

**Macmillan/McGraw-Hill**

**MATH CONNECTS**

**2009**

**Grade 5**

**Correlated with**

**Pennsylvania  
Math Grade 5  
Assessment Anchors and Eligible Content**

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800-442-9685**

<b>ASSESSMENT ANCHOR</b>	
<b>M5.A.1 Demonstrate an understanding of numbers ways of representing numbers, relationship among numbers and number systems.</b>	
<b>M5.A.1.1</b> Express numbers in equivalent forms. <i>Reference: 2.1.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.1.1.1</b> Use expanded notation to represent whole numbers or decimals (whole numbers less than 10,000,000 and decimals through hundredths).	pp. 17B, 17, 18-19, 31, 32B, 33-35, 36A, 39, 46, 51, 53
<b>M5.A.1.2</b> Demonstrate understanding of place value of whole numbers and decimals. <i>Reference: 2.1.3.I</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.1.2.1</b> Match the standard form to the word form of decimal numbers through the hundredths.	pp. 26-27, 28B, 28-30, 31, 32B, 32-35, 51, 52, 53, 55
<b>M5.A.1.2.2</b> Identify the place value of a digit (from millions through hundredths).	pp. 14G, 14, 17A, 17B, 17-19, 26-27, 28B, 28-30, 31, 32B, 32-35, 36, 51, 53, 55, 567
<b>M5.A.1.3</b> Compare quantities or magnitudes of numbers. <i>Reference: 2.11.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.1.3.1</b> Compare whole numbers through 9 digits using the words more, less, equal, least, most, greater than, less than or the symbols $<$ , $>$ , $=$ .	pp. 20B, 20-23, 24A, 42B, 42-46, 51
<b>M5.A.1.3.2</b> Compare and/or order decimals through the hundredths. (Limit sets for ordering to no more than 4 numbers.)	pp. 36B, 36-39, 40-41, 42B, 42-46, 47, 48A, 53, 54, 55
<b>M5.A.1.3.3</b> Compare proper fractions through 16ths with like and unlike denominators.	pp. 350B, 350-353, 355, 359, 365, 402-403, 404B, 404-407, 414
<b>M5.A.1.4</b> Use simple applications of negative numbers (number line, counting, temperature). <i>Reference: 2.1.5.F</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.1.4.1</b> Locate/Identify integers on a number line (greater than or equal to -20).	pp. 533B, 533-534, 535, 541, 544, 549, 551
<b>M5.A.1.4.2</b> Identify negative temperatures on a thermometer (through $-20^{\circ}\text{C}$ or $^{\circ}\text{F}$ ).	pp. 537B, 537-540
<b>M5.A.1.5</b> Use or develop models to represent fractions and/or mixed numbers. <i>Reference: 2.1.5.D</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.1.5.1</b> Use or develop regions and/or sets (e.g., circle graph, base ten blocks) to model fractions and mixed numbers through hundredths (may include reducing the fractions).	pp. 4, 26-27, 28B, 28-30, 52, 330H, 330, 333B, 334-335, 336-337, 338A, 346B, 346-348

