

A Correlation of

**SCOTT FORESMAN • ADDISON WESLEY**

**Mathematics**

and

**Alaska**  
**Content & Performance Standards**  
**Grade Level Expectations**

**Grades K - 6**



P/M-3

## Introduction

This document demonstrates the high degree of success students will achieve when using Scott Foresman – Addison Wesley Mathematics in meeting the Alaska Content and Performance Standards – Grade Level Expectations. Correlation page references are to the Teacher Edition, which contains facsimile Student Edition pages.

**Scott Foresman – Addison Wesley Mathematics** was carefully developed to reflect the specific needs of students and teachers at every grade level, while maintaining an overall primary goal: to have math make sense from every perspective. This program is based on scientific research that describes how children learn mathematics well and on classroom-based evidence that validates proven reliability.

### ● Reaching All Learners

**Scott Foresman – Addison Wesley Mathematics** addresses the needs of every student through structured instruction that makes concepts easier for students to grasp. Lessons provide step-by-step examples that show students how to think about and solve the problem. Built-in leveled practice in every lesson allows the teacher to customize instruction to match students' abilities. Reaching All Learners, featured in the Teacher Edition, helps teachers meet the diverse needs of the classroom with fun and stimulating activities that are easy to incorporate directly into the lesson plan.

### ● Test Prep

**Scott Foresman - Addison Wesley Mathematics** builds understanding through connections to prior knowledge, math strands, other subjects and the real world. It provides practice for maximum results and offers assessment in a variety of ways. Besides carefully placed reviews at the end of each Section, an important Test Prep strand runs throughout the program. Writing exercises prepare students for open-ended and short-or extended-response questions on state and national tests. Spiral review in a test format help students keep their test-taking skills sharp.

### ● Priority on problem solving:

Problem-solving instruction is systematic and explicit. Reading connections help children with problem-solving skills and strategies for math. Reading for Math Success encourages students to use the reading skills and strategies they already know to solve math problems.

### ● Instructional Support

In the Teacher Edition, the Lesson Planner provides an easy, at-a-glance planning tool. It identifies objectives, math understandings, focus questions, vocabulary, and resources for each lesson in the chapter. Professional Development at the beginning of each chapter in the Teacher Edition includes a Skills Trace as well as Math Background and Teaching Tips for each section in the chapter.

Ancillaries help to reach all learners with practice, problem solving, hands-on math, language support, assessment and teacher support. Technology resources for both the student and the teacher provide a whole new dimension to math instruction by helping to create motivating and engaging lessons.

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**Scott Foresman – Addison Wesley Mathematics  
to the  
Alaska Content and Performance Standards**

**Grades K – 3**

**Content Standard A: Mathematical facts, concepts, principles, and theories**

**Numeration:** Understand and use numeration

**Numeration Performance Standards that apply to grade 3:**

**M1.1.1** Read, write, order, count, and model one-to-one correspondence with whole numbers to 100. **M1.1.2** Use, model, and identify place value positions of 1's, 10's, and 100's. **M1.1.3** Model and explain the processes of addition and subtraction, describing the relationship between the operations. **M1.1.4** Select and use various representations of ordinal and cardinal numbers. **M1.1.5** Identify, model, and label simple fractions, describing and defining them as equal parts of a whole, a region, or a set. **M1.1.6** Identify, describe, and extend patterns inherent in the number system. Skip count by 2's, 5's, and 10's. Add and subtract by 10. Identify even and odd numbers. **M1.1.7** Demonstrate the commutative and identity properties of addition.

**Understanding Numbers**

***The student demonstrates conceptual understanding***

- of whole numbers to one thousand by

**[3] N-1 reading, writing, ordering, or [counting L] (M1.1.1)**

**K:** 53A-53B, 53-54, 55A-55B, 55-56, 57A-57B, 57-58, 59A-59B, 59-60, 61A-61B, 61-62, 65A-65B, 65-66, 69A-69B, 69-70, 77A-77B, 77-78, 79A-79B, 79-80, 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 91A-91B, 91-92, 93A-93B, 93-94, 103A-103B, 103-104, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 111A-111B, 111-112, 117A-117B, 117-118, 289A-289B, 289-290, 291A-291B, 291-292

**1:** R1-R5, R8, 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-10, 241A-241B, 241-242, 263A-263B, 263-264, 267A-267B, 267-268, 281A-281B, 281-282, 283A-283B, 283-284

**2:** 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 95A-95B, 95-96, 101A-101B, 101-102, 103A-103B, 103-104

**3:** 4A-4B, 4-5, 6A-6B, 6-7, 10A-10B, 10-11, 12A-12B, 12-13

**[3] N-2 modeling (base ten blocks) or identifying place value positions to thousands (M1.1.2)**

**K:** Preparation: 101E-101F, 103A-103B, 103-104, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 111A-111B, 111-112, 117A-117B, 117-118, 289A-289B, 289-290

**1:** 281A-281B, 281-282, 283A-283B, 283-284, 285A-285B, 285-286, 287A-287B, 287-288

**2:** 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 91A-91B, 91-92

**3:** 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11, 12A-12B, 12-13, 564A-564B, 564-565, 566A-566B, 566-567

**[3] N-3 using appropriate representations of ordinal or cardinal numbers (M1.1.4)**

**K:** 53A-53B, 53-54, 57A-57B, 57-58, 69A-69B, 69-70, 77A-77B, 77-78, 79A-79B, 79-80, 83A-83B, 83-84, 93A-93B, 93-94, 103A-103B, 103-104, 115A-115B, 115-116, 291A-291B, 291-292

**1:** R1-R8, 240, 241B, 267A-267B, 267-268

**2:** 81A-81B, 81-82, 103A-103B, 103-104

**3:** 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11, 12A-12B, 12-13

**• of simple fractions with denominators 2, 3, 4, or 10 by**

**[3] N-4 identifying, describing with explanations, or illustrating equal parts of a whole, a region, or a set (using models) (M1.1.5)**

**K:** 213A-213B, 213-214, 215A-215B, 215-216

**1:** 181A-181B, 181-182, 183A-183B, 183-184, 185A-185B, 185-186, 187A-187B, 187-188

**2:** 269A-269B, 269-270, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278

**3:** 496E, 496I, 498A-498B, 498-501, 502A-502B, 502-503

**[3] N-5 identifying, describing with explanations, or illustrating equivalent representation of fractions (using models) (M1.1.5)****K:** 213A-213B, 213-214, 215A-215B, 215-216**1:** 181A-181B, 181-182, 183A-183B, 183-184, 185A-185B, 185-186, 187A-187B, 187-188**2:** 269A-269B, 269-270, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278**3:** 496E, 496I, 498A-498B, 498-501, 502A-502B, 502-503, 504A-504B, 504-505**Understanding Meaning of Operations*****The student demonstrates conceptual understanding of mathematical operations by*****[3] N-6 [using models, explanations, number lines, or real-life situations L] describing or illustrating the processes of addition and subtraction of whole numbers and their relationships (M1.1.3)****K:** 225A-225B, 225-226, 227A-227B, 227-228, 229A-229B, 229-230, 231A-231B, 231-232, 235A-235B, 235-236, 237A-237B, 237-238, 245A-245B, 245-246, 247A-247B, 247-248, 251A-251B, 251-252, 253A-253B, 253-254, 265A-265B, 265-266, 267A-267B, 267-268, 269A-269B, 269-270, 271A-271B, 271-272, 273A-273B, 273-274**1:** 45A-45B, 45-46, 47A-47B, 47-48, 49A-49B, 49-50, 51A-51B, 51-52, 53A-53B, 53-54, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66, 67A-67B, 67-68, 69A-69B, 69-70, 91A-91B, 91-92, 93A-93B, 93-94, 95A-95B, 95-96, 97A-97B, 97-98, 103A-103B, 103-104, 105A-105B, 105-106, 107A-107B, 107-108, 125A-125B, 125-126, 127A-127B, 127-128, 129A-129B, 129-130, 137A-137B, 137-138, 139A-139B, 139-140, 141A-141B, 141-142, 417A-417B, 417-418, 419A-419B, 419-420, 425A-425B, 425-426, 435A-435B, 435-436, 437A-437B, 437-438, 439A-439B, 439-440, 443A-443B, 443-444**2:** 3A-3B, 3-4, 13A-13B, 13-14, 15A-15B, 15-16**3:** 64I-64J, 64-65, 66A-66B, 66-67, 70A-70B, 70-71

## Number Theory

*The student demonstrates conceptual understanding of number theory by*

**[3] N-7 describing or illustrating identity property of addition (L) (M1.1.7)**

**K:** Preparation: 243K, 253A-253B, 253-254, 255A-255B, 255-256

**1:** 51A-51B, 51-52

**2:** 26, 30, 35, 36, 52

**3:** 66A-66B, 66-67

**[3] N-8 modeling (with manipulatives) and explaining commutative property of addition (L) (M1.1.7)**

**K:** 243K, 253A-253B, 253-254, 255A-255B, 255-256

**1:** 93A-93B, 93-94, 137A-137B, 137-138, 139-139B, 139-140, 141A-141B, 141-142

**2:** 23A-23B, 23-24, 49A-49B, 49-50, 187A-187B, 187-188

**3:** 66A-66B, 66-67

**[3] N-9 identifying or using patterns in the number system (skip count by 2's, 5's, or 10's; add or subtract by 10; even or odd numbers) (M1.1.6)**

**K:** 35A-35B, 35-36, 37A-37B, 37-38, 39A-39B, 39-40, 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 113A-113B, 113-114, 295A-295B, 295-296

**1:** 181A-181B, 181-182, 183A-183B, 183-184, 185A-185B, 185-186, 187A-187B, 187-188

**2:** 99A-99B, 99-100, 413A-413B, 413-414, 467A-467B, 467-468

**3:** 24A-24B, 24-26, 258-259, 277, 282, 286, 288A-288B, 288-289, 340A-340B, 340-341

**Measurement:** Select and use systems, units, and tools of measurement

**Measurement Performance Standards that apply to grade 3:**

**M2.1.1** Compare and order objects by various measurable attributes including calendar, temperature, length, weight, capacity, area, and volume. **M2.1.2** Compare objects to standard and non-standard units to identify objects that are greater than, less than, and equal to a given unit. **M2.1.3** Choose a unit of measure, estimate the length or weight of objects and then measure to check for reasonableness. **M2.1.4** Tell time to the nearest half hour, distinguishing between morning, afternoon, and evening. **M2.1.5** Identify coins, their value, and the value of given sets of coins.

