

Macmillan/McGraw-Hill

MATH CONNECTS

2009

Grade 4

Correlated with

**Pennsylvania
Math Grade 4
Assessment Anchors and Eligible Content**

**Macmillan/McGraw-Hill
800-442-9685**

ASSESSMENT ANCHOR	
M4.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.	
M4.A.1.1 Use models and/or words to represent quantities as decimals, fractions or mixed numbers.	
ELIGIBLE CONTENT	
M4.A.1.1.1 Write the fraction or decimal, including mixed numbers, which corresponds to a drawing or set – no simplification necessary.	pp. 534, 537-544, 546, 560-564, 566-569, 574G, 574, 577-585, 586B, 586-587, 588-591, 596-598, 602-604, 606-608, 610, 614, 628-630, 636-638, 648
M4.A.1.1.2 Create a drawing or set that represents a given fraction or decimal, including mixed numbers (through the tenths).	pp. 577-578, 579B, 579-580, 582B, 582-583, 586B, 586-587, 599, 628-629, 630B, 636-637, 638B
M4.A.1.1.3 Match the standard number form to the word form of decimal numbers (through the tenths place).	pp. 577-578, 579B, 579, 580, 581, 582A, 582B, 582-583, 584-585, 590, 607, 609
M4.A.1.1.4 Write whole numbers in expanded, standard and/or word form through 6 digits (example of standard to expanded form: 43,076 = 40,000+3000+70+6).	pp. 17B, 18-19, 22-25, 31, 44-45, 49, 50
M4.A.1.2 Compare quantities and magnitudes of numbers.	
ELIGIBLE CONTENT	
M4.A.1.2.1 Locate/identify fractions or decimals on a number line (decimals and fractions through the tenths – do not mix fractions and decimals).	pp. 547, 549-551, 554-557, 561-563, 566, 569, 588-589, 590-591, 596, 598, 602-604, 606, 608, 611, 616, 617, 645
M4.A.1.2.2 Compare and/or order whole numbers through 6 digits and amounts of money to \$100 (limit sets for ordering, to no more than 4 numbers).	pp. 28B, 28-30, 31, 32B, 32-34, 35, 39, 43, 44, 47, 49
M4.A.1.3 Develop and/or apply number theory concepts to represent numbers in various ways	
ELIGIBLE CONTENT	
M4.A.1.3.1 Find/list/identify all factors through 10 of any given number.	pp. 176B, 176-179, 180, 186, 187
M4.A.1.3.2 Find/list/identify multiples of a number, where the multiples do not exceed 100.	pp. 176B, 177-178, 179, 180, 186, 187, 237B, 237-239, 262-263, 273-275

ASSESSMENT ANCHOR	
M4.A.2 Understanding the meanings of operations, use operations and understand how they relate to each other.	
M4.A.2.1 Use operations to solve problems (may include word problems).	
ELIGIBLE CONTENT	
M4.A.2.1.1 Solve problems involving all operations with whole numbers, and/or explain the solution (limit to two-step problems; e.g., multiply then add – single digit multipliers and divisors).	pp. addition: 52G, 52H, 54, 55B, 55-57, 58-61, 62-63, 64A, 64B, 64-67, 68, 69, 76-77, 85, 86, 87, 89; subtraction: 4, 52, 56-57, 59-60, 70-85, 87-89; multiplication: 142G, 142H, 142, 144, 145-146, 147B, 147-149, 150B, 150-153, 154A, 154B, 154-157, 158-159, 160B, 160-162, 163, 164-165, 166A, 166B, 166-169, 170-171, 172B, 172-174, 175, 176-179, 180-186, 187, 188-189, 234G, 234H, 234, 236, 237B, 237-239, 240-241, 242-244, 245, 246A, 246B, 246-248, 249, 250-251, 252A, 252B, 252-255, 256-257, 258A, 258B, 258-261, 262-266, 267, 268-269, 270G, 270H, 270, 272, 273A, 273B, 273-275, 276A, 276B, 276-279, 280-281, 282-283, 284A, 284B, 284-286, 287, 288A, 288B, 288-291, 292-293, 294-295, 296A, 296B, 296-298, 299, 300-304, 305, 306-307; division: 142, 146-149, 167-182, 308-319, 322-329, 332-347, 349-353
M4.A.2.1.2 Solve problems involving addition or subtraction with decimals through the tenths or money to the cent and/or explain the solution. Limit to two-step problems.	pp. 614, 622-625, 628-632, 636-641, 644-645, 647, 648
ASSESSMENT ANCHOR	
M4.A.3 Compute accurately and fluently and make reasonable estimates.	
M4.A.3.1 Apply rounding and/or estimation strategies to solve problems.	
ELIGIBLE CONTENT	
M4.A.3.1.1 Round whole numbers to the nearest ten, hundred, thousand, ten-thousand or hundred-thousand.	pp. 36-37, 48, 58-62, 72-73, 84-85, 242-243, 300-301
M4.A.3.1.2 Round amounts of money to the nearest dollar.	pp. 614G, 614H, 616, 619, 622B, 622-625, 645
M4.A.3.1.3 Estimate the answer to addition, subtraction and multiplication problems using whole numbers through 6 digits (for multiplication, no more than 2 digits X 1 digit, excluding powers of 10).	pp. 58-67, 72-74, 84-86, 242-245, 247, 252-253, 258-259, 262, 264, 276-279, 285, 288-289, 296-297, 300-301, 303

