
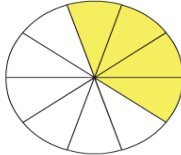


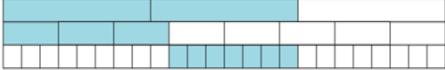

5th Grade MCA3 Standards, Benchmarks, Examples, Test Specifications & Sampler Questions

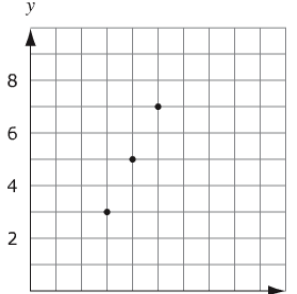
Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
Number & Operation MCA 18-22 Items Modified MCA 11-14 Items	Divide multi-digit numbers; solve real-world and mathematical problems using arithmetic. MCA 6-8 Items Modified MCA 4-6 Items	5.1.1.1	<p>Divide multi-digit numbers, using efficient and 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. (2)</p> <p><i>For example:</i> Dividing 153 by 7 can be used to convert the improper fraction $\frac{153}{7}$ to the mixed number $21\frac{6}{7}$.</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 Allowable division notation: , fraction bar Vocabulary allowed in items: remainder, <u>“and vocabulary given at previous grades” (&vgapg.)</u> 	<p>Divide.</p> <p style="text-align: right;">$2,564 \div 8$</p> <p><input type="radio"/> A. 32 r4</p> <p><input type="radio"/> B. 308</p> <p><input type="radio"/> C. $320\frac{1}{5}$</p> <p><input type="radio"/> D. 320.5</p> <p>Modified Example</p> <p>Divide.</p> <p style="text-align: right;">$1,308 \div 6$</p> <p><input type="radio"/> A. 201</p> <p><input type="radio"/> B. 211</p> <p><input type="radio"/> C. 218</p>
		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. (2)</p> <p><i>For example:</i> 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.</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) Vocabulary allowed in items: remainder, &vgapg. 	<p>Jan has 500 pieces of paper. She prints as many copies as possible of a 16-page report. How many pieces of paper are left?</p> <p><input type="radio"/> A. 4</p> <p><input type="radio"/> B. 9</p> <p><input type="radio"/> C. 25</p> <p><input type="radio"/> D. 31</p> <p>Modified Example</p> <p>A teacher had 157 books to share equally with 7 classes.</p> <p>He gave as many books as possible to each class.</p> <p>How many books were left over?</p> <p><input type="radio"/> A. 3</p> <p><input type="radio"/> B. 22</p> <p><input type="radio"/> C. 150</p>
		5.1.1.3	<p>Estimate solutions to arithmetic problems in order to assess the reasonableness of results. (2)</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Assessed within 5.1.1.4 	<p style="text-align: center;">(none)</p> <p style="text-align: center;">No Example Question on the State Sampler</p>

Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
		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. (2)</p> <p><i>For example:</i> The calculation $117 \div 9 = 13$ can be checked by multiplying 9 and 13.</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 • Vocabulary allowed in items: vocabulary given at previous grades 	<p>A theater sold 1,500 tickets. There were 852 adult tickets and the rest were child tickets. Each adult ticket was \$7.00 and each child ticket was \$3.50. How much money was made in ticket sales?</p> <p>Type your answer in the box.</p> <p style="text-align: right;">\$ <input type="text"/></p> <p style="text-align: center;">(and)</p> <p>A bookcase has 4 shelves. The bottom shelf has 10 books. Each of the other shelves has 5 more books than the shelf below it. How many books are in the bookcase?</p> <p><input type="radio"/> A. 25</p> <p><input type="radio"/> B. 40</p> <p><input type="radio"/> C. 55</p> <p><input type="radio"/> D. 70</p>
