problems from patterns involving positive rational numbers and integers using tables, graphs, and rules
This can be covered in many other areas	7.2.4.B graph a continuous nonlinear function for a given situation
This can be covered in many other areas	7.2.5.A translate written expressions or equations to algebraic expressions or equations, and vice versa
Grades 4, 5, and 6: Mathematics: Probability and Statistics	7.3.1.B read, interpret, and draw conclusions from various displays of data
Grade 6: Mathematics: Probability and Statistics	7.3.2.B demonstrate the basic concepts of frequency distribution, percentiles, and dispersion of data (for example, evenly distributed, one or more outliers)
Grade 6: Mathematics: Probability and Statistics	7.3.2.C given various displays of the same set of data (line, bar, stem-and-leaf, histograms, and box-and-whiskers), determine which measure of central tendency is most evident
Grade 6: Mathematics: Probability and Statistics	7.3.2.D given sets of data, identify the most appropriate measure of central tendency which typifies each set
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.3.3.A determine the improper computation of percent in articles or advertising
Grade 6: Mathematics: Probability and Statistics	7.3.3.B evaluate and correct an improperly selected measure of central tendency
This can be covered in many other areas	7.3.4.A critically evaluate survey questions and possible errors in experimental designs
This can be covered in many other areas	7.3.4.B use appropriate simulations to collect and analyze data
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.3.5.A demonstrate the equivalence of probabilities as either a common fraction, decimal, or percent

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Grade 6: Mathematics: Probability and Statistics	7.3.5.B perform experiments of independent compound events with two different chance devices to estimate probability
Grade 6: Mathematics: Probability and Statistics	7.3.5.C perform experiments of sampling with replacement to estimate probability
This can be covered in many other areas (Probability and Statistics)	7.3.6.D analyze games of chance to determine whether they are fair or unfair; if unfair, decide which player has a greater probability of winning and find that probability
This can be covered in many other areas (Probability and Statistics)	7.3.7.A determine the number of outcomes of independent compound events involving two different chance devices by making a list or tree diagram
Grade 6: Mathematics: Geometry	7.4.1.A using a straight edge and a compass, paper folding, or computer software application, demonstrate the geometric construction of a perpendicular bisector of a segment
This can be covered in many other areas (Geometry)	7.4.1.C given a three-dimensional model built with cubes, use isometric dot paper to draw the isometric drawing (that is, a drawing that shows the corner view and the top or bottom view) and, conversely, given the isometric drawing, build the model
This can be covered in many other areas (Geometry)	7.4.1.D given nets, determine which would form a cube
Grade 6: Mathematics: Geometry	7.4.2.A describe the properties of circles (including radius and diameter)
This can be covered in many other areas (Geometry)	7.4.2.B recognize properties and use correct geometric symbols of overlapping geometric figures
Grade 6: Mathematics: Geometry	7.4.2.D reason informally about the properties (including lines of symmetry) of isosceles trapezoids and pyramids
Grade 6: Mathematics: Geometry	7.4.2.E reason informally about the sides and angles of congruent and similar polygons
Grade 6: Mathematics: Probability and Statistics	7.4.4.A set up a coordinate graph (include axes, origin, and scale) and use it to mark and read coordinate pairs in all four quadrants
This can be covered in many other areas (Probability and Statistics)	7.4.4.B write a scenario from a given graph
This can be covered in many other areas (Probability and Statistics)	7.4.4.C enlarge figures on a coordinate plane by positive integral scale factors
This can be covered in many other areas (Probability and Statistics)	7.4.4.D reduce figures on a coordinate plane by the scale factor one-half
This can be covered in many other areas (Probability and Statistics)	7.4.4.F given a distance, find pairs of points in the coordinate plane separated by that distance
Grade 6: Mathematics: Geometry	7.4.5.A solve problems involving circumference and area of circles
This can be covered in many other areas (Geometry)	7.4.6.A state and justify the types of polygons which will tile a plane
