

A Correlation of

**SCOTT FORESMAN ■ ADDISON WESLEY**

**Mathematics**

to the

**New York  
Core Curriculum Standards  
for Mathematics  
Grades K-6**



O/M-159A

## Introduction

This document demonstrates the high degree of success students will achieve when using **Scott Foresman – Addison Wesley Mathematics** in meeting the objectives of the New York Learning Standards for Mathematics. Correlation page references are to the Teacher's Edition. Lessons in the Teacher's Edition contain 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  
New York Core Curriculum Mathematics Standards  
Kindergarten**

**PROCESS STRANDS**

**Problem Solving Strand**

***Students will:***

- ***build new mathematical knowledge through problem solving;***
- ***solve problems that arise in mathematics and in other contexts;***
- ***apply and adapt a variety of appropriate strategies to solve problems;***
- ***monitor and reflect on the process of mathematical problem solving.***

Open-ended problems are found throughout the text, including specific Problem Solving lessons in each chapter. The Teacher’s Edition also provides prompts to help children vocalize their thoughts about solving problems. Problem Solving lessons that focus on understanding and applying individual strategies appear in every chapter. In addition, a Problem Solving Applications lesson appears at the end of every chapter, providing children with opportunities to apply strategies learned from the current chapter and previous chapters to solve real-world problems.

**Reasoning and Proof Strand**

***Students will:***

- ***recognize reasoning and proof as fundamental aspects of mathematics;***
- ***make and investigate mathematical conjectures;***
- ***develop and evaluate mathematical arguments and proofs;***
- ***select and use various types of reasoning and methods of proof.***

Children will use inductive and/or deductive reasoning in the Logical Thinking problems presented in each chapter of the text. Additionally, questions provided in the Teacher’s Edition will help promote the use of logic in children’s reasoning. Throughout the program, children are presented with ample opportunities to make oral generalizations

about the concepts taught in each lesson and to test those generalizations. In most lessons, children are given opportunities to check, revise, explain, and/or justify their solutions. Additionally, many problems ask children to judge the solutions of others, correcting them if necessary.

## Communication Strand

### ***Students will:***

- ***organize and consolidate their mathematical thinking through communication;***
- ***communicate their mathematical thinking coherently and clearly to peers, teachers, and others;***
- ***analyze and evaluate the mathematical thinking and strategies of others;***
- ***use the language of mathematics to express mathematical ideas precisely.***

Most lessons give children the opportunity to express their solutions in multiple ways, such as by using numbers and manipulatives. Error Intervention suggestions in the Teacher's Edition often encourage the use of multiple representations to demonstrate understanding of key concepts or solution methods. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students' questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher's Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

## Connections Strand

### ***Students will:***

- ***recognize and use connections among mathematical ideas;;***
- ***understand how mathematical ideas interconnect and build on one another to produce a coherent whole;***
- ***recognize and apply mathematics in contexts outside of mathematics.***

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher's Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.

## Representation Strand

### *Students will:*

- *create and use representations to organize, record, and communicate mathematical ideas;*
- *select, apply, and translate among mathematical representations to solve problems;*
- *use representations to model and interpret physical, social, and mathematical phenomena.*

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher’s Edition for each lesson prompt students to use multiple ways to represent the lessons’ underlying mathematical concepts.

## CONTENT STRANDS

### NUMBER SENSE AND OPERATIONS STRAND

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

##### **K.N.1 Count the items in a collection and know the last counting word tells how many items are in the collection (1 to 10)**

Lesson 3-1, pp. 53A–53B, 53–54; Lesson 3-2, p. 56; Lesson 3-3, pp. 57A–57B, 57–58; Lesson 3-4, p. 60; Lesson 3-6, pp. 63A–63B, 63–64; CH.4 Investigations p. 75I; CH. 4 Center Activities p. 75L; Lesson 4-1, pp. 77A–77B, 77–78; Lesson 4-2, pp. 79A–79B, 79–80; Lesson 4-3, p. 82; Lesson 4-4, pp. 83A–83B, 83–84; Lesson 4-5, p. 86; Lesson 4-6, pp. 87A–87B, 87–88; CH. 5 Investigation, p. 101I; Lesson 7-10, pp. 179A–179B, 179–180; Lesson 12-1, pp. 287A–287B

##### **K.N.2 Count out (produce) a collection of a specified size 1 to 10**

Lesson 3-1, pp. 53A–53B, 53–54; Lesson 3-3, pp. 57A–57B, 57–58; CH. 4 Investigations, p. 75I; CH. 4 Center Activities, p. 75L; Lesson 4-1 pp. 77A–77B, 77–78; Lesson 4-2, pp. 79A–79B, 79–80; Lesson 4-4, pp. 83A–83B, 83–84; Lesson 4-11, p. 97B; Lesson 9-1, p. 225B; Lesson 9-2, pp. 227A–227B; Lesson 9-3, pp. 229A–229B; Lesson 9-4, pp. 231A–231B; Lesson 10-4, pp. 251A–251B; Lesson 10-7, pp. 257A–257B; Lesson 12-1, p. 287A; Lesson 12-3, pp. 291A–292B; Lesson 12-5, p. 295A

**K.N.3 Numerically label a data set of 1 to 5.**

CH. 3 Center Activities, p. 51K; Lesson 3-1, pp. 53A–53B, 53–54; Lesson 3-2, pp. 55A–55B, 55–56; Lesson 3-3, pp. 57A–57B, 57–58; Lesson 3-4, pp. 59A–59B, 59–60; Lesson 7-10, pp. 179A–179B, 179–180; Lesson 9-1, pp. 225A–225B; Lesson 9-2, pp. 227A–227B, 227–228; Lesson 9-3, pp. 229A–229B, 229–230; Lesson 9-4, pp. 231–232; Lesson 9-5, pp. 233A–233B, 233–234; Lesson 9-8, pp. 239–242

**K.N.4 Verbally count by 1's to 20**

Lesson 3-1, pp. 53A–53B, 53–54; Lesson 3-2, pp. 57A–57B, 57–58; CH. 4 Investigations, p. 75I; CH. 4 Center Activities, p. 75L; Lesson 4-1, pp. 77A–77B, 77–78; Lesson 4-2, pp. 79A–79B, 79–80; Lesson 4-4, pp. 83A–83B, 83–84; CH. 5 Investigations, p. 101I; CH. 5 Center Activities, pp. 101K–101L; Lesson 5-1, pp. 103A–103B, 103–104

**K.N.5 Verbally count backward from 10**

Lesson 4-8, pp. 91A–91B, 92 activity

**K.N.6 Represent collections with a finger pattern up to 10**

Lesson 3-10, p. 71B; Lesson 4-7, p. 89B; Lesson 9-4, p. 231B

**K.N.7 Draw pictures or other informal symbols to represent a spoken number up to 10**

Lesson 3-2, pp. 55; Lesson 3-4, p. 59; Lesson 3-7, p. 66; Lesson 3-10, p. 71B; Lesson 4-1, pp. 77B, 77; Lesson 4-2, p. 79; Lesson 4-4, p. 83; Lesson 4-7, pp. 89A–89B, 89–90; Lesson 4-11, p. 97B

**K.N.8 Draw pictures or other informal symbols to represent how many in a collection up to 10**

Lesson 3-1, pp. 53A–53B, 53–54; Lesson 3-3, pp. 57A–57B, 57–58; Lesson 4-1, pp. 77A–77B, 77–78; Lesson 4-2, pp. 79A–79B, 79–80; Lesson 4-4, pp. 83A–83B, 83–84; Lesson 9-7, p. 237B; Lesson 9-8, pp. 239A–239B; Lesson 10-3, pp. 249A–249B, 249–250; Lesson 10-4, pp. 251A–251B; Lesson 11-2, pp. 267A–267B; Lesson 11-3, p. 269A; Lesson 11-4, p. 271A; Lesson 11-6, p. 275A; Lesson 11-8, p. 279B; Lesson 12-7, pp. 299A–299B

**K.N.9 Write numbers 1-10 to represent a collection**

Lesson 3-2, pp. 55A–55B, 55–56; Lesson 3-4, pp. 59A–59B, 59–60; CH. 4 Center Activities, p. 75L, Lesson 4-3, pp. 81A–81B, 81–82; Lesson 4-5, pp. 85A–85B, 85–86; Lesson 9-1, pp. 225–226; Lesson 9-2, pp. 227B, 227–228; Lesson 9-3, pp. 229–230; Lesson 9-4, pp. 231–232; Lesson 9-5, pp. 233A–233B, 233–234; Lesson 9-6, pp. 235–236; Lesson 9-7, pp. 237–238; Lesson 9-8, pp. 239A–239B, 239–242;