	Read, 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.	5.1.2.1	<p>Read and write decimals using place value to describe decimals in terms of groups from millionths to millions. (1.6)</p> <p><i>For example:</i> Possible names for the number 0.0037 are:</p> <p style="text-align: center;">37 ten thousandths 3 thousandths + 7 ten thousandths; a possible name for the number 1.5 is 15 tenths.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Vocabulary allowed in items: place value, &vgapg. 	<p>Which number has a 5 in the ten thousandths place?</p> <p><input type="radio"/> A. 0.20815</p> <p><input type="radio"/> B. 0.30256</p> <p><input type="radio"/> C. 0.40571</p> <p><input type="radio"/> D. 0.50098</p>
		5.1.2.2	<p>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. (1.6)</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Vocabulary allowed in items: place value, &vgapg. 	<p>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?</p> <p><input type="radio"/> A. 44.03 seconds</p> <p><input type="radio"/> B. 44.93 seconds</p> <p><input type="radio"/> C. 45.13 seconds</p> <p><input type="radio"/> D. 45.14 seconds</p>

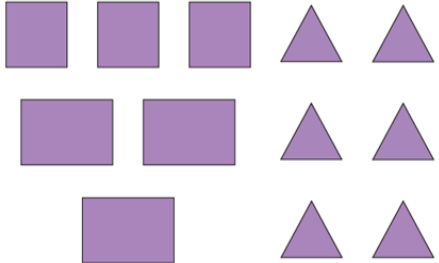
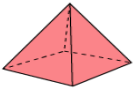
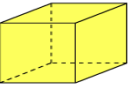
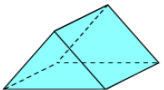
Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item								
	<p style="text-align: center;">MCA 6-8 Items Modified MCA 3-4 Items</p>	<p>5.1.2.3</p>	<p>Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line. (1.6)</p> <p><i>For example:</i> Which is larger 1.25 or $\frac{6}{5}$?</p> <p><i>Another example:</i> In order to work properly, a part must fit through a 0.24 inch wide space. If a part is $\frac{1}{4}$ inch wide, will it fit?</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, 15, 16 and 20 • Mixed numbers are less than 10 • Vocabulary allowed in items: place value, &vgapp. 	<p>Put the numbers in order from least to greatest.</p> <p>Click and drag each number into the inequality.</p> <p style="text-align: center;"> $\square < \square < \square < \square < \square$ </p> <p style="text-align: center;"> $\frac{5}{8}$ 0.85 $\frac{5}{10}$ </p> <p style="text-align: center;"> 0.05 $\frac{1}{5}$ </p> <p style="text-align: center;">(and)</p> <p>Five points are shown on a number line.</p>  <p>Between which 2 points is $\frac{7}{16}$ located?</p> <p><input type="radio"/> A. J and K</p> <p><input type="radio"/> B. K and L</p> <p><input type="radio"/> C. L and M</p> <p><input type="radio"/> D. M and N</p> <p style="text-align: center;">Modified Example</p> <p>Tony recorded the money he spent each week in a table.</p> <p style="text-align: center;">Tony's Spending</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Week</th> <th>Amount Spent</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$26.06</td> </tr> <tr> <td>2</td> <td>\$19.47</td> </tr> <tr> <td>3</td> <td>\$26.13</td> </tr> </tbody> </table> <p>What is the greatest amount of money Tony spent in a week?</p> <p><input type="radio"/> A. \$26.06</p> <p><input type="radio"/> B. \$19.47</p> <p><input type="radio"/> C. \$26.13</p>	Week	Amount Spent	1	\$26.06	2	\$19.47	3	\$26.13
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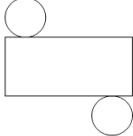

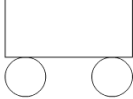
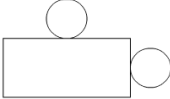
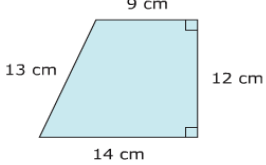
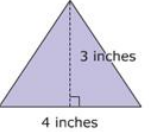
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		5.1.2.4	<p>Recognize and generate equivalent decimals, fractions, mixed numbers and improper fractions in various contexts. (1.6)</p> <p><i>For example:</i> When comparing 1.5 and $\frac{19}{12}$, note that $1.5 = 1\frac{1}{2} = 1\frac{6}{12} = \frac{18}{12}$, so $1.5 < \frac{19}{12}$.</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 • Vocabulary allowed in items: place value, &vgapg. 	<p>Lydia used $\frac{1}{25}$ of her notebook paper. What decimal amount did she use?</p> <p><input type="radio"/> A. 0.04 <input type="radio"/> B. 0.4 <input type="radio"/> C. 1.25 <input type="radio"/> D. 2.5</p> <p>Modified Example</p> <p>The model is shaded to represent $\frac{4}{10}$.</p>  <p>How is $\frac{4}{10}$ written as a decimal?</p> <p><input type="radio"/> A. 0.4 <input type="radio"/> B. 0.04 <input type="radio"/> C. 0.004</p>										