This can be covered in many other areas (Geometry)	7.4.6.B state the coordinates to describe the translation of a figure on a coordinate plane
This can be covered in many other areas (Geometry)	7.5.1.A estimate the radius and diameter of circles
This can be covered in many other areas (Geometry)	7.5.1.C compare the perimeter and area of transformed geometric figures
This can be covered in many other areas (Geometry)	7.5.1.D estimate the volume of cylinders
This can be covered in many other areas (Geometry)	7.5.1.E estimate the surface area of triangular prisms
Grades 4, 5, and 6: Mathematics: Measurement	7.5.1.F continue to estimate and use the capacity, weight, and mass measurements from previous grades
This can be covered in many other areas (Geometry)	7.5.1.G estimate measures of angles
This can be covered in many other areas (Geometry)	7.5.2.A compare the estimates and direct measurements obtained in benchmarks 5.1, 5.4, and 5.6
Grades 4, 5, and 6: Mathematics: Measurement	7.5.3.A read and interpret scales on number lines, graphs, and maps
Grades 4, 5, and 6: Mathematics: Measurement	7.5.3.B select the appropriate scale for a given problem
This can be covered in many other areas	7.5.3.C construct scale drawings
Grade 6: Mathematics: Geometry	7.5.4.A demonstrate the relationship of circumference to diameter of a circle to approximate units
This can be covered in many other areas (Geometry)	7.5.6.B measure the radius and diameter of circles to the nearest sixteenth inch and nearest millimeter
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.6.1.A demonstrate equivalence of fractions, decimals, and percents using proportions
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.6.1.B solve real-world problems using appropriate and convenient forms of fractions, decimals, and percents
Grade 6: Mathematics: Computation	7.6.2.A demonstrate order of operations with positive rational numbers and integers
Grade 5: Mathematics: Computation	7.6.2.B choose the appropriate representation of the remainder in a division problem
Grade 6: Mathematics: Computation	7.6.2.C using paper-and-pencil, demonstrate with proficiency computation of fractions

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Grade 6: Mathematics: Computation	7.6.2.D using paper-and-pencil, demonstrate with proficiency the four basic operations of decimals
Grade 6: Mathematics: Computation	7.6.2.E demonstrate the inverse relationship of multiplication and division of decimals
Grade 6: Mathematics: Computation	7.6.2.F demonstrate the meaning of the four basic operations of integers
Grade 6: Mathematics: Computation	7.6.2.G using paper-and-pencil, demonstrate proficiency in computation of integers
Grade 6: Mathematics: Computation	7.6.2.H demonstrate the inverse relationship of addition and subtraction of integers
Grade 6: Mathematics: Computation	7.6.2.I demonstrate the inverse relationship of multiplication and division of integers
This can be covered in many other areas	7.6.2.J demonstrate multiplication of integers as repeated addition
Grade 6: Mathematics: Ratio, Percent, and Proportion	7.6.2.K using paper-and-pencil, solve real-world problems involving percents
This can be covered in many other areas	7.6.3.A determine from real-world problems whether an estimated or exact answer is acceptable
This can be covered in many other areas	7.6.3.B use estimation techniques before performing operations
This can be covered in many other areas	7.6.4.A determine whether information given in a problem-solving situation is sufficient, insufficient, or extraneous
This can be covered in many other areas	7.6.4.B given a real-world problem-solving situation, use the correct operation and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
This can be covered in many other areas	7.6.4.C given a math sentence with sums and differences of common fractions and decimals, create and illustrate a real-world problem
This can be covered in many other areas	7.6.4.D in a problem-solving situation, determine whether the results are reasonable and justify those results with correct computations
<b>Core Knowledge® Content (Mathematics-Grade 8)</b>	<b>Colorado Grade Level Expectations (Grade 8-Mathematics)</b>
<b>I. Algebra</b>	
<b>A. Properties of the Real Numbers</b>	
▪	
<b>B. Relations, Functions, and Graphs (Two Variables)</b>	
▪	
<b>C. Linear Equations and Functions (Two Variables)</b>	
