

5th grade Math Standards, Benchmarks, Examples and Vocabulary

Strand	Standard	No.	Benchmark	Qtr.	Unit and Lessons	Example
Number & Operation	Divide multi-digit numbers; solve real-world and mathematical problems using arithmetic.	5.1.1.1	<p>Divide multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms. Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Dividends may not be more than 4 digits • Divisors may not be more than 2 digits • Fractional remainders are not required to be given in lowest terms • Vocabulary items: remainder 	1	JUMP Math Number Sense 5.34- 5.35, 5.37-5.43	Dividing 153 by 7 can be used to convert the improper fraction $153/7$ to the mixed number $21 \frac{6}{7}$.

		5.1.1.2	<p>Consider the context in which a problem is situated to select the most useful form of the quotient for the solution and use the context to interpret the quotient appropriately.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Dividends may not be more than 4 digits • Divisors may not be more than 2 digits • Fractional remainders are not required to be given in lowest terms • Items may require interpretation of when decimals should be rounded (e.g., with money) 	1	JUMP Math Number Sense 5.42-5.43	If 77 amusement ride tickets are to be distributed equally among 4 children, each child will receive 19 tickets, and there will be one left over. If \$77 is to be distributed equally among 4 children, each will receive \$19.25, with nothing left over.
		5.1.1.3	Estimate solutions to arithmetic problems in order to assess the reasonableness of results.	1	JUMP Math Number Sense 5.44-5.48, 5.50-5.51	

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		5.1.1.4	<p>Solve real-world and mathematical problems requiring addition, subtraction, multiplication and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Solutions are less than 1,000,000 Multiplication is limited to no more than three-digit numbers by no more than three-digit numbers Division is limited to no more than four-digit numbers by no more than two digit numbers Fractional remainders are not required to be given in lowest terms 	2	JUMP Math Patterns and Algebra 5.35-5.39	The calculation $117 \div 9 = 13$ can be checked by multiplying 9 and 13.
	Read,	5.1.2.1	Read and write	1	JUMP Math	Possible names for the

write, represent and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.		decimals using place value to describe decimals in terms of groups from millionths to millions. <u>Item Specifications</u> • Vocabulary items: place value		Number Sense 5.55-5.58, 5.79	number 0.0037 are: 37 ten thousandths, 3 thousandths + 7 ten thousandths; A possible name for the number 1.5 is 15 tenths
	5.1.2.2	Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.	1	JUMP Math Number Sense 5.55-5.58, 5.99	Johan's race time was 45.03 seconds. Kyle's race time was 0.1 second less than Johan's time. What was Kyle's race time? 44.93 seconds.

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		5.1.2.3	Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line. <u>Item Specifications</u> • Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, 15, 16 and 20 • Mixed numbers are less than 10 • Vocabulary items: place	1	JUMP Math Number Sense 5.61-5.66, 5.86-5.88	Which is larger 1.25 or $\frac{6}{5}$? In order to work properly, a part must fit through a 0.24 inch wide space. If a part is 1 4 inch wide, will it fit?

			value			
		5.1.2.4	<p>Recognize and generate equivalent decimals, fractions, mixed numbers and improper fractions in various contexts</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, 15, 16, 20, 25, 50 and 100 Mixed numbers are less than 10 	1, 2	JUMP Math Number Sense 5.66-5.76, 5.85-5.96, 5.100	When comparing 1.5 and $\frac{19}{12}$, note that $1.5 = 1\frac{1}{2} = \frac{6}{4} = \frac{18}{12}$, so $1.5 < \frac{19}{12}$.
		5.1.2.5	<p>Round numbers to the nearest 0.1, 0.01 and 0.001.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Numbers can be given up to millionths 			Fifth grade students used a calculator to find the mean of the monthly allowance in their class. The calculator display shows 25.80645161. Round this number to the nearest cent.
	Add and subtract fractions, mixed numbers and decimals to solve real-world and mathematical problems.	5.1.3.1	<p>Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Addends, minuend and subtrahend denominators are limited to 2, 3, 4, 5, 6, 8, 10 and 12 Mixed numbers are less than 10 Items do not require conversion between 	1	JUMP Math Number Sense 5.55-5.60, 5.77-5.78, 5.83	Add: $45.908 + 3.26 = 49.168$

			fractions and decimals <ul style="list-style-type: none"> • Items must not have context 			
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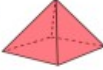
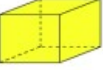
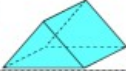
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		5.1.3.2	Model addition and subtraction of fractions and decimals using a variety of representations. <u>Item Specifications</u> <ul style="list-style-type: none"> • Addends, minuend and subtrahend denominators are limited to 2, 3, 4, 5, 6, 8, 10 and 12 • Mixed numbers are less than 10 • Items do not require conversion between fractions and decimals 	1, 2	JUMP Math Number Sense 5.77-5.82, 5.85-5.96	Represent $2/3 + 1/4$ and $2/3 - 1/4$ by drawing a rectangle divided into 4 columns and 3 rows and shading the appropriate parts or by using fraction circles or bars.
		5.1.3.3	Estimate sums and differences of decimals and fractions to assess the reasonableness of results.	1	JUMP Math Number Sense 5.46, 5.60	
		5.1.3.4	Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data. <u>Item Specifications</u>	2	JUMP Math Number Sense 5.58-5.60, 5.101-5.106 JUMP Math Measurement 5.6-5.7, 5.14, 5.31 JUMP Math Probability and Data Management	Calculate the perimeter of the soccer field when the length is 109.7 meters and the width is 73.1 meters. Jill is $48 \frac{5}{8}$ inches tall. Lei is 47.5 inches tall. What is the difference in their heights?

