

CORD Communications
CORD Bridges to Algebra and Geometry:
Mathematics in Context

correlated to

KENTUCKY
Core Content for Mathematics Assessment
Middle Grades

Number/Computation

Concepts—Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

- MA-M-1.1.1** Rational numbers (integers, fractions, decimals, percents)
SE/TAE: 4-10, 15, 33, 41, 48, 66, 79, 83, 96, 128-133, 139, 146, 147, 159, 161, 175, 182, 196, 236-240, 241-246, 271, 272, 290, 335, 348-353, 361, 396, 438, 472, 536-538, 540, 541, 574, 614, 627, 656
TRB/LSM: 1-6, 107-112, 153-154, 201-206, 207-212, 313-318, 475-480
- MA-M-1.1.2** Irrational numbers (square roots and pi only)
SE/TAE: 449-450, 553, 554, 555, 556, 574, 622-623, 635-637
TRB/LSM: 487-492, 543-548
- MA-M-1.1.3** Meaning of proportion (equivalent ratios)
SE/TAE: 295, 296, 297, 304-310, 338-339, 344, 345
TRB/LSM: 269-274
- MA-M-1.1.4** Place value of whole numbers and decimals
SE/TAE: 4-10, 15, 21, 33, 41, 66, 79, 83, 96, 139, 159, 196, 335, 438
TRB/LSM: 1-6
- MA-M-1.1.5** Positive whole numbers and decimals
SE/TAE: 4-10, 15, 21, 33, 41, 48, 66, 79, 83, 96, 130, 132, 133, 159, 175, 182, 190, 335, 438, 472, 537-538, 540, 541, 574, 614, 656
TRB/LSM: 1-6
- MA-M-1.1.6** Representation of numbers and operations in a variety of equivalent forms using models, diagrams, and symbols (e.g., number lines, 10 by 10 grids, rectangular arrays, number sentences)
SE/TAE: 6, 8, 10, 24, 36, 45, 52, 128, 129, 130, 132, 135, 136, 138, 140, 142, 147, 148-189, 154-159, 236, 237, 239, 241, 244, 247, 248, 252, 254, 255, 259, 261, 266, 271, 285, 287-288, 291, 537-538, 551, 553, 555, 557, 568
TRB/LSM: 1-6, 19-24, 31-36, 37-42, 43-48, 107-112, 113-118, 119-

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124, 125-130, 131-136, 153-154, 201-206, 207-212, 213-218, 219-224, 225-230, 231-236, 475-480, 487-492, 503-504

Skills—Students will perform the following mathematical operations and/or procedures accurately and efficiently, and explain how they work in real-world and mathematical situations

- MA-M-1.2.1** Add, subtract, multiply, and divide rational numbers (fractions, decimals, percents, integers) to solve problems
SE/TAE: 10, 18, 19, 20, 21, 26, 27, 28, 38, 39, 40, 41, 49-51, 54, 55, 56, 57, 63-65, 67, 72, 73, 74, 75, 83, 139, 140-145, 147, 148-153, 154-159, 161, 162-167, 168-173, 174, 175, 182, 183, 202, 254-260, 261-265, 266-270, 287-288, 290, 291, 298, 355-359, 360, 361, 371, 393-395, 396, 397, 410, 418, 472, 500, 510, 534, 538-539, 541, 575
TRB/LSM: 13-18, 19-24, 31-36, 43-48, 53-54, 57-62, 119-124, 125-130, 131-136, 137-142, 219-224, 225-230, 231-236, 253-254, 319-324, 475-480
- MA-M-1.2.2** Compute (e.g., estimate, use pencil and paper, use calculator, round, use mental math) large and small quantities and check for reasonable and appropriate computational results
SE/TAE: 10, 18, 19, 20, 21, 26, 27, 28, 29-35, 38, 39, 40, 41, 42-47, 49-51, 54, 55, 56, 57, 63-65, 66, 67, 72, 73, 74, 75, 83, 139, 140-145, 147, 148-153, 154-159, 161, 162-167, 168-173, 174, 182, 183, 202, 254-260, 261-265, 266-270, 287-288, 290, 291, 298, 355-359, 361, 362-366, 371, 393-395, 396, 397, 410, 418, 472, 500, 510, 534, 538-539, 541, 575
TRB/LSM: 13-18, 19-24, 25-30, 31-36, 37-42, 43-48, 53-54, 57-62, 119-124, 125-130, 131-136, 137-142, 219-224, 225-230, 231-236, 253-254, 319-324, 325-330, 475-480
- MA-M-1.2.3** Apply ratios, proportional reasoning, and percents (e.g., constant rate of change, unit pricing)
SE/TAE: 294-298, 299-303, 304-310, 311-315, 316-321, 322-326, 327-332, 333-337, 338-343, 344, 345, 348-349, 350, 352, 353, 354-361, 362-366, 367-373, 374-380, 381-388, 389-395, 396-397
TRB/LSM: 257-262, 263-268, 269-274, 275-280, 281-286, 287-292,