**Measurable Attributes**

*The student demonstrates understanding of measurable attributes by*

**[3] MEA-1 estimating length to the nearest inch or foot (L) (M2.1.3)**

**K:** Preparation: 141A-141B, 141-142

**1:** 371A-371B, 371-372, 373A-373B, 373-374

**2:** 343A-343B, 343-344, 345A-345B, 345-346

**3:** 532A-532B, 532-533

**[3] MEA-2 comparing and ordering objects according to measurable attribute (calendar, length, [temperature, weight, area, or volume L]) (M2.1.1)**

**K:** 133A-133B, 133-134, 135A-135B, 135-136, 137A-137B, 137-138, 145A-145B, 145-146, 149A-149B, 149-150

**1:** 365A-365B, 365-366, 369A-369B, 369-370, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 383A-383B, 383-384, 385A-385B, 385-386, 387A-387B, 387-388, 389A-389B, 389-390, 391A-391B, 391-392, 393A-393B, 393-394, 397A-397B, 397-398

**2:** 341A-341B, 341-342, 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 355A-355B, 355-356, 357A-357B, 357-358, 359A-359B, 359-360, 363A-363B, 363-364, 365A-365B, 365-366, 367A-367B, 367-368, 369A-369B, 369-370

**3:** 200A-200B, 200-201, 532A-532B, 532-533, 538B, 542A-542B, 542-543,



**[3] MEA-3 identifying or describing objects that are greater than, less than, or equal to a unit of measure (standard or non-standard) (M2.1.2)****K:** 139A-139B, 139-140, 147A-147B, 147-148, 151A-151B, 151-152**1:** 365A-365B, 365-366, 383A-383B, 383-384, 389A-389B, 389-390**2:** 341A-341B, 341-342, 353A-353B, 353-354, 363A-363B, 363-364**3:** 678I, 680A-680B, 680-683, 684A-684B, 684-685690A-690B, 690-693, 694A-694B, 694-695, 696A-696B, 696-697**[3] MEA-4 selecting an appropriate unit of English, metric, or non-standard measurement to estimate length, time, weight, or temperature (M2.1.3)****K:** 141A-141B, 141-142, 147A-147B, 147-148, 151a-151B, 151-152, 153A-153B, 153-154, 177A-177B, 177-178**1:** 205A-205B, 205-206, 221A-221B, 221-222, 365A-365B, 365-366, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 383A-383B, 383-384, 389A-389B, 389-390, 395A-395B, 395-396**2:** 297A-297B, 297-298, 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 365A-365B, 365-366, 367A-367B, 367-368, 369A-369B, 369-370**3:** 198A-198B, 198-199, 678I, 680A-680B, 680-683, 684A-684B, 684-685690A-690B, 690-693, 694A-694B, 694-695, 696A-696B, 696-697**[3] MEA-5 identifying coins, their value, or the value of a set of coins (M2.1.5)****K:** 179A-179B, 179-180, 181A-181B, 181-182, 183A-183B, 183-184, 187A-187B, 187-188, 189A-189B, 189-190**1:** 331A-331B, 331-332, 333A-333B, 333-334, 335A-335B, 335-336, 337A-337B, 337-338, 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348**2:** 109A-109B, 109-110, 111A-111B, 111-112, 113A-113B, 113-114, 115A-115B, 115-116, 117A-117B, 117-118, 121A-121B, 121-122**3:** 2F, 36A-36B, 36-39

## Measurement Techniques

*The student demonstrates ability to use measurement techniques using pictorial representations [or manipulatives L] in real-world contexts by*

**[3] MEA-6 measuring length to the nearest half-inch (M2.1.3)**

**K:** Preparation: 139A-139B, 139-140

**1:** Preparation: 371A-371B, 371-372

**2:** Preparation: 343A-343B, 343-344

**3:** 534A-534B, 534-535

**[3] MEA-7 telling time to the nearest 1/4 hour using an analog clock or [distinguishing morning, afternoon, or evening L] (M2.1.4)**

**K:** 171A-171B, 171-172, 173A-173B, 173-174

**1:** 207A-207B, 207-208, 209A-209B, 209-210, 211A-211B, 211-212, 219A-219B, 219-220

**2:** 291A-291B, 291-292, 293A-293B, 293-294, 295A-295B, 295-296, 301A-301B, 301-302

**3:** 192A-192B, 192-195

**[3] MEA-8 determining elapsed time using a calendar (M2.2.5)**

**K:** 123A-123b, 123-124, 167A-167B, 167-168

**1:** 225A-225B, 225-226

**2:** 303A-303B, 303-304

**3:** 200A-200B, 200-201

**[3] MEA-9 counting back change from \$1.00 (L) (M2.2.6)**

**K:** Preparation: 187A-187B, 187-188

**1:** Preparation: 347A-347B, 347-348

**2:** 119A-119B, 119-120

**3:** 40A-40B, 40-41

**Estimation and Computation:** Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools

**Estimation and Computation Performance Standards that apply to grade 3:**

**M3.1.1** Make reasonable estimates of “how many” and “how much”; estimate the results of simple addition and subtraction problems. **M3.1.2** Recall and use basic addition and subtraction facts orally and with paper and pencil without a calculator.

**M3.1.3** Add and subtract whole numbers to 100 using a variety of models and algorithms. **M3.1.4** Model multiplication as repeated addition and grouping objects; model division as “sharing equally” and grouping objects.

**Estimation**

*The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by*

**[3] E&C-1 finding “how many” or “how much” to 50 (M3.1.1)**

**K:** 119A-119B, 119-120

**1:** 247A-247B, 247-248, 249A-249B, 249-250

**2:** 114, 432, 480

**3:** 90A-90B, 90-91

**[3] E&C-2 estimating the results of simple addition and subtraction problems up to 1,000 (M3.1.1)**

**K:** 251A-251B, 251-253, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278

**1:** 141A-141B, 141-142, 439A-439B, 439-440

**2:** 141A-141B, 141-142, 149A-149B, 149-150, 191A-191B, 191-192, 229A-229B, 229-230, 429A-429B, 429-430, 445A-445B, 445-446

**3:** 86A-86B, 86-89, 98A-98B, 98-101

## Computation

*The student accurately solves problems (including real-world situations) by*

**[3] E&C-3 recalling basic addition and subtraction facts, sums to 20, and corresponding subtraction facts efficiently (L) (M3.1.2)**

**K:** 251A-251B, 251-253, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278

**1:** 91A-91B, 91-92, 93A-93B, 93-94, 95A-95B, 95-96, 97A-97B, 97-98, 103A-103B, 103-104, 105A-105B, 105-106, 107A-107B, 107-108, 125A-125B, 125-126, 127A-127B, 127-128, 129A-129B, 129-130, 137A-137B, 137-138, 139A-139B, 139-140, 141A-141B, 141-142

**2:** 43A-43B, 43-44, 45A-45B, 45-46, 47A-47B, 47-48, 49A-49B, 49-50, 51A-51B, 51-52, 53A-53B, 53-54, 57A-57B, 57-58, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66

**3:** 70A-70B, 70-71

**[3] E&C-4 adding or subtracting two digit whole numbers (M3.1.3)**

**K:** Preparation: 251A-251B, 251-253, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278

**1:** 457E, 457I-457J, 459A-459B, 459-460, 461A-461B, 461-462, 463A-463B, 463-464

**2:** 139A-139B, 139-140, 179A-179B, 179-180, 181A-181B, 181-182

**3:** 126A-126B, 126-127, 148A-148B, 148-149

**[3] E&C-5 using repeated addition to model multiplication with whole numbers with products to 25 (M3.1.4)**

**K:** Preparation: 287A-287B, 287-288, 293A-293B, 293-294, 295A-295B, 295-296, 297A-297B, 297-298

**1:** 255A-255B, 255-256, 257A-257B, 257-258, 261-262, 451

**2:** 469A-469B, 469-470

**3:** 260A-260B, 260-261

**[3] E&C-6 using grouping or “sharing equally” to model division with whole numbers to 25 (M3.1.4)**

**K:** Preparation: 287A-287B, 287-288, 293A-293B, 293-294, 295A-295B, 295-296, 297A-297B, 297-298

**1:** Preparation: 181A-181B, 181-182, 191A-191B, 191-192

**2:** 483A-483B, 483-484, 485A-485B, 485-486

**3:** 370A-370B, 370-371, 522A-522B, 522-523

**Functions and Relationships:** Represent, analyze, and use patterns, relations, and functions

**Functions and Relationships Performance Standards that apply to grade 3:**

**M4.1.1** Recognize, describe, create, and extend repeating and increasing patterns with a variety of materials including symbols, objects, and manipulatives. **M4.1.2** Generate and solve simple functions by identifying and applying addition and subtraction patterns.

**M4.1.3** Use a calculator to find and extend patterns in the number system. **M4.1.4** Complete open space sentences with missing numbers; use appropriate vocabulary including greater than, less than, and equal to; and use the correct symbols.

**Describing Patterns and Functions**

*The student demonstrates conceptual understanding of functions by*

**[3] F&R-1 identifying a missing element in a pattern up to the next three terms (identifying a number using addition or subtraction or objects); or explaining how missing elements could be found (M4.1.1)**

**K:** 35A-35B, 35-36, 37A-37B, 37-38, 39A-39B, 39-40, 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 95A-95B, 95-96, 293A-293B, 293-294, 295A-295B, 295-296, 297-298

**1:** 1I, R11-R14, 27A-27B, 27-28, 29A-29B, 29-30, 33A-33B, 33-34, 243A-243B, 243-244, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262, 274

**2:** 26, 99A-99B, 99-100, 157A-157B, 157-158, 413A-413B, 413-414, 467A-467B, 467-468

**3:** 24A-24B, 24-27, 277, 282, 286, 288-289, 332A-332B, 332-335, 340A-340B, 340-341, 344A-344B, 344-345

**[3] F&R-2 expressing a generalization of a pattern using words (L) (M4.1.1 & M4.1.2)**

**K:** 287A-287B, 287-288, 293A-293B, 293-294, 295A-295B, 295-296, 297-298

**1:** 1I, R11-R14, 27A-27B, 27-28, 29A-29B, 29-30, 33A-33B, 33-34, 243A-243B, 243-244, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262

**2:** 26, 99A-99B, 99-100, 157A-157B, 157-158, 413A-413B, 413-414, 467A-467B, 467-468

**3:** 24A-24B, 24-27, 72A-72B, 72-73, 277, 282, 286, 288-289, 332A-332B, 332-335, 340A-340B, 340-341, 344A-344B, 344-345

**[3] F&R-3 using manipulatives, including a calculator, as tools when describing, extending, or representing patterns (L) (M4.1.1 & M4.1.3)**

**K:** 35A-35B, 35-36, 37A-37B, 37-38, 39A-39B, 39-40, 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 95A-95B, 95-96, 293A-293B, 293-294, 295A-295B, 295-296, 297-298

**1:** 1I, R11-R14, 27A-27B, 27-28, 29A-29B, 29-30, 33A-33B, 33-34, 243A-243B, 243-244, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262, 274

