Grade 6

Prentice Hall
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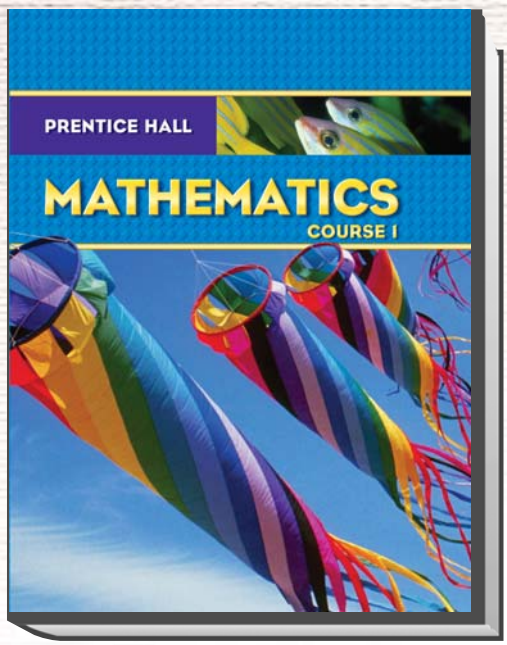

CORRELATED TO

Alaska Standards and Grade Level Expectations
Grade 6

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Alaska Standards and Grade Level Expectations for Math
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Alaska Standards and Grade Level Expectations for Math	PAGE(S) WHERE TAUGHT (If submission is not a text, cite appropriate resource(s))
Content Standard A: Mathematical facts, concepts, principles, and theories	
Numeration: Understand and use numeration	
Measurement: Select and use systems, units, and tools of measurement	
Numeration Performance Standards that apply to grades 4-6:	
M1.2.1 Read, write, model, order, and count with positive whole numbers to 1,000,000 and negative whole numbers. M1.2.2 Use, model, and identify place value positions from 0.001 to 1,000,000. M1.2.3 Model and explain the processes of multiplication and division. Describe the relationships among the four basic operations. M1.2.4 Identify and describe different uses for the same numerical representation. M1.2.5 Model and explain the process of adding and subtracting fractions with common denominators and decimals that represent money. M1.2.6 Identify and describe factors and multiples including those factors and multiples common to a pair or set of numbers. M1.2.7 Demonstrate the commutative and identity properties of multiplication.	
Understanding Numbers	
The student demonstrates conceptual understanding • of fractions (proper or mixed numbers), decimals, percents (whole number), or integers by	
[6] N-1 reading, writing, ordering, or [counting L] (M1.2.1)	**SE/TE:** 4-6, 21-24, 26-29, 175, 181-184, 192-196, 198-201, 331-334, 352, 516-522, 612
	TE: 2D, 514C
[6] N-2 [identifying place value positions from thousandths to millions L] (M1.2.2)	**SE/TE:** 4-7, 21-25, 28, 612, 636
	TE: 2C
[6] N-3 converting between whole numbers written in expanded notation and standard form (M1.2.4) • of fractions, mixed numbers, or percents by [modeling L], identifying, describing, or illustrating	**SE/TE:** 4-6
	TE: 2C
[6] N-4 equal parts of a whole, a region, or a set (M1.2.4)	**SE/TE:** 175
[6] N-5 equivalent fractions or mixed numbers (M1.2.4 & M3.2.5)	**SE/TE:** 176-180, 182-185

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Understanding Meaning of Operations	
The student demonstrates conceptual understanding of mathematical operations by	
[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)	**SE/TE:** 130-141, 240, 543, 572-576, 582
[6] N-7 [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of adding and subtracting fractions with different denominators (M1.2.5)	**SE/TE:** 216-225, 227, 232-233
Number Theory	
The student demonstrates conceptual understanding of number theory by	
[6] N-8 describing or illustrating commutative, [associative, inverse L] or identity properties of addition or multiplication using models or explanations (M1.2.7)	**SE/TE:** 12-15, 126, 134
[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)	**SE/TE:** 166-169, 171-174, 188-191
[6] N-10 [modeling (base 10 blocks) distributive property L] (M1.3.6)	**SE/TE:** 144-146
Measurement Performance Standards that apply to grades 4-6:	
M2.2.1 Estimate and measure weights, lengths, and temperatures to the nearest unit using the metric and standard systems. M2.2.2 Identify and use equivalent measurements (e.g., 60 minutes = 1 hour, 7 days = 1 week). M2.2.3 Use a variety of measuring tools; describe the attribute(s) they measure. M2.2.4 Estimate and measure the dimensions of geometric figures. M2.2.5 Tell time using analog and digital clocks identifying AM and PM; find elapsed time. M2.2.6 Read, write, and use money notation, determining possible combinations of coins and bills to equal given amounts; count back change for any given situation.	
Measurable Attributes	
The student demonstrates understanding of measurable attributes by	
[6] MEA-1 [estimating length to the nearest eighth-inch or millimeter L] (M2.2.1)	**SE/TE:** 288-291, 416-420

