



MathScape

Seeing and Thinking Mathematically

Course 1

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STANDARDS	PAGE REFERENCES
<p>Content Standard A: Mathematical facts, concepts, principles, and theories Numeration: Understand and use numeration Measurement: Select and use systems, units, and tools of measurement</p>	
<p>Understanding Numbers</p>	
<p>The student demonstrates conceptual understanding</p> <ul style="list-style-type: none"> of fractions (proper or mixed numbers), decimals, percents (whole number), or integers by 	
<p>[6] N-1 reading, writing, ordering, or [counting L] (M1.2.1)</p>	<p>Student Edition: 108-109, 112-113, 114-115, 147, 149, 150, 210-211, 212-213, 214-215, 228-229, 232-233, 234-235, 244-245, 256, 257, 258, 264, 265, 266, 270</p>
<p>[6] N-2 [identifying place value positions from <u>thousandths to millions</u> L] (M1.2.2)</p>	<p>Student Edition: 62-63, 64-65, 84, 85, 212-213, 257 Teacher's Guide: 62A, 63A, 63, 64A, 67</p>
<p>[6] N-3 converting between whole numbers written in expanded notation and standard form (M1.2.4)</p>	<p>Student Edition: 54-55, 64-65, 81, 85 Teacher's Guide: 54A, 65A</p>

STANDARDS	PAGE REFERENCES
<ul style="list-style-type: none"> of fractions, mixed numbers, or percents by [modeling L], identifying, describing, or illustrating 	
<p>[6] N-4 equal parts of a whole, a region, or a set (M1.2.4)</p>	<p>Student Edition: 108-109, 147</p> <p>Teacher's Guide: 108A, 109A</p>
<p>[6] N-5 equivalent fractions or mixed numbers (M1.2.4 & M3.2.5)</p>	<p>Student Edition: 110-111, 112-113, 114-115, 148, 149, 150</p> <p>Teacher's Guide: 110A, 111A, 112A, 113A, 114A</p>
<p>Understanding Meaning of Operations</p>	
<p>The student demonstrates conceptual understanding of mathematical operations by</p>	
<p>[6] N-6 [using models, explanations, number lines, or real-life situations L] describing or illustrating the relationships among the four basic operations (M1.2.3)</p>	<p>Student Edition: 104-105, 118-119, 120-121, 122-123, 124-125, 126-127, 132-133, 134-135, 136-137, 138-139, 140-141, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 220-221, 222-223, 224-225, 226-227, 260, 261, 262, 263</p> <p>Teacher's Guide: 118A, 119A, 120A, 122A, 124A, 128, 132A, 135A</p>
<p>[6] N-7 [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of adding and subtracting fractions with <u>different</u> denominators (M1.2.5)</p>	<p>Student Edition: 118-119, 120-121, 122-123, 124-125, 126-127, 151, 152, 153, 154, 155</p> <p>Teacher's Guide: 118A, 119A, 120A, 121A, 123A, 124A, 126A</p>
<p>Number Theory</p>	
<p>The student demonstrates conceptual understanding of number theory by</p>	
<p>[6] N-8 describing or illustrating commutative, [<u>associative</u>, <u>inverse</u> L] or identity properties of addition or multiplication using models or explanations (M1.2.7)</p>	<p>See Glencoe's <i>MathScape: Seeing and Thinking Mathematically Course 2</i> © 2005.</p> <p>Student Edition: 96-99, 100-101, 124, 125, 126, 188-189, 214</p> <p>Teacher's Guide: 183</p>
<p>[6] N-9 identifying or describing factors and multiples common to a pair or set of numbers (e.g., Least Common Multiple, L.C.M., or Greatest Common Factor, G.C.F.) (M1.2.6)</p>	<p>Student Edition: 98-99, 100-101, 143, 144</p> <p>Teacher's Guide: 99A, 99, 100A, 101A</p>