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293-298, 299-304, 309-310, 313-318, 319-324, 325-330, 331-336,
337-342

MA-M-1.2.4 Identify and use number theory concepts [prime numbers, prime factorization, composite numbers, factors, multiples, divisibility, greatest common factor (GCF), least common multiple (LCM)] to solve problems

SE/TAE: 238, 239, 240, 248, 256, 257, 285-286, 291

TRB/LSM: 201-206, 213-218, 219-224

MA-M-1.2.5 Apply order of operations

SE/TAE: 18-19, 20, 66, 447, 526, 528, 574

TRB/LSM: 13-18, 463-468

Relationships—Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

MA-M-1.3.1 How whole numbers, natural numbers, integers, fractions, decimals, percents, and irrational numbers (square roots and pi only) relate to each other (e.g., convert between forms of rational numbers, compare, order)

SE/TAE: 6-7, 8, 9, 10, 15, 21, 33, 48, 56, 79, 83, 90, 133, 134-138, 146, 147, 173, 182, 191, 208, 236-240, 241-246, 247-251, 252, 253, 259, 290, 348-353, 360, 396, 410, 425, 465, 493, 534, 549, 649, 685

TRB/LSM: 1-6, 113-118, 153-154, 201-206, 207-212, 213-218, 313-318, 503-504

MA-M-1.3.2 How properties such as commutative, associative, distributive, and identities show relationships among operations and may be used to justify steps in solving problems

SE/TAE: 24-28, 33, 36-41, 48, 66, 157, 158, 188, 189, 193, 194, 199, 205, 206, 369, 376

TRB/LSM: 19-24, 31-36, 131-136, 157-162, 163-168, 169-174, 175-180, 331-336, 337-342

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MA-M-1.3.3 How operations (addition and subtraction; multiplication and division; squaring and taking the square root of a number) are inversely related.
SE/TAE: 168, 170, 180-181, 182, 188, 189, 190, 193, 194, 195, 198, 199, 201, 204, 206, 212, 213, 219, 232
TRB/LSM: 143-148

Geometry/Measurement

Concepts—Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

MA-M-2.1.1 Basic geometric elements that include points, segments, rays, lines, angles, and planes
SE/TAE: 460-465, 466-472, 520
TRB/LSM: 407-412, 413-418

MA-M-2.1.2 Two-dimensional shapes including circles, regular polygons, quadrilaterals (square, rectangle, rhombus, parallelogram, trapezoid), and triangles (acute, obtuse, right, equilateral, scalene, isosceles)
SE/TAE: 473-478, 480-486, 513, 514, 520, 521
TRB/LSM: 419-424, 425-430, 459-460, 553-554

MA-M-2.1.3 Common three-dimensional shapes including spheres, cones, cylinders, prisms (with polygonal bases), and pyramids (with polygonal bases)
SE/TAE: 642, 650, 652-653, 654, 655, 693
TRB/LSM: 563-568, 597-598

MA-M-2.1.4 Congruence, symmetry, and similarity
SE/TAE: 488-493, 503, 504, 507, 508, 509, 520, 584-589
TRB/LSM: 431-436, 443-448, 449-454, 553-554