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[6] MEA-2 identifying equivalent measures within systems English • length (inches, feet, yards, miles) • weight (ounces, pounds, [tons L]) • volume (fluid ounces, cups, pints, quarts, gallons) Metric • length (millimeters, centimeters, meters, kilometers) • volume (milliliters, liters) (M2.2.2)	**SE / TE:** 288-295, 416-424, T648
Measurement Techniques	
The student uses measurement techniques by	
[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)	**SE / TE:** 186, 227, 296, 420
[6] MEA-4 calculating elapsed time (minutes, hours) (M2.2.5)	**SE / TE:** 246-250
[6] MEA-5 solving real-world problems involving elapsed time between U.S. time zones (including Alaska Standard time) (M2.2.5)	**SE / TE:** 250
[6] MEA-6 converting and using equivalent measurements within the same system (M2.2.2)	**SE / TE:** 288-295, 416-424, T648
[6] MEA-7 measuring length to the nearest 1/8 of an inch or nearest millimeter (M2.2.1)	**SE / TE:** 186, 227, 296, 420

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Estimation and Computation Performance Standards that apply to grades 4-6:	
M3.2.1 Describe and use a variety of estimation strategies including rounding to the appropriate place value, multiplying by powers of 10, and using front-end estimation to check the reasonableness of solutions. M3.2.2 Recall and use basic multiplication and division facts orally, with paper and pencil without a calculator. M3.2.3 Add and subtract whole numbers and fractions with common denominators to 12 and decimals, including money amounts, using models and algorithms. M3.2.4 Multiply and divide multi-digit whole numbers by 2-digit numbers, limiting the 2-digit divisors to those that end in 0; multiply and divide decimals that represent money by whole numbers. M3.2.5 Find equivalent fractions. Convert between fractions and mixed numbers. M3.2.6 Develop and interpret scales and scale models.	
Estimation	
The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by	
[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 thousandths to millions or simple division (M3.2.1)	**SE / TE:** 8-11, 33-34, 212-215
Computation	
The student accurately solves problems (including real-world situations) involving	
[6] E&C-2 [recalling basic addition, subtraction, multiplication, and division facts efficiently L] (M3.2.2)	**SE / TE:** 8-11, 16-19, 638-643
[6] E&C-3 adding or subtracting whole numbers, fractions with unlike denominators to 12, or decimals to the hundredths place (M3.2.3)	**SE / TE:** 8-19, 31-35, 221-225, 638-639
	TE: 210C-210D
[6] E&C-4 multiplying whole numbers by two- or three-digit numbers, dividing three-digit numbers by one or two-digit numbers, or multiplying or dividing decimals that represent money by whole numbers, or multiplying or dividing proper fractions (M3.2.4)	**SE / TE:** 37-42, 44-47, 260-264, 271-275, 640-643
	TE: 258C