Lesson 10-2, pp. 247–248; Lesson 10-3, pp. 249A–249B, 249–250; Lesson 10-4, pp. 251A–251B, 251–252; Lesson 10-5, pp. 253B, 253–254; Lesson 10-6, pp. 255A, 255–256; Lesson 10-7, pp. 257A–257B, 257–258; Lesson 10-8, pp. 259A–259B, 259–262; Lesson 11-1, pp. 265–266; Lesson 11-2, pp. 267–268; Lesson 11-3, pp. 269A–269B, 269–270; Lesson 11-5, pp. 273A–273B, 273–274; Lesson 11-6, pp. 275A–275B, 275–276; Lesson 11-7, pp. 277A–277B, 277–278; Lesson 11-9, pp. 281A–281B, 281–282; Lesson 12-1, p. 288; Lesson 12-7, pp. 299A–299B, 300

**K.N.10 Visually determine how many more or less, and then using the verbal counting sequence, match and count 1-10**

CH. 3 Investigation, p. 51J; Lesson 3-6, pp. 63A–63B, 63–64; Lesson 4-6, pp. 87–88; Lesson 4-7, pp. 89–90; Lesson 4-11, p. 97A; Lesson 11-3 pp. 269A-269B, 269-270

**K.N.11 Use and understand verbal ordinal terms, first to tenth**

Lesson 3-9, pp. 69A–69B, 69–70; Lesson 4-9, pp. 93A–93B, 93–94

***Students will understand meanings of operations and procedures, and how they relate to one another.***

***Operations***

**K.N.12 Solve and create addition and subtraction verbal word problems (use counting-based strategies, such as counting on and to ten)**

CH. 9 Investigations, pp. 223I, 223J; CH. 9 Center Activities, p. 223L; Lesson 9-8, pp. 239A–239B, 239–240; Lesson 10-1, pp. 245A–245B, 245–246; Lesson 10-8, pp. 259A–259B, 259–260; Lesson 11-1, p. 266; Lesson 11-9, pp. 281A–281B, 281–282; Lesson 9-6, p. 235A; Lesson 9-7, p. 237A; Lesson 10-3, pp. 249A–249B; Lesson 11-8, pp. 279A–279B

**K.N.13 Determine sums and differences by various means**

Lesson 9-6, pp. 235A–235B, 235–236; Lesson 9-8, pp. 241–242; Lesson 10-4, pp. 251A–251B, 251–252; Lesson 10-5, pp. 253A–253B, 253–254; Lesson 10-6, pp. 255A–255B, 255–256; Lesson 10-7, pp. 257A–257B, 257–258; Lesson 10-8, pp. 259A–259B, 259–260; Lesson 11-4, pp. 271A–271B, 271–272; Lesson 11-5, pp. 273A–273B, 273–274; Lesson 11-6, pp. 275A–275B, 275–276; Lesson 11-7, pp. 277A–277B, 277–278; Lesson 11-8, pp. 279A–279B, 279–280; Lesson 11-9, pp. 281A–281B, 281–282; Lesson 9-7, p. 237A–237B, 237–238; Lesson 10-2, pp. 247A–247B, 247–248; Lesson 10-3, pp. 249A–249B, 249–250; Lesson 11-1, pp. 265A–265B, 265–266; Lesson 11-2, pp. 267A–267B, 267–268



**ALGEBRA STRAND**

*Students will recognize, use, and represent algebraically patterns, relations, and functions.*

***Patterns, Relations and Functions*****K.A.1 Use a variety of manipulatives to create patterns using attributes of color, size, or shape**

CH. 2 Center Activities, p. 25L; Lesson 2-6, pp. 37A–37B, 37–38; Lesson 2-7, pp. 39A–39B, 39–40; Lesson 2-10, pp. 45A–45B, 45–46; Lesson 4-10, pp. 95A–95B, 95–96

**K.A.2 Recognize, describe, extend, and create patterns that repeat (e.g., ABABAB or ABAABAAAB)**

CH.2 Center Activities, p. 25L; Lesson 2-5, pp. 35A–35B, 35–36; Lesson 2-6, pp. 37A–37B, 37–38; Lesson 2-7, pp. 39A–39B, 39–40; Lesson 2-8, pp. 41A–41B, 41–42; Lesson 2-9, pp. 43A–43B, 43–44; Lesson 2-10, pp. 45A–45B, 45–46; Lesson 2-11, pp. 48, 50; Lesson 4-10, pp. 95A–95B, 95–96; Lesson 12-2, pp. 289A–289B, 289; Lesson 12-4, pp. 293A–293B; Lesson 12-6, pp. 297A–297B, 297–298; Lesson 12-7, p. 299B

**GEOMETRY STRAND**

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

***Shapes*****K.G.1 Describe characteristics and relationships of geometric objects**

CH. 8 Investigation, p. 195I; CH. 8 Center Activities, pp.195K–195L; Lesson 8-1, pp. 197A–197B, 197–198; Lesson 8-2, pp. 199A–199B, 199–200; Lesson 8-3, pp. 201A–201B, 201–202; Lesson 8-4, pp. 203A–203B, 203–204; Lesson 8-5, pp. 205A–205B, 205–206; Lesson 8-6, pp. 207A–207B, 207–208; Lesson 8-7, pp. 209A–209B, 209–210; Lesson 8-12, pp. 219A–219B, 221

***Students will identify and justify geometric relationships, formally and informally.***

### ***Geometric Relationships***

**K.G.2 Sort groups of objects by size and size order (increasing and decreasing)**

Lesson 1-6, pp. 13A–13B, 13–14; Lesson 1-7, pp. 15A–15B, 15–16; Lesson 1-8, pp. 17A–17B, 17–18; Lesson 6-1, 133A–133B, 133–134; Lesson 6-3, pp. 137A–137B, 137–138

***Students will apply transformations and symmetry to analyze problem solving situations.***

### ***Transformational Geometry***

**K.G.3 Explore vertical and horizontal orientation of objects**

Related content: CH. 8 Investigation, p. 195J; Lesson 8-6, pp. 207A–207B, 207–208

**K.G.4 Manipulate two- and three-dimensional shapes to explore symmetry**

Lesson 8-8, pp. 211A–211B, 211–212; Lesson 8-6, pp. 207A–207B, 207–208; Lesson 8-12, p. 222

***Students will apply coordinate geometry to analyze problem solving situations.***

### ***Coordinate Geometry***

**K.G.5 Understand and use ideas such as over, under, above, below, on, beside, next to, and between**

CH. 1 Center Activities, pp.1K, 1L; Lesson 1-1, pp. 3A–3B, 3–4; Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 7A–7B, 7–8; Lesson 1-4, pp. 9A–9B, 9–10; Lesson 1-10, pp. 21A–21B, 21–23

**MEASUREMENT STRAND**

*Students will determine what can be measured and how, using appropriate methods and formulas.*

***Units of Measurement*****K.M.1 Name, discuss, and compare attributes of length**

CH. 6 Investigation, p. 131I; Lesson 6-2, pp. 135A–135B, 135–136; Lesson 6-3, pp. 137A–137B, 137–138

**K.M.2 Compare the length of two objects by representing each length with string or a paper strip**

Lesson 6-2, pp. 135A–135B, 135–136; Lesson 6-3, p. 137B

**K.M.3 Relate specific times such as morning, noon, afternoon, and evening to activities and absence or presence of daylight**

Lesson 7-6, pp. 171A–171B, 171–172

**STATISTICS AND PROBABILITY STRAND**

*Students will collect, organize, display, and analyze data.*

***Collection of Data*****K.S.1 Gather data in response to questions posed by the teacher and students**

CH. 2 Center Activities, p. 25K; Lesson 2-4, pp. 33A–33B, 33–34; Lesson 2-11, pp. 47A–47B

***Organization and Display of Data*****K.S.2 Help to make simple pictographs for quantities up to 10, where one picture represents 1**

Lesson 2-3, pp. 31A–31B, 31–32; Lesson 3-8, pp. 67A–67B, 67–68; Lesson 2-11, pp. 47A–47B, 49