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<b>M5.A.1.6</b> Apply number theory concepts (i.e., primes, factors, multiples, composites). <i>Reference: 2.1.5.E</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.1.6.1</b> Define/list/identify prime and composite numbers less than or equal to 100.	pp. 376-377, 378-381, 411
<b>M5.A.1.6.2</b> Define/list/identify factors and/or multiples of a given whole number less than or equal to 50.	pp. 100, 103-105, 370, 372, 373B, 373, 374-375, 378A, 381, 386B, 386-389, 390, 396, 397-399, 400A, 404-405, 411, 415, 413, 415
<b>ASSESSMENT ANCHOR</b>	
<b>M5.A.2 Understand the meaning of operations, use operations and understand how they relate to each other.</b>	
<b>M5.A.2.1</b> Solve problems involving decimals, fractions and/or whole numbers (straight computation or word problems). <i>Reference: 2.2.5.A, 2.2.5.B, 2.2.5.C, 2.2.5.I</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.2.1.1</b> Solve problems involving addition, subtraction, multiplication and division of whole numbers (multipliers up to 2 digits – divisors one digit) and decimals including money (answer through hundredths – no divisors with decimals).	pp. 5, 6, 7, 70-72, 76-77, 78-83, 88-91, 94, 95, 102, 103B, 103-105, 106-107, 112-115, 116-118, 122A, 122B, 122-124, 125, 126A, 132-135, 140, 141, 142, 143, 146G, 146H, 146, 148, 149A, 149B, 149-151, 152A, 152B, 152-155, 156-157, 158A, 158B, 158-161, 162-164, 165, 166-167, 174-177, 182-185, 187, R6-R7, R8-R9, R10-R11
<b>M5.A.2.1.2</b> Solve problems involving addition and subtraction of fractions (through 16ths – like and unlike denominators – for unlike denominators, the LCD must be one of the given denominators).	pp. 418, 421-422, 423-425, 426-427, 428-431, 432-433, 434-435, 437-438, 439-441, 452-454, 455, 458-461, 462-463, 465
<b>M5.A.2.1.3</b> Choose the correct operation(s) to solve a problem (no more than 2 operations).	pp. 180-181, 186, 206-207, 227, 266-267, 272, 282-283, 323, 360-361, 366, 400-401, 414, 456-457, 468, 496-497, 507, 544-545, 550, 576-577, 599, 648-649, 654, 682-683, 686
<b>ASSESSMENT ANCHOR</b>	
<b>M5.A.3 Compute accurately and fluently and make reasonable estimates.</b>	
<b>M5.A.3.1</b> Apply estimation strategies to a variety of problems. <i>Reference: 2.2.5.D, 2.2.5.E, 2.2.5.G</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.3.1.1</b> Round whole numbers through millions and decimals through hundredths.	pp. 61B, 61-63, 64A, 64-67, 73, 93, 112-115, 140
<b>M5.A.3.1.2</b> Use estimation to solve problems involving whole numbers and/or decimals (up to 2-digit multipliers, single-digit divisors or multiples of 10; whole numbers through thousands and decimals through hundredths).	pp. 64B, 64-67, 68A, 112B, 112-115, 116-118, 119, 122, 152B, 152-155

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<b>M5.A.3.2</b> Compute accurately without the use of a calculator (straight computation or 1 operation word problems). <i>Reference: 2.2.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.A.3.2.1</b> Use addition, subtraction, multiplication and division to compute accurately without a calculator (multipliers up to 2 digits, single-digit divisors or multiples of 10 – whole numbers through thousands and decimals through hundredths - no divisors with decimals).	pp. 64B, 64-67, 93, 112B, 112-115, 140, 152-155, 183
<b>ASSESSMENT ANCHOR</b>	
<b>M5.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and process of measurement.</b>	
<b>M5.B.1.1</b> Select appropriate units (customary or metric) to measure specific attributes of objects. <i>Reference: 2.3.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.B.1.1.1</b> Select the appropriate unit for measuring weight (mass), capacity, length, perimeter and area.	pp. 472G, 476, 477B, 477, 479, 486, 491, 505, 506, 516, 519, 522B, 528, 532, 608B
<b>M5.B.1.2</b> Solve problems using simple conversions and/or add and subtract measurements. <i>Reference: 2.3.5.D, 2.3.5.E</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.B.1.2.1</b> Convert using linear measurements, capacity, and weight (mass) within the same system to the unit immediately above or below the given unit (using only the units below – use a conversion chart or a “hint” with problems e.g., hint: 16oz = 1lb). <ul style="list-style-type: none"> <li>• Metric using mm, cm, m and km; mL and L; g and kg</li> <li>• Customary using cup, pint, quart, gallon; in, ft, yd; oz, lb</li> </ul>	pp. 477B, 477-480, 482A, 484B, 484-487, 488B, 488-490, 491, 492A, 505, 506, 509, 517B, 517-521, 522-523, 524-526, 527B, 527-531, 532, 542-543, 547, 548, 551
<b>M5.B.1.2.2</b> Add or subtract linear measurements, (feet and inches) or units of time (hours and minutes), without having to regroup with subtraction (answer should be in simplest form).	pp. 482-483, 492A, 492B, 492-495, 498-499, 500A, 500B, 500-503, 505, 507, 508, 509
<b>M5.B.1.3</b> Estimate and/or compare the perimeters or areas of 2 figures without computation. <i>Reference: 2.11.5.E, 2.3.5.C</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.B.1.3.1</b> Estimate which polygon (shown on a grid) has a greater perimeter or area (compare either area to area or perimeter to perimeter).	pp. 608-611, 613-615, 616A, 623, 650, 655