MA-M-2.1.5 U.S. Customary and metric units of measurement
SE/TAE: 299-303, 344, 543-548, 549, 550, A2, A3
TRB/LSM: 263-268

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Skills—Students will perform the following mathematical operations and/or procedures accurately and efficiently and explain how they work in real-world and mathematical situations:

- MA-M-2.2.1** Identify characteristics (e.g., sides, vertices, angles, faces, edges, congruent parts) of two-dimensional and three-dimensional shapes
SE/TAE: 473-478, 480-486, 513, 514, 520, 521, 642, 650, 652-653, 654, 655, 693
TRB/LSM: 419-424, 425-430, 563-568
- MA-M-2.2.2** Use appropriate tools and strategies (e.g., combining and subdividing shapes) to find measures of both regular and irregular shapes
SE/TAE: 217, 218, 233, 605-613, 615-621, 622-629, 638, 639, 650-656, 657-663, 664-666, 668, 669, 671-679, 680-686, 687-692, 693, 694
TRB/LSM: 187-192, 531-536, 537-542, 543-548, 563-568, 569-574, 575-580, 581-586, 587-592
- MA-M-2.2.3** Move shapes in a coordinate plane: translate (slide), rotate (turn), reflect (flip), and dilate (magnify, reduce)
SE/TAE: 495-500, 501-505, 506-512, 518-519, 520, 521, 593-598, 615-621, 630-631, 638, 639
TRB/LSM: 437-442, 443-448, 449-454, 459-460, 525-530, 537-542, 553-554
- MA-M-2.2.4** Estimate measurements in standard units
SE/TAE: 623, 624-625, 626, 627, 628, 629, 638, 659, 660, 661, 662, 668, 669, 670, 674, 675, 676, 679, 694
TRB/LSM: 543-548, 569-574, 575-580, 581-586
- MA-M-2.2.5** Use formulas to find area and perimeter of triangles and quadrilaterals, area and circumference of circles, and surface area and volume of rectangular prisms
SE/TAE: 217, 218, 233, 605-613, 615-621, 622-629, 638, 639, 650-656, 662, 663, 664-666, 668, 669, 693, 694
TRB/LSM: 187-192, 531-536, 537-542, 543-548, 563-568, 575-580

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MA-M-2.2.6 Estimate and determine measurement of angles
SE/TAE: 466-472, 474, 475, 477, 478, 479, 483, 486, 520, 521
TRB/LSM: 413-418, 419-424, 425-430

MA-M-2.2.7 Use Pythagorean theorem to find hypotenuse
SE/TAE: 557-562, 564-565, 574
TRB/LSM: 493-498

Relationships—Students show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

MA-M-2.3.1 How measurements and measurement formulas are related or different (perimeter and area; rate, time and distance; circumference and area of a circle)
SE/TAE: 217-221, 223, 233, 604-613, 615-621, 622-629, 638, 639, 650-656, 657-663, 664-670, 671-679, 689-690, 693, 694
TRB/LSM: 187-192, 531-536, 537-542, 543-548, 563-568, 569-574, 575-580, 581-586

MA-M-2.3.2 How two-dimensional and three-dimensional figures are related as seen in different orientations (e.g., top view, side view, three-dimensional shapes drawn on isometric dot paper)
SE/TAE: 642-648, 663, 686, 693
TRB/LSM: 557-562

MA-M-2.3.3 How proportional figures are related (scale drawings, similar figures)
SE/TAE: 584-589, 599-604, 615-621, 639, 680-684, 685, 686, 691-692, 694
TRB/LSM: 513-518, 525-530, 537-542, 587-592, 593-594