▪	8.2.4.A graph discrete linear and nonlinear functions 8.2.4.B graph and distinguish between continuous linear and nonlinear functions, such as, $y = 3x + 2$ , $y = x^2$ , and $y = x^3$ , either by creating a table or using technology
▪	8.2.3.B in a linear function, explain the meaning of slope as a rate of change
▪	
▪	
▪	
▪	8.2.3.C identify independent and dependent variables 8.2.5.C solve linear equations involving integers with variables and constants on both sides of the equation
▪	
▪	8.2.5.B using formal methods, solve one-step linear equations involving rational numbers
<b>D. Arithmetic of Rational Expression</b>	
▪	
<b>E. Quadratic Equations and Functions</b>	
▪	
<b>II. Geometry</b>	

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<b>A. Analytic Geometry</b>	
▪	
<b>B. Introduction to Trigonometry</b>	
▪	
<b>C. Triangles and Proofs</b>	
▪	
▪	
▪	8.5.4.C develop and use the Pythagorean Theorem
▪	
▪	
▪	
<b>Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i></b>	<b>Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas</b>
This can be covered in many other areas	8.1.1.A locate rational numbers and commonly-used irrational numbers on the number line (for example, $-7/2$ , $-2.48$ , $0$ , $15/16$ )
This can be covered in many other areas	8.1.1.B demonstrate the equivalence of fractions, terminating decimals, and percents of positive and negative rational numbers
This can be covered in many other areas	8.1.1.C distinguish between the sets of rational and irrational numbers
This can be covered in many other areas	8.1.1.D determine the two consecutive whole numbers between which the square root of a whole number lies (for example, $\sqrt{72}$ lies between 8 and 9)
This can be covered in many other areas	8.1.1.E pictorially, demonstrate the meaning of commonly-used irrational numbers
This can be covered in many other areas	8.1.2.A read, write, and order rational numbers and commonly-used irrational numbers
This can be covered in many other areas	8.1.2.B compare rational numbers and commonly-used irrational numbers using the symbols =, <, >
Grade 7: Mathematics: Pre-Algebra	8.1.3.A write and use appropriately negative powers of ten (for example, $1/10^2 = 10^{-2}$ )
Grade 7: Mathematics: Pre-Algebra	8.1.3.B write rational numbers in expanded form with negative powers of ten (for example, $579.24 = 5 \times 10^2 + 7 \times 10 + 9 \times 1 + 4 \times 10^{-1} + 2 \times 10^{-2}$ )
Grade 7: Mathematics: Pre-Algebra	8.1.3.C write very small rational numbers in scientific notation (for example, $.00036 = 3.6 \times 10^{-4}$ )
Grade 7: Mathematics: Pre-Algebra	8.1.3.D demonstrate the meaning of $a^n$ , where 'a' is any rational number and 'n' is a counting number
This can be covered in many other areas	8.1.4.A apply proportional reasoning to solve problems
Grade 7: Mathematics: Pre-Algebra	8.1.5.A demonstrate properties for rational numbers, including closure
This can be covered in many other areas	8.1.6.A estimate, using appropriate techniques, determine, and, then, justify the reasonableness of solutions to problems involving positive and negative rational numbers
This can be covered in many other areas	8.2.1.A represent, describe, and analyze patterns with rational numbers
This can be covered in many other areas	8.2.2.A solve problems from patterns involving rational numbers using tables, graphs, and rules
Grade 7: Mathematics: Pre-Algebra	8.2.3.A in any functional relationship involving rational numbers, describe how a change in one quantity affects the other
This can be covered in many other areas	8.2.5.A translate written expressions or equations to algebraic expressions or equations, and vice versa
Grade 7: Mathematics: Probability and Statistics	8.3.1.A organize and display data using appropriate graphs, such as line, bar, circle (using ratios to determine degrees and draw with protractors), dot plots, frequency tables, stem-and-leaf, histograms, scatter plots, box-and-whiskers)
Grades 4, 5, and 6: Mathematics: Probability and Statistics	8.3.1.B read, interpret, and draw conclusions from various displays of data
Grade 6: Mathematics: Probability and Statistics	8.3.2.A state the purpose of using measures of central tendency and variability with data sets
Grade 6: Mathematics: Probability and Statistics	8.3.2.B create sets of data with the same mean and different ranges and compare the variability

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Grade 6: Mathematics: Probability and Statistics	8.3.2.C in a problem-solving situation, select the most appropriate display and measure of central tendency to solve the problem
Grade 6: Mathematics: Ratio, Percent, and Proportion	8.3.3.A determine the improper computation of percent increase or decrease