**2:** 26, 99A-99B, 99-100, 157A-157B, 157-158, 413A-413B, 413-414, 420, 467A-467B, 467-468

**3:** 24A-24B, 24-27, 277, 282, 286, 288-289, 332A-332B, 332-335, 340A-340B, 340-341, 344A-344B, 344-345

**Modeling and Solving Equations and Inequalities*****Modeling and Solving Equations and Inequalities thinking by*****[3] F&R-4 using an open number sentence (addition or subtraction) to solve for an unknown represented by a box or circle (e.g.,  $5+ \square=16$ ,  $\square-7=4$ ,  $5+2= \square$ ) (M4.1.4)**

**K:** 255A-255B, 255-256, 275A-275B, 275-276

**1:** 49A-49B, 49-50, 51A-51B, 51-52, 57A-57B, 57-58, 65A-65B, 65-66, 67A-67B, 67-68, 83, 96, 126, 133A-133B, 133-134, 279, 422, 428, 476

**2:** 19A-19B, 19-20, 29A-29B, 29-30, 91, 159A-159B, 159-160, 399, 401A-401B, 401-402, 443A-443B, 443-444, 487A-487B, 487-488

**3:** 70A-70B, 70-71, 76A-76B, 76-77, 168A-168B, 168-169, 384A-384B, 384-385

**[3] F&R-5 using appropriate vocabulary or symbols for greater than, less than, or equal to (M4.1.4)**

**K:** 255A-255B, 255-256, 275A-275B, 275-276

**1:** 49A-49B, 49-50, 51A-51B, 51-52, 57A-57B, 57-58, 65A-65B, 65-66, 67A-67B, 67-68, 83, 96, 126, 133A-133B, 133-134, 279, 422, 428, 476

**2:** 399A-399B, 399-400

**3:** 18A-18B, 18-21

**Geometry:** Construct, transform, and analyze geometric figures

**Geometry Performance Standards that apply to grade 3:**

**M5.1.1** Identify, sort, describe, model, and compare circles, triangles, and rectangles including squares regardless of orientation. **M5.1.2** Identify, sort, describe, model, and compare solid figures including cubes, cylinders, and spheres. **M5.1.3** Identify and create examples of line symmetry; compare and describe given circles, triangles, and rectangles as larger, smaller, or congruent. **M5.1.4** Demonstrate conservation of area using drawings or manipulatives. **M5.1.5** Describe and identify geometric transformations including slides, flips, and turns. **M5.1.6** Use comparative directional and positional words: above, below, inside, outside, on, in, right and left, horizontal, vertical, and middle. **M5.1.7** Draw and build familiar shapes.

**Geometric Relationships**

*The student demonstrates an understanding of geometric relationships by*

**[3] G-1 using the number or length of sides to identify, describe, [model L], or compare triangles or rectangles (including squares) (M5.1.1)**

**K:** 255A-255B, 255-256, 275A-275B, 275-276

**1:** 165A-165B, 165-166, 167A-167B, 167-168

**2:** 249A-249B, 249-250

**3:** 450A-450B, 450-453, 454A-454B, 454-455

**[3] G-2 using the attributes and properties of plane figures to [model L], identify, compare, or describe plane figures (circles, rectangles, squares, and triangles)[and solid figures (cubes, cylinders, or spheres) L] (M5.1.1 & M5.1.2)**  
K: 197A-197B, 197-198, 199A-199B, 199-200, 201A-201B, 201-202, 255A-255B, 255-256, 275A-275B, 275-276

1: R9, 157A-157B, 157-158, 159A-159B, 159-160, 161A-161B, 161-162  
165A-165B, 165-166, 167A-167B, 167-168

2: 247A-247B, 247-248, 249A-249B, 249-250

3: 432A-432B, 432-435, 450A-450B, 450-453, 454A-454B, 454-455

### **Similarity, Congruence, Symmetry, and Transformation of Shapes**

*The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by*

**[3] G-3 identifying, creating, or drawing lines of symmetry for real-world objects (e.g., block letters, flags, insects) (M5.1.3)**

K: 211A-211B, 211-212

1: 171A-171B, 171-172

2: 261A-261B, 261-262

3: 460A-460B, 460-461

**[3] G-4 comparing or describing shapes (circles, triangles, or rectangles) as “larger than,” “smaller than,” or “congruent to,” a given shape (M5.1.3)**

K: 133A-133B, 133-134

1: 169A-169B, 169-170

2: 257A-257B, 257-258

3: 456A-456B, 456-459



**[3] G-5 illustrating or identifying the results of transformations (slides) of polygons (M5.1.5)****K:** 207A-207B, 207-208**1:** 173A-173B, 173-174**2:** 259A-259B, 259-260**3:** 456A-456B, 456-459**Perimeter, Area, Volume, and Surface Area***The student solves problems using perimeter or area by***[3] G-6 estimating or determining area or perimeter of rectangular or square shapes on grids (M5.1.4)****K:** 143A-143B, 143-144**1:** 167A-167B, 167-168, 169A-169B, 169-170**2:** 351A-351B, 351-352**3:** 464A-464B, 464-467, 468A-468B, 468-471**Position and Direction***The student demonstrates understanding of position and direction by***[3] G-7 using directional terms (inside, outside, right, left, horizontal, vertical) to describe relative location of objects in a picture (L) (M5.1.6)****K:** 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-10**1:** R10, 315A-315B, 315-316, 317A-317B, 317-318**2:** 325B, 326**3:** 218A-218B, 218-221

## Construction

The student demonstrates a conceptual understanding of geometric drawings or constructions by

**[3] G-8 drawing real-world objects that consist of geometric shapes (squares, rectangles, triangles, or circles) (L) (M5.1.7)**

**K:** 203A-203B, 203-204, 205A-205B, 205-206, 207A-207B, 207-208, 209A-209B, 209-210

**1:** 165B, 165-166, 167-168, 169B, 169-170, 177A-177B, 177-178

**2:** 255A-255B, 255-256

**3:** 429-430, 433, 448, 452

**Statistics and Probability:** Formulate questions, gather and interpret data, and make predictions

**Statistics and Probability Performance Standards that apply to grade 3:**

**M6.1.1** Collect, record, organize, display, and explain the classification of data.

**M6.1.2** Describe data from a variety of visual displays including tallies, tables, pictographs, bar graphs, and Venn diagrams. **M6.1.3** Use the terms “maximum” and “minimum” when working with a data set. **M6.1.4** Find and record the possibilities of simple probability experiments; explain differences between chance and certainty, giving examples. **M6.1.5** Conduct a survey and tally the results.

## Data Display

The student demonstrates an ability to classify and organize data by

**[3] S&P-1 [designing an investigation and collecting, recording L], organizing, displaying, or explaining the classification of data in real-world problems (e.g., literature, self, or family), using bar graphs, and [Venn diagrams L] (M6.1.1, M6.1.2, & M6.1.5)**

**K:** 27A-27B, 27-28, 29A-29B, 29-30, 31A-31B, 31-32, 33A-33B, 33-34, 53A-53B, 53-54, 67A-67B, 67-68, 203A-203B, 203-204, 205A-205B, 205-206, 207A-207B, 207-208, 209A-209B, 209-210

**1:** R15-R16, 309A-309B, 309-310, 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316

**2:** 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316, 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324, 325A-325B, 325-326, 327A-327B, 327-328

**3:** 212A-212B, 212-215, 226A-226B, 226-227, 228A-228B, 228-231, 232A-232B, 232-235

## Analysis and Central Tendency

*The student demonstrates an ability to analyze data (comparing, explaining, interpreting, or justifying conclusions) by*

**[3] S&P-2 using information from a variety of displays (tallies, tables, pictographs, bar graphs, or [Venn diagrams L] (M6.1.2)**

**K:** 27A-27B, 27-28, 29A-29B, 29-30, 31A-31B, 31-32, 33A-33B, 33-34, 53A-53B, 53-54, 67A-67B, 67-68

**1:** R15-R16, 309A-309B, 309-310, 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316

**2:** 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316, 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324, 325A-325B, 325-326, 327A-327B, 327-328

**3:** 204A-204B, 204-207, 208A-208B, 208-210, 212A-212B, 212-215, 226A-226B, 226-227, 228A-228B, 228-231, 232A-232B, 232-235

**[3] S&P-3 using the terms “maximum” or “minimum” (M6.1.3)**

**K:** Preparation: 31-32, 33-34

**1:** Can be developed from: 309A-309B, 309-310, 311A-311B, 311-312, 313A-313B, 313-314

**2:** Can be developed from: 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316, 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324, 325A-325B, 325-326, 327A-327B, 327-328, 333

**3:** 208A-208B, 208-211

## Probability

*The student demonstrates a conceptual understanding of probability by*

**[3] S&P-4 explaining the differences between chance and certainty or recognizing events that may be certain or chance events (L) (M6.1.4)**

**K:** 124A-124B, 124-125

**1:** 401A-401B, 401-402, 403A-403B, 403-404

**2:** 373A-373B, 373-374, 375A-375B, 375-376

**3:** 700A-700B, 700-701, 702A-702B, 702-703

**[3] S&P-5 [finding and recording L] and making predictions about the likelihood of outcomes of a simple probability experiment (e.g., spinner, tossing a coin) (M6.1.4)**

**K:** 124A-124B, 124-125

**1:** 401A-401B, 401-402, 403A-403B, 403-404

**2:** 373A-373B, 373-374, 375A-375B, 375-376

**3:** 700A-700B, 700-701, 702A-702B, 702-703, 704A-704B, 704-707

### **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:** Understand and be able to select and use a variety of problem-solving strategies

**Problem-Solving Performance Standards that apply to grade 3:**

**M7.1.1** Formulate problems from practical and mathematical activities. **M7.1.2** Develop and apply strategies including guess and check, modeling and acting out, drawings, and extending patterns to solve a variety of problems. **M7.1.3** Predict an answer before solving a problem and compare results to check for reasonableness.