Probability/Statistics

Concepts—Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

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- MA-M-3.1.1** Meaning of central tendency (mean, median, mode)
SE/TAE: 70-74, 77, 78, 81, 82, 83, 84, 85, 86, 87, 88, 90, 118-120, 123, 124
TRB/LSM: 57-62, 63-68, 69-74, 75-80
- MA-M-3.1.2** Meaning of dispersion (range, cluster, gaps, outliers)
SE/TAE: 72, 76, 78, 81, 82, 83, 85, 86, 87, 88, 89, 90, 122, 123
TRB/LSM: 57-62, 63-68, 69-74, 75-80
- MA-M-3.1.3** Characteristics and appropriateness of graphs (e.g. bar, line, stem-and-leaf, box and whiskers, scatter)
SE/TAE: 80-83, 84, 85-90, 91-96, 97, 98, 99, 100-107, 116, 117-118, 120-121, 122, 123, 125
TRB/LSM: 69-74, 75-80, 81-86, 87-92, 103-104

Skills—Students will perform the following mathematical operations and/or procedures accurately and efficiently, and explain how they work in real-world and mathematical situations:

- MA-M-3.2.1** Organize, represent, analyze, and interpret sets of data
SE/TAE: 70-74, 76-79, 80-83, 84, 85-90, 91-96, 97, 98, 99, 100-107, 116, 117-121, 122, 123, 124, 125
TRB/LSM: 57-62, 63-68, 69-74, 75-80, 81-86, 87-92, 103-104
- MA-M-3.2.2** Construct, and interpret displays of data (e.g., table, circle graph, line plot, stem-and leaf plot, box-and whisker plot)
SE/TAE: 76-79, 80-83, 84, 85-90, 91-96, 97, 98, 99, 100-107, 116, 117-118, 120-121, 122, 123, 125
TRB/LSM: 63-68, 69-74, 75-80, 81-86, 87-92, 103-104
- MA-M-3.2.3** Find mean, median, mode, and range; recognize outliers, gaps, and clusters of data
SE/TAE: 70-74, 76, 77, 78, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 118-120, 122, 123, 124
TRB/LSM: 57-62, 63-68, 69-74, 75-80
- MA-M-3.2.4** Calculate theoretical probabilities and tabulate experimental results

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SE/TAE: 311-315, 327-332, 333-337, 341-343

TRB/LSM: 275-280, 293-298, 299-304, 309-310

- MA-M-3.2.5** Make predictions and draw conclusions from statistical data and probability experiments
SE/TAE: 101, 103, 104, 105, 107, 120-121, 125, 321, 328, 329, 331, 333-335, 341-343, 345
TRB/LSM: 87-92, 293-298, 299-304, 309-310
- MA-M-3.2.6** Use counting techniques, tree diagrams, area models, and tables to solve probability problems
SE/TAE: 311, 314, 316, 317, 318, 319, 322, 327, 328, 329, 331, 332, 333, 335, 337, 339-343, 345
TRB/LSM: 275-280, 281-286, 293-298, 299-304, 309-310
- MA-M-3.2.7** Represent probabilities in multiple ways such as fractions, decimals, percents, and area models.
SE/TAE: 311-315, 316-321, 322-326, 327-332, 333-337, 339-343, 344, 345
TRB/LSM: 275-280, 281-286, 287-292, 293-298, 299-304, 309-310

Relationships—Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

- MA-M-3.3.1** How different representations of data (e.g., tables, graphs, diagrams, plots) are related
SE/TAE: 76, 77, 78, 80-81, 82, 83, 84, 85-86, 88, 89, 90, 92, 93, 96, 98, 100-101, 103, 104, 106, 117-118, 120-121
TRB/LSM: 63-68, 69-74, 75-80, 81-86, 87-92, 103-104
- MA-M-3.3.2** How theoretical probability and experimental probability are related
SE/TAE: 311-315, 327-332, 333-337, 341-343
TRB/LSM: 275-280, 293-298, 299-304, 309-310

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- MA-M-3.3.3** How data gathering, bias issues, faulty data analysis, and misleading representations affect interpretations and conclusions about data (e.g., changing the scale on a graph, polling only a specific group of people, using limited or extremely small sample size)
SE/TAE: 108-115, 124
TRB/LSM: 93-98
- MA-M-3.3.4** How probability and statistics are used to make predictions and/or draw conclusions
SE/TAE: 101, 103, 104, 105, 107, 120-121, 125, 321, 328, 329, 331, 333-335, 341-343, 345
TRB/LSM: 87-92, 293-298, 299-304, 309-310

