

Grade 5

Concepts and Procedures

Operations and Algebraic Thinking

RANGE ALD Target A: Write and interpret numerical expressions.	No Descriptor	Level 2 students should be able to write numerical expressions that have parentheses.	Level 3 students should be able to write and evaluate numerical expressions having two non-nested parentheses.	Level 4 students should be able to write, evaluate, and interpret numerical expressions having any number of non-nested sets of parentheses.
RANGE ALD Target B: Analyze patterns and relationships.	Level 1 students should be able to generate two numerical patterns using two given rules involving addition, subtraction, or multiplication.	Level 2 students should be able to generate two numerical patterns using two given rules involving all operations. When working with two whole number numerical patterns, they should be able to graph the corresponding whole number ordered pairs on the coordinate plane.	Level 3 students should be able to compare and analyze two related numerical patterns and explain the relationship within sequences of ordered pairs, and they should be able to graph the ordered pairs on a coordinate plane.	Level 4 students should be able to compare two related numerical patterns and explain the relationship within sequences of ordered pairs of rational numbers.

DRAFT

## Number and Operations – Base Ten

<p>RANGE ALD Target C: Understand the place-value system.</p>	<p>Level 1 students should be able to read and write decimals to the thousandths using base-ten numerals, number names, and expanded form and round decimals to the hundredths.</p>	<p>Level 2 students should be able to use repeated reasoning to understand that in a multidigit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. They should be able to explain patterns in numbers of zeros and/or placement of a decimal point when a number is multiplied or divided by 10.</p>	<p>Level 3 students should be able to use whole number exponents to denote powers of 10; use repeated reasoning to understand and explain patterns in numbers of zeros and/or placement of a decimal point when a number is multiplied or divided by powers of 10; read, write, and compare two decimals to the thousandths using base-ten numerals, number names, and expanded form, using <math>&lt;</math>, <math>&gt;</math>, and <math>=</math> to record the results of the comparison; and round decimals to any place.</p>	<p>Level 4 students should be able to combine multiplying by powers of 10, comparing, and rounding.</p>
<p>RANGE ALD Target D: Perform operations with multidigit whole numbers and with decimals to the hundredths.</p>	<p>Level 1 students should be able to multiply one- and two-digit whole numbers and find whole number quotients of whole numbers with up to three-digit dividends and one-digit divisors, using arrays or area models. They should be able to perform the four operations on decimals to the tenths and a whole number, e.g., <math>1.3 \times 7</math>.</p>	<p>Level 2 students should be able to multiply three- and four-digit whole numbers; find whole number quotients of whole numbers with up to three-digit dividends and two-digit divisors; and perform the four operations on decimals to the tenths or on decimals to the hundredths and a whole number, e.g., <math>3.42 \times 12</math>.</p>	<p>Level 3 students should be able to fluently multiply multidigit whole numbers using the standard algorithm, find whole number quotients of whole numbers with up to four-digit dividends and two-digit divisors, and perform the four operations on decimals to the hundredths. They should be able to relate the strategy to a written method and explain the reasoning used.</p>	

## Number and Operations – Fractions

<p>RANGE ALD Target E: Use equivalent fractions as a strategy to add and subtract fractions.</p>	<p>Level 1 students should be able to add two fractions and mixed numbers with unlike denominators and subtract two fractions with unlike denominators when one denominator is a factor of the other in mathematical problems (denominators &lt; 12). They should be able to use benchmark fractions (1/4s and 1/2s) and number sense with fractions to estimate mentally and assess the reasonableness of answers.</p>	<p>Level 2 students should be able to add fractions and mixed numbers with unlike denominators (denominators ≤ 12) in mathematical problems, subtract a mixed number from a whole number (denominators up to 4), and use benchmark fractions to estimate mentally and assess the reasonableness of answers (denominators ≤ 12).</p>	<p>Level 3 students should be able to add and subtract fractions and mixed numbers with unlike denominators in word problems. They should be able to use number sense of fractions to estimate mentally and assess the reasonableness of answers.</p>	<p>No Descriptor</p>
<p>RANGE ALD Target F: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p>	<p>Level 1 students should be able to apply their previous understandings of multiplication to multiply a fraction by a fraction; know the effect that whole number multiplication has on fractions; use or create visual models when multiplying a whole number by a fraction between 0 and 1; and interpret and perform division of a whole number by 1/2 or 1/3.</p>	<p>Level 2 students should be able to multiply a whole number by a mixed number; know the effect that a fraction greater than or less than 1 has on a whole number when multiplied; use or create visual models when multiplying two fractions between 0 and 1; extend their previous understandings of division to divide a unit fraction by a whole number; and understand that division of whole numbers can result in fractions.</p>	<p>Level 3 students should be able to multiply a mixed number by a mixed number; know the effect of multiplying a given fraction by another fraction greater than or less than 1 results in a product greater than or less than the given number respectively; use or create visual models when multiplying two fractions, including when one fraction is larger than 1; and interpret and perform division of any unit fraction by a whole number.</p>	<p>Level 4 students should be able to understand and use the fact that a fraction multiplied by 1 in the form of <math>a/a</math> is equivalent to the original fraction.</p>