		5.1.2.5	<p>Round numbers to the nearest 0.1, 0.01 and 0.001. (1.6)</p> <p><i>For example:</i> 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.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> • Numbers can be given up to millionths • Vocabulary allowed in items: place value, &vgapg. 	<p>What is 0.45831 rounded to the nearest thousandth?</p> <p><input type="radio"/> A. 0.45 <input type="radio"/> B. 0.458 <input type="radio"/> C. 0.459 <input type="radio"/> D. 0.4583</p>										
<p>Add and subtract fractions, mixed numbers and decimals to solve real-world and mathematical problems.</p> <p>MCA 6-8 Items Modified MCA 4-6 Items</p>		5.1.3.1	<p>Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms. (2)</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 fractions and decimals • Items must not have context • Vocabulary allowed in items: vocabulary given at previous grades 	<p>Add.</p> <p style="text-align: right;">$45.908 + 3.26$</p> <p><input type="radio"/> A. 46.234 <input type="radio"/> B. 49.168 <input type="radio"/> C. 49.24 <input type="radio"/> D. 78.508</p> <p>Modified Example</p> <p>Kita is making 3 types of cookies.</p> <p>The table shows the amount of chocolate she needs for each type of cookie.</p> <table border="1" data-bbox="1638 1161 1953 1315"> <thead> <tr> <th colspan="2">Chocolate Needed for Cookies</th> </tr> <tr> <th>Type of Cookie</th> <th>Amount of Chocolate Needed</th> </tr> </thead> <tbody> <tr> <td>Chocolate Chip</td> <td>$1\frac{1}{2}$ cups</td> </tr> <tr> <td>Chocolate Crinkle</td> <td>$2\frac{1}{4}$ cups</td> </tr> <tr> <td>Chewy Chocolate</td> <td>$\frac{3}{4}$ cup</td> </tr> </tbody> </table> <p>How much chocolate does Kita need altogether?</p> <p><input type="radio"/> A. 4 cups <input type="radio"/> B. $4\frac{1}{4}$ cups <input type="radio"/> C. $4\frac{1}{2}$ cups</p>	Chocolate Needed for Cookies		Type of Cookie	Amount of Chocolate Needed	Chocolate Chip	$1\frac{1}{2}$ cups	Chocolate Crinkle	$2\frac{1}{4}$ cups	Chewy Chocolate	$\frac{3}{4}$ cup
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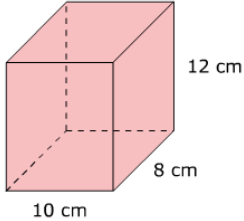
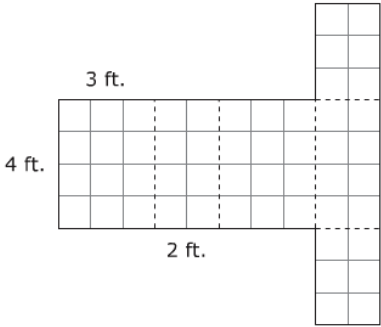
Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
		5.1.3.2	<p>Model addition and subtraction of fractions and decimals using a variety of representations. (2)</p> <p><i>For example:</i> Represent $\frac{2}{3} + \frac{1}{4}$ and $\frac{2}{3} - \frac{1}{4}$ by drawing a rectangle divided into 4 columns and 3 rows and shading the appropriate parts or by using fraction circles or bars.</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 fractions and decimals • Vocabulary allowed in items: vocabulary given at previous grades 	<p>A fraction model is shown.</p>  <p>What is represented by the model?</p> <p><input type="radio"/> A. $\frac{2}{1} - \frac{3}{5}$</p> <p><input type="radio"/> B. $\frac{2}{3} - \frac{3}{8}$</p> <p><input type="radio"/> C. $\frac{2}{3} - \frac{1}{5}$</p> <p><input type="radio"/> D. $\frac{3}{8} - \frac{7}{24}$</p>
		5.1.3.3	<p>Estimate sums and differences of decimals and fractions to assess the reasonableness of results. (2)</p> <p><u>Item Specifications:</u> Assessed within 5.1.3.4</p> <p style="color: red;">No Example Question on the State Sampler</p>	<p style="color: red;">(none)</p>