STANDARDS	PAGE REFERENCES
<p>[6] N-10 [modeling (base 10 blocks) distributive property L] (M1.3.6)</p>	<p>Student Edition: 62-63, 64-65, 72-73, 84, 85, 88</p> <p>Teacher's Guide: 62A, 63A, 63</p>
<p>Measurable Attributes</p>	
<p>The student demonstrates understanding of measurable attributes by</p>	
<p>[6] MEA-1 [estimating length to the nearest <u>eighth-inch</u> or <u>millimeter</u> L] (M2.2.1)</p>	<p>Student Edition: 259, 292-293, 296-297, 313, 314, 315</p> <p>Teacher's Guide: 292A, 293A, 293</p>
<p>[6] MEA-2 identifying equivalent measures <u>within systems</u></p> <p>English</p> <ul style="list-style-type: none"> • length (inches, feet, yards, miles) • weight (ounces, pounds, [tons L]) • <u>volume (fluid ounces, cups, pints, quarts, gallons)</u> <p>Metric</p> <ul style="list-style-type: none"> • length (millimeters, centimeters, meters, <u>kilometers</u>) • <u>volume (milliliters, liters)</u> (M2.2.2) 	<p>Student Edition: 259, 286-287, 292-293, 294-295, 296-297, 311, 314, 315</p>
<p>Content Standard A: Mathematical facts, concepts, principles, and theories</p> <p>Measurement: Select and use systems, units, and tools of measurement</p> <p>Estimation and Computation: Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools</p> <p>Functions and Relationships: Represent, analyze, and use patterns, relations, and functions</p>	
<p>Measurement Techniques</p>	
<p>The student uses measurement techniques by</p>	
<p>[6] MEA-3 using a scaled ruler to an eighth of an inch or millimeter on a map or drawing (M2.2.1 & M2.2.3)</p>	<p>Student Edition: 286-287, 311</p>
<p>[6] MEA-4 <u>calculating</u> elapsed time (minutes, hours) (M2.2.5)</p>	<p>The following example can be used to help meet this standard.</p> <p>Student Edition: 273 #21</p> <p>Also see Glencoe's <i>MathScape: Seeing and Thinking Mathematically Course 3</i> © 2005.</p> <p>Student Edition: 52-53, 79</p>

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<p>[6] MEA-5 solving real-world problems involving elapsed time between U.S. time zones (including Alaska Standard time) (M2.2.5)</p>	<p>The following example can be used to help meet this standard.</p> <p>Student Edition: 273 #21</p> <p>Also see Glencoe's <i>MathScape: Seeing and Thinking Mathematically Course 3</i> © 2005.</p> <p>Student Edition: 52-53, 79</p> <p>Time zones can be included with further explanation by the teacher.</p>
<p>[6] MEA-6 converting and using equivalent measurements within the same system (M2.2.2)</p>	<p>Student Edition: 264, 292-293, 311, 313, 314</p> <p>Teacher's Guide: 292A</p>
<p>[6] MEA-7 measuring length to the nearest <u>1/8 of an inch</u> or nearest millimeter (M2.2.1)</p>	<p>Student Edition: 286-287, 311</p>
<p>Estimation</p>	
<p>The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by</p>	
<p>[6] E&C-1 identifying or using [a variety of L] strategies (e.g., truncating, rounding to compatible numbers) to estimate the results of addition, subtraction or multiplication from <u>thousandths</u> to millions or simple division (M3.2.1)</p>	<p>Student Edition: 104-105, 129, 134-135, 138-139, 158, 216-217, 220-221, 259, 267, 284-285, 290-291</p> <p>Teacher's Guide: 134A, 139A, 216A, 219</p>
<p>Computation</p>	
<p>The student accurately solves problems (including real-world situations) involving</p>	
<p>[6] E&C-2 [recalling basic addition, subtraction, multiplication, and division facts efficiently L] (M3.2.2)</p>	<p>Student Edition: 100-101, 145</p> <p>Teacher's Guide: 100A, 101A</p>
<p>[6] E&C-3 adding or subtracting whole numbers, fractions with unlike denominators to 12, or decimals to the <u>hundredths place</u> (M3.2.3)</p>	<p>Student Edition: 118-119, 120-121, 122-123, 124-125, 126-127, 151, 152, 153, 154, 220-221, 260</p> <p>Teacher's Guide: 118A, 119A, 120A, 122A, 124A</p>