*The student demonstrates an ability to problem solve by*

**[3] PS-1 selecting and applying an appropriate strategy (e.g., guess and check, draw a picture, make a model, extend a pattern) to solve a variety of problems (M7.1.2)**

**K:** 19A-19B, 19-20, 21-22, 43A-43B, 43-44, 47-48, 67A-67B, 67-68, 71-72, 95A-95B, 95-96, 97-98, 125A-125B, 125-126, 127-128, 143A-143B, 143-144, 155-156,

185A-185B, 185-186, 191-192, 217A-217B, 217-218, 233A-233B, 233-234, 239- 240, 249A-249B, 249-250, 259-260, 279A-279B, 279-280, 281-282, 297A-297B, 297-298

**1:** 13A-13B, 13-14, 31A-31B, 31-32, 33A-33B, 33-34, 57A-57B, 57-58, 71A-71B, 71-72, 113-113B, 113-114, 133A-133B, 133-134, 143A-143B, 143-144, 145A-145B, 45-146, 177A-177B, 177-178, 191A-191B, 191-192, 193A-193B, 193-194, 215A- 215B, 215-216, 223A-223B, 223-224, 229A-229B, 229-230, 251A-251B, 251-252, 261A-261B, 261-262, 269A-269B, 269-270, 291A-291B, 291-292, 317A-317B, 317- 318, 319A-319B, 319-320, 339A-339B, 339-340, 369A-369B, 369-370, 379A-379B, 379-380, 405A-405B, 405-406, 431A-431B, 431-432, 445A-445B, 445-446, 447A- 447B, 447-448, 467A-467B, 467-468, 481A-481B, 481-482, 483A-483B, 483-484

**2:** 9A-9B, 9-10, 19A-19B, 19-20, 31-32, 57A-57B, 57-58, 67A-67B, 67-68, 69-70, 89A-89B, 89-90, 105A-105B, 105-106, 123-124, 155A-155B, 155-156, 161A-161B, 161-162, 163-164, 189A-189B, 189-190, 197A-197B, 197-198, 199-200, 221A-221B, 221-222, 233A-233B, 233-234, 235-236, 251A-251B, 251-252, 265A-265B, 265-266, 279-280, 311A-311B, 311-312, 327A-327B, 327-328, 329-330, 351A- 351B, 351-352, 377A-377B, 377-378, 379-380, 405A-405B, 405-406, 413A-413B, 413-414, 415-416, 439A-439B, 439-440, 453A-453B, 453-454, 455-456, 479A- 479B, 479-480, 487A-487B, 487-488, 489-490

**3:** 14A-14B, 14-15, 32A-32B, 32-33, 42A-42B, 42-43, 44-45, 76A-76B, 76-77, 102A-102B, 102-103, 104-105, 140A-140B, 140-143, 160A-160B, 160-161, 170-171, 216A-216B, 216-217, 236A-236B, 236-237, 238-239, 270A-270B, 270-273, 284A-284B, 284-285, 294-295, 332A-332B, 332-333, 346A-346B, 346-347, 348-349, 380A-380B, 380-381, 404A-404B, 404-405, 406-407, 436A-436B, 436-439, 474A- 474B, 474-475, 476-477, 528A-528B, 528-529, 540A-540B, 540-541, 578A-578B, 578-579, 588A-588B, 588-589, 590-591, 644A-644B, 644-645, 656A-656B, 656- 657, 658-659, 698A-698B, 698-699, 708A-708B, 708-709, 710-711

**Communication:** Form and use appropriate methods to define and explain mathematical relationships

**Communication Performance Standards that apply to grade 3:**

**M8.1.1** Translate problems from everyday language into math language and symbols.

**M8.1.2** Use manipulatives, models, pictures, and language to represent and communicate mathematical ideas. **M8.1.3** Use everyday language to explain thinking about problem solving strategies and solutions to problems.

***The student communicates his or her mathematical thinking by***

**[3] PS-2 representing mathematical problems using manipulatives, models, pictures, and/or everyday language; or using everyday language to explain thinking about the problem-solving strategies and solutions to problems (M8.1.1, M8.1.2, & M8.1.3)**

**K:** 19A-19B, 19-20, 27A-27B, 27-28, 29A-29B, 29-30, 31A-31B, 31-32, 33A-33B, 33-34, 35A, 53A-53B, 53-54, 53-54, 57A-57B, 57-58, 77A-77B, 77-78, 79A-79B, 79-80, 83A-83B, 83-84, 103A-103B, 103-104, 125A-125B, 125-126, 217A-217B, 217-218, 247A-247B, 247-248, 251A, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 259A-259B, 259-260, 265A, 267A-267B, 267-268, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278, 279A, 281A, 291A-291B, 291-292

**1:** 5, 11, 13A-13B, 13-14, 17, 27, 29, 31, 46, 66, 91, 93, 103, 111A-111B, 114, 138, 139, 146, 157, 161, 169, 171, 177A-177B, 177-178, 188, 194, 205, 207, 215A-215B, 215-216, 220, 230, 243, 252, 270, 291A-291B, 291-292, 294, 299, 301, 310, 313, 314, 317, 320, 323, 337, 340, 343, 351, 354, 356, 368, 371, 373, 382, 385, 401, 406, 409, 426, 431A-431B, 431-432, 434, 448, 459, 467, 470, 481A-481B, 481-482, 484

**2:** 9A-9B, 9-10, 57A-57B, 57-58, 67A-67B, 67-68, 81A-81B, 81-82, 99A-99B, 99-100, 115A-115B, 115-116, 189A-189B, 189-190, 221A-221B, 221-222, 330, 251A-251B, 251-252, 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316, 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324, 439A-439B, 439-440, 479A-479B, 479-480

**3:** 14, 32, 42, 74, 76, 102, 138, 140A-140B, 140-143, 160, 204A-204B, 204-207, 208A-208B, 208-211, 226A-226B, 226-227, 228A-228B, 228-231, 232A-232B, 232-235, 236A-236B, 236-237, 270A-270B, 270-273, 330, 332, 346, 378, 380, 404, 434, 436, 474, 526, 528, 540, 576, 578, 588, 642, 644, 656, 686, 688, 708

**Reasoning:** Use logic and reason to solve mathematical problems

**The student demonstrates an ability to use logic and reason by**

**[3] PS-3 drawing conclusions about mathematical problems; or finding examples that support or refute mathematical statements (M9.1.1 & M9.1.2)**

**K:** 19A-19B, 19-20, 21A-21B, 21-22, 43A-43B, 43-44, 67A-67B, 67-68, 71-72, 95A-95B, 95-96, 97-98, 125A-125B, 125-126, 127-128, 143A-143B, 143-144, 155-156, 185A-185B, 185-186, 191-192, 217A-217B, 217-218, 233A-233B, 233-234, 239-240, 249A-249B, 249-250, 259-260, 279A-279B, 279-280, 281-282, 297A-297B, 297-298

**1:** 13A-13B, 13-14, 31A-31B, 31-32, 33A-33B, 33-34, 57A-57B, 57-58, 71A-71B, 71-72, 79A-79B, 79-80, 99A-99B, 99-100, 111A-111B, 111-112, 113-113B, 113-114, 133A-133B, 133-134, 143A-143B, 143-144, 145A-145B, 145-146, 177A-177B, 177-178, 191A-191B, 191-192, 215A-215B, 215-216, 223A-223B, 223-224, 229A-229B, 229-230, 251A-251B, 251-252, 261A-261B, 261-262, 269A-269B, 269-270, 319A-319B, 319-320, 339A-339B, 339-340, 351A-351B, 351-352, 353A-353B, 353-354, 369A-369B, 369-370, 379A-379B, 379-380, 405A-405B, 405-406, 431A-431B, 431-432, 445A-445B, 445-446, 447A-447B, 447-448, 467A-467B, 467-468, 481A-481B, 481-482

**2:** 9A-9B, 9-10, 19A-19B, 19-20, 31-32, 57A-57B, 57-58, 67A-67B, 67-68, 69-70, 89A-89B, 89-90, 105A-105B, 105-106, 123-124, 155A-155B, 155-156, 161A-161B, 161-162, 163-164, 189A-189B, 189-190, 197A-197B, 197-198, 199-200, 221A-221B, 221-222, 233A-233B, 233-234, 235-236, 251A-251B, 251-252, 265A-265B, 265-266, 279-280, 311A-311B, 311-312, 327A-327B, 327-328, 329-330, 351A-351B, 351-352, 377A-377B, 377-378, 379-380, 405A-405B, 405-406, 413A-413B, 413-414, 415-416, 439A-439B, 439-440, 453A-453B, 453-454, 455-456, 479A-479B, 479-480, 487A-487B, 487-488, 489-490

**3:** 12A-12B, 12-13, 24A-24B, 24-25, 38A-38B, 38-39, 90A-90B, 90-91, 94A-94B, 94-95, 140A-140B, 140-143, 156A-156B, 156-157, 198A-198B, 198-199, 222A-222B, 222-223, 278A-278B, 278-281, 290A-290B, 290-291, 326A-326B, 326-329, 342A-342B, 342-343, 384A-384B, 384-385, 396A-396B, 396-399, 460A-460B, 460-461, 474A-474B, 474-477, 512-A512B, 512-513, 538A-538B, 538-539, 584A-584B, 584-858, 600A-600B, 600-601, 648A-648B, 648-649, 662A-662B, 662-663, 696A-696B, 696-697, 714A-714B, 714-715

**[3] PS-4 explaining whether or not a prediction, estimation, or solution is reasonable (M9.1.3)**

**K:** 19A-19B, 19-20, 43A-43B, 43-44, 67A-67B, 67-68, 95A-95B, 95-96, 125A-125B, 125-126, 143A-143B, 143-144, 185A-185B, 185-186, 217A-217B, 217-218, 233A-233B, 233-234, 249A-249B, 249-250, 279A-279B, 279-280, 297A-297B, 297-298

**1:** 5, 7, 297, 299

**2:** 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 185A-185B, 185-186, 187A-187B, 187-188, 189A-189B, 189-190, 191A-191B, 191-192, 193A-193B, 193-194, 227A-227B, 227-228

**3:** 80A-80B, 80-81, 82A-82B, 82-83, 86A-86B, 86-89, 90A-90B, 90-91, 94A-94B, 94-95, 96A-96B, 96-97, 98A-98B, 98-101, 160A-160B, 160-161

**Connections:** Apply mathematical concepts and processes to situations within and outside of school

**Connections Performance Standards that apply to grade 3:**

**M10.1.1** Apply mathematical skills and processes to literature. **M10.1.2** Apply mathematical skills and processes to situations with self and family.