		5.1.3.4	<p>Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data. (2)</p> <p><i>For example:</i> Calculate the perimeter of the soccer field when the length is 109.7 meters and the width is 73.1 meters.</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 • Fractions and decimals may be used within the same item • Vocabulary allowed in items: vocabulary given at previous grades 	<p>Jill is $48\frac{5}{8}$ inches tall. Lei is 47.5 inches tall.</p> <p>What is the difference in their heights?</p> <p><input type="radio"/> A. 0.125 inch</p> <p><input type="radio"/> B. 1.08 inches</p> <p><input type="radio"/> C. 1.125 inches</p> <p><input type="radio"/> D. 1.62 inches</p> <p style="color: red;">Modified Example</p> <p>A rectangular garden is 28 feet long and 15 feet wide.</p>  <p>What is the perimeter of the garden?</p> <p><input type="radio"/> A. 43 feet</p> <p><input type="radio"/> B. 86 feet</p> <p><input type="radio"/> C. 420 feet</p>

Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item																																								
Algebra MCA 10-14 Items	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. (3)</p> <p><i>For example:</i> 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.</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 Vocabulary allowed in items: vocabulary given at previous grades 	<p>At a movie store, Erin pays a monthly fee and is charged for each movie she rents. The table shows the monthly cost when Erin rents different numbers of movies.</p> <p style="text-align: center;">Monthly Cost</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Number of Movies</th> <th>Total Cost (dollars)</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>33</td> </tr> <tr> <td>8</td> <td>39</td> </tr> <tr> <td>10</td> <td>45</td> </tr> </tbody> </table> <p>How much is the monthly fee that Erin pays?</p> <p> <input type="radio"/> A. \$3 <input type="radio"/> B. \$6 <input type="radio"/> C. \$15 <input type="radio"/> D. \$18 </p> <p style="text-align: center;">(and)</p> <p>Which tables follow the rule $y = 2x$? Click on the tables you want to select.</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>x</th><th>y</th> <th>x</th><th>y</th> <th>x</th><th>y</th> <th>x</th><th>y</th> </tr> </thead> <tbody> <tr> <td>4</td><td>6</td> <td>3</td><td>6</td> <td>1</td><td>2</td> <td>10</td><td>5</td> </tr> <tr> <td>8</td><td>10</td> <td>5</td><td>10</td> <td>7</td><td>14</td> <td>20</td><td>10</td> </tr> <tr> <td>16</td><td>18</td> <td>8</td><td>16</td> <td>12</td><td>24</td> <td>30</td><td>15</td> </tr> </tbody> </table> <p style="text-align: center;">Modified Example</p> <p>A pattern is shown.</p> <p style="text-align: center;">1 4 16 64 ___ ?</p> <p>What number is next in the pattern?</p> <p> <input type="radio"/> A. 68 <input type="radio"/> B. 80 <input type="radio"/> C. 256 </p>	Number of Movies	Total Cost (dollars)	6	33	8	39	10	45	x	y	x	y	x	y	x	y	4	6	3	6	1	2	10	5	8	10	5	10	7	14	20	10	16	18	8	16	12	24	30	15
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Modified MCA 7-9 Items	MCA 4-6 Items Modified MCA 3-4 Items	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. (3)</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 allowed in items: ordered pair, graph, &vgapg. 	<p>Three points are shown on a grid.</p>  <p>Which rule was used to plot the points?</p> <p> <input type="radio"/> A. $y = x$ <input type="radio"/> B. $y = x + 2$ <input type="radio"/> C. $y = \frac{1}{2}x + 3$ </p>																																								

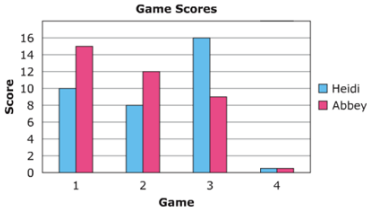
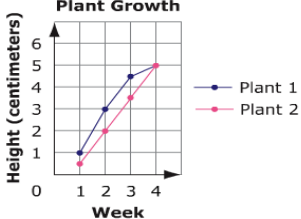
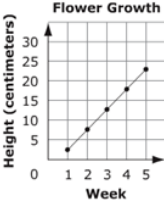
Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
	Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving whole numbers. MCA 2-3 Items Modified MCA 1-2 Items	5.2.2.1	Apply the commutative, associative and distributive properties and order of operations to generate equivalent numerical expressions and to solve problems involving whole numbers. (3) <i>For example:</i> 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 $(5 + 7) \times 19$. <u>Item Specifications</u> <ul style="list-style-type: none"> Expressions may not contain nested parentheses Items must not have context Vocabulary allowed in items: expression, &vgapp. 	An expression is shown. $4 + 3(6 + 10) \div 2$ What is the value of the expression? <input type="radio"/> A. 16 <input type="radio"/> B. 26 <input type="radio"/> C. 28 <input type="radio"/> D. 56 Modified Example Solve. $\frac{3 \times (1 + 5)}{2}$ <input type="radio"/> A. 4 <input type="radio"/> B. $7\frac{1}{2}$ <input type="radio"/> C. 9
	Understand and interpret equations and inequalities involving variables and whole numbers, and use them to represent and solve real-world and mathematical problems. MCA 4-6 Items Modified MCA 3-4 Items	5.2.3.1	Determine whether an equation or inequality involving a variable is true or false for a given value of the variable. (2) <i>For example:</i> Determine whether the inequality $1.5 + x < 10$ is true for $x = 2.8$, $x = 8.1$, or $x = 9.2$. <u>Item Specifications</u> <ul style="list-style-type: none"> Allowable symbols: < and > Items must not have context Vocabulary allowed in items: inequality, &vgapp. 	Which value makes the equation $5b + 15 = 30$ true? <input type="radio"/> A. $b = 3$ <input type="radio"/> B. $b = 9$ <input type="radio"/> C. $b = 10$ <input type="radio"/> D. $b = 75$
	Understand and interpret equations and inequalities involving variables and whole numbers, and use them to represent and solve real-world and mathematical problems. MCA 4-6 Items Modified MCA 3-4 Items	5.2.3.2	Represent real-world situations using equations and inequalities involving variables. Create real-world situations corresponding to equations and inequalities. (2) <i>For example:</i> $250 - 27 \times a = b$ 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. <u>Item Specifications</u> <ul style="list-style-type: none"> < and > symbols are allowed Vocabulary allowed in items: inequality, &vgapp. 	Yesterday, Jamal read 17 pages in his book. Today, he read more pages than he read yesterday. Which inequality shows p , the number of pages Jamal could have read today? <input type="radio"/> A. $p < 17$ <input type="radio"/> B. $p \leq 17$ <input type="radio"/> C. $p > 17$ <input type="radio"/> D. $p \geq 17$ Modified Example Miguel has 64 pencils in boxes. There are 8 pencils in each box. Which equation shows b , the number of boxes Miguel has? <input type="radio"/> A. $64 - 8 = b$ <input type="radio"/> B. $64 \times 8 = b$ <input type="radio"/> C. $64 \div 8 = b$

Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
		5.2.3.3	<p>Evaluate expressions and solve equations involving variables when values for the variables are given. (2)</p> <p><i>For example:</i> 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.</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Items must not have context Vocabulary allowed in items: expression, &vgapg. 	<p>What is the value of $4k + 6(j - 2)$ when $k = 3$ and $j = 5$?</p> <p><input type="radio"/> A. 26</p> <p><input type="radio"/> B. 30</p> <p><input type="radio"/> C. 40</p> <p><input type="radio"/> D. 108</p> <p>Modified Example</p> <p>An equation is shown.</p> $x + 4 = 7$ <p>Which value for x makes the equation true?</p> <p><input type="radio"/> A. 28</p> <p><input type="radio"/> B. 17</p> <p><input type="radio"/> C. 11</p>