This can be covered in many other areas	8.3.3.B recognize a misleading display of data which arises from area and volume models
This can be covered in many other areas	8.3.4.A display, analyze, and draw conclusions from a given set of data or student generated set of data
Grades 6 and 7: Mathematics: Probability and Statistics	8.3.5.A perform experiments of simple independent and dependent events to estimate probability
Grade 6: Mathematics: Probability and Statistics	8.3.5.B perform experiments to estimate probability of complementary events
Grade 7: Mathematics: Probability and Statistics	8.3.6.A determine the probability of independent, dependent, and complementary events with replacement and without replacement
This can be covered in many other areas	8.3.6.B analyze games of chance to determine whether they are fair or unfair; if unfair, rewrite the rules of the game to make it fair
This can be covered in many other areas	8.3.7.A determine the number of outcomes of independent compound events by using the fundamental counting principle (for example, if one choice occurs in "m" ways and the second choice occurs in "n" ways, then the number of ways for them to occur together in m x n)
This can be covered in many other areas	8.3.7.B use Pascal's triangle to determine how many and which outcomes occur for independent compound events with exactly two outcomes
Grade 7: Mathematics: Geometry	8.4.1.A using a straight edge and a compass, paper folding, or computer software application, demonstrate the geometric constructions of a perpendicular to a point on a line segment, a perpendicular to a line from a point not on the line segment, and triangle congruence of Side-Side-Side, Side-Angle-Side, and Angle-Side-Angle
Grade 7: Mathematics: Geometry	8.4.1.B build models of three-dimensional oblique solids
Grade 7: Mathematics: Geometry	8.4.1.C given a three-dimensional model built with cubes, use isometric paper to draw the isometric drawing (that is, a drawing that shows the corner view and the top or bottom view), the orthogonal drawings (that is, the front view, right side view, and top view) and the foundation view (that is, the shape of the foundation, placement and the number of cubes that are built on this foundation) and, conversely, given the drawings, build the models
Grade 7: Mathematics: Geometry	8.4.2.A identify and use correct notation for triangle congruence of Side-Side-Side, Side-Angle-Side, and Angle-Side-Angle
Grade 7: Mathematics: Geometry	8.4.2.B reason informally about the relationships among angles formed by two lines cut by a transversal and two parallel lines cut by a transversal
Grade 7: Mathematics: Geometry	8.4.2.C reason informally about the sum of the measures of the angles of a triangle equaling 180E
Grade 7: Mathematics: Geometry	8.4.2.D reason informally about the properties of the special right triangles, 30E-60E-90E and 45E-45E-90E
Grade 7: Mathematics: Geometry	8.4.2.E continue to reason informally about the sides and angles of congruent and similar polygons
Grade 7: Mathematics: Geometry	8.4.2.F demonstrate proportional reasoning to indirectly determine lengths of segments of similar polygons
This can be covered in many other areas	8.4.4.A enlarge figures on a coordinate plane by rational scale factors
This can be covered in many other areas	8.4.4.B reduce figures on a coordinate plane by rational scale factors
This can be covered in many other areas	8.4.4.C determine the percent increase or decrease of perimeter and area of the enlargement or reduction of squares, rectangles, and triangles
This can be covered in many other areas	8.4.4.D describe the relationship of more than two points on the coordinate plane
This can be covered in many other areas	8.4.4.E given a distance, find pairs of points on the coordinate plane separated by that distance
This can be covered in many other areas	8.4.4.F determine the distance between a pair of points in the coordinate plane
Grade 6: Mathematics: Geometry	8.4.5.A solve problems involving perimeter and area of trapezoids
Grade 7: Mathematics: Geometry	8.4.5.B solve problems involving volume of square pyramids and cones
Grade 7: Mathematics: Geometry	8.4.5.C solve problems involving surface area of cylinders
This can be covered in many other areas	8.4.6.A determine the scale factor for dilations to illustrate similarity
This can be covered in many other areas	8.4.6.B create Escher-type tessellations to illustrate congruence