***The student demonstrates the ability to apply mathematical skills and processes across the content strands by***

**[3] PS-5 using real-world contexts such as literature, self, and family (M10.1.1 & M10.1.2)**

**K:** 1Q-1R, 1, 7B, 11B, 17B, 25M-25N, 25, 43B, 51M-51N, 51, 57B, 67B, 75M-75N, 75, 83B, 91B, 93B, 95B, 101M-101N, 101, 103B, 111B, 125B, 127B, 131M-131N, 131, 137B, 139B, 145B, 155B, 159M-159N, 159, 165B, 171B, 177B, 191B, 195, 197B, 197M-197N, 205B, 209B, 215B, 217B, 223M-223N, 223, 231B, 237B, 239B, 243M-243N, 243A, 251B, 255B, 263M-263N, 263, 269B, 275B, 285M-285N, 285, 291B, 293B

**1:** 1K-1L, 1, 43K-43L, 43, 47B, 53B, 69B, 89K-89L, 89, 91B, 123K-123L, 123, 127B, 155K-155L, 155, 165B, 171B, 185B, 193B, 203K-203L, 203, 205B, 215B, 229B, 239K-239L, 239, 245B, 247B, 249B, 261B, 279K-279L, 279, 319B, 329K-329L, 329, 337B, 343B, 353B, 363K-363L, 363, 395B, 415K-415L, 415, 457K-457L, 457, 477B, 483B



**2:** 1K-1L, 1, 3B, 17B, 41K-41L, 41, 51B, 79K-79L, 79, 121B, 133K-133L, 133, 135B, 159B, 173K-173L, 173, 175B, 209K-209L, 209, 211B, 229B, 245K-245L, 245, 247B, 271B, 289K-289L, 289, 291B, 339K-339L, 339, 341B, 389K-389L, 389, 391B, 425K-425L, 425, 465K-465L, 465, 467B, 485B

**3:** 20, 21, 23, 26, 27, 30, 38, 40, 41, 68, 76, 88, 90, 100, 101, 134, 142, 154, 162, 163, 165, 193, 208, 226, 230

**Scott Foresman – Addison Wesley Mathematics  
to the  
Alaska Content and Performance Standards**

**Grade Four**

**Content Standard A: Mathematical facts, concepts, principles, and theories**

**Numeration:** Understand and use numeration

**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 whole numbers to ten thousands by**

**[4] N-1 reading, writing, ordering, or [counting L] (M1.2.1)**

4: 4A-4B, 4-7, 8A-8B, 8-9, 22A-22B, 22-23, 16A-16B, 16-19, 34A-34B, 34-37, 664-665

**[4] N-2 modeling (base ten blocks) or identifying place value positions to ten thousands (M1.2.2)**

4: 4A-4B, 4-7, 8A-8B, 8-9, 10A-10B, 10-11, 628A-628B, 628-629

**[4] N-3 converting between whole numbers expressed in expanded notation and standard form (M1.2.4)**

4: 4A-4B, 4-6, 628

- of fractions with denominators 2 through 12 by

**[4] N-4 identifying, describing with explanations, or illustrating equal parts of a whole, a region, or a set (using models) (M1.2.4)**

4: 498E, 498I, 500A-500B, 500-501, 502A-502B, 502-503

**[4] N-5 identifying, describing with explanations, or illustrating equivalent fractions or mixed numbers (M1.2.4 & M3.2.5)**

4: 516A-516B, 516-519

## Understanding Meaning of Operations

*The student demonstrates conceptual understanding of mathematical operations by*

**[4] N-6 [using models, explanations, number lines, or real-life situations L] describing or illustrating the processes of multiplication (M1.2.3)**

4: 124A-124B, 124-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139

**[4] N-7 [using models, explanations, number lines, or real-life situations L] describing or illustrating the relationship between multiplication and addition (M1.2.3)**

4: 124A-124B, 124-127

**[4] N-8 [using models, explanations, number lines, or real-life situations L] describing or illustrating the relationship between multiplication and division (M1.2.3)**

4: 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153

**[4] N-9 [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of adding or subtracting fractions with like denominators (2 to 12) (M1.2.5)**

4: 560E, 560I, 564A-564B, 564-567, 574A-574B, 574-577

## Number Theory

*The student demonstrates conceptual understanding of number theory by*

**[4] N-10 describing or illustrating identity property of multiplication (L) (M1.2.7)**

4: 129

**[4] N-11 modeling (with manipulatives) and explaining commutative property of multiplication (L) (M1.2.7)**

4: 288A-288B, 288-289

**[4] N-12 identifying or listing factors and multiples of a number (M1.2.6)**

4: 124, 128, 256A-256B, 256-257, 314A-314B, 314-315, 402A-402B, 402-403, 406A-406B, 406-407

**Measurement:** Select and use systems, units, and tools of measurement**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*****[4] MEA-1 estimating length to the nearest half-inch or centimeter (L) (M2.2.1)**

4: 590A-590B, 590-591, 652A-652B, 652-653

**[4] MEA-2 estimating temperature (degree Celsius or Fahrenheit) or weight (pounds or kilograms) to the nearest unit (L) (M2.2.1)**

4: 594A-594B, 594-595, 656A-656B, 656-657, 664A-664B, 664-665

**[4] MEA-3 identifying or using equivalent measures for length (inch, foot, yard: 12 inches = 1 foot, 3 feet = 1 yard, 36 inches = 1 yard; centimeter, meter: 100 centimeters = 1 meter) (M2.2.2)**

4: 588A-588B, 588-589, 652A-652B, 652-653

**[4] MEA-4 selecting an appropriate unit of metric measurement to estimate length, weight, or temperature (M2.2.1)**

4: 653, 657, 665

## Measurement Techniques

*The student demonstrates ability to use measurement techniques using pictorial representations [or manipulatives L] in real-world contexts by*

**[4] MEA-5 measuring length to the nearest half-inch or [centimeter L] (M2.2.1, M2.2.3, & M2.2.4)**

4: 590A-590B, 590-591, 652A-652B, 652-653

**[4] MEA-6 telling time in 5-minute increments using analog clocks (M2.2.5)**

4: 190A-190B, 190-191

**[4] MEA-7 counting back change from \$5.00 (L) (M2.2.6)**

4: 32A-32B, 32-33

**[4] MEA-8 determining possible combinations of coins and bills equal to given amounts (M2.2.6)**

4: 30A-30B, 30-31

**[4] MEA-9 simulating multiple purchases and calculating the amount of change from a given bill(s) up to \$50.00 (L) (M2.2.6)**

4: 32A-32B, 32-33

**Estimation and Computation:** Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools

**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 and with paper and pencil without a calculator. **M3.2.3** Add and subtract whole numbers, 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*

**[4] E&C-1 identifying or using [a variety of L] strategies (e.g., rounding to appropriate place value, multiplying by powers of ten, using front-end estimation) to estimate the results of whole number addition or subtraction computations to 10,000, or simple multiplication or division (M3.2.1**

4: 62A-62B, 62-63, 64A-64B, 64-67, 68A-68B, 68-71, 72A-72B, 72-73, 258A-258B, 258-261, 316A-316B, 316-319, 368A-368B, 368-371, 636A-636B, 636-637

**Computation**

*The student accurately solves problems (including real-world situations) by*

**[4] E&C-2 recalling basic multiplication facts, products to 100, and corresponding division facts efficiently (L) (M3.2.2)**

4: 148A-148B, 148-149, 150A-150B, 150-151

**[4] E&C-3 adding or subtracting three digit whole numbers (M3.2.3)**

4: 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85

**[4] E&C-4 multiplying two-digit numbers by single-digit numbers (M3.2.4)**

4: 270A-270B, 270-273, 332A-332B, 332-333

**[4] E&C-5 adding fractions with like denominators to 12 (M3.2.3)**

4: 564A-564B, 564-567

**Functions and Relationships:** Represent, analyze, and use patterns, relations, and functions

**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 sequence by*

**[4] F&R-1 extending patterns that use addition, subtraction, multiplication, or symbols, up to 10 terms, represented by models (function machines), tables, sequences, or in problem situations (M4.2.1)**

4: 10A-10B, 10-11, 90A-90B, 90-91, 366A-366B, 366-367, 641

**[4] F&R-2 using rules to express the generalization of a pattern using words, lists, or tables (L) (M4.2.4)**

4: 164A-164B, 164-165

**[4] F&R-3 using manipulatives, including a calculator, as tools when describing, extending, or representing a number sequence (L) (M4.2.1 & M4.2.3)**

4: 10A-10B, 10-11, 90A-90B, 90-91, 128B, 366A-366B, 366-367, 641

**Modeling and Solving Equations and Inequalities**

*The student demonstrates algebraic thinking by*

**[4] F&R-4 using an open number sentence (addition, subtraction, or multiplication) to solve for an unknown represented by a box or circle (e.g.,  $9 \cdot \square = 36$ ,  $\square \cdot 8 = 56$ ,  $3 \cdot 6 = \square$ ) (M4.2.5)**

4: 98A-98B, 98-99, 100a-100b, 100-101, 160A-160B, 160-163, 165, 166A-166B, 166-167, 396A-396B, 396-399, 688A-688B, 688-695

**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*

**[4] G-1 using the attributes and properties of angles to identify and compare triangles (acute, right, or obtuse) and regular polygons (M5.2.1)**

4: 444A-444B, 444-447

**[4] G-2 using the attributes and properties of solid figures (edges, vertices, or the number or shape of faces) to [model L], identify, compare, or describe solid figures (cubes, cylinders, rectangular prisms, or spheres) (e.g., cans, dice, boxes, balls) (M5.2.2)**

4: 434A-434B, 434-437

### **Similarity, Congruence, Symmetry, and Transformation of Shapes**

*The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by*

**[4] G-3 identifying or drawing all lines of symmetry to identify figures that are symmetrical (M5.2.3)**

4: 456A-456B, 456-457

**[4] G-4 identifying shapes that are congruent (M5.2.3)**

4: 452A-452B, 452-455



**[4] G-5 illustrating or identifying the results of transformations (turns) of polygons by continuing a given pattern (M5.2.5)**

4: 452A-452B, 452-455

### **Perimeter, Area, Volume, and Surface Area**

*The student solves problems using perimeter or area by*

**[4] G-6 estimating or determining area or perimeter of rectangles, squares, and irregular shapes on grids with a key or ruler (M5.2.4)**

4: 464A-464B, 464-467, 468A-468B, 468-473

### **Position and Direction**

*The student demonstrates understanding of position and direction by*

**[4] G-7 describing the relative location of places or objects on a map using compass directions of north, south, east, or west (L) (M5.2.6)**

4: Can be developed from lessons on coordinate grid: 212A-212B, 212-215, 692A-692B, 692-695

### **Construction**

**The student demonstrates a conceptual understanding of geometric drawings or constructions by**

**[4] G-8 identifying or drawing parallel or intersecting line segments (L) (M5.2.7)**

4: 440A-440B, 440-443

**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*

**[4] S&P-1 [designing an investigation and collecting L], organizing or displaying, using appropriate scale, data in real-world problems (e.g., social studies, friends, or school), using bar graphs, tables, charts, or diagrams with whole numbers up to 25 (M6.2.1 & M6.2.2)**

4: 204A-204B, 204-205, 206A-206B, 206-207, 208A-208B, 208-211, 216A-216B, 216-221, 222A-222B, 222-223, 226A-226B, 226-229, 230A-230B, 230-231, 232A-232B, 232-233

**Analysis and Central Tendency**

*The student demonstrates an ability to analyze data (comparing, explaining, interpreting, drawing or justifying conclusions) by*

**[4] S&P-2 using information from a variety of displays (tables, bar graphs, or Venn diagrams) (M6.2.2)**

4: 204A-204B, 204-205, 206A-206B, 206-207, 208A-208B, 208-211, 216A-216B, 216-221, 222A-222B, 222-223, 226A-226B, 226-229, 230A-230B, 230-231, 232A-232B, 232-233

