

*Georgia*  
**Georgia Performance Standards (GPS)**  
**Mathematics - Grade 5**  
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| <p><b>Concepts / Skills to Maintain</b></p> <ul style="list-style-type: none"> <li>• Add and subtract decimal fractions</li> <li>• Whole numbers and decimal fraction computation</li> <li>• Angle measurement</li> <li>• Length, area, and weight</li> <li>• Number sense</li> <li>• Add and subtract common fractions with like denominators</li> <li>• Data usage and representation</li> <li>• Characteristics of 2D and 3D shapes</li> <li>• Order of operations</li> </ul> |
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<i>Benchmark Number</i>	<i>Benchmark</i> • <i>Instructional Target</i>	<i>Gourmet Resource</i>	<i>Taught</i>	<i>Tested</i>
M 5 N.	<b><i>Number and Operations</i></b>			
	<b>Students will further develop their understanding of whole numbers. They will also understand the meanings of multiplication and division of decimal fractions and use decimal fractions and common fractions in computation, as well as in problem solving situations.</b>			
M 5 N 1.	Students will further develop their understanding of whole numbers			
a.	<ul style="list-style-type: none"> <li>• <i>Classify the set of counting numbers into subsets with distinguishing characteristics (odd/even, prime/composite).</i></li> </ul>	<b>Appetizers 1 A &amp; D; Main Dish Objective 1 (Number Concepts)</b>		

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b.	• <i>Find multiples and factors.</i>	<b>Appetizers 1 F; Main Dish Objective 1 (Number Concepts)</b>		
c.	• <i>Analyze and use divisibility rules.</i>	N/A		
<b>M 5 N 2.</b>	<b>Students will further develop their understanding of decimal fractions as part of the base-ten number system.</b>			
a.	• <i>Understand place value.</i>	<b>Appetizers 1 A; Main Dish Objective 1 (Number Concepts)</b>		
b.	• <i>Analyze the effect on the product when a number is multiplied by 10, 100, 1000, 0.1, and 0.01.</i>	N/A		
<b>M 5 N 3.</b>	<b>Students will further develop their understanding of the meaning of multiplication and division with decimal fractions and use them.</b>			
a.	• <i>Model multiplication and division of decimal fractions by another decimal fraction.</i>	N/A		
b.	• <i>Explain the process of multiplication and division, including situations in which the multiplier and divisor are both whole numbers and decimal fractions.</i>	<b>Appetizers 8 A &amp; D; Main Dish Objective 8 (Multiplication)</b>		
c.	• <i>Multiply and divide with decimal fractions including decimal fractions less than one and greater than one.</i>	<b>Appetizers 8 D; Main Dish Objective 8 (Multiplication)</b>		

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d.	<ul style="list-style-type: none"> <li>Understand the relationships and rules for multiplication and division of whole numbers also apply to decimal fractions.</li> </ul>	Appetizers 1 C; Main Dish Objective 1 (Number Concepts)		
M 5 N 4.	Students will continue to develop their understanding of the meaning of common fractions and compute with them.			
a.	<ul style="list-style-type: none"> <li>Understand division of whole numbers can be represented as a fraction (<math>a / b = a \div b</math>).</li> </ul>	N/A		
b.	<ul style="list-style-type: none"> <li>Understand the value of a fraction is not changed when both its numerator and denominator are multiplied or divided by the same number because it is the same as multiplying or dividing by one.</li> </ul>	Appetizers 5 C; Main Dish Objective 5 (Probability/Statistics)		
c.	<ul style="list-style-type: none"> <li>Find equivalent fractions and simplify fractions.</li> </ul>	Appetizers 1 B & D; Main Dish Objective 1 (Number Concepts)		
d.	<ul style="list-style-type: none"> <li>Model the multiplication and division of common fractions.</li> </ul>	N/A		
e.	<ul style="list-style-type: none"> <li>Explore finding common denominators using concrete, pictorial, and computational models.</li> </ul>	Appetizers 1 B & D; Main Dish Objective 1 (Number Concepts)		
f.	<ul style="list-style-type: none"> <li>Use <math>&lt;</math>, <math>&gt;</math>, or <math>=</math> to compare fractions and justify the comparison.</li> </ul>	Appetizers 1 B; Main Dish Objective 1 (Number Concepts)		
g.	<ul style="list-style-type: none"> <li>Add and subtract common fractions and mixed numbers with unlike denominators.</li> </ul>	Appetizers 3 E; Main Dish Objective 3 (Geometry)		