STANDARDS	PAGE REFERENCES
<p>[6] E&C-4 multiplying whole numbers by two- or <u>three-digit</u> numbers, dividing <u>three-digit</u> numbers by one or <u>two-digit</u> numbers, or <u>multiplying or dividing decimals that represent money by whole numbers</u>, or <u>multiplying or dividing proper fractions</u> (M3.2.4)</p>	<p>Student Edition: 132-133, 134-135, 136-137, 140-141, 157, 158, 159, 161, 222-223, 224-225, 226-227, 262, 263</p> <p>Teacher's Guide: 132A, 135A, 224A, 226A</p>
<p>[6] E&C-5 [developing or interpreting scale models (scale factors such as 1 in. = 1 ft.) L] (M3.2.6)</p>	<p>Student Edition: 280-281, 282-283, 290-291, 300-301, 302-303, 304-305, 309, 310, 311, 314, 315, 316, 317</p> <p>Teacher's Guide: 278, 279, 281A, 288, 289, 298, 299, 301A</p>
<p>Describing Patterns and Functions</p>	
<p>The student demonstrates conceptual understanding of functions, patterns, or sequences by</p>	
<p>[6] F&R-1 extending patterns (<u>found in the number system, formed by multiples, factors, perfect squares up to 100, powers of ten</u>), up to 10 terms, represented in tables, sequences, or in problem situations (M4.2.1)</p>	<p>Student Edition: 324-325, 326-327, 336-337, 354, 355, 359</p> <p>Teacher's Guide: 323, 326A, 346, 347</p>
<p>[6] F&R-2 using rules to express the generalization of a <u>pattern</u> using words, lists, or tables, <u>with or without variables</u> (M4.2.4)</p>	<p>Student Edition: 332-333, 334-335, 336-337, 342-343, 348-349, 350-351, 352-353, 357, 358, 359, 361, 363, 364, 365</p> <p>Teacher's Guide: 333A, 334A, 335A, 337A, 342A, 343A, 349A</p>
<p>[6] F&R-3 identifying or <u>applying multiplication or division</u> patterns to find missing values in a function (M4.2.2)</p>	<p>Student Edition: 324-325, 326-327, 328-329, 332-333, 334-335, 336-337, 342-343, 344-345, 354, 355, 356, 357, 358, 359, 361, 362</p> <p>Teacher's Guide: 324A, 327A, 329A, 333A, 334A, 337A, 343A</p>
<p>[6] F&R-4 [using manipulatives, including a calculator, as tools when describing, extending, or representing a number sequence L] (M4.2.1 & M 4.2.3)</p>	<p>Student Edition: 324-325, 326-327, 328-329, 332-333, 334-335, 336-337, 342-343, 344-345, 354, 355, 356, 357, 358, 359, 361, 362</p> <p>Teacher's Guide: 324A, 327A, 329A, 333A, 334A, 337A, 343A</p>

STANDARDS	PAGE REFERENCES
<p>Content Standard A: Mathematical facts, concepts, principles, and theories Functions and Relationships: Represent, analyze, and use patterns, relations, and functions Geometry: Construct, transform, and analyze geometric figures.</p>	
<p>Modeling and Solving Equations and Inequalities</p>	
<p>The student demonstrates algebraic thinking by</p>	
<p>[6] F&R-5 solving for an unknown <u>represented by a letter</u>, (addition, subtraction, multiplication, or division) (e.g., $3 \cdot n = 15$, $n - 5 = 12$) (M4.2.5)</p>	<p>Student Edition: 332-333, 334-335, 336-337, 357, 358, 359 Teacher's Guide: 332A, 333A, 334A, 337A</p>
<p>Geometric Relationships</p>	
<p>The student demonstrates an understanding of geometric relationships by</p>	
<p>[6] G-1 using the attributes and properties (sides and angles) <u>of regular polygons to identify, classify, or compare regular or irregular polygons</u> (M5.2.1)</p>	<p>Student Edition: 176-177, 178-179, 180-181, 182-183, 198, 199, 220, 201 Teacher's Guide: 176A, 179A, 180A, 183A</p>
<p>[6] G-2 identifying, comparing or describing attributes and properties of circles (radius, and diameter) (M5.2.2)</p>	<p>See Glencoe's <i>MathScape: Seeing and Thinking Mathematically Course 2</i> © 2005. Student Edition: 294-295, 310 Teacher's Guide: 292</p>
<p>[6] G-3 using the attributes and properties of prisms (vertices, <u>length and alignment of edges, shape and number of bases, shape of faces</u>) to [model L], identify, compare, or describe <u>triangular</u> or rectangular prisms (M5.2.2)</p>	<p>Student Edition: 186-187, 188-189, 202, 203 Teacher's Guide: 186A, 187A, 188A, 189A</p>
<p>[6] G-4 identifying a 3-dimensional shape from the 2-dimensional drawing of the shape (M5.2.2)</p>	<p>Student Edition: 190-191, 192-193, 204, 205 Teacher's Guide: 190A, 192A</p>