**[4] S&P-3 using mode or range with up to 5 pieces of data with a value of 10 or less each (M6.2.3)**

4: 226A-226B, 226-229

## Probability

*The student demonstrates a conceptual understanding of probability and counting techniques by*

**[4] S&P-4 predicting or explaining the probability of all possible outcomes in a simple experiment (e.g., spinners, dice, coins) (M6.2.4)**

4: 704A-704B, 704-705

**[4] S&P-5 determining possible combinations in a given situation involving up to 3 items (e.g., how many ways can you choose two fruits out of a basket containing oranges and bananas?) (M6.2.5)**

4: 704A-704B, 704-705

### **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:** Understand and be able to select and use a variety of Problem-solving strategies

#### **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.

*The student demonstrates an ability to problem solve by*

**[4] PS-1 selecting and applying appropriate strategy (e.g., lists, guess and check, extended patterns) to solve a variety of problems (M7.2.2)**

4: 12A-12B, 12-13, 24A-24B, 24-25, 38A-38B, 38-39, 40-41, 90A-90B, 90-91, 94A-94B, 94-95, 102-103, 140A-140B, 140-143, 156A-156B, 156-157, 168-169, 198A-198B, 198-199, 222A-222B, 222-223, 234-235, 278A-278B, 278-281, 290A-290B, 290-291, 292-293, 326A-326B, 326-329, 342A-342B, 342-343, 344-345, 384A-384B, 384-385, 396A-396B, 396-399, 412-413, 460A-460B, 460-461, 474A-474B, 474-477, 478-479, 512A-512B, 512-513, 538A-538B, 538-539, 540-541, 584A-584B, 584-858, 600A-600B, 600-601, 602-603, 648A-648B, 648-649, 662A-662B, 662-663, 666-667, 696A-696B, 696-697, 714A-714B, 714-715, 716-717

**[4] PS-2 explaining and verifying results of an original problem and applying what was learned to new situations (M7.2.3)**

**4:** 12A-12B, 12-13, 24A-24B, 24-25, 38A-38B, 38-39, 90A-90B, 90-91, 94A-94B, 94-95, 140A-140B, 140-143, 156A-156B, 156-157, 198A-198B, 198-199, 222A-222B, 222-223, 278A-278B, 278-281, 290A-290B, 290-291, 326A-326B, 326-329, 342A-342B, 342-343, 384A-384B, 384-385, 396A-396B, 396-399, 460A-460B, 460-461, 474A-474B, 474-477, 512-A512B, 512-513, 538A-538B, 538-539, 584A-584B, 584-858, 600A-600B, 600-601, 648A-648B, 648-649, 662A-662B, 662-663, 696A-696B, 696-697, 714A-714B, 714-715

**Communication:** Form and use appropriate methods to define and explain mathematical relationships

**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.

***The student communicates his or her mathematical thinking by*****[4] PS-3 representing problems using mathematical language including concrete, pictorial, and/or symbolic representation; or by organizing and communicating mathematical problem solving strategies and solutions to problems (M8.2.1, M8.2.2, & M8.2.3)**

**4:** 4A-4B, 4-7, 8A-8B, 8-9, 12A-12B, 12-13, 24A-24B, 24-25, 28A-28B, 28-29, 34A-34B, 34-37, 38A-38B, 38-39, 90A-90B, 90-91, 94A-94B, 94-95, 140A-140B, 140-143, 156A-156B, 156-157, 198A-198B, 198-199, 204A-204B, 204-205, 206A-206B, 206-207, 208A-208B, 208-211, 212A-212B, 212-213, 216A-216B, 216-221, 222A-222B, 222-223, 278A-278B, 278-281, 290A-290B, 290-291, 326A-326B, 326-329, 342A-342B, 342-343, 384A-384B, 384-385, 396A-396B, 396-399, 460A-460B, 460-461, 474A-474B, 474-477, 500A-500B, 500-501, 502A-502B, 502-503, 504A-504B, 504-507, 512A-512B, 512-513, 538A-538B, 538-539, 584A-584B, 584-858, 600A-600B, 600-601, 624A-624B, 624-627, 648A-648B, 648-649, 662A-662B, 662-663, 696A-696B, 696-697, 714A-714B, 714-715

**Reasoning:** Use logic and reason to solve mathematical problems

**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.

*The student demonstrates an ability to use logic and reason by*

**[4] PS-4 drawing conclusions about mathematical problems (given a rule or generalization, determining whether the example fits) or justifying answers and mathematical strategies (M9.2.1, M9.2.2, & M9.2.3)**

**4:** 12A-12B, 12-13, 24A-24B, 24-25, 38A-38B, 38-39, 90A-90B, 90-91, 94A-94B, 94-95, 98, 99, 140A-140B, 140-143, 156A-156B, 156-157, 198A-198B, 198-199, 222A-222B, 222-223, 278A-278B, 278-281, 290A-290B, 290-291, 326A-326B, 326-329, 342A-342B, 342-343, 384A-384B, 384-385, 396A-396B, 396-399, 460A-460B, 460-461, 474A-474B, 474-477, 512-A512B, 512-513, 538A-538B, 538-539, 584A-584B, 584-858, 600A-600B, 600-601, 648A-648B, 648-649, 662A-662B, 662-663, 692A-692B, 692-694, 696A-696B, 696-697, 714A-714B, 714-715

**Connections:** Apply mathematical concepts and processes to situations within and outside of school

**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.

*The student demonstrates the ability to apply mathematical skills and processes across the content strands by*

**[4] PS-5 using real-world contexts such as social studies, friends, and school (M10.2.1 & M10.2.2)**

**4:** 8B, 9, 18, 30B, 66, 68B, 79, 80B, 84, 131, 134, 146B, 166B, 194, 200B, 211, 214, 232B, 261, 272, 280, 282B, 290B, 328, 332B, 334, 340B, 344B, 371, 404B, 408B, 410, 434B, 436, 437, 440B, 442, 446, 452B, 460B, 470, 500B, 508B, 518, 522B, 524B, 526, 527, 584B, 599, 626, 628B, 630B, 642B, 656B, 694, 696B

**Scott Foresman – Addison Wesley Mathematics  
to the  
Alaska Content and Performance Standards**

**Grade Five**

**Content Standard A: Mathematical facts, concepts, principles, and theories**

**Numeration:** Understand and use numeration

**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 whole numbers to millions by

**[5] N-1 reading, writing, ordering, or [counting L] (M1.2.1)**

5: 4A-4B, 4-5, 6A-6B, 6-7, 712A-712B, 712-714

**[5] N-2 identifying place value positions from tenths to millions (M1.2.2)**

5: 4A-4B, 4-5, 8A-8B, 8-11

**[5] N-3 converting between whole numbers written in expanded notation and standard form (M1.2.4)**

5: 4A-4B, 4-5

- of positive fractions with denominators 1 through 12 and 100 with proper and mixed numbers and benchmark percents (10%, 25%, 50%, 75%, 100%) by

**[5] N-4 modeling, identifying, describing with explanations, or illustrating equal parts of a whole, a region, or a set (M1.2.4)**

5: 392A, 392I, 394A-394B, 394-397, 398A-398B, 398-399

**[5] N-5 modeling, identifying, describing with explanations, or illustrating equivalent fractions or mixed numbers (M1.2.4 & M3.2.5)**

5: 400A-400B, 400-401, 410A-410B, 410-411, 412A-412B, 412-413

## Understanding Meaning of Operations

*The student demonstrates conceptual understanding of mathematical operations by*

**[5] N-6 [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of division and its relationship to subtraction or to multiplication (M1.2.3)**

5: 130E, 130J, 132A-132B, 132-135, 148A-148B, 148-151, 222A-222B, 222-223

**[5] N-7 [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of adding and subtracting proper fractions or mixed numbers (like denominators) (M1.2.5)**

5: 458E-458F, 460A-460B, 460-461, 472A-472B, 472-473

**[5] N-8 [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of adding or subtracting decimals that represent money (M1.2.5)**

5: 38A-38B, 38-39, 40A-40B, 40-41

## Number Theory

*The student demonstrates conceptual understanding of number theory by*

**[5] N-9 describing or illustrating commutative or identity properties of addition or multiplication using models or explanations (M1.2.7)**

5: 22A-22B, 22-25, 66A-66B, 66-67, 76

**[5] N-10 identifying or listing factors and multiples common to a pair or set of numbers (M1.2.6)**

5: 414A-414B, 414-415, 464A-464B, 464-465

**Measurement:** Select and use systems, units, and tools of measurement

**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*

**[5] MEA-1 estimating length to the nearest one-fourth inch or centimeter (L) (M2.2.1)**

5: 532A-532B, 532-533, 534A-534B, 534-535

**[5] MEA-2 estimating temperature (degree Celsius or Fahrenheit, plus or minus 5 degrees) or weight (half pounds or kilograms) to the nearest unit (L) (M2.2.1)**

5: 526F, 568A-568B, 568-569, 620A=620B, 620-621, 622

**[5] MEA-3 identifying or using equivalent measures for weight/mass (16 oz. = 1 pound or 1000 grams = 1 kilogram), length (1000 millimeters = 1 meter), or time (M2.2.2)**

5: 528A-528B, 528-529, 536A-536B, 536-539, 562A-562B, 562-563, 620A-620B, 620-621, 622A-622B, 622-623

**Measurement Techniques**

*The student demonstrates ability to use measurement techniques by*

**[5] MEA-4 measuring temperature or weight using appropriate tools (L) (M2.2.1 & M2.2.3)**

5: 568A-568B, 568-569, 620A-620B, 620-621

**[5] MEA-5 telling time using analog clocks to the nearest minute and using AM or PM (M2.2.5)**

5: 562A-562B, 562-563, 564A-564B, 564-567



**[5] MEA-6 determining possible combinations of coins and bills to given amounts (M2.2.6)**

5: 148A-148B, 148-151, 160A-160B, 160-161

**[5] MEA-7 simulating multiple purchases and calculating the amount of change from given bills up to \$100.00 (L) (M2.2.6)**

5: 148A-148B, 148-151, 160A-160B, 160-161

**[5] MEA-8 measuring length to the nearest  $\frac{1}{4}$  inch or centimeter (M2.2.1)**

5: 532A-532B, 532-533, 534A-534B, 534-535

**Estimation and Computation:** Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools

**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 and with paper and pencil without a calculator. **M3.2.3** Add and subtract whole numbers, 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*

**[5] E& C-1 identifying or using [a variety of L] strategies (e.g., rounding to appropriate place value, multiplying by powers of ten, using front-end estimation to estimate the results of addition or subtraction computations from tenths to 100,000, including money, or simple multiplication or division (M3.2.1)**