Algebra Ideas

Concepts—Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

- MA-M-4.1.1** Variables, equations, inequalities, and algebraic expressions
SE/TAE: 16-21, 28, 33, 37, 38, 40, 56, 66, 186-191, 192-197, 198-202, 203-210, 211-216, 217-223, 224-231, 232, 233, 273-277, 278-284, 288-289, 290-291, 304-308, 338-339, 344, 354-356, 358, 367-371
TRB/LSM: 13-18, 157-162, 163-168, 169-174, 175-180, 181-186, 187-192, 237-242, 243-248, 269-274
- MA-M-4.1.2** Functions (e.g., the relationship between time and cost of some long distance phone calls, $y = 2x + 1$) through tables, graphs, verbal rules, and algebraic notations
SE/TAE: 120-121, 405, 406, 409, 411, 412, 420-421, 422, 424, 425, 426, 427, 439-446, 448, 456
TRB/LSM: 363-368, 375-380, 393-398
- MA-M-4.1.3** Rectangular (Cartesian) coordinate system/grid and ordered pairs
SE/TAE: 400-404, 440, 441, 442, 444, 445, 449-450, 451-452, 456
TRB/LSM: 357-362

Skills—Students will perform the following mathematical operations and/or

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procedures accurately and efficiently, and explain how they work in real-world and mathematical situations:

- MA-M-4.2.1** Simplify numerical and algebraic expressions
SE/TAE: 18, 19, 20, 203, 204, 205, 207, 447, 528, 574, 631-634
TRB/LSM: 13-18, 175-180, 463-468
- MA-M-4.2.2** Solve simple equations and inequalities
SE/TAE: 186-191, 192-197, 198-202, 211-216, 232, 233, 273-277, 278-284, 288-289, 290-291
TRB/LSM: 157-162, 163-168, 169-174, 181-186, 197-198, 237-242, 243-248
- MA-M-4.2.3** Model equations and inequalities concretely (e.g., algebra tiles or blocks), pictorially (e.g., graphs, tables), and abstractly (e.g., equations)
SE/TAE: 186, 187, 188, 189, 190, 191, 192-193, 194, 195, 196, 197, 198, 200, 201, 202, 207, 208, 209, 210, 212, 215, 216, 223, 224-226, 232, 233, 273, 276, 277, 280, 281, 282, 283, 284, 290, 291
TRB/LSM: 157-162, 163-168, 169-174, 175-180, 181-186, 197-198, 237-242, 243-248, 249-250
- MA-M-4.2.4** Use variables to describe numerical patterns
SE/TAE: 578-582, 631-634
TRB/LSM: 507-512
- MA-M-4.2.5** Represent and use functions through tables, graphs, verbal rules, and equations
SE/TAE: 120-121, 405, 406, 409, 411, 412, 420-421, 422, 424, 425, 426, 427, 439-446, 448, 456
TRB/LSM: 363-368, 375-380, 393-398
- MA-M-4.2.6** Write and solve equations that represent everyday situations
SE/TAE: 188, 189, 190, 191, 192-193, 194, 195, 196, 197, 198, 200, 201, 202, 207, 208, 209, 210, 212, 215, 216, 223, 224-226, 232, 233, 273, 276, 277, 280, 281, 282, 283, 284, 290, 291
TRB/LSM: 157-162, 163-168, 169-174, 175-180, 181-186, 197-198,

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Relationships—Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

- MA-M-4.3.1** How everyday situations, tables, graphs patterns, verbal rules, and equations relate to each other
SE/TAE: 120-121, 405, 406, 409, 411, 412, 420-421, 422, 424, 425, 427, 439, 446, 448, 449-450, 451-453, 457
TRB/LSM: 363-368, 375-380
- MA-M-4.3.2** How the change in one variable affects the change in another variable (e.g., if rate remains constant, an increase in time results in an increase in distance)
SE/TAE: 120-121, 405, 406, 409, 411, 412, 420-421, 422, 424, 425, 427, 439, 446, 448, 449-450, 451-453, 457
TRB/LSM: 363-368, 375-380, 393-398