**K.S.3 Sort and organize objects by two attributes (e.g., color, size, or shape)**

Lesson 1-8, pp. 17A–17B, 17–18; Lesson 1-10, pp. 22, 24; Lesson 9-1, pp. 225A–225B; Lesson 9-2, pp. 227A–227B; Lesson 9-3, pp. 229A–229B; Lesson 9-4, pp. 231A–231B; Lesson 9-5, pp. 233A–233B; Lesson 9-8, pp. 239A–239B; Lesson 10-8, pp. 259A–259B, 259–260; Lesson 11-9, pp. 281A–281B, 281–282

**K.S.4 Represent data using manipulatives**

CH. 2 Center Activities, p. 25K; Lesson 2-2, pp. 29A–29B, 29–30; Lesson 2-3, pp. 31A–31B, 31–32; Lesson 2-4, pp. 33A–33B, 33–34

***Analysis of Data*****K.S.5 Identify more, less, and same amounts from pictographs or concrete models**

CH. 2 Investigation, p. 25I; CH. 2 Center Activities, p. 25K; Lesson 2-1, pp. 27A–27B, 27–28; Lesson 2-2, pp. 29A–29B, 29–30; Lesson 2-3, pp. 31–31B, 31–32; Lesson 2-11, pp. 47B, 47, 49; Lesson 4-11, p. 97A–97B, 97, 99–100; Lesson 6-7, pp. 145A–145B, 145–146; Lesson 7-9, pp. 177A–177B, 177–178; Lesson 7-15, pp. 189A–189B, 189–190; Lesson 8-9, pp. 213A–213B, 213–214; Lesson 8-10, pp. 215A–215B, 215–216; Lesson 8-11, pp. 217A–217B, 217–218; Lesson 8-12, pp. 220, 222; Lesson 8-12, p. 222

**Scott Foresman – Addison Wesley Mathematics  
to the  
New York Core Curriculum Mathematics Standards**

**Grade One**

**PROCESS STRANDS**

**Problem Solving Strand**

***Students will:***

- ***build new mathematical knowledge through problem solving;***
- ***solve problems that arise in mathematics and in other contexts;***
- ***apply and adapt a variety of appropriate strategies to solve problems;***
- ***monitor and reflect on the process of mathematical problem solving.***

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

**Reasoning and Proof Strand**

***Students will:***

- ***recognize reasoning and proof as fundamental aspects of mathematics;***
- ***make and investigate mathematical conjectures;***
- ***develop and evaluate mathematical arguments and proofs;***
- ***select and use various types of reasoning and methods of proof.***

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.

## Communication Strand

### *Students will:*

- ***organize and consolidate their mathematical thinking through communication;***
- ***communicate their mathematical thinking coherently and clearly to peers, teachers, and others;***
- ***analyze and evaluate the mathematical thinking and strategies of others;***
- ***use the language of mathematics to express mathematical ideas precisely.***

Think About It and Writing in Math questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students' questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher's Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

## Connections Strand

### *Students will:*

- ***recognize and use connections among mathematical ideas;***
- ***understand how mathematical ideas interconnect and build on one another to produce a coherent whole;***
- ***recognize and apply mathematics in contexts outside of mathematics.***

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher's Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.

## Representation Strand

### *Students will:*

- *create and use representations to organize, record, and communicate mathematical ideas;*
- *select, apply, and translate among mathematical representations to solve problems;*
- *use representations to model and interpret physical, social, and mathematical phenomena.*

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher’s Edition for each lesson prompt students to use multiple ways to represent the lessons’ underlying mathematical concepts.

## CONTENT STRANDS

### NUMBER SENSE AND OPERATIONS STRAND

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

##### **1.N.1 Count the items in a collection and know the last counting word tells how many items are in the collection (1 to 100)**

Readiness, pp. R1, R2, R3, R4, R5, R7, R8; Lesson 2-1, p. 45B; Ch. 9 Investigation, p. 239I; Lesson 7-13, p. 269B; Lesson 8-17, pp. 319A-319B, 319-320

##### **1.N.2 Count out (produce) a collection of a specified size (10 to 100 items), using groups of ten**

Readiness, p. R8; 239I, Lesson 7-1, pp. 241A-241B; Lesson 7-13, p. 269B

##### **1.N.3 Quickly see and label with a number, collections of 1 to 10**

Readiness, pp. R1, R2, R3, R4, R5, R7, R8; Lesson 1-8, p. 21B

##### **1.N.4 Count by 1’s to 100**

Lesson 1-6, pp. 17A-17B, 17-18; Lesson 3-1, 91A-91B, 91-92; Lesson 7-3, p. 245A; Lesson 8-6, pp. 295A-295B, 295-296

**1.N.5 Skip count by 10's to 100**

Lesson 7-2, pp. 243A–243B, 243–244; Lesson 7-6, pp. 251-252; Lesson 7-7, pp. 255A-255B, 255-256; Lesson 7-8, pp. 257A-257B, 257-258; Lesson 7-13, p. 269B; Ch.7 Enrichment, p. 273; Lesson 8-6, pp. 295A-295B, 295-296

**1.N.6 Skip count by 5's to 50**

Lesson 7-7, pp. 255A–255B, 255–256; Lesson 7-8, pp. 257A–257B, 257–258; Lesson 7-9, pp. 259–260; Lesson 7-13, pp. 269B, 269; Ch. 7, Learning With Technology, p. 274

**1.N.7 Skip count by 2's to 20**

Lesson 7-7, pp. 255A–255B, 255–256; Lesson 7-8, pp. 257A–257B, 257–258; Lesson 7-9, pp. 261A-261B, 261-262; Lesson 7-13, pp. 269B, 269-270; Ch. 7 Learning With Technology, p. 274

**1.N.8 Verbally count from a number other than one by 1's**

Lesson 7-3, pp. 245B, 245–246

**1.N.9 Count backwards from 20 by 1's**

Readiness, pp. R6; Lesson 1-7, pp. 19A-19B, 19-20; Lesson 2-4, p. 51B; Lesson 4-1, pp. 125A-125B, 125-126; Lesson 4-2, pp. 127A-127B, 127-128; Ch. 7 Home-School Connection, p. 239J; Lesson 7-3, pp. 245A–245B, 245-246; Lesson 8-6, pp. 295A-295B, 295-296

**1.N.10 Draw pictures or other informal symbols to represent a spoken number up to 20**

*Related content:* Lesson 7-1, pp. 241A–241B, 241–242

**1.N.11 Identify that spacing of the same number of objects does not affect the quantity (conservation)**

See Grade K.

**1.N.12 Arrange objects in size order (increasing and decreasing)**

See Grade K.

**1.N.13 Write numbers to 100**

Many lessons provide students with the opportunity to meet this performance indicator. Here are a few of the many examples. Ch. 1, Investigation, p. 1J; Ch. 3 Investigation, p. 89I, Ch. 3 Math Story, p. 89J; Lesson 3-1, pp. 91A-91B, 91-92; Lesson 7-1, pp. 241A-241B, 241-242, Lesson 7-2, pp. 243A-243B, 243-244; Lesson 7-3, pp. 245A-245B, 245-246; Ch. 8 Investigation, p. 297I; Lesson 8-1, pp. 281A-281B, 281-282; Lesson 8-2, pp. 283A-283B, 283-284; Lesson 8-3, pp. 285A-285B, 285-286; Lesson 8-4, pp. 287A-287B, 287-288; Ch. 9 Investigation, p. 329I; Lesson 9-1, pp. 331A-331B, 331-332;



Lesson 9-2, pp. 333A-333B, 333-334; Lesson 9-3, pp. 335A-335B, 335-336; Lesson 9-4, pp. 337A-337B, 337-338; Lesson 9-5, pp. 339A-339B, 339-340; Lesson 9-6, pp. 343A-343B, 343-344; Lesson 9-7, pp. 345A-345B, 345-346; Lesson 9-10, p. 353, Ch. 9 Learning With Technology, p. 358; Lesson 11-13, pp. 445A-445B, 445-446; Lesson 11-14, pp. 447A-447B, 447-448

**1.N.14 Read the number words *one, two, three...ten***

Readiness, pp. R1, R2, R3, R4, R5, R8, 1K–1L; Ch. 1, Discover Math in Your World, p. 40; Ch. 7, Practice Game, p. 240