<p>Geometry & Measurement</p> <p>MCA 8-10 Items</p> <p>Modified MCA 6-8 Items</p>	<p>Describe, classify, and draw representations of three-dimensional figures.</p> <p>MCA 3-4 Items</p> <p>Modified MCA 2-3 Items</p>	5.3.1.1	<p>Describe and classify three-dimensional figures including cubes, prisms and pyramids by the number of edges, faces or vertices as well as the types of faces. (2)</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Prisms and pyramids are limited to triangular, rectangular, pentagonal, hexagonal and octagonal Vocabulary allowed in items: cube, prism, pyramid, cone, cylinder, edge, face, base, three-dimensional, triangular, rectangular, &vgapg. 	<p>How many edges does a hexagonal prism have?</p> <p><input type="radio"/> A. 6</p> <p><input type="radio"/> B. 8</p> <p><input type="radio"/> C. 12</p> <p><input type="radio"/> D. 18</p> <p>(and)</p> <p>Which shapes are needed to make a rectangular pyramid?</p> <p>Click on the shapes you want to select.</p>  <p>Modified Example</p> <p>Which three-dimensional figure shown has the greatest number of faces?</p> <p><input type="radio"/> A. </p> <p><input type="radio"/> B. </p> <p><input type="radio"/> C. </p>

Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
		5.3.1.2	<p>Recognize and draw a net for a three-dimensional figure. (2)</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Vocabulary allowed in items: net, cylinder, cube, prism, pyramid, edge, face, base, three-dimensional, triangular, rectangular, &vgapg. 	<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>
<p>Determine the area of triangles and quadrilaterals; determine the surface area and volume of rectangular prisms in various contexts.</p> <p>MCA 5-6 Items Modified MCA 4-5 Items</p>		5.3.2.1	<p>Develop and use formulas to determine the area of triangles, parallelograms and figures that can be decomposed into triangles. (1.5)</p> <p><u>Item Specifications</u></p> <ul style="list-style-type: none"> Vocabulary allowed in items: formula, &vgapg. 	<p>A trapezoid is shown.</p>  <p>What is the area of the trapezoid?</p> <p><input type="radio"/> A. 48 cm²</p> <p><input type="radio"/> B. 138 cm²</p> <p><input type="radio"/> C. 168 cm²</p> <p><input type="radio"/> D. 173 cm²</p> <p>(and)</p> <p>A triangle has a height of 25 feet. The length of its base is 12 feet. What is the area of the triangle?</p> <p>Type your answer in the box.</p> <p><input type="text"/> square feet</p> <p>Modified Example</p> <p>A triangle is shown.</p> <p>The base, <i>b</i>, measures 4 inches.</p> <p>The height, <i>h</i>, measures 3 inches.</p>  <div data-bbox="1816 1193 1963 1339" style="border: 1px solid black; padding: 5px;"> <p>Area of a Triangle</p> $A = \frac{1}{2} \times b \times h$ <p>A = area b = base h = height</p> </div> <p>What is the area of the triangle?</p> <p><input type="radio"/> A. 6 square inches</p> <p><input type="radio"/> B. 7 square inches</p> <p><input type="radio"/> C. 12 square inches</p>

Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
		5.3.2.2	<p>Use various tools and strategies to measure the volume and surface area of objects that are shaped like rectangular prisms. (1.5)</p> <p><i>For example:</i> Use a net or decompose the surface into rectangles.</p> <p><i>Another example:</i> Measure the volume of a cereal box by using a ruler to measure its height, width and length, or by filling it with cereal and then emptying the cereal into containers of known volume.</p> <p>Item Specifications</p> <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 allowed in items: surface area, volume, net, &vgapg. 	<p>Amy covers the box shown with paper.</p>  <p>What is the surface area of the box?</p> <p><input type="radio"/> A. 180 sq. in.</p> <p><input type="radio"/> B. 296 sq. in.</p> <p><input type="radio"/> C. 592 sq. in.</p> <p><input type="radio"/> D. 960 sq. in.</p> <p>Modified Example</p> <p>The net of a box is shown.</p>  <p>What is the surface area of the box?</p> <p><input type="radio"/> A. 24 square feet</p> <p><input type="radio"/> B. 36 square feet</p> <p><input type="radio"/> C. 52 square feet</p>