STANDARDS	PAGE REFERENCES
Similarity, Congruence, Symmetry, and Transformation of Shapes	
The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by	
[6] G-5 identifying, creating, or drawing geometric figures that are congruent, similar, or symmetrical (M5.2.3)	Student Edition: 186-187, 188-189, 282-283, 300, 301
[6] G-6 [drawing or describing the results of transformations of polygons such as slides, turns, or flips L] (M5.2.5)	Student Edition: 168-169, 176-177, 195, 198 Teacher's Guide: 169A
Perimeter, Area, Volume, and Surface Area	
The student solves problems (including real-world situations) by using perimeter, area, or volume by	
[6] G-7 estimating or determining area or perimeter of polygons (parallelograms, trapezoids, triangles) using a key, ruler, or given measures (M5.2.4)	Student Edition: 158, 182-183, 201, 282-283, 284-285, 294-295, 304-305, 318 Teacher's Guide: 182A, 285A, 294A, 295A, 304A,
[6] G-8 [estimating the area and circumference of a circle using a grid or manipulatives and comparing the relationship of the diameter to the circumference (π) L] (M5.2.4 & M5.3.4)	See Glencoe's <i>MathScape: Seeing and Thinking Mathematically Course 2</i> © 2005. Student Edition: 294-295, 298-299, 310, 312 Teacher's Guide: 292, 293
[6] G-9 [estimating or determining the volume of a right rectangular prism using manipulatives and formulas (e.g., cereal box, sand box, planter) L] (M5.3.4)	Student Edition: 284-285, 294-295, 304-305, 306-307 Teacher's Guide: 285A, 288, 289, 294A, 295A, 299, 305A

STANDARDS	PAGE REFERENCES
<p>Content Standard A: Mathematical facts, concepts, principles, and theories Geometry: Construct, transform, and analyze geometric figures. Statistics and Probability: Formulate questions, gather and interpret data, and make predictions</p>	
<p>Position and Direction</p>	
<p>The student demonstrates understanding of position and direction by</p>	
<p>[6] G-10 graphing a vertical or horizontal line segment (given whole number coordinates for its end points) on a coordinate grid or identifying its length or midpoint (e.g., using a map to trace a route and calculate distance) (M5.2.6 & M5.2.7)</p>	<p>Student Edition: 340-341, 342-343, 348-349, 360-364 Teacher's Guide: 340A, 342A</p>
<p>Construction</p>	
<p>The student demonstrates a conceptual understanding of geometric drawings or constructions by</p>	
<p>[6] G-11 [drawing or measuring quadrilaterals with given dimensions or angles L] (M5.3.7)</p>	<p>Student Edition: 180-181, 182-183, 200, 201 Teacher's Guide: 180A</p>
<p>Data Display</p>	
<p>The student demonstrates an ability to classify and organize data by</p>	
<p>[6] S&P-1 [designing an investigation and collecting L], organizing, or displaying, using appropriate scale for <u>data displays</u> (tables, bar graphs, <u>line graphs</u>, or <u>circle graphs</u>), data in real-world problems (e.g., social studies, friends, or school), <u>with whole numbers up to 100</u> (M6.2.1 & M6.2.2)</p>	<p>Student Edition: 14-15, 16-17, 18-19, 22-23, 24-25, 26-27, 39, 40, 41, 42, 43, 44 Teacher's Guide: 14A, 16A, 17A, 19A, 22A, 25, 26A</p>
<p>Analysis and Central Tendency</p>	
<p>The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; or drawing or justifying conclusions) by</p>	
<p>[6] S&P-2 using information from a variety of displays (tables, bar graphs, line graphs, <u>circle graphs</u>, or Venn diagrams) (M6.2.2)</p>	<p>Student Edition: 14-15, 16-17, 18-19, 22-23, 24-25, 26-27, 39, 40, 41, 42, 43, 44 Teacher's Guide: 14A, 16A, 17A, 19A, 22A, 25, 26A</p>