## Measurement and Data

<p>RANGE ALD Target G: Convert like measurement units within a given measurement system.</p>	<p>Level 1 students should be able to convert a whole number metric measurement to a different metric measurement resulting in a whole number. They should be able to convert a whole number customary measurement to a different customary measurement resulting in a whole number. They should be able to demonstrate knowledge of time zones.</p>	<p>Level 2 students should be able to convert a metric measurement to the tenths place to a different metric measurement and convert a standard measurement given to the 1/4 unit (fractions/mixed numbers) from a larger measurement unit to a smaller one. They should be able to solve real world problems involving elapsed time in United States time zones.</p>	<p>Level 3 students should be able to convert like measurements within a system using whole numbers, fractions (standard system), and decimals (metric system). They should be able to solve real-world problems involving elapsed time between world time zones.</p>	<p>Level 4 students should be able to design a mathematical model to solve a practical real world problem involving multiple world time zones and/or conversion of measurement between systems.</p>
<p>RANGE ALD Target H: Represent and interpret data.</p>	<p>Level 1 students should be able to make a line plot and represent data sets in whole units.</p>	<p>Level 2 students should be able to make a line plot and display data sets in fractions of a unit (1/2, 1/4, 1/8).</p>	<p>Level 3 students should be able to interpret a line plot to display data sets in fractions of a unit (1/2, 1/4, 1/8) and solve problems using information from line plots that require addition, subtraction, and multiplication of fractions.</p>	<p>No Descriptor</p>
<p>RANGE ALD Target I: Geometric measurement: understand concepts of volume and relate volume to multiplication and addition.</p>	<p>Level 1 students should be able to use unit cubes to find the volume of rectangular prisms with whole-number edge lengths.</p>	<p>Level 2 students should be able to demonstrate understanding of the concept that the volume of a rectangular prism packed with unit cubes is related to the edge lengths.</p>	<p>Level 3 students should be able to use the formulas <math>V = lwh</math> and <math>V = Bh</math> to find the volume of rectangular prisms. They should be able to find the volume of two nonoverlapping right rectangular prisms, applying this technique to solve real-world problems.</p>	<p>Level 4 students should be able to find the volume of a right rectangular prism after doubling the edge length of a side and compare it to the original.</p>

## Geometry

<p>RANGE ALD Target J: Graph points on the coordinate plane to solve real-world and mathematical problems.</p>	<p>Level 1 students should be able to graph whole-number coordinate pairs in the first quadrant of a coordinate plane with unit-axis increments.</p>	<p>Level 2 students should be able to graph and identify whole-number coordinate pairs on a coordinate plane with whole-number axis increments to solve problems.</p>	<p>Level 3 students should be able to graph coordinate pairs.</p>	<p>Level 4 students should be able to graph coordinate pairs where at least one term is a fraction on a coordinate plane with fractional-axis increments.</p>
<p>RANGE ALD Target K: Classify two-dimensional figures into categories based on their properties.</p>	<p>No Descriptor</p>	<p>Level 2 students should be able to classify two-dimensional figures into categories by their attributes and properties.</p>	<p>Level 3 students should be able to classify two-dimensional figures into subcategories in a hierarchy based on attributes and properties.</p>	<p>Level 4 students should be able to compare two-dimensional figures based on attributes and properties.</p>