**1.N.15 Explore and use place value**

Lesson 7-1, pp. 241A–241B, 241–242; Lesson 7-4, pp. 247A–247B, 247–248; Lesson 8-2, pp. 283A–283B, 283–284; Lesson 8-3, pp. 285A–285B, 285–286; Lesson 8-4, pp. 287A–287B, 287–288; Lesson 8-5, p. 291-292; Lesson 8-10, pp. 303A–303B, 303–304

**1.N.16 Compare and order whole numbers up to 100**

Lesson 1-8, pp. 21A-21B, 21-22; Lesson 1-9, pp. 23A-23B, 23-24; Lesson 2-13, pp. 75A-75B, 75-76; Lesson 2-14, pp. 77A-77B, 77-78; Lesson 8-6, pp. 295A-295B, 295-296; Lesson 8-7, pp. 297A-297B, 297-298; Lesson 8-9, pp. 301A-301B, 301-302; Lesson 9-5, pp. 339A-339B, 339-340

**1.N.17 Develop an initial understanding of the base ten system:**

**10 ones = 1 ten**

**10 tens = 1 hundred**

Ch. 8 Investigation, p. 279I; Lesson 8-1, pp. 281A–281B, 281–282; Lesson 8-2, pp. 283A–283B, 283–284; Lesson 8-3, pp. 285A–285B, 285–286; Lesson 8-4, pp. 287A–287B, 287–288; Lesson 11-4, pp. 423A–423B, 423–424; Lesson 11-11, pp. 441A–441B, 441–442; Lesson 12-6, pp. 471A–471B, 471–472; Lesson 12-7, pp. 473A–473B, 473–474

**1.N.18 Use a variety of strategies to compose and decompose one-digit numbers**

On these pages students compose and decompose two–digit numbers.

Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 7A–7B, 7–8; Lesson 1-5, pp. 13A-13B, 13-14; Lesson 1-6, pp. 17A-17B, 17-18; Ch. 8 Investigation, p. 279I

**1.N.19 Understand the commutative property of addition**

Lesson 3-2, pp. 93A–93B, 93–94; Lesson 11-6, pp. 427A–427B, 427–428

**1.N.20 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)**

Lesson 7-10, pp. 263A–263B, 263–264; Lesson 8-8, pp. 299A–299B, 299–300; Lesson 8-9, pp. 301A–301B, 301–302

**1.N.21 Use before, after, or between to order numbers to 100 (with or without the use of a number line)**

Lesson 7-10, pp. 263A–263B, 263–264; Lesson 8-8, pp. 299A–299B, 299–300; Lesson 8-9, pp. 301A–301B, 301–302

**1.N.22 Use the words higher, lower, greater, and less to compare two numbers**

Lesson 1-8, pp. 21A–21B; Lesson 2-13, pp. 75A–75B, 75–76; Lesson 2-14, pp. 77A–77B, 77–78; Lesson 2-15, pp. 79A, 81; Lesson 3-3, pp. 95A–95B, 95–96; Lesson 8-6, pp. 295A–295B, 295–296; Lesson 8-7, pp. 297A–297B, 297–298; Lesson 8-9, pp. 301A–301B, 301–302; Lesson 10-18, p. 408

**1.N.23 Use and understand verbal ordinal terms, first to twentieth**

Ch. 7, Practice Game, p. 240; Lesson 7-12, pp. 267A–267B, 267–268

*Students will understand meanings of operations and procedures, and how they relate to one another.*

**Operations****1.N.24 Develop and use strategies to solve addition and subtraction word problems**

Related content: Lesson 1-5, pp. 13–14; Lesson 1-6, pp. 17A–17B, 17–18; Lesson 1-7, pp. 19A–19B, 19–20; Lesson 2-1, pp. 45A–B, 45–46; Lesson 2-2, pp. 47A–47B, 47–48; Lesson 2-6, pp. 57A–57B, 57–58; Lesson 2-7, pp. 61A–61B, 61–62; Lesson 2-8, pp. 63A–63B, 63–64; Lesson 2-9, pp. 65A–65B, 65–66; Lesson 2-10, pp. 67A–67B, 67–68; Lesson 2-11, pp. 69A–69B, 69–70; Lesson 2-12, pp. 71A–71B, 71–72; Lesson 2-13, 75A–75B, 75–76; Lesson 2-14, pp. 77A–77B, 77–78; Lesson 2-15, pp. 79A–79B, 79–80; Lesson 3-5, pp. 99A–99B, 99–100; Lesson 3-9, pp. 111A–111B, 111–112; Lesson 3-10, pp. 113A–113B, 113–114; Lesson 4-4, pp. 133A–133B, 133–134; Lesson 4-8, pp. 143A–143B, 143–144; Lesson 4-9, pp. 145A–145B, 145–146; Lesson 6-5, pp. 215A–215B, 215–216; Lesson 6-11, pp. 229A–229B, 229–233; Lesson 8-16, pp. 317A–317B; Lesson 8-17, 319A–319B, 319–320; Lesson 9-9, pp. 351A–351B, 351–352; Lesson 11-13, pp. 445A–445B, 445–446; Lesson 11-14, pp. 447A–447B, 447–448; Lesson 12-8, pp. 475A–475B

**1.N.25 Represent addition and subtraction word problems and their solutions as number sentences**

Lesson 2-3, pp. 49A–49B, 49–50; Lesson 2-4, pp. 51A–51B, 51–52; Lesson 2-5, pp. 53A–53B, 53–54; Lesson 2-6, pp. 57A–57B, 57–58; Lesson 2-7, pp. 61A–61B, 61–62; Lesson 2-9, pp. 65A–65B, 65–66; Lesson 2-10, pp. 67A–67B, 67–68; Lesson 2-11, pp. 69A–69B, 69–70; Lesson 2-12, p. 71A; Lesson 2-15, pp. 79A–79B, 79–80; Lesson 3-5, pp. 99A–99B, 99–100; Lesson 3-9, pp. 111A–111B, 111–112; Lesson 3-10, pp. 113A–113B, 113–114; Lesson 4-4, pp. 133A–133B, 133–134; Lesson 4-8, pp. 143A–143B, 143–144; Lesson 4-9, pp. 145A–145B, 145–146; Lesson 8-16, pp. 317B, 317–318; Lesson 9-9, pp. 351–352; Lesson 11-1, p. 418; Lesson 11-13, pp. 445A–445B, 445–446; Lesson 11-14, pp. 447A–447B, 447–448; Lesson 12-11, pp. 483A–483B, 483–484

**1.N.26 Create problem situations that represent a given number sentence**

Lesson 2-15, p. 80; Lesson 4-8, pp. 143A–143B

**1.N.27 Use a variety of strategies to solve addition and subtraction problems with one- and two-digit numbers without regrouping**

Lesson 1-6, pp. 17A–17B, 17–18; Lesson 1-7, pp. 19A–19B, 19–20; Lesson 2-2, pp. 47A–47B, 47–48; Lesson 2-4, pp. 51A–51B, 51–52; Lesson 2-5, pp. 53A–53B, 53–54; Lesson 2-8, 63A–63B, 63–64; Lesson 2-8, pp. 63A–63B, 63–64; Lesson 2-9, pp. 65A–65B, 65–66; Lesson 2-10, pp. 67A–67B, 67–68; Lesson 2-11, pp. 69A–69B, 69–70; Lesson 2-12, pp. 71A–71B, 71–72; Lesson 3-1, pp. 91A–91B, 91–92; Lesson 3-2, pp. 93A–93B, 93–94; Lesson 3-3, pp. 95A–95B, 95–96; Lesson 3-4, 97A–97B, 97–98; Lesson 3-6, pp. 103A–103B, 103–104; Lesson 3-7, pp. 105A–105B, 105–106; Lesson 3-8, pp. 107A–107B, 107–108; Lesson 4-1, pp. 125A–125B, 125–126; Lesson 4-2, pp. 127A–127B, 127–128; Lesson 4-3, pp. 128A–129B, 129–130; Lesson 4-5, pp. 137A–137B, 137–138; Lesson 4-6, pp. 139A–139B, 139–140; Lesson 4-7, pp. 141A–141B, 141–142; Lesson 8-5, pp. 291A–291B, 291–292; Lesson 11-1, pp. 417A–417B, 417–418; Lesson 11-2, pp. 419A–419B, 419–420; Lesson 11-3, pp. 421A–421B, 421–422; Lesson 11-5, pp. 425A–425B, 425–426; Lesson 11-7, pp. 431A–431B, 431–432; Lesson 12-5, pp. 459A–459B, 459–460; Lesson 12-2, pp. 461A–461B, 461–462; Lesson 12-3, pp. 463A–463B, 463–464; Lesson 12-4, pp. 465A, 465–466; Lesson 11-8, pp. 435A–435B, 435–436; Lesson 11-9, pp. 437A–437B, 437–438; Lesson 11-10, pp. 439A–439B, 439–440; Lesson 11-12, pp. 443A–443B, 443–444; Lesson 12-7, pp. 473A–473B, 473–474; Lesson 12-8, pp. 475A–475B, 475–476