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h.	• Use fractions (proper and improper) and decimal fractions interchangeably.	Appetizers 5 B & C; Main Dish Objective 5 (Probability/Statistics)		
i.	• Estimate products and quotients.	Appetizers 9 Reteach; 10 F & G; Main Dish Objectives 9 (Division); 10 (Estimation)		
M 5 N 5.	Students will understand the meaning of percentage.			
a.	• Model percent on 10 by 10 grids.	N/A		
b.	• Apply percentage to circle graphs.	N/A		
M 5 M.	<b>Measurement</b>			
	<b>Students will compute the area of geometric plane figures. They will also understand the concept of volume and compute the volume of simple geometric solids and measure capacity. Students will convert from one unit to another within one system of measurement.</b>			
M 5 M 1.	Students will extend their understanding of area of fundamental geometric plane figures.			
a.	• Estimate the area of fundamental geometric plane figures.	Appetizers 4 B & D; Main Dish Objective 4 (Measurement)		
b.	• Derive the formula for the area of a parallelogram (e.g., cut the parallelogram apart and rearrange it into a rectangle of the same area).	N/A		
c.	• Derive the formula for the area of a triangle (e.g., demonstrate and explain its relationship to the area of a rectangle with same base and height).	Appetizers 4 B ; Main Dish Objective 4 (Measurement)		

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d.	• Find the area of triangles and parallelograms using formulae.	N/A		
e.	• Estimate the area of a circle through partitioning and tiling and then with formula (let pi = 3.14). (Discuss square units as they apply to circles.)	<b>Appetizers 4 F; Main Dish Objective 4 (Measurement)</b>		
f.	• Find the area of a polygon (regular and irregular) by dividing it into squares, rectangles, and/or triangles and find the sum of the areas of those shapes.	<b>Appetizers 4 D; Main Dish Objective 4 (Measurement)</b>		
<b>M 5 M 3.</b>	<b>Students will measure capacity with appropriately chosen units and tools.</b>			
a.	• Use milliliters, liters, fluid ounces, cups, pints, quarts, and gallons to measure capacity.	<b>Appetizers 4 A; Main Dish Objective 4 (Measurement)</b>		
b.	• Compare one unit to another within a single system of measurement (e.g., 1 quart = 2 pints).	<b>Appetizers 4 A, B , &amp; C; Main Dish Objective 4 (Measurement)</b>		
<b>M 5 M 4.</b>	<b>Students will understand and compute the volume of a simple geometric solid.</b>			
a.	• Understand a cubic unit ( $u^3$ ) is represented by a cube in which each edge has the length of one unit.	<b>Appetizers 4 E; Main Dish Objective 4 (Measurement)</b>		
b.	• Identify the units used in computing volume as cubic meters ( $m^3$ ), cubic inches ( $in^3$ ), cubic feet ( $ft^3$ ), and cubic yards ( $yd^3$ ).	<b>Appetizers 4 E; Main Dish Objective 4 (Measurement)</b>		