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[6] E&C-5 [developing or interpreting scale models (scale factors such as 1 in. = 1 ft.) L] (M3.2.6)	**SE / TE:** 326-329, 396
	TE: 304D
Functions and Relationships Performance Standards that apply to grades 4-6:	
M4.2.1 Use patterns and their extensions to make predictions and solve problems; describe patterns found in the number system including those formed by multiples, factors, perfect squares, and powers of 10. M4.2.2 Generate and solve simple functions by identifying and applying multiplication and division patterns. M4.2.3 Use a calculator to find a missing item in a number sequence. M4.2.4 Use words, lists, and tables to represent and analyze patterns. M4.2.5 Explain the purpose of variables and use them in open sentences to express relationships and describe simple functions.	
Describing Patterns and Functions	
The student demonstrates conceptual understanding of functions, patterns, or sequences by	
[6] F&R-1 extending patterns (found in the number system, formed by multiples, factors, perfect squares up to 100, powers of ten), up to 10 terms, represented in tables, sequences, or in problem situations (M4.2.1)	**SE / TE:** 42, 108-112, 162, 165, 195, 197, 216, 271, 437, 446
	TE: 106C
[6] F&R-2 using rules to express the generalization of a pattern using words, lists, or tables, with or without variables (M4.2.4)	**SE / TE:** 42, 108-112, 162, 165, 195, 197, 216, 271, 437, 446
	TE: 106C
[6] F&R-3 identifying or applying multiplication or division patterns to find missing values in a function (M4.2.2)	**SE / TE:** 558-562
	TE: 514D
[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)	**SE / TE:** 42, 108-112, 195, 271

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Modeling and Solving Equations and Inequalities	
The student demonstrates algebraic thinking by	
[6] F&R-5 solving for an unknown represented by a letter, (addition, subtraction, multiplication, or division) (e.g., 3 • n = 15, n – 5 = 12) (M4.2.5)	**SE / TE:** 112-123, 563, 578-579
	TE: 106C
Geometry: Construct, transform, and analyze geometric figures.	
Geometry Performance Standards that apply to grades 4-6:	
M5.2.1 Identify and compare various triangles and quadrilaterals according to their sides and/or angles. M5.2.2 Compare and contrast plane and solid figures (e.g., circle/sphere, square/cube, triangle/pyramid) using relevant attributes, including the number of vertices, edges, and the number and shape of faces. M5.2.3 Identify and model geometric figures that are congruent, similar, and/or symmetrical. M5.2.4 Distinguish between area and perimeter; find both using a variety of methods including rulers, grid paper, and tiles. M5.2.5 Identify and model transformations of geometric figures, describing the motions as slides, flips, or rotations. M5.2.6 Locate and describe objects in terms of their position with and without compass directions; identify coordinates for a given point or locate points of given coordinates on a grid. M5.2.7 Sketch and identify line segments, midpoints, intersections, parallel, and perpendicular lines.	
Geometric Relationships	
The student demonstrates an understanding of geometric relationships by	
[6] G-1 using the attributes and properties (sides and angles) of regular polygons to identify, classify, or compare regular or irregular polygons (M5.2.1)	**SE / TE:** 380-383, 386-390
	TE: 360c-360D
[6] G-2 identifying, comparing or describing attributes and properties of circles (radius, and diameter) (M5.2.2)	**SE / TE:** 438-441
	TE: 414D

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[6] G-3 using the attributes and properties of prisms (vertices, length and alignment of edges, shape and number of bases, shape of faces) to [model L], identify, compare, or describe triangular or rectangular prisms (M5.2.2)	**SE / TE:** 449-452
	TE: 414D
[6] G-4 identifying a 3-dimensional shape from the 2-dimensional drawing of the shape (M5.2.2)	**SE / TE:** 448, 453-456, 461-464
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)	**SE / TE:** 392-395, 396, 398-401
	TE: 360D
[6] G-6 [drawing or describing the results of transformations of polygons such as slides, turns, or flips L] (M5.2.5)	**SE / TE:** 402-406, 553
	TE: 360D
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)	**SE / TE:** 426-435
	TE: 414C
[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)	**SE / TE:** 437-441, 444-447
	TE: 414D