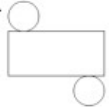


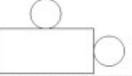
			<ul style="list-style-type: none"> Addends, minuend and subtrahends are limited to 2, 3, 4, 5, 6, 8, 10 and 12 Mixed numbers are less than 10 Fractions and decimals may be used within the same item 		5.12, 5.24 JUMP Math Geometry 5.43-5.44	
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Algebra	Recognize and represent patterns of change; use patterns, tables, graphs and rules to solve real world and mathematical problems.	5.2.1.1	<p>Create and use rules, tables, spreadsheets and graphs to describe patterns of change and solve problems.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> In a growing pattern, 3 applications of the rule must be shown, though not necessarily consecutively In a table or graph, 3 input-output pairs must be given; pairs are not required to be consecutive 	1, 2	<p>JUMP Math Patterns and Algebra 5.1-5.34</p> <p>JUMP Math Number Sense 5.107-5.108</p>	An end-of-the-year party for 5th grade costs \$100 to rent the room and \$4.50 for each student. Know how to use a spreadsheet to create an input-output table that records the total cost of the party for any number of students between 90 and 150.

		5.2.1.2	<p>Use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Scale increments on grids are limited to 1, 2 and 5 • Rules may be expressed using variables • Vocabulary items: ordered pair, graph 	2	<p>JUMP Math Probability and Data Management 5.5-5.8</p> <p>JUMP Math Geometry 5.18-5.19, 5.23</p>	<p>Three points are shown on a grid.</p> <p>Which rule was used to plot the points?</p> <p><input type="radio"/> A. $y = x$</p> <p><input type="radio"/> B. $y = x - 2$</p> <p><input type="radio"/> C. $y = \frac{1}{2}x + 3$</p>
	Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving whole numbers.	5.2.2.1	<p>Apply the commutative, associative and distributive properties and order of operations to generate equivalent numerical expressions and to solve problems involving whole numbers.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Expressions may not contain nested parentheses • Items must not have context • Vocabulary items: expression 	1	<p>JUMP Math Number Sense 5.20, 5.22-5.23, 5.31</p>	<p>What is the value of the expression?</p> $4 + 3(6 + 10) / 2$ <p>Purchase 5 pencils at 19 cents and 7 erasers at 19 cents. The numerical expression is $5 \times 19 + 7 \times 19$ which is the same as $(5 + 7) \times 19$.</p>

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	Understand and interpret equations and inequalities involving variables and whole numbers, and use them to represent and solve real-world and mathematical problems.	5.2.3.1	Determine whether an equation or inequality involving a variable is true or false for a given value of the variable. <u>Item Specifications</u> <ul style="list-style-type: none"> • Symbols: < and > • Vocabulary: inequality 	3	JUMP Math Patterns and Algebra 5.24, 5.36-5.39	Determine whether the inequality $1.5 + x < 10$ is true for $x = 2.8$, $x = 8.1$, or $x = 9.2$.
		5.2.3.2	Represent real-world situations using equations and inequalities involving variables. Create real-world situations corresponding to equations and inequalities. <u>Item Specifications</u> <ul style="list-style-type: none"> • < and > symbols are allowed • Vocabulary: inequality 	3	JUMP Math Patterns and Algebra 5.24, 5.36-5.39	$250 - 27 \times a = b$ can be used to represent the number of sheets of paper remaining from a packet of 250 sheets when each student in a class of 27 is given a certain number of sheets.
		5.2.3.3	Evaluate expressions and solve equations involving variables when values for the variables are given.	3	JUMP Math Patterns and Algebra 5.24, 5.36-5.39	Using the formula, $A = \ell w$, determine the area when the length is 5, and the width 6, and find the length when the area is 24 and the width is 4.
Geometry & Measurement	Describe, classify, and draw representations of three dimensional figures.	5.3.1.1	Describe and classify three-dimensional figures including cubes, prisms and pyramids by the number of edges, faces or vertices and the types of faces. <u>Item Specifications</u> <ul style="list-style-type: none"> • Prisms and pyramids are limited to 	2, 3	JUMP Math Geometry 5.1, 5.30-5.41 JUMP Math Measurement 5.17	How many edges does a hexagonal prism have? Which three-dimensional figure shown has the greatest number of faces? <input type="radio"/> A.  <input type="radio"/> B.  <input type="radio"/> C. 