**1.N.28 Demonstrate fluency and apply addition and subtraction facts to and including 10**

Lesson 1-6, pp. 17A–17B, 17–18; Lesson 1-7, pp. 19A–19B, 19–20; Ch. 3, Investigation, pp. 89I, 89J; Lesson 3-1, pp. 91A–91B, 91–92; Lesson 3-2, pp. 93A–93B, 93–94; Lesson 3-3, pp. 95A–95B, 95–96; Lesson 3-4, pp. 97A–97B, 97–98; Lesson 3-6, pp. 103A–103B, 103–104; Lesson 3-7, pp. 105A–105B, 105–106; Lesson 3-8, pp. 107A–107B, 107–108; Ch. 4, Investigation, p. 123I; Lesson 4-1, pp. 125A–125B, 125–126; Lesson 4-2, pp. 127A–127B, 127–128; Lesson 4-3, pp. 129A–129B, 129–130; Lesson 4-5, pp. 137A–137B, 137–138; Lesson 4-6, pp. 139A–139B, 139–140; Lesson 4-7, pp. 141A–141B, 141–142; Lesson 11-5, pp. 425A–425B, 425–426; Lesson 11-8, pp. 435A–435B, 435–436; Lesson 11-9, pp. 437A–437B, 437–438; Lesson 11-12, pp. 443A–443B, 443–444

**1.N.29 Understand that different parts can be added to get the same whole**

Ch. 1, Investigation, p. 1J; Lesson 1-1, pp. 3A–3B, 3–4; Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 7A–7B, 7–8; Lesson 1-4, pp. 11A–11B, 11–12; Lesson 1-5, pp. 13A–13B, 13–14; Lesson 3-8, pp. 107A–107B, 107–108; Lesson 11-4, pp. 423A–423B, 423–424; Lesson 11-6, pp. 427A–427B, 427–428

*Students will compute accurately and make reasonable estimates.*

**Estimation****1.N.30 Estimate the number in a collection to 50 and then compare by counting the actual items in the collection**

Lesson 7-5, pp. 249A–249B, 249–250

**Algebra Strand**

*Students will recognize, use, and represent algebraically patterns, relations, and functions.*

**Patterns, Relations, and Functions****1.A.1 Determine and discuss patterns in arithmetic (what comes next in a and Functions repeating pattern, using numbers or objects)**

Lesson 1-10, pp. 27A–27B, 27–28; Lesson 1-11, pp. 29A–29B, 29–30; Lesson 1-12, pp. 31A–31B, 31–32; Lesson 1-13, pp. 33A–33B, 33–34; Ch. 1, Enrichment, p. 37; Lesson 2-5, pp. 54; Lesson 4-1, p. 126; Lesson 5-16, p. 194; Lesson 7-7, pp. 255A–255B, 255–256; Lesson 7-9, pp. 261A–261B, 261–262; Lesson 7-11, p. 266; Lesson 7-13, p. 270; Ch. 7, Enrichment, p. 273; Ch. 7, Learning With Technology, p. 274; Lesson 8-9, p. 302; Lesson 11-1, pp. 417A–417B; Lesson 11-3, p. 422; Lesson 11-5, p. 425B; Lesson 12-2, p. 462

## Geometry Strand

***Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.***

### ***Shapes***

#### **1.G.1 Match shapes and parts of shapes to justify congruency**

Lesson 5-6, pp. 169A–169B, 169–170; Lesson 5-9, pp. 177A–177B, 177–178; Lesson 5-16, p. 193

#### **1.G.2 Recognize, name, describe, create, sort, and compare two-dimensional and three-dimensional shapes**

Ch. 5, Investigation, p. 155l; Lesson 5-1, pp. 157A–157B, 157–158; Lesson 5-2, pp. 159A–159B, 159–160; Lesson 5-3, pp. 161A–161B, 161–162; Lesson 5-4, pp. 165A–165B, 165–166; Lesson 5-5, pp. 167A–167B, 167–168; Lesson 5-9, p. 177B; Lesson 5-16, pp. 193A–193B, 193–194; Lesson 8-11, pp. 307A–307B, 307–308

***Students will apply transformations and symmetry to analyze problem solving situations.***

### ***Transformational Geometry***

#### **1.G.3 Experiment with slides, flips, and turns of two-dimensional shapes**

Lesson 5-8, pp. 173A–173B, 173–174; Lesson 5-16, p. 196; Ch. 5, Learning With Technology

#### **1.G.4 Identify symmetry in two-dimensional shapes**

Lesson 5-7, pp. 171A–171B, 171–172

***Students will apply coordinate geometry to analyze problem solving situations.***

### ***Coordinate Geometry***

#### **1.G.5 Recognize geometric shapes and structures in the environment**

Lesson 5-16, p. 194

## Measurement Strand

*Students will determine what can be measured and how, using appropriate methods and formulas.*

### *Units of Measurement*

#### **1.M.1 Recognize length as an attribute that can be measured**

Lesson 10-1, pp. 365A–365B, 365–366; Lesson 10-2, pp. 367–368, 369A–369B, 369–370; Lesson 10-3, pp. 371A–371B, 371–372; Lesson 10-4, pp. 373A–373B, 373–374; Lesson 10-5, pp. 375A–375B, 375–376; Lesson 10-15, pp. 397A–397B, 397–398

#### **1.M.2 Use non-standard units (including finger lengths, paper clips, students' feet and paces) to measure both vertical and horizontal lengths**

Lesson 10-1, pp. 365A–365B, 365–366, 367–368; Lesson 10-2, pp. 369A–369B, 369–370; Lesson 10-6, p. 377B; Lesson 10-7, pp. 379A–379B, 379–380; Lesson 10-18, p. 408

#### **1.M.3 Informally explore the standard unit of measure, inch**

Lesson 10-3, pp. 371A–371B, 371–372; Lesson 10-6, pp. 377A–377B, 377–378

*Students will use units to give meaning to measurements.*

### *Units*

#### **1.M.4 Know vocabulary and recognize coins (penny, nickel, dime, quarter)**

Ch. 9, Investigation, p. 329I; Lesson 9-1, pp. 331A–331B, 331–332; Lesson 9-2, pp. 333A–333B, 333–334; Lesson 9-3, pp. 335A–335B, 335–336; Lesson 9-4, pp. 337A–337B, 337–338; Lesson 9-5, pp. 339A–339B, 339–340; Lesson 9-6, pp. 343A–343B, 343–344; Lesson 9-7, pp. 345A–345B, 345–346; Lesson 9-10, p. 353; Ch. 9, Learning With Technology, p. 358

#### **1.M.5 Recognize the cent notation as ¢**

Lesson 9-1, pp. 331A, 331; Lesson 9-2, pp. 333A–333B, 333–334; Lesson 9-3, pp. 335A–335B, 335–336; Lesson 9-4, pp. 337A–337B, 337–338

**1.M.6 Use different combinations of coins to make money amounts up to 25 cents**

Ch. 9, Learning With Technology, p. 329I; Lesson 9-1, pp. 331A–331B, 331–332; Lesson 9-2, pp. 333A–333B, 333–334; Lesson 9-3, pp. 335A–335B, 335–336; Lesson 9-4, pp. 337A–337B, 337–338; Lesson 9-5, pp. 339A–339B, 339–340; Lesson 9-6, pp. 343A–343B, 343–344; Lesson 9-9, pp. 351A–351B, 351–352

**1.M.7 Recognize specific times (morning, noon, afternoon, evening)**

Ch. 6, Investigation, p. 203J; Lesson 6-6, pp. 219A–219B, 219–220; Lesson 6-11, pp. 229A–229B, 229–232