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[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)	**SE / TE:** 457-460
	TE: 414D
Position and Direction	
The student demonstrates understanding of position and direction by	
[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)	**SE / TE:** 326-329, 372
Construction	
The student demonstrates a conceptual understanding of geometric drawings or constructions by	
[6] G-11 [drawing or measuring quadrilaterals with given dimensions or angles L] (M5.3.7)	**SE / TE:** 390
Statistics and Probability: Formulate questions, gather and interpret data, and make predictions	
Statistics and Probability Performance Standards that apply to grades 4-6:	
M6.2.1 Collect, organize, and display data creating a variety of visual displays including tables, charts, and line graphs. M6.2.2 Present the data using a variety of appropriate representations and explain the meaning of the data. M6.2.3 Describe and interpret a data set using mean, median, mode, and range. M6.2.4 Estimate whether a game is mathematically fair or unfair; analyze and present probability data using simple fractions. M6.2.5 Conduct simple probability experiments using concrete materials and represent the results using fractions and probability.	
Data Display	
The student demonstrates an ability to classify and organize data by	
[6] S&P-1 [designing an investigation and collecting L], organizing, or displaying, using appropriate scale for data displays (tables, bar graphs, line graphs, or circle graphs), data in real-world problems (e.g., social studies, friends, or school), with whole numbers up to 100 (M6.2.1 & M6.2.2)	**SE / TE:** 70-84, 86-90, 93-97

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	TE: 58C-58D
Analysis and Central Tendency	
The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; or drawing or justifying conclusions) by	
[6] S&P-2 using information from a variety of displays (tables, bar graphs, line graphs, circle graphs, or Venn diagrams) (M6.2.2)	**SE / TE:** 70-84, 86-90, 93-97, 104-105
	TE: 58C-58D
[6] S&P-3 using mean, median, mode, or range (M6.2.3)	**SE / TE:** 60-64, 65-69, 71
Probability	
The student demonstrates a conceptual understanding of probability and counting techniques by	
[6] S&P-4 [analyzing whether a game is mathematically fair or unfair by explaining the probability of all possible outcomes L] (M6.2.4)	**SE / TE:** 487, 488-491, 512-513
[6] S&P-5 solving or identifying solutions to problems involving possible 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)	**SE / TE:** 476-480
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	
Problem-Solving Performance Standards that apply to grades 4-6:	
M7.2.1 Read and summarize a problem, using mathematical terms and symbols. M7.2.2 Select and apply a variety of strategies including making a table, chart or list, drawing pictures, making a model, and comparing with previous experience to solve problems. M7.2.3 Explain and verify results of the original problem and apply what was learned to new situations.	
Problem Solving: Understand and be able to select and use a variety of problem-solving strategies	
The student demonstrates an ability to problem solve by	
[6] PS-1 selecting, modifying, and applying appropriate problem solving strategies (e.g., graphing, Venn diagrams, tables, lists, working backwards, guess and check, or extend a pattern) and verifying results (M7.3.2)	**SE / TE:** T22, T46-T55, 142-143

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[6] PS-2 evaluating and interpreting solutions to problems (M7.3.3)	**SE/TE:** 546
Communication Performance Standards that apply to grades 4-6:	
M8.2.1 Use the mathematical vocabulary appropriate to the problem. M8.2.2 Represent mathematical and practical situations using concrete, pictorial, and symbolic representation. M8.2.3 Organize and communicate mathematical problem solving strategies and solutions to problems	
Communication: Form and use appropriate methods to define and explain mathematical relationships	
The student communicates his or her mathematical thinking by	
[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)	**SE/TE:** Sample pages: 21, 42, 142-143, 162-163, 181, 203, 216, 449, 516-517, 577
Reasoning Performance Standards that apply to grades 4-6:	
M9.2.1 Draw logical conclusions about mathematical situations. M9.2.2 Given a rule or generalization, determine whether the example fits. M9.2.3 Justify answers and mathematical strategies as reasonable.	
Reasoning: Use logic and reason to solve mathematical problems	
The student demonstrates an ability to use logic and reason by	
[6] PS-4 using informal deductive reasoning in concrete contexts; or justifying answers and mathematical strategies using examples (M9.3.1 & M9.3.3)	**SE/TE:** 42, 108, 112, 122, 150, 161, 165, 181, 195, 216, 379, 385, 430, 437, 446, 457, 537, 547, 603
Connections Performance Standards that apply to grades 4-6:	
M10.2.1 Apply mathematical processes to social studies. M10.2.2 Apply mathematical skills and processes to situations with friends and school.	
Connections: Apply mathematical concepts and processes to situations within and outside of school.	
The student understands and applies mathematical skills and processes across the content strands by	
[6] PS-5 using real-world contexts such as social studies, friends, school and community (M10.2.1, M10.2.2, & M10.3.2)	**SE/TE:** Sample pages: 7, 10, 15, 41, 133, 168, 229, 325, 390, 423