5: 28A-28B, 28-31, 68A-68B, 68-70, 86A-86B, 86-87, 138A-138B, 138-143, 204A-204B, 204-209, 474A-474B, 474-475, 494A-494B, 494-495, 672A-672B, 672-675

## Computation

*The student accurately solves problems (including real-world situations) by*

**[5] E& C-2 recalling basic multiplication facts, products to 144, and corresponding division facts efficiently (L) (M3.2.2)**

5: 66A-66B, 66-67, 136A-136B, 136-137

**[5] E&C-3 adding or subtracting four digit whole numbers, fractions with like denominators to 12, or decimals involving money (M3.2.3)**

5: 36A-36B, 36-37, 38A-38B, 38-39, 458E-458F, 460A-460B, 460-461,

**[5] E&C-4 multiplying two-digit whole numbers by two-digit numbers or dividing three-digit whole numbers by single-digit numbers (M3.2.4)**

5: 72A-72B, 72-75, 152A-152B, 152-155, 156A-156B, 156-157

**Functions and Relationships:** Represent, analyze, and use patterns, relations, and functions

**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*

**[5] F&R-1 extending patterns that use addition, subtraction, multiplication, division or symbols, up to 10 terms, represented by models (function machines), tables, sequences, or in problem situations (M4.2.1)**

5: 14A-14B, 14-17, 66A-66B, 66-67, 84A-84B, 84-85, 106A-106B, 106-107, 136A-136B, 136-137, 728A-728B, 728-729

**[5] F&R-2 using rules to express the generalization of a pattern using words, lists, or tables (M4.2.4)**

**5:** 14A-14B, 14-17, 66A-66B, 66-67, 84A-84B, 84-85, 106A-106B, 106-107, 136A-136B, 136-137, 728A-728B, 728-729

**[5] F&R-3 identifying or applying addition or subtraction patterns to find missing values in a function (M4.1.2)**

**5:** 100A-100B, 101-102, 106A-106B, 106-107

**[5] F&R-4 using manipulatives, including a calculator, as tools when describing, extending, or representing a number sequence (L) (M4.2.1 & M4.2.3)**

**5:** 14A-14B, 14-17, 66A-66B, 66-67, 84A-84B, 84-85, 106A-106B, 106-107, 136A-136B, 136-137, 728A-728B, 728-729

## **Modeling and Solving Equations and Inequalities**

*The student demonstrate algebraic thinking by*

**[5] F&R-5 using an open number sentence (addition, subtraction, multiplication, or division) to solve for an unknown represented by a box or circle (e.g.,  $256 \div =8$ ,  $\div 8=56$ ,  $36\div 3=$  ) (M4.2.5)**

**5:** 100A-100B, 100-103, 104A-104B, 104-105, 106A-106B, 106-107, 706A-706B, 706-709

**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*

**[5] G-1 using the attributes and properties of angles and the number, length, and orientation of sides to identify or compare triangles (scalene, isosceles, or equilateral) or quadrilaterals (parallelograms, trapezoids, rhombi) (M5.2.1)**  
5: 342A-342B, 342-345, 346A-346B, 346-351

**[5] G-2 using the attributes and properties of solid figures (edges, vertices, number of faces) to [model L], identify, compare, or describe (cubes, cylinders, cones, spheres, pyramids, or rectangular prisms) (e.g., boxes, buildings, packages) (M5.2.2)**  
5: 594A-594B, 594-597

### Similarity, Congruence, Symmetry, and Transformation of Shapes

*The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by*

**[5] G-3 illustrating or identifying the results of transformation (slides, turns, or flips of polygons) (e.g., pictures of cultural art, fabric designs, architecture, logos) (M5.2.5)**  
5: 364A-364B, 364-367

**[5] G-4 identifying, creating, or drawing geometric figures that are congruent, similar, or symmetrical (M5.2.3)**

5: 360A-360B, 360-363, 368A-368B, 368-371

**[5] G-5 modeling designs (e.g., tessellations) that contain a series of slides, flips, and/or turns (L) (M5.2.5)**

5: 367

### **Perimeter, Area, Volume, and Surface Area**

*The student solves problems including real-world situations using perimeter or area by*

**[5] G-6 estimating or determining area or perimeter of rectangles using a key, ruler, or given measures (M5.2.4)**

5: 540A-540B, 540-541, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557

**[5] G-7 estimating or determining the area and circumference of a circle using a grid or manipulatives (L) (M5.2.4 & M5.3.4)**

5: 542A-542B, 542-544

### **Position and Direction**

*The student demonstrates understanding of position and direction by*

**[5] G-8 locating points of given coordinates on a grid or identifying coordinates for a given point (e.g., items on a treasure map) (L) (M5.2.6)**

5: 724A-724B, 724-727, 728A-728B, 728-729

### **Construction**

*The student demonstrates a conceptual understanding of geometric drawings or constructions by*

**[5] G-9 identifying or drawing perpendicular line segments or midpoints (L) (M5.2.7)**

5: 328A-328B, 328-331

**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*

**[5] S&P-1 [designing an investigation and collecting L], organizing, or displaying, using appropriate scale, data in real-world problems (e.g., social studies, friends, or school), using bar graphs, tables, charts, diagrams, or line graphs with whole numbers up to 50 (M6.2.1 & M6.2.2)**

**5:** 260A-260B, 260-261, 262A-262B, 262-265, 266A-266B, 266-269, 270A-270B, 270-275, 286A-286B, 286-287

**Analysis and Central Tendency**

*The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; drawing or justifying conclusions) by*

**[5] S&P-2 using information from a variety of displays (tables, bar graphs, line graphs, or Venn diagrams) (M6.2.2)**

**5:** 260A-260B, 260-261, 262A-262B, 262-265, 266A-266B, 266-269, 270A-270B, 270-275, 286A-286B, 286-287

**[5] S&P-3 using mode, median, or range with up to 10 pieces of data with a value of 10 or less each (M6.2.3)**

**5:** 258I, 270A-270B, 270-271, 282A-282B, 282-285

## Probability

*The student demonstrates a conceptual understanding of probability by*

**[5] S&P-4 predicting or explaining the probability of all possible outcomes in an experiment using ratios or fractions to describe the probability (M6.2.4)**

**5:** 258F, 258J, 296A-296B, 296-299, 300A-300B, 300-301, 302A-032B, 302-305

**[5] S&P-5 solving or identifying solutions to problems involving money combinations (e.g., how many ways can you make 25 cents using nickels, dimes, or quarters?) (M6.2.5)**

**3:** Grade 3: 36A-36B, 36-39

### **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:** Understand and be able to select and use a variety of problem-solving strategies

#### **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.

*The student demonstrates an ability to problem solve by*

**[5] PS-1 selecting and applying an appropriate strategy (e.g., tables, charts, lists, or graphs; guess and check; extended patterns; making a model) to solve a variety of problems and verify the results (M7.2.2)**

**5:** 18A-18B, 18-19, 32A-32B, 32-33, 42A-42B, 42-43, 80A-80B, 80-81, 104A-104B, 104-105, 144A-144B, 144-145, 168A-168B, 168-169, 210A-210B, 210-211, 226A-226B, 226-227, 276A-276B, 276-279, 272A-272B, 272-273, 352A-352B, 352-355, 356A-356B, 356-357, 406A-406B, 406-407, 434A-434B, 434-437, 484A-484B, 484-487, 504A-504B, 504-505, 558A-558B, 558-559, 570A-570B, 570-571, 606A-606B, 606-607, 624A-624B, 624-625, 660A-660B, 660-661, 664A-664B, 664-665, 706A-706B, 706-709, 720A-720B, 720-721

**[5] PS-2 explaining and verifying results of an original problem and applying what was learned to new situations (M7.2.3)**

**5:** 32A-32B, 32-33, 42A-42B, 42-43, 80A-80B, 80-81, 104A-104B, 104-105, 144A-144B, 144-145, 168A-168B, 168-169, 210A-210B, 210-211, 226A-226B, 226-227, 276A-276B, 276-279, 272A-272B, 272-273, 352A-352B, 352-355, 356A-356B, 356-357, 434A-434B, 434-437, 484A-484B, 484-487, 504A-504B, 504-505, 558A-558B, 558-559, 570A-570B, 570-571, 606A-606B, 606-607, 624A-624B, 624-625, 660A-660B, 660-661, 664A-664B, 664-665, 706A-706B, 706-709, 720A-720B, 720-721

**Communication:** Form and use appropriate methods to define and explain mathematical relationships

**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.

***The student communicates his or her mathematical thinking by*****[5] PS-3 representing problems using mathematical language including concrete, pictorial, and/or symbolic representation; or organizing and communicating mathematical problem solving strategies and solutions using mathematical language (M8.2.1, M8.2.2, & M8.2.3)**

**5:** 6B, 8B, 12A-12B, 12-13, 22B, 24A-24B, 24-25, 26B, 38A-38B, 38-39, 40B, 72B, 76B, 90A-90B, 90-91, 94A-94B, 94-95, 100B, 140A-140B, 140-143, 152B, 156A-156B, 156-157, 158B, 198A-198B, 198-199, 222A-222B, 222-223, 262A-262B, 262-265, 266A-266B, 266-269, 270A-270B, 270-275, 278A-278B, 278-281, 286 A-286B, 286-287, 290A-290B, 290-291, 326A-326B, 326-329, 342A-342B, 342-343, 384A-384B, 384-385, 396A-396B, 396-399, 460A-460B, 460-461, 474A-474B, 474-477, 512-A512B, 512-513, 538A-538B, 538-539, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557 584A-584B, 584-858, 600A-600B, 600-601, 648A-648B, 648-649, 662A-662B, 662-663, 696A-696B, 696-697, 714A-714B, 714-715



**Reasoning:** Use logic and reason to solve mathematical problems

**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.

*The student demonstrates an ability to use logic and reason by*

**[5] PS-4 drawing logical conclusions about mathematical situations (given a rule or generalization, determining whether the example fits); or justifying answers and mathematical strategies as reasonable (M9.2.1, M9.2.2, & M9.2.3)**

**5:** 32A-32B, 32-33, 42A-42B, 42-43, 80A-80B, 80-81, 101B-101B, 101-102, 104A-104B, 104-105, 106A-106B, 106-107, 144A-144B, 144-145, 168A-168B, 168-169, 176A, 176B, 176-179, 210A-210B, 210-211, 226A-226B, 226-227, 276A-276B, 276-279, 272A-272B, 272-273, 352A-352B, 352-355, 356A-356B, 356-357, 406A-406B, 406-407, 434A-434B, 434-437, 484A-484B, 484-487, 504A-504B, 504-505, 558A-558B, 558-559, 570A-570B, 570-571, 606A-606B, 606-607, 624A-624B, 624-625, 660A-660B, 660-661, 664A-664B, 664-665, 706A-706B, 706-709, 720A-720B, 720-721