**1.M.8 Tell time to the hour, using both digital and analog clocks**

Lesson 6-2, pp. 207A–207B, 207–208; Lesson 6-3, pp. 209A–209B, 209–210; Lesson 6-11, pp. 229A–229B, 229–232

**1.M.9 Know the days of the week and months of the year in sequence**

Lesson 6-9, pp. 225A–225B, 225–226; Lesson 6-10, pp. 227A–227B, 227–228

**1.M.10 Classify months and connect to seasons and other events**

*Related content:* Lesson 6-10, pp. 227A–227B, 227–228

***Students will develop strategies for estimating measurements.***

***Estimation*****1.M.11 Select and use non-standard units to estimate measurements**

Lesson 10-1, pp. 365A–365B, 365–366; Lesson 10-11, pp. 389A–389B, 389–390; Lesson 10-8, p. 383B

**Statistics and Probability Strand**

***Students will collect, organize, display, and analyze data.***

***Collection of Data*****1.S.1 Pose questions about themselves and their surrounding**

*Lesson 8-12, pp. 309B, 309–310; Lesson 8-13, pp. 311A–311B, 311–312*

**1.S.2 Collect and record data related to a question**

Lesson 2-4, p. 51B; Lesson 5-15, p. 191B, 191–192; Lesson 6-1, p. 205B; Lesson 8-12, pp. 309A–309B, 309–310; Lesson 8-13, pp. 311A–311B, 311–312, Lesson 8-14, pp. 313A–313B, 313–314

***Organization and Display of Data*****1.S.3 Display data in simple pictographs for quantities up to 20 with units of one**

Lesson 7-6, p. 251B; Lesson 8-12, pp. 309A–309B, 309–310; Lesson 8-17, p. 319A

**1.S.4 Display data in bar graphs using concrete objects with intervals of one**

Lesson 8-13, pp. 311A–311B, 311–312; Lesson 12-10, pp. 481A–481B, 481–482

**1.S.5 Use Venn diagrams to sort and describe data**

Lesson 8-11, pp. 307B

***Analysis of Data*****1.S.6 Interpret data in terms of the words: most, least, greater than, less than, or equal to**

Lesson 6-1, p. 205B; Lesson 8-12, pp. 309A–309B, 309–310; Lesson 8-13, pp. 311A–311B, 311–312; Lesson 8-14, pp. 313–314

**1.S.7 Answer simple questions related to data displayed in pictographs (e.g., category with most, how many more in a category compared to another, how many all together in two categories)**

Lesson 7-6, pp. 251A–251B, 251–252; Lesson 8-13, 309A–309B, 309–310, Lesson 8-17, p. 319A

***Students will make predictions that are based upon data analysis.***

***Predictions from Data*****1.S.8 Discuss conclusions and make predictions in terms of the words likely and unlikely**

Ch. 10, Practice Game, p. 364; Lesson 10-16, pp. 401A–401B, 401–402; Lesson 10-17, pp. 403A–403B, 403–404; Lesson 10-18, p. 407

**1.S.9 Construct a question that can be answered by using information from a graph**

Lesson 8-12, p. 310; Lesson 8-14, p. 314; Lesson 12-10, p. 482



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New York Core Curriculum Mathematics Standards**

**Grade Two**

**PROCESS STRANDS**

**Problem Solving Strand**

***Students will:***

- ***build new mathematical knowledge through problem solving;***
- ***solve problems that arise in mathematics and in other contexts;***
- ***apply and adapt a variety of appropriate strategies to solve problems;***
- ***monitor and reflect on the process of mathematical problem solving.***

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

**Reasoning and Proof Strand**

***Students will:***

- ***recognize reasoning and proof as fundamental aspects of mathematics;***
- ***make and investigate mathematical conjectures;***
- ***develop and evaluate mathematical arguments and proofs;***
- ***select and use various types of reasoning and methods of proof.***

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.

## Communication Strand

### **Students will:**

- **organize and consolidate their mathematical thinking through communication;**
- **communicate their mathematical thinking coherently and clearly to peers, teachers, and others;**
- **analyze and evaluate the mathematical thinking and strategies of others;**
- **use the language of mathematics to express mathematical ideas precisely.**

Think About It and Writing in Math questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students' questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher's Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

## Connections Strand

### **Students will:**

- **recognize and use connections among mathematical ideas;**
- **understand how mathematical ideas interconnect and build on one another to produce a coherent whole;**
- **recognize and apply mathematics in contexts outside of mathematics.**

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher's Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.

## Representation Strand

### *Students will:*

- *create and use representations to organize, record, and communicate mathematical ideas;*
- *select, apply, and translate among mathematical representations to solve problems;*
- *use representations to model and interpret physical, social, and mathematical phenomena.*

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher’s Edition for each lesson prompt students to use multiple ways to represent the lessons’ underlying mathematical concepts.

## **CONTENT STRANDS**

### **NUMBER SENSE AND OPERATIONS STRAND**

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

#### **2.N.1 Skip count to 100 by 2’s, 5’s, 10’s**

Lesson 3-8, pp. 99A–99B, 99–100; Lesson 12-1, pp. 467A–467B, 467–468

#### **2.N.2 Count back from 100 by 1’s, 5’s, 10’s using a number chart**

Lesson 3-8, p. 100

#### **2.N.3 Skip count by 3’s to 36 for multiplication readiness**

Lesson 12-1, pp. 467A–467B, 467–468

#### **2.N.4 Skip count by 4’s to 48 for multiplication readiness**

Lesson 12-1, pp. 467A–467B, 467–468

#### **2.N.5 Compare and order numbers to 100**

Lesson 3-5, pp. 91A–91B, 91–92; Lesson 10-1, pp. 391A–391B, 391–392;  
Lesson 10-2, pp. 393A–393B, 393–394; Lesson 10-3, pp. 395A–395B, 395–396;  
Lesson 10-5, pp. 399A–399B, 399–400

**2.N.6 Develop an understanding of the base ten system:****10 ones = 1 ten****10 tens = 1 hundred****10 hundreds = 1 thousand**

Lesson 3-1, pp. 81A–81B, 81–82 Lesson 3-2, pp. 83A–83B, 83–84; Lesson 5-1, pp. 175A–175B, 175–176; Lesson 10-1, pp. 391A–391B, 391–392; Lesson 10-2, pp. 393A–393B, 393–394; Lesson 10-3, pp. 395A–395B, 395–396; Lesson 10-4, pp. 397A–397B, 397–398

**2.N.7 Use a variety of strategies to compose and decompose two-digit numbers**

Lesson 3-1, pp. 81A–81B, 81–82; Lesson 3-2, pp. 83A–83B, 83–84; Lesson 3-11, pp. 105A–105B, 105–106

**2.N.8 Understand and use the commutative property of addition**

Lesson 1-8, pp. 23A–23B, 23–24; Lesson 5-6, pp. 187A–187B, 187–188

**2.N.9 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)**

Lesson 3-7, pp. 97A–97B, 97–98; Lesson 4-12, pp. 163–164; Lesson 10-8, pp. 407A–407B, 407–408

**2.N.10 Use and understand verbal ordinal terms**

This lesson discusses ordinal terms through twentieth. Lesson 3-10, pp. 103A–103B, 103–104

**2.N.11 Read written ordinal terms (first through ninth) and use them to represent ordinal relations**

Lesson 3-10, pp. 103A–103B, 103–104

**2.N.12 Use zero as the identity element for addition**

See Grade 1.