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This can be covered in many other areas	8.4.6.C state the coordinates to describe the reflection of a figure across the x- and y-axes
This can be covered in many other areas (Geometry)	8.5.1.A estimate the length of the sides and height of trapezoids
This can be covered in many other areas (Geometry)	8.5.1.B estimate the perimeter and area of trapezoids
This can be covered in many other areas (Geometry)	8.5.1.C continue to compare the perimeter and area of transformed geometric figures
This can be covered in many other areas (Geometry)	8.5.1.D estimate the volume of square pyramids and cones
This can be covered in many other areas (Geometry)	8.5.1.E estimate the surface area of cylinders
Grades 4, 5, and 6: Mathematics: Measurement	8.5.1.F continue to estimate and use the capacity, weight, and mass measurements from previous grades
This can be covered in many other areas (Geometry)	8.5.1.G estimate measures of angles
This can be covered in many other areas	8.5.2.A compare the estimates and direct measurements obtained in benchmarks 5.1, 5.4, and 5.6
This can be covered in many other areas	8.5.2.B demonstrate proportional reasoning to indirectly determine lengths of segments of similar polygons
Grades 4, 5, and 6: Mathematics: Measurement	8.5.3.A read and interpret scales on number lines, graphs, and maps
Grades 4, 5, and 6: Mathematics: Measurement	8.5.3.B select the appropriate scale for a given problem
This can be covered in many other areas	8.5.3.C construct scale drawings
Grade 7: Mathematics: Geometry	8.5.4.A develop and use formulas for the perimeter and area of trapezoids using appropriate units
Grade 7: Mathematics: Geometry	8.5.4.B develop and use the formula for volume of square pyramids and cones using appropriate units
Grade 7: Mathematics: Geometry	8.5.4.D use the relationships in 30-60-90 and 45-45-90 triangles to solve problems
Grade 6: Mathematics: Geometry	8.5.5.A describe how changing the radius of a circle affects the circumference and area
Grade 6: Mathematics: Geometry	8.5.5.B describe how changing the height or radius of the base of a cylinder affects the volume
Grade 7: Mathematics: Geometry	8.5.6.A select and use the appropriate units and tools to measure to the degree of accuracy required in a particular problem
This can be covered in many other areas (Geometry)	8.5.6.B measure the length of the sides and heights of trapezoids to the nearest sixteenth inch and nearest millimeter
This can be covered in many other areas (Geometry)	8.5.6.C using a protractor, measure angles of two lines cut by a transversal and angles of two parallel lines cut by a transversal
Grade 6: Mathematics: Ratio, Percent, and Proportion	8.6.1.A compute percent of increase or decrease in real-world problems
This can be covered in many other areas	8.6.1.B apply proportional reasoning in problem-solving situations (for example, scale, similarity, percentage, unit pricing, simple interest, and rate)
Grade 6: Mathematics: Computation	8.6.2.A demonstrate order of operations with rational numbers
Grade 6: Mathematics: Computation	8.6.2.B demonstrate the meaning of the four basic operations of rational numbers
Grade 6: Mathematics: Computation	8.6.2.C using paper-and-pencil, demonstrate with proficiency computation of rational numbers
Grade 6: Mathematics: Computation	8.6.2.D demonstrate the inverse relationship of addition and subtraction of rational numbers
Grade 6: Mathematics: Computation	8.6.2.E demonstrate the inverse relationship of multiplication and division of rational numbers
Grade 6: Mathematics: Computation	8.6.2.F demonstrate multiplication of rational numbers as repeated addition
This can be covered in many other areas	8.6.3.A determine from real-world problems whether an estimated or exact answer is acceptable
This can be covered in many other areas	8.6.3.B use estimation techniques before performing operations
This can be covered in many other areas	8.6.4.A determine whether information given in a problem-solving situation is sufficient, insufficient, or extraneous
This can be covered in many other areas	8.6.4.B given a real-world problem-solving situation, use the correct operation and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem
This can be covered in many other areas	8.6.4.C given a math sentence using the four operations with positive rational numbers and integers, create and illustrate a real-world problem
This can be covered in many other areas	8.6.4.D in a problem-solving situation, determine whether the results are reasonable and justify those results with correct computations