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M4.A.3.2 Compute using fractions or decimals (written vertically or horizontally - straight computation only).	
ELIGIBLE CONTENT	
M4.A.3.2.1 Solve addition or subtraction problems involving decimals through hundredths (decimal numbers must have the same number of places).	pp. 614, 622-625, 628-632, 636-641, 644-645, 647, 648
M4.A.3.2.2 Solve addition or subtraction problems with fractions with like denominators (denominators to 10, no simplifying necessary).	pp. LA14A, LA14B, LA14, LA15, LA16, LA17
ASSESSMENT ANCHOR	
M4.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.	
M4.B.1.1 Determine time and/or calculate elapsed time.	
ELIGIBLE CONTENT	
M4.B.1.1.1 Match/construct analog time (a picture of a clock), to the same time written in digital.	pp. 520B, 521, 522, 530
M4.B.1.1.2 Identify time (analog or digital) as the amount of minutes before and/or after the hour (e.g., 2:50 is the same as 10 minutes before 3:00; quarter past six is the same as 6:15).	pp. 252, 274, 277, 482I, 484, 520B, 520-523, 524, 530, 531
M4.B.1.1.3 Calculate the elapsed time, to the minute, in a given situation (limited to 2 adjacent hours).	pp. 482I, 520B, 520-523, 524, 530, 531
M4.B.1.1.4 Determine the beginning or ending time, given the elapsed time (limited to 2 adjacent hours).	pp. 482I, 520B, 521, 522, 523, 530, 531
ASSESSMENT ANCHOR	
M4.B.2 Apply appropriate techniques, tools and formulas to determine measurements.	
M4.B.2.1 Select and/or use appropriate tools and/or attributes for measuring quantities.	
ELIGIBLE CONTENT	
M4.B.2.1.1 Use or read a ruler (provided) to measure to the nearest 1/4 inch or centimeter.	pp. 436I, 436J, 439-440, 441B, 441-443, 448-449, 450B, 450-452, 453, 456B, 463
M4.B.2.2 Estimate measurements of figures.	
ELIGIBLE CONTENT	
M4.B.2.2.1 Make reasonable estimates of weights, lengths and capacities of familiar objects (measurements in the same system).	pp. 439-440, 441B, 441-443, 448-449, 451-452, 453, 473, 475, 486-489, 492-495, 496-500, 525-526

ASSESSMENT ANCHOR	
M4.C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.	
M4.C.1.1 Identify/describe the basic properties of geometric figures in two or three dimensions.	
ELIGIBLE CONTENT	
M4.C.1.1.1 Identify, classify and/or compare two-dimensional figures (circle, triangle, square, parallelogram, trapezoid, rhombus, rectangle, pentagon, hexagon, octagon).	pp. 11, 356, 362-365, 372-378, 384-385, 387-388
M4.C.1.1.2 Identify or classify three-dimensional figures (cube, sphere, rectangular prism and pyramid).	pp. 10-11, 356, 359-361, 384-385
M4.C.1.2 Represent and/or use properties or relationships of points, lines, line segments, rays and angles.	
ELIGIBLE CONTENT	
M4.C.1.2.1 Identify points, lines, line segments or rays.	pp. 368, 384, 392H, 395-397, 398, 399, 400B, 400-403, 404A, 409, 429, 433
M4.C.1.2.2 Identify parallel and perpendicular lines.	pp. 392G, 398-399, 400B, 401-403, 409, 429
ASSESSMENT ANCHOR	
M4.C.2 Identify and/or apply concepts of transformations or symmetry.	
M4.C.2.1 Apply the concepts of reflection and symmetry.	
ELIGIBLE CONTENT	
M4.C.2.1.1 Identify or create figures that have one, two or no lines of symmetry.	pp. 392G, 422A, 422B, 422-424, 425, 426-427, 432
ASSESSMENT ANCHOR	
M4.C.3 Locate and describe relationships using the coordinate plane.	
M4.C.3.1 Locate points on a simple grid.	
ELIGIBLE CONTENT	
M4.C.3.1.1 Match or plot the ordered pair with the appropriate point (or object) on a simple grid.	pp. 392H, 406B, 406-408, 409, 412A, 415, 430
ASSESSMENT ANCHOR	
M4.D.1 Demonstrate an understanding of patterns, relations and functions.	
M4.D.1.1 Recognize, describe, extend, create and/or replicate a variety of patterns.	
ELIGIBLE CONTENT	
M4.D.1.1.1 Extend or find a missing element in a numerical or geometric pattern (+, - or x may be used – numerical patterns must be whole numbers).	pp. 6, 40, 119, 134, 137, 144, 192, 204-211, 218B, 219, 220-224, 227-228, 230, 237, 251, 316-318, 331, 350, 366B, 366, 367, 375, 381, 386, 417, 459, 467, 519, 565, 625, 633