**2.N.13 Recognize the meaning of zero in the place value system (0-100)**

Lesson 10-2, pp. 393A, 393

**2.N.14 Use concrete materials to justify a number as odd or even**

Lesson 3-9, pp. 101A–101B, 101–102

***Students will understand meanings of operations and procedures, and how they relate to one another.***

### **Operations**

#### **2.N.15 Determine sums and differences of number sentences by various means (e.g., families, related facts, inverse operations, addition doubles, and doubles plus one)**

Ch.1, Investigation, p. 11; Lesson 1-1, pp. 3A–3B, 3–4; Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 9A–9B, 9–10; Lesson 1-4, pp. 13A–13B, 13–14; Lesson 1-5, pp. 15A–15B, 15–16; Lesson 1-6, pp. 17A–17B, 17–18; Lesson 1-7, pp. 19A–19B, 19–20; Lesson 1-8, pp. 23A–23B, 23–24; Lesson 1-9, pp. 25A–25B, 25–26; Lesson 1-10, pp. 27A–27B, 27–28; Lesson 1-11, pp. 29A–29B, 29–30; Lesson 1-12, pp. 31A–31B, 31–32; Ch. 1, Learning With Technology, p. 36; Ch. 1, Investigation, p. 41; Lesson 2-1, pp. 43A–43B, 43–44; Lesson 2-2, pp. 45A–45B, 45–46; Lesson 2-3, pp. 47A–47B, 47–48; Lesson 2-5, pp. 51A–51B, 51–52; Lesson 2-6, pp. 53A–53B, 53–54; Lesson 2-8, pp. 61A–61B, 61–62; Lesson 2-9, pp. 63A–63B, 63–64; Lesson 2-10, pp. 65A–65B, 65–66; Ch. 2, Enrichment, p. 73; Ch. 2, Learning With Technology, p. 74; Lesson 3-19, pp. 123–124; Lesson 4-12, pp. 163–164, Lesson 8-17, pp. 329–330

#### **2.N.16 Use a variety of strategies to solve addition and subtraction problems using one- and two-digit numbers with and without regrouping**

Lesson 2-4, pp. 49A–49B, 49–50; Lesson 2-5, pp. 51A–51B, 51–52; Lesson 2-6, pp. 53A–53B, 53–54; Lesson 2-7, pp. 57A–57B, 57–58; Lesson 2-11, pp. 67A–67B, 67–68; Lesson 4-1, pp. 135A–135B, 135–136; Lesson 4-2, pp. 137A–137B, 137–138; Lesson 4-3, pp. 139A–139B, 139–140; Lesson 4-5, pp. 145A–145B, 145–146; Lesson 4-7, pp. 147A–147B, 147–148; Lesson 4-8, pp. 155A–155B, 155–156; Lesson 4-10, pp. 159A–159B, 159–160; Lesson 4-11, pp. 161A–161B, 161–162; Ch. 5, Investigation, pp. 173I, 173J; Lesson 5-1, pp. 175A–175B, 175–176; Lesson 5-2, pp. 177A–177B, 177–178; Lesson 5-3, pp. 179A–179B, 179–180; Lesson 5-4, pp. 181A–181B, 181–182; Lesson 5-5, pp. 185A–185B, 185–186; Lesson 5-6, pp. 187A–187B, 187–188; Lesson 5-7, pp. 189–190; Lesson 5-8, pp. 191A–191B, 191–192; Lesson 5-9, pp. 193A–193B, 193–194; Lesson 5-10, pp. 197A–197B, 197–198; Lesson 5-11, pp. 199A–199B, 199–200; Ch. 6, Investigation, p. 209I; Lesson 6-1, pp. 211A–211B, 211–212; Lesson 6-2, pp. 213A–213B, 213–214; Lesson 6-3, pp. 215A–215B, 215–216; Lesson 6-4, pp. 217A–217B, 217–218; Lesson 6-5, pp. 221–222; Lesson 6-6, pp. 225A–225B, 225–226; Lesson 6-7, pp. 227–228; Lesson 6-8, pp. 229A–229B, 229–230; Lesson 6-9, pp. 231A–231B, 231–232; Lesson 6-10, pp. 233A–233B, 233–234; Lesson 6-11, pp. 235A–235B, 235–236; Lesson 8-17, pp. 329–330; Lesson 9-16, pp. 377A–377B, 377–378

**2.N.17 Demonstrate fluency and apply addition and subtraction facts up to and including 18**

Ch.1, Investigation, p. 11; Lesson 1-1, pp. 3A–3B, 3–4; Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 9A–9B, 9–10; Lesson 1-4, pp. 13A–13B, 13–14; Lesson 1-5, pp. 15A–15B, 15–16; Lesson 1-6, pp. 17A–17B, 17–18; Lesson 1-7, pp. 19A–19B, 19–20; Lesson 1-8, pp. 23A–23B, 23–24; Lesson 1-9, pp. 25A–25B, 25–26; Lesson 1-10, pp. 27A–27B, 27–28; Lesson 1-11, pp. 29A–29B, 29–30; Lesson 1-12, pp. 31A–31B, 31–32; Ch. 1, Learning With Technology, p. 36; Ch. 2, Investigation, p. 41; Lesson 2-1, pp. 43A–43B, 43–44; Lesson 2-2, pp. 45A–45B, 45–46; Lesson 2-3, pp. 47A–47B, 47–48; Lesson 2-5, pp. 51A–51B, 51–52; Lesson 2-6, pp. 53A–53B, 53–54; Lesson 2-7, pp. 57A–57B, 57–58; Lesson 2-8, pp. 61A–61B, 61–62; Lesson 2-9, pp. 63A–63B, 63–64; Lesson 2-10, pp. 65A–65B, 65–66; Ch. 2, Enrichment, p. 73; Ch. 2, Learning With Technology, p. 74; Lesson 3-19, pp. 123–124; Lesson 4-12, pp. 163–164; Lesson 8-17, pp. 329–330

**2.N.18 Use doubling to add 2-digit numbers**

On these pages students use doubling to add basic facts.

Ch. 2, Investigation, p. 41; Lesson 2-2, pp. 45A–45B, 45–46; Lesson 2-3, pp. 47A–47B, 47–48; Lesson 2-12, pp. 69A, 69B, 69

**2.N.19 Use compensation to add 2-digit numbers**

On these pages students use compensation to add basic facts.

Ch. 2, Investigation, p. 41; Lesson 2-5, pp. 51A–51B, 51–52; Lesson 2-6, pp. 53A–53B, 53–54

**2.N.20 Develop readiness for multiplication by using repeated addition**

Lesson 12-2, pp. 469A–469B, 469–470

**2.N.21 Develop readiness for division by using repeated subtraction, dividing objects into groups (fair share)**

Lesson 12-7, pp. 483A–483B, 483–484; Lesson 12-8, pp. 485A–485B, 485–486

***Students will compute accurately and make reasonable estimates.***

***Estimation*****2.N.22 Estimate the number in a collection to 100 and then compare by counting the actual items in the collection**

This lesson prepares students to meet this objective. Ch 3, Investigation, p. 79; Lesson 3-1, pp. 81A–81B, 81–82

## Algebra Strand

*Students will perform algebraic procedures accurately.*

### *Equations and Inequalities*

**2.A.1 Use the symbols  $<$ ,  $>$ ,  $=$  (with and without the use of a numberline) to compare whole numbers up to 100**

Lesson 3-5, pp. 91A–91B, 91–92

**Students will recognize, use, and represent algebraically patterns, relations, and functions.**

### *Patterns, Relations, and Functions*

**2.A.2 Describe and extend increasing or decreasing (+,-) sequences and patterns (numbers or objects up to 100)**

Lesson 3-4, pp. 89A–89B, 89–90; Lesson 3-8, pp. 99A–99B, 99–100; Lesson 4-9, pp. 157A–157B, 157–158; Lesson 10-10, pp. 413A–413B, 413–414

## Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

### *Shapes*

**2.G.1 Experiment with slides, flips, and turns to compare two-dimensional shapes**

Lesson 7-5, pp. 257A–257B, 257–258; Lesson 7-6, pp. 259A–259B, 259–260

**2.G.2 Identify and appropriately name two-dimensional shapes: circle, square, rectangle, and triangle (both regular and irregular)**

Lesson 7-2, pp. 249B, 249; Lesson 7-4, pp. 255B, 255; Lesson 7-8, pp. 265A–265B, 265–266

**2.G.3 Compose (put together) and decompose (break apart) two-dimensional shapes**

Lesson 7-4, pp. 255A–255B, 255–256

***Students will identify and justify geometric relationships, formally and informally.***

### ***Geometric Relationships***

#### **2.G.4 Group objects by like properties**

Lesson 7-3, pp. 251B

**Students will apply transformations and symmetry to analyze problem solving situations.**

### ***Transformational Geometry***

#### **2.G.5 Explore and predict the outcome of slides, flips, and turns of two-dimensional shapes**

Lesson 7-6, pp. 259A–259B, 259–260

#### **2.G.6 Explore line symmetry**

Lesson 7-7, pp. 261A–261B, 261–262; Lesson 7-8, pp. 265–266

### **Measurement Strand**

***Students will determine what can be measured and how, using appropriate methods and formulas.***

### ***Units of Measurement***

#### **2.M.1 Use non-standard and standard units to measure both vertical and horizontal lengths**

Ch 9, Investigation, p. 339I; Lesson 9-1, pp. 341A–341B, 341–342; Lesson 9-2, pp. 343A–343B, 343–344; Lesson 9-3, pp. 345A–345B, 345–346; Lesson 9-4, pp. 347A–347B, 347–348; Lesson 9-5, pp. 351A–351B, 351–352; Lesson 9-9, pp. 359B; Lesson 9-17, pp. 379B, 379