**Connections:** Apply mathematical concepts and processes to situations within and outside of school

**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.

*The student demonstrates the ability to apply mathematical skills and processes across the content strands by*

**[5] PS-5 using real-world contexts such as social studies, friends, and school (M10.2.1 & M10.2.2)**

**5:** 16, 25, 26B, 30, 68B, 75, 76B, 86B, 96, 104B, 135, 140, 154, 158B, 166, 174B, 179, 216, 217, 236, 265, 278, 291, 299, 330, 335, 344, 364B, 366, 406B, 417, 423, 428, 468, 469, 474B, 493, 528B, 536B, 538, 539, 566, 616B, 620B, 648B, 662B, 699, 700B, 708

**Scott Foresman – Addison Wesley Mathematics  
to the  
Alaska Content and Performance Standards**

**Grade Six**

**Content Standard A: Mathematical facts, concepts, principles, and theories**

**Numeration:** Understand and use numeration

**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)**

**6:** 2E-2F, 4A-4B, 4-7, 8A-8B, 8-9, 12A-12B, 12-13, 76A-76B, 76-77, 78A-78B, 78-79, 110A-110B, 110-111, 160A-160B, 160-163, 176A-176B, 176-179, 354A-354B, 354-357, 358A-358B, 358-361, 408A-408B, 408-409, 410A-410B, 410-411, 412A-412B, 412-413

**[6] N-2 identifying place value positions from thousandths to millions (L) (M1.2.2)**

**6:** 4A-4B, 4-7, 76A-76B, 76-77

**[6] N-3 converting between whole numbers written in expanded notation and standard form (M1.2.4)**

**6:** 4A-4B, 4-7, 8A-8B, 8-9

- of fractions, mixed numbers, or percents by

**[6] N-4 [modeling L], identifying, describing, or illustrating equal parts of a whole, a region, or a set (M1.2.4)**

**6:** 140F, 160A-160B, 160-163

**[6] N-5 [modeling L], identifying, describing, or illustrating equivalent fractions or mixed numbers (M1.2.4 & M3.2.5)**

**6:** 164A-164B, 164-167, 258A-258B, 258-259

## 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)**

**6:** 86A-86B, 86-89, 90A-90B, 90-93, 94A-94B, 94-97, 204A-204B, 204-205, 206A-206B, 206-211, 218A-218B, 218-219, 220A-220B, 220-223, 248A-248B, 248-251, 252A-252B, 252-255, 266A-266B, 266-269, 270A-270B, 270-271

**[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)**

**6:** 202E-202F, 202I-202J, 206A-206B, 206-209

## 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)**

**6:** 28A-28B, 28-29

**[6] N-9 identifying or describing factors and multiples common to a pair or set of numbers (e.g., Least Common Multiple or Greatest Common Factor) (M1.2.6)**

**6:** 150A-150B, 150-151, 152A-152B, 152-153

**[6] N-10 modeling (base 10 blocks) distributive property (L) (M1.3.6)**

**6:** 30A-30B, 30-31

**Measurement:** Select and use systems, units, and tools of measurement

**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)**

6: 550A-550B, 550-551

**[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)

6: 542A-542B, 542-545, 546A-546B, 546-547

**Measurement Techniques**

*The student demonstrates ability to use measurement techniques using pictorial representations [or manipulatives L] in real-world contexts 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)**

6: 550A-550B, 550-551

**[6] MEA-4 calculating elapsed time (minutes, hours) (M2.2.5)**

6: 554A-554B, 554-557

**[6] MEA-5 solving real-world problems involving elapsed time between U.S. time zones (including Alaska Standard time) (M2.2.5)**

6: 559, 560A-560B, 560-561

**[6] MEA-6 converting and using equivalent measurements within the same system (M2.2.2)**

6: 542A-542B, 542-545, 546A-546B, 546-547

**[6] MEA-7 measuring length to the nearest of an inch or nearest millimeter (M2.2.1)**

6: 550A-550B, 550-551

**Estimation and Computation:** Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools

**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 and with paper and pencil without a calculator. **M3.2.3** Add and subtract whole numbers, 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)**

6: 16A-16B, 16-17, 18A-18B, 18-19, 216A-216B, 216-217

## Computation

*The student accurately solves problems (including real-world situations) by*

**[6] E&C-2 recalling basic addition, subtraction, multiplication, and division facts efficiently (L) (M3.2.2)**

6: 30A-30B, 30-31, 32A-32B, 32-33

**[6] E&C-3 adding or subtracting whole numbers, fractions with unlike denominators to 12, or decimals to the hundredths place (M3.2.3)**

6: 86A-86B, 86-89, 206A-206B, 206-209

**[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)**

6: 90A-90B, 90-93, 94A-94B, 94-97, 246E-246F, 246I, 248A-248B, 248-251, 252A-252B, 252-255

**[6] E&C-5 developing or interpreting scale models (scale factors such as 1 in. = 1 ft.) (L) (M3.2.6)**

6: 330A-330B, 330-333

**Functions and Relationships:** Represent, analyze, and use patterns, relations, and functions

**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)**

**6:** 152A-152B, 152-153, 212A-212B, 212-213, 444A-444B, 444-447

**[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)**

**6:** 444A-444B, 444-447

**[6] F&R-3 identifying or applying multiplication or division patterns to find missing values in a function (M4.2.2)**

**6:** 444A-444B, 444-447

**[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)**

**6:** 167, 212A-212B, 212-213, 444A-444B, 444-447

## **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.,  $3 \cdot n = 15$ ,  $n - 5 = 12$ ) (M4.2.5)**

**6:** 40A-40B, 40-43, 44A-44B, 44-47, 48A-48B, 48-51

**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)**

**6:** 494A-494B, 494-495, 496A-496B, 496-499, 500A-500B, 500-501, 502A-502B, 502-503

**[6] G-2 identifying, comparing, or describing attributes and properties of circles (radius and diameter) (M5.2.2)**

**6:** 502A-502B, 502-503

**[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)**

**6:** 586A-586B, 586-588

**[6] G-4 identifying a 3-dimensional shape from the 2-dimensional drawing of the shape (M5.2.2)**

**6:** 586A-586B, 586-588

## 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)**

**6:** 330A-330B, 330-333, 506A-506B, 506-509, 514A-514B, 514-515

**[6] G-6 drawing or describing the results of transformations of polygons such as slides, turns, or flips (L) (M5.2.5)**

**6:** 510A-510B, 510-511



## 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)**

6: 540E-540F, 564A-564B, 564-567, 568A-568B, 568-569, 572A-572B, 572-575

**[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 ( $\square$ ) (L) (M5.2.4 & M5.3.4)**

6: 576A-576B, 576-579, 580A-580B, 580-581

**[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)**

6: 594A-594B, 594-597

## 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 and/or identifying its length or midpoint (e.g., using a map to trace a route and calculate distance) (M5.2.6 & M5.2.7)**

6: 406F, 440A-440B, 440-443, 448A-448B, 448-449

## 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)**

6: 500A-500B, 500-501

**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)**

**6:** 620A-620B, 620-623, 624A-624B, 624-627, 628A-628B, 628-631, 636A-636B, 636-637, 638A-638B, 638-641, 642A-642B, 642-647

**Analysis and Central Tendency**

*The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; 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)**

**6:** 624A-624B, 624-627, 628A-628B, 628-631, 636A-636B, 636-637, 638A-638B, 638-641, 642A-642B, 642-647

**[6] S&P-3 using mean, median, mode, or range (M6.2.3)**

**6:** 624A-624B, 624-627

## 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)**

6: 662A-662B, 662-663

**[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)**

6: 654A-654B, 654-657

### **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:** Understand and be able to select and use a variety of problem-solving strategies

#### **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.

*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 extending a pattern) and verifying results (M7.2.2, M7.3.2)**

6: 36A-36B, 36-37, 52A-52B, 52-53, 54-55, 98A-98B, 98-99, 116A-116B, 116-119, 120-121, 156A-156B, 156-157, 180A-180B, 180-181, 182-183, 212A-212B, 212-213, 226A-226B, 226-227, 228-229, 230-231, 264A-264B, 264-265, 278A-278B, 278-279, 280-281, 312A-312B, 312-313, 324A-324B, 362A-362B, 362-363, 374A-374B, 374, 375, 388-389, 414A-414B, 414-415, 434A-434B, 434-436, 450-451, 490A-490B, 490-491, 512A-512B, 512-513, 520-521, 560A-560B, 560-561, 582A-582B, 582-583, 598-599, 648A-648B, 648-649, 674A-674B, 674-675, 676A-676B, 676-677, 706A-706B, 706-707, 710A-710B, 710-711, 724-725

**[6] PS-2 evaluating and interpreting solutions to problems (M7.3.3)**

**6:** 20A-20B, 20-21, 36A-36B, 36-37, 52A-52B, 52-53, 98A-98B, 98-99, 116A-116B, 116-119, 156A-156B, 156-157, 180A-180B, 180-181, 212A-212B, 212-213, 226A-226B, 226-227, 264A-264B, 264-265, 278A-278B, 278-279, 312A-312B, 312-313, 324A-324B, 324-235, 362A-362B, 362-363, 374A-374B, 374-375, 414A-414B, 414-415, 434A-434B, 434-436, 490A-490B, 490-491, 512A-512B, 512-513, 560A-560B, 560-561, 582A-582B, 582-583, 648A-648B, 648-649, 674A-674B, 674-675, 676A-676B, 676-677, 706A-706B, 706-707, 710A-710B, 710-711

**Communication:** Form and use appropriate methods to define and explain mathematical relationships

**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.

***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)**

**6:** 20A-20B, 20-21, 36A-36B, 36-37, 52A-52B, 52-53, 98A-98B, 98-99, 116A-116B, 116-119, 156A-156B, 156-157, 180A-180B, 180-181, 212A-212B, 212-213, 226A-226B, 226-227, 264A-264B, 264-265, 278A-278B, 278-279, 312A-312B, 312-313, 324A-324B, 324-235, 362A-362B, 362-363, 374A-374B, 374-375, 414A-414B, 414-415, 434A-434B, 434-436, 490A-490B, 490-491, 512A-512B, 512-513, 560A-560B, 560-561, 582A-582B, 582-583, 648A-648B, 648-649, 674A-674B, 674-675, 676A-676B, 676-677, 706A-706B, 706-707, 710A-710B, 710-711

**Reasoning:** Use logic and reason to solve mathematical problems

**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.

*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)**

**6:** 278A-278B, 278-279, 324A-324B, 324-325, 362A-362B, 362-363, 512A-512B, 512-513, 674A-674B, 674-675

**Connections:** Apply mathematical concepts and processes to situations within and outside of school

**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.

*The student demonstrates the ability to apply 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)**

**6:** 29, 35, 93, 103, 175, 223, 255, 269, 309, 361, 383, 443 466, 479, 557, 645, 715, 721