		5.3.2.3	<p>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. (1.5)</p> <p><i>For example:</i> Use cubes to find the volume of a small box.</p> <p>Item Specifications: Assessed within 5.3.2.2</p>	<p>(none)</p> <p>No Example Question on the State Sampler</p>

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		5.3.2.4	<p>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 rectangular prism by breaking the prism into layers of unit cubes. (1.5)</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 allowed in items: volume, base, height, &vgapg. 	<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 cm³</p> <p><input type="radio"/> B. $h+1$ cm³</p> <p><input type="radio"/> C. B cm³</p> <p><input type="radio"/> D. $B+1$ cm³</p>															
<p>Data Analysis</p> <p>MCA 6-8 Items</p> <p>Modified MCA 6-8 Items</p>	<p>Display and interpret data; determine mean, median and range.</p> <p>MCA 6-8 Items</p> <p>Modified MCA 6-8 Items</p>	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. Understand that the mean is a "leveling out" of data. (4)</p> <p><i>For example:</i> 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><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 allowed in items: mean, median, range, minimum, maximum, &vgapg. 	<p>Anya listed the prices of meals on a menu.</p> <p style="text-align: center;">\$14.85 \$10.75 \$8.50 \$12.45 \$9.20</p> <p>What is the mean price of the meals?</p> <p><input type="radio"/> A. \$6.35</p> <p><input type="radio"/> B. \$8.50</p> <p><input type="radio"/> C. \$10.75</p> <p><input type="radio"/> D. \$11.15</p> <p style="text-align: center;">Modified Example</p> <p>Students are selling candy bars.</p> <p>The table shows how many candy bars 5 students sold this week.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5" style="text-align: center;">Candy Bars Sold</th> </tr> <tr> <th>Student 1</th> <th>Student 2</th> <th>Student 3</th> <th>Student 4</th> <th>Student 5</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">50</td> <td style="text-align: center;">42</td> <td style="text-align: center;">60</td> <td style="text-align: center;">38</td> </tr> </tbody> </table> <p>What is the range for this set of data?</p> <p><input type="radio"/> A. 13</p> <p><input type="radio"/> B. 35</p> <p><input type="radio"/> C. 42</p>	Candy Bars Sold					Student 1	Student 2	Student 3	Student 4	Student 5	25	50	42	60	38
Candy Bars Sold																			
Student 1	Student 2	Student 3	Student 4	Student 5															
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Strand	Standard	No.	Benchmark (5 th Grade)	Sampler Item
		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. (4)</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 allowed in items: double-bar graph, line graph, &vgapp. 	<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>  <p style="text-align: center;">(and)</p> <p>Maria recorded the heights of 2 plants for 4 weeks.</p>  <p>How much did plant 2 grow from week 1 to week 2?</p> <p><input type="radio"/> A. 1 cm</p> <p><input type="radio"/> B. $1\frac{1}{2}$ cm</p> <p><input type="radio"/> C. 2 cm</p> <p><input type="radio"/> D. $4\frac{1}{2}$ cm</p> <p style="text-align: center;">Modified Example</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</p> <p><input type="radio"/> B. 5 cm</p> <p><input type="radio"/> C. 10 cm</p>