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<b>M5.B.1.3.2</b> Estimate the area of an irregular figure shown on a grid.	pp. 604I, 612B, 612-615, 616A, 623, 651, 655
<b>ASSESSMENT ACHOR</b>	
<b>M5.B.2 Apply appropriate techniques, tools and formulas to determine measurements.</b>	
<b>M5.B.2.1</b> Use appropriate tools to determine measurements. <i>Reference: 2.3.5.B</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.B.2.1.1</b> Use a ruler to measure to the nearest 1/8 inch or centimeter.	pp. 475-476, 505, 515-521, 547
<b>M5.B.2.2</b> Solve problems involving length, time, weight (mass), capacity, temperature, perimeter and/or area. <i>Reference: 2.3.5.A, 2.3.5.B</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.B.2.2.1</b> Find the perimeter of a figure drawn and labeled (with the same units throughout).	pp. 607, 608B, 608-611, 612A, 643-646, 650, 654
<b>M5.B.2.2.2</b> Find the area of a square or rectangle (with the same units throughout - whole numbers only).	pp. 604, 612B, 612-615, 616A, 616-619, 622, 643-646, 650, 651, 654
<b>M5.B.2.2.3</b> Solve problems involving weight, time, temperature, length and capacity (with the same units throughout - limited to 3 digits).	pp. 482-483, 486-487, 488B, 490, 491, 492A, 492B, 492-495, 496B, 496-497, 498-499, 500A, 500B, 500-503, 505, 507, 508, 509, 538-541, 542-543, 544A, 544-545
<b>ASSESSMENT ACHOR</b>	
<b>M5.C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.</b>	
<b>M5.C.1.1</b> Define and/or use basic properties of quadrilaterals (parallelograms, squares, rectangles, trapezoids, rhombi), triangles, circles, pyramids, cubes, and/or prisms. <i>Reference: 2.9.5.B, 2.9.5.C, 2.9.5.F, 2.10.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.C.1.1.1</b> Identify, and/or classify cubes, rectangular prisms or pyramids using faces, vertices and edges.	pp. 624A, 624B, 624-627, 652, 655
<b>M5.C.1.1.2</b> Identify and/or describe properties of all types of quadrilaterals (parallelogram, rectangle, rhombus, square, trapezoid).	pp. 554H, 570B, 570-574, 575, 576A, 598
<b>M5.C.1.2</b> Represent and/or use properties of lines, line segments, rays, points and planes. <i>Reference: 2.9.5.I</i>	
<b>ELIGIBLE CONTENT</b>	
<b>M5.C.1.2.1</b> Identify, draw and/or label points, lines, line segments and rays.	pp. 557B, 557, 558-560, 561, 562A, 575, 597, 601, R34

<b>ASSESSMENT ANCHOR</b>	
<b>M5.C.2 Identify and/or apply concepts of transformations or symmetry.</b>	
M5.C.2.1 Analyze transformations and/or use symmetry to analyze mathematical situations. <i>Reference: 2.9.5.K, 2.9.5.L</i>	
<b>ELIGIBLE CONTENT</b>	
M5.C.2.1.1 Draw or identify a translation (slide), reflection (flip) or rotation (turn) of a 2-dimensional shape.	pp. 11, 554H, 578B, 578-581, 582A, 582B, 582-585, 586A, 586B, 586-590, 591A, 591B, 591-593, 594-595, 600, 601, 608A
M5.C.2.1.2 Identify the number of lines of symmetry and/or draw all lines of symmetry in a two-dimensional polygon.	pp. 10-11, 582A, 586B, 589, 591A
<b>ASSESSMENT ANCHOR</b>	
<b>M5.C.3 Locate points or describe relationships using the coordinate plane.</b>	
Not assessed at Grade 5.	
<b>ASSESSMENT ANCHOR</b>	
<b>M5.D.1 Demonstrate an understanding of patterns, relations and functions.</b>	
M5.D.1.1 Create or extend patterns. <i>Reference: 2.8.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
M5.D.1.1.1 Extend or find a missing element in a numerical or simple geometric pattern (+, -, x or ÷ of whole numbers). Pattern must show 3 repetitions.	pp. 6-7, 103-105, 139, 149-151, 183, 394B, 394-395, 401, 413, 457, 497, 563, 577
M5.D.1.1.2 Create or replicate a numerical or geometric pattern showing 3 repetitions of that pattern (+, -, x or ÷ of whole numbers may be used).	pp. 103, 104-105, 149B, 394B
M5.D.1.2 Analyze patterns. <i>Reference: 2.8.5.C</i>	
<b>ELIGIBLE CONTENT</b>	
M5.D.1.2.1 Form a rule based on a given pattern, or illustrate a pattern based on a given rule (+, -, x or ÷ of whole numbers may be used). Patterns must show 3 repetitions.	pp. 7, 103-105, 149-151, 208-215, 219-222, 228