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c.	• <i>Derive the formula for finding the volume of a cube and a rectangular prism using manipulatives.</i>	<b>Appetizers 4 E; Main Dish Objective 4 (Measurement)</b>		
d.	• <i>Compute the volume of a cube and a rectangular prism using formulae.</i>	<b>Appetizers 4 E; Main Dish Objective 4 (Measurement)</b>		
e.	• <i>Estimate the volume of a simple geometric solid.</i>	N/A		
f.	• <i>Understand the similarities and differences between volume and capacity.</i>	N/A		
<b>M 5 G.</b>	<b><i>Geometry</i></b>			
	<b>Students will further develop their understanding of geometric figures.</b>			
<b>M 5 G 1.</b>	Students will understand congruence of geometric figures and the correspondence of their vertices, sides, and angles.			
<b>M 5 G 2.</b>	Students will understand the relationship of the circumference of a circle to its diameter is pi ( $\pi = 3.14$ ).			
<b>M 5 A.</b>	<b><i>Algebra</i></b>			
	<b>Students will represent and investigate mathematical expressions algebraically by using variables.</b>			
<b>M 5 A 1.</b>	Students will represent and interpret the relationships between quantities algebraically.			
a.	• <i>Use variables, such as <math>n</math> or <math>x</math>, for unknown quantities in algebraic expressions.</i>	<b>Appetizers 2 A; Main Dish Objective 2 (Mathematical Relations)</b>		

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b.	• Investigate simple algebraic expressions by substituting numbers for the unknown.	N/A		
c.	• Determine that a formula will be reliable regardless of the type of number (whole numbers or decimal fractions) substituted for the variable.	Appetizers 4 D & E; Main Dish Objective 4 (Measurement)		
<b>M 5 D.</b>	<b>Data Analysis</b>			
	<b>Students will gather, organize, and display data and interpret graphs.</b>			
<b>M 5 D 1.</b>	<b>Students will analyze graphs.</b>			
a.	• Analyze data presented in a graph.	Appetizers 12 B; Main Dish Objective 12 (Mathematical Representation)		
b.	• Compare and contrast multiple graphic representations (circle graphs, line graphs, bar graphs, etc.) for a single set of data and discuss the advantages/disadvantages of each.	Appetizers 12 B; Main Dish Objective 12 (Mathematical Representation)		
<b>M 5 D 2.</b>	<b>Students will collect, organize, and display data using the most appropriate graph.</b>			
<b>M 5 P.</b>	<b>Process Skills</b>			
	<b>Students will apply mathematical concepts and skills in the context of authentic problems and will understand concepts rather than merely following a sequence of procedures. Students will use the process standards as a way of acquiring and using content knowledge.</b>			

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<b>M 5 P 1.</b>	Using the appropriate technology, students will solve problems that arise in mathematics and in other contexts.			
<b>a.</b>	• <i>Solve non-routine word problems using the strategy of make it simpler as well as all strategies learned in previous grades.</i>	<b>Appetizers 11 A; Main Dish Objective 11 (Problem Solving)</b>		
<b>b.</b>	• <i>Solve single and multi-step routine word problems related to all appropriate fifth grade math standards.</i>	<b>Appetizers 11 A &amp; B; Main Dish Objective 11 (Problem Solving)</b>		
<b>c.</b>	• <i>Determine the operation(s) needed to solve a problem.</i>	<b>Appetizers 11 A &amp; B; Main Dish Objective 11 (Problem Solving)</b>		
<b>d.</b>	• <i>Determine the most efficient way to solve a problem (mentally, paper/pencil, or calculator).</i>	<b>Appetizers 11 A &amp; B; 13 A; Main Dish Objectives 11 (Problem Solving); 13 (Reasonableness)</b>		
<b>M 5 P 2.</b>	Students will investigate, develop, and evaluate mathematical arguments.			
<b>M 5 P 3.</b>	Students will use the language of mathematics to express ideas precisely.			
<b>M 5 P 4.</b>	Students will understand how mathematical ideas interconnect and build on one another and apply mathematics in other content areas.			
<b>M 5 P 5.</b>	Students will create and use pictures, manipulatives, models, and symbols to organize, record, and communicate mathematical ideas.			

**Terms/Symbols:**

simplify, common denominator, greatest common factor, least common multiple, congruence, %, percent, improper fraction, divisibility, multiple, factor, estimate, volume, tiling, irregular polygon, polygon, capacity, circumference, diameter, pi, circle graph, cup, pint, quart, gallon