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M4.D.1.1.2 Identify/describe the rule for a numerical or geometric pattern shown (+, - or x may be used - numerical patterns must be whole numbers).	pp. 204B, 204-206, 207, 208B, 208-211, 212-313, 224, 227, 228, 231
M4.D.1.1.3 Create or replicate a numerical or geometric pattern showing 3 repetitions (+, - or x may be used - numerical patterns must be whole numbers or money).	pp. 6, 40, 119, 134, 137, 144, 192, 204-211, 218B, 219, 220-224, 227-228, 230, 237, 251, 316-318, 331, 350, 366B, 366, 367, 375, 381, 386, 417, 459, 467, 519, 565, 625, 633
M4.D.1.2 Apply simple function rules.	
ELIGIBLE CONTENT	
M4.D.1.2.1 Determine the missing elements in a function table (functions may use +, - or x and whole numbers or money).	pp. 208-211, 220-224, 228, 230, 260, 266
M4.D.1.2.2 Determine the rule for a function given a table (functions may use +, - or x and whole numbers).	pp. 208-211, 220-224, 228, 230, 260, 266
ASSESSMENT ANCHOR	
M4.D.2 Represent and/or analyze mathematical situations and structures using algebraic symbols, words, tables and graphs.	
M4.D.2.1 Use numbers and symbols to model the concepts of expressions and/or equations.	
ELIGIBLE CONTENT	
M4.D.2.1.1 Correlate story situations with expressions or equations (may use numbers and one operation +, - or x; no variables).	pp. 193, 194, 198, 199, 200, 209, 210, 212-213, 214, 215, 218, 219, 220, 221, 222, 231
M4.D.2.2 Determine the missing number or symbol in a number sentence.	
ELIGIBLE CONTENT	
M4.D.2.2.1 Solve for a missing number in an equation (using estimation, guess & check, etc.). May use +, - or single digit x or ÷.	pp. 196-197, 198A, 198B, 198-201, 202A, 202, 207, 217, 220-223, 224, 225, 228, 230, 231
M4.D.2.2.2 Identify the missing symbol (+, -, x, ÷, =, <, >) that makes a number sentence true (single digit x or ÷ only).	pp. 28B, 28-30, 31, 32A, 39, 44, 47, 49, R2-R3
ASSESSMENT ANCHOR	
M4.D.3 Analyze change in various contexts.	
Not assessed in Grade 4.	
ASSESSMENT ANCHOR	
M4.D.4 Describe or use models to represent quantitative relationships.	
Not assessed at Grade 4.	

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ASSESSMENT ANCHOR	
M4.E.1 Formulate questions that can be addressed with data and/or collect, organize, display and analyze data.	
M4.E.1.1 Interpret data shown on tables, charts, line graphs, bar graphs or pictographs.	
ELIGIBLE CONTENT	
M4.E.1.1.1 Describe, interpret and/or answer questions based on data shown in tables, charts, bar graphs or pictographs.	pp. 12, 13, 22, 80, 92I, 92J, 92, 94, 95-97, 101, 104, 108-117, 120, 127, 129-130, 132, 133, 135-136, 139-140, 141, 159, 232, 260, 268, 354-355
M4.E.1.2 Organize or display data using tables, bar graphs, line graphs or pictographs.	
ELIGIBLE CONTENT	
M4.E.1.2.1 Graph data or complete a graph given the data (bar graph or pictograph – grid is provided).	pp. 12, 13, 22, 80, 92I, 92J, 92, 94, 108-117, 120, 127, 132, 135-136, 139-140, 159, 232, 260, 268, 354-355
M4.E.1.2.2 Translate information from one type of display to another (table, chart, bar graph, or pictograph).	pp. 92I, 92J, 95B, 95-97, 101, 104B, 104-107, 112B, 133, 135
ASSESSMENT ANCHOR	
M4.E.2 Select and/or use appropriate statistical methods to analyze data.	
Not assessed at Grade 4.	
ASSESSMENT ANCHOR	
M4.E.3 Understand and apply basic concepts of probability or outcome.	
M4.E.3.1 Predict and/or measure the likelihood of events.	
ELIGIBLE CONTENT	
M4.E.3.1.1 Make a prediction based on data or chance (data may be shown in tables, charts, line graphs, bar graphs or pictographs)	pp. 128A, 128B, 128-130, 131, 138, 139
ASSESSMENT ANCHOR	
M4.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data display.	
Not assessed at Grade 4.	