<b>ASSESSMENT ANCHOR</b>	
<b>M5.D.2 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.</b>	
M5.D.2.1 Select and/or use appropriate strategies, including concrete materials, to solve or represent expressions or number sentences. <i>Reference: 2.8.5.G, 2.8.5.F</i>	
<b>ELIGIBLE CONTENT</b>	
M5.D.2.1.1 Solve for a missing number (blank, question mark, variable) in an equation involving a single operation whole numbers only.	pp. 232, 235-245, 258-262, 269, 271
M5.D.2.1.2 Match a realistic situation to an equation, expression, inequality (<, >, =), table or graph (variable must be isolated, e.g., $17 + 39 = n$ ).	pp. 195, 216-217, 221, 256, 258-259
<b>ASSESSMENT ANCHOR</b>	
<b>M5.D.3 Analyze change in various contexts.</b>	
Not assessed at Grade 5.	
<b>ASSESSMENT ANCHOR</b>	
<b>M5.D.4 Describe or use models to represent quantitative relationships.</b>	
Not assessed at Grade 5.	
<b>ASSESSMENT ANCHOR</b>	
<b>M5.E.1 Formulate or answer questions that can be addressed with data and/or organize, display. Interpret or analyze data.</b>	
M5.E.1.1 Organize, display and/or interpret data using pictographs, tallies, tables, charts, line, bar graphs. <i>Reference: 2.6.5.A</i>	
<b>ELIGIBLE CONTENT</b>	
M5.E.1.1.1 Display and/or interpret data shown in tallies, tables, charts, pictographs, bar graphs, line graphs and using a title, appropriate scale, and labels. A grid will be provided to display data on bar graphs or line graphs.	pp. 12-13, 276G, 276H, 279-281, 284B, 284-288, 289A, 289B, 289-292, 293, 294A, 294B, 294-298, 299A, 299B, 299-303, 304-305, 306A, 306B, 306-310, 311, 313, 316, 317, 318-319, 325, 326, 344-345
<b>ASSESSMENT ANCHOR</b>	
<b>M5.E.2 Select and/or use appropriate statistical methods to analyze data.</b>	
M5.E.2.1 Describe data sets using mean, median, mode and/or range. <i>Reference: 2.6.5.B</i>	
<b>ELIGIBLE CONTENT</b>	
M5.E.2.1.1 Determine the mean/average (answer is a whole number), median (answer is a whole number or average of 2 numbers) and range of data (up to 10 numbers).	pp. 276G, 279A, 279B, 279-281, 282A, 284B, 285-288, 304-305, 323, 324, P2-P3
M5.E.2.1.2 Identify the mode in a set of data (up to 10 numbers).	pp. 276G, 279B, 279-281, 285-288, 323, P2-P3

<b>ASSESSMENT ANCHOR</b>	
<b>M5.E.3 Understand and/or apply basic concepts of probability or outcome.</b>	
M5.E.3.1 Predict or determine all possible combinations, outcomes and/or calculate the probability of a simple event. <i>Reference: 2.7.5.E, 2.7.5.H, 2.7.5.J</i>	
<b>ELIGIBLE CONTENT</b>	
M5.E.3.1.1 Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (information could be represented by pictographs, bar graphs, charts, tables and/or spinners).	pp. 660, 661B, 661-663, 664-665, 668B, 668-672, 685, 687
M5.E.3.1.2 Determine the probability of an outcome (e.g., a coin toss, a roll of a number cube) and express as a fraction without reduction.	pp. 658, 661A, 661B, 661-663, 664-665, 676, 685, 687
<b>ASSESSMENT ANCHOR</b>	
<b>M5.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.</b>	
Not assessed at Grade 5.	