			<p>triangular, rectangular, pentagonal, hexagonal and octagonal</p> <ul style="list-style-type: none"> Vocabulary items: cube, prism, pyramid, cone, cylinder, edge, face, base, three-dimensional, triangular, rectangular 			
		5.3.1.2	<p>Recognize and draw a net for a three-dimensional figure</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Vocabulary items: net, cylinder, cube, prism, pyramid, edge, face, base, three-dimensional, triangular, rectangular 	3	JUMP Math Geometry 5.30-5.41	<p>Which net makes a cylinder?</p> <p><input type="radio"/> A. </p> <p><input type="radio"/> B. </p> <p><input type="radio"/> C. </p> <p><input type="radio"/> D. </p>

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		5.3.2.1	<p>Develop and use formulas to determine the area of triangles, parallelograms and figures that can be decomposed into triangles</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Vocabulary: formula 	3	JUMP Math Measurement 5.24-5.30, 5.32	A triangle has a height of 25 feet. The length of its base is 12 feet. What is the area of the triangle?
		5.3.2.2	<p>Use various tools and strategies to measure the volume and surface area of objects that are</p>	3	JUMP Math Measurement 5.24-5.30, 5.32- 5.34	<p>Use a net or decompose the surface into rectangles.</p> <p>Measure the volume of a cereal box by using a ruler</p>

Determine the area of triangles and quadrilaterals; determine the surface area and volume of rectangular prisms in various contexts		shaped like rectangular prisms. <u>Item Specifications</u>			to measure its height, width and length, or by filling it with cereal and then emptying the cereal into containers of known volume.
		<ul style="list-style-type: none"> When finding surface area, a graphic of the prism or net must be given When finding surface area, dimensions of figures are whole numbers Surface areas and volumes are no more than 360 Vocabulary: surface area, volume, net 			
	5.3.2.3	Understand that the volume of a three-dimensional figure can be found by counting the total number of same-sized cubic units that fill a shape without gaps or overlaps. Use cubic units to label volume measurements.	3	JUMP Math Measurement 5.32-5.34, 5.36-5.37	Use cubes to find the volume of a small box.
5.3.2.4	Develop and use the formulas $V = \ell wh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area B and height h are multiplied to find the volume of a	3	JUMP Math Measurement 5.32-5.34, 5.36-5.37	<p>A rectangular prism has a height of h cm. The area of its base is B cm². How much does the volume of the prism increase when the height is increased by 1 cm?</p> <p> <input type="radio"/> A. 1 cm^3 <input type="radio"/> B. $h + 1 \text{ cm}^3$ <input type="radio"/> C. $B \text{ cm}^3$ <input type="radio"/> D. $B + 1 \text{ cm}^3$ </p>	

			<p>rectangular prism by breaking the prism into layers of unit cubes.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> The definition of B as the area of the base must be given Vocabulary: volume, base, height 		
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Strand	Standard	No.	Benchmark	Qtr.	Unit and Lessons	Example
Data Analysis	Display and interpret data; determine mean, median and range.	5.4.1.1	<p>Know and use the definitions of the mean, median and range of a set of data. Know how to use a spreadsheet to find the mean, median and range of a data set.</p> <p>Understand that the mean is a "leveling out" of data.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> When finding mean, data sets contain, at most 9 numbers When finding median, data sets contain, at most 15 numbers Numbers are less than 100 Vocabulary items: mean, median, range, 	4	JUMP Math Probability and Data Management 5.13-5.18	<p>The set of numbers 1, 1, 4, 6 has mean 3. It can be leveled by taking one unit from the 4 and three units from the 6 and adding them to the 1s, making four 3s.</p> <p>Andie made a graph of the growth of a flower over a period of 5 weeks.</p> <p>How much did the flower grow from week 4 to week 5?</p> <p> <input type="radio"/> A. 1 cm <input type="radio"/> B. 5 cm <input type="radio"/> C. 10 cm </p>

			minimum, maximum																		
		5.4.1.2	<p>Create and analyze double-bar graphs and line graphs by applying understanding of whole numbers, fractions and decimals. Know how to create spreadsheet tables and graphs to display data.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Double-bar graphs have no more than 9 categories • Line graphs have no more than 10 data points • Scales are in increments of $\frac{1}{2}$, 1, 2, 4, 5, 10, tenths if in decimal form or must be consistent with real world applications • Vocabulary items: double-bar graph, line graph 	4	<p>JUMP Math Probability and Data Management 5.3-5.6</p> <p>JUMP Math Number Sense 5.105</p>	<p>Heidi and Abbey play 4 games and record their scores in a bar graph. Heidi's total score is 5 more points than Abbey's total score. Complete the bar graph to show possible scores for Heidi and Abbey in game 4.</p> <p>Click on the bar graph where the top of each bar should be.</p> <table border="1"> <caption>Game Scores</caption> <thead> <tr> <th>Game</th> <th>Heidi</th> <th>Abbey</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10</td> <td>15</td> </tr> <tr> <td>2</td> <td>8</td> <td>12</td> </tr> <tr> <td>3</td> <td>15</td> <td>10</td> </tr> <tr> <td>4</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	Game	Heidi	Abbey	1	10	15	2	8	12	3	15	10	4	1	1
Game	Heidi	Abbey																			
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