STANDARDS	PAGE REFERENCES
<p>[6] S&P-3 using <u>mean</u>, median, mode, or range (M6.2.3)</p>	<p>Student Edition: 6-7, 8-9, 10-11, 18-19, 22-23, 24-25, 26-27, 30-31, 36, 37, 38, 41, 44, 42, 43</p> <p>Teacher's Guide: 6A, 8A</p>
<p>Probability</p>	
<p>The student demonstrates a conceptual understanding of probability and counting techniques by</p>	
<p>[6] S&P-4 [<u>analyzing whether a game is mathematically fair or unfair</u> by explaining the probability of all possible outcomes L] (M6.2.4)</p>	<p>Student Edition: 30-31, 32-33, 34-35, 45, 46, 47</p> <p>Teacher's Guide: 30A, 32A, 33A</p>
<p>[6] S&P-5 solving or identifying solutions to problems involving <u>possible</u> combinations (e.g., if ice cream sundaes come in 3 flavors with 2 possible toppings, how many different sundaes can be made using only one flavor of ice cream with one topping?) (M6.2.5)</p>	<p>Student Edition: 30-31, 32-33, 45, 46</p> <p>Teacher's Guide: 30A, 32A, 35A</p>
<p>Content Standards B, C, D, and E: Process skills and abilities Applying conceptual knowledge and skills as designated in all strands of Content Standard A by problem solving, communicating, reasoning, and making connections</p>	
<p>Problem Solving: Understand and be able to select and use a variety of problem-solving strategies</p>	
<p>The student demonstrates an ability to problem solve by</p>	
<p>[6] PS-1 selecting, <u>modifying</u>, and applying appropriate problem solving strategies (e.g., graphing, <u>Venn diagrams</u>, tables, lists, <u>working backwards</u>, guess and check, or extend a pattern) and verifying results (M7.3.2)</p>	<p>Student Edition: 324-325, 326-327, 328-329, 348-349, 354, 355, 356, 363</p> <p>Teacher's Guide: 348A, 349A</p>
<p>[6] PS-2 evaluating and interpreting solutions to problems (M7.3.3)</p>	<p>Student Edition: 348-349, 350-351, 352-353, 363, 364, 365</p> <p>Teacher's Guide: 348A, 349A, 351A, 352A, 353A</p>

STANDARDS	PAGE REFERENCES
<p>Communication: Form and use appropriate methods to define and explain mathematical relationships</p>	
<p>The student communicates his or her mathematical thinking by</p>	
<p>[6] PS-3 representing problems using mathematical language including concrete, pictorial, and/or symbolic representation; or using appropriate vocabulary, symbols, and technology to explain mathematical solutions (M8.2.1, M8.2.2, & M8.2.3)</p>	<p>Student Edition: 6-7, 8-9, 10-11, 24-25, 26-27, 30-31, 34-35, 58-59, 78-79, 104-105, 172-173, 192-193</p> <p>Teacher's Guide: 27A</p>
<p>Reasoning: Use logic and reason to solve mathematical problems</p>	
<p>The student demonstrates an ability to use logic and reason by</p>	
<p>[6] PS-4 using informal deductive reasoning in concrete contexts; or justifying answers and mathematical strategies using examples (M9.3.1 & M9.3.3)</p>	<p>Student Edition: 75, 104-105, 129, 134-135, 138-139, 158, 216-217, 220-221, 259, 267, 284-285, 290-291</p> <p>Teacher's Guide: 134A, 139A, 216A, 219</p>
<p>Connections: Apply mathematical concepts and processes to situations within and outside of school.</p>	
<p>The student understands and applies mathematical skills and processes across the content strands by</p>	
<p>[6] PS-5 using real-world contexts such as social studies, friends, school and community (M10.2.1, M10.2.2, & M10.3.2)</p>	<p>Student Edition: 6-7, 10-11, 18-19, 23, 27, 34-35, 52-53, 56-57, 58-59, 172-173, 192-193</p> <p>Teacher's Guide: 18A, 27A, 58A</p>