#### **2.M.2 Use a ruler to measure standard units (including whole inches and whole feet)**

Lesson 9-2, pp. 343A–343B, 343–344; Lesson 9-3, pp. 345A–345B, 345–346; Lesson 9-4, pp. 347A–347B, 347–348

#### **2.M.3 Compare and order objects according to the attribute of length**

Lesson 9-1, pp. 341B, 342



**2.M.4 Recognize mass as a qualitative measure (e.g., Which is heavier? Which is lighter?)**

Lesson 9-10, pp. 363A–363B, 363–364

**2.M.5 Compare and order objects, using lighter than and heavier than**

Lesson 9-10, pp. 363A–363B, 363–364; Lesson 9-11, pp. 365A–365B, 365–366; Lesson 9-12, pp. 367A–367B, 367–368; Lesson 9-17, p. 379B

*Students will use units to give meaning to measurements.*

**Units****2.M.6 Know and recognize coins (penny, nickel, dime, quarter) and bills (\$1, \$5, \$10, and \$20)**

Ch. 3, Investigation, p. 79J; Lesson 3-12, pp. 109A–109B, 109–110; Lesson 3-13, pp. 111A–111B, 111–112; Lesson 3-14, pp. 113A–113B, 113–114; Lesson 3-15, pp. 115A–115B, 115–116; Lesson 3-16, pp. 115A–115B, 115–116; Lesson 3-17, pp. 119A–119B, 119–120; Lesson 3-18, pp. 121A–121B, 121–122; Lesson 3-19, pp. 123A–123B, 123–124; Ch. 3, Enrichment, p. 127; Ch. 3, Learning With Technology, p.128

**2.M.7 Recognize the whole dollar notation as \$1, etc.**

Lesson 3-18, pp. 121A–121B, 121–122; Ch. 3, Enrichment p. 127

**2.M.8 Identify equivalent combinations to make one dollar**

Lesson 3-18, pp. 121A–121B, 121–122

**2.M.9 Tell time to the half hour and five minutes using both digital and analog clocks**

Lesson 8-1, pp. 291A–291B, 291–292; Lesson 8-2, pp. 293A–293B, 293–294; Lesson 8-3, pp. 295A–295B, 295–296; Lesson 8-17, pp. 329A–329B, 329–330

*Students will develop strategies for estimating measurements.*

**Estimation****2.M.10 Select and use standard (customary) and non-standard units to estimate measurements**

Lesson 9-2, pp. 343A–343B, 343–344; Lesson 9-3, pp. 345A–345B, 345–346; Lesson 9-4, pp. 347A–347B, 347–348; Lesson 9-5, p. 351B; Lesson 9-6, p. 353; Lesson 9-7, p. 355A; Lesson 9-8, pp. 357A–357B, 357–358; Lesson 9-9, pp. 360–361; Lesson 9-10, pp. 363; Lesson 9-11, pp. 365A–365B, 365–366; Lesson 9-12, pp. 367A–367B, 367–368; Lesson 9-17, pp. 379B, 379

## Statistics and Probability Strand

*Students will collect, organize, display, and analyze data.*

### *Collection of Data*

#### **2.S.1 Formulate questions about themselves and their surroundings**

Ch. 8, Investigation, p. 289J; Lesson 8-10, pp. 313A, 313

#### **2.S.2 Collect and record data (using tallies) related to the question**

Ch. 8, Investigation, p.289J; Lesson 8-10, pp. 313A, 313

### *Organization and Display of Data*

#### **2.S.3 Display data in pictographs and bar graphs using concrete objects or a representation of the object**

Lesson 8-12, pp. 319A–319B, 319–320; Lesson 8-13, pp. 321A–321B, 321–322

### *Analysis of Data*

#### **2.S.4 Compare and interpret data in terms of describing quantity (similarity or differences)**

Lesson 8-9, pp. 311A–311B, 311–312; Lesson 8-10, pp. 313A–313B, 313–314; Lesson 8-11, pp. 315A–315B, 315–316; Lesson 8-12, pp. 319A–319B, 319–320; Lesson 8-13, pp. 321A–321B, 321–322; Lesson 8-14, pp. 323A–323B, 323–324; Lesson 8-15, pp. 325A–325B, 325–326; Lesson 8-16, pp. 327A–327B, 327–328; Ch. 8, Enrichment, p. 333; Lesson 9-14, pp. 373A–373B, 373; Lesson 9-15, pp. 375A–375B, 375–376; Lesson 10-7, p. 405A; Lesson 11-6, pp. 439A–439B, 439–440

*Students will make predictions that are based upon data analysis.*

### *Predictions from Data*

#### **2.S.5 Discuss conclusions and make predictions from graphs**

Lesson 8-9, p. 312; Lesson 8-10, pp. 313A–313B, 313–314; Lesson 8-11, pp. 315A–315B, 315–316; Lesson 8-12, pp. 319A–319B, 319–320; Lesson 8-13, pp. 321A–321B, 321–322; Lesson 8-14, pp. 323A–323B, 323–324; Lesson 8-16, pp. 327–328; Lesson 9-14, pp. 373A–373B, 373; Lesson 9-15, pp. 375A–375B, 375–376; Lesson 9-17, p. 381; Lesson 11-6, pp. 439A–439B, 439–440

**Scott Foresman – Addison Wesley Mathematics  
to the  
New York Core Curriculum Mathematics Standards  
Grade Three**

**PROCESS STRANDS**

**Problem Solving Strand**

***Students will:***

- ***build new mathematical knowledge through problem solving;***
- ***solve problems that arise in mathematics and in other contexts;***
- ***apply and adapt a variety of appropriate strategies to solve problems;***
- ***monitor and reflect on the process of mathematical problem solving.***

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

**Reasoning and Proof Strand**

***Students will:***

- ***recognize reasoning and proof as fundamental aspects of mathematics;***
- ***make and investigate mathematical conjectures;***
- ***develop and evaluate mathematical arguments and proofs;***
- ***select and use various types of reasoning and methods of proof.***

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.

## Communication Strand

### **Students will:**

- ***organize and consolidate their mathematical thinking through communication;***
- ***communicate their mathematical thinking coherently and clearly to peers, teachers, and others;***
- ***analyze and evaluate the mathematical thinking and strategies of others;***
- ***use the language of mathematics to express mathematical ideas precisely.***

Writing in Math and Talk About It questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students' questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher's Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

## Connections Strand

### **Students will:**

- ***recognize and use connections among mathematical ideas;***
- ***understand how mathematical ideas interconnect and build on one another to produce a coherent whole;***
- ***recognize and apply mathematics in contexts outside of mathematics.***

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher's Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.

## Representation Strand

### *Students will:*

- *create and use representations to organize, record, and communicate mathematical ideas;*
- *select, apply, and translate among mathematical representations to solve problems;*
- *use representations to model and interpret physical, social, and mathematical phenomena.*

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher’s Edition for each lesson prompt students to use multiple ways to represent the lessons’ underlying mathematical concepts.

## CONTENT STANDARDS

### NUMBER SENSE AND OPERATIONS STRAND

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

#### **3.N.1 Skip count by 25’s, 50’s, 100’s to 1,000**

Ch. 5, Diagnosing Readiness, p. 259

#### **3.N.2 Read and write whole numbers to 1,000**

Lesson 1-2, pp. 6A–6B, 6–7

#### **3.N.3 Compare and order numbers to 1,000**

Lesson 1-7, pp. 18A–18B, 18–20; Lesson 1-15, pp. 44A–44B, 44–45

#### **3.N.4 Understand the place value structure of the base ten number system: 10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand**

Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-3, pp. 8A–8B, 8–9; Lesson 1-4, pp. 10A–10B, 10–11; Lesson 1-7, pp. 18A–18B, 18–20; Lesson 3-6, pp. 146A–146B, 146–147; Lesson 3-10, pp. 156A–156B, 156–157; Lesson 3-15, pp. 170–171

**3.N.5 Use a variety of strategies to compose and decompose three-digit numbers**

Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-3, pp. 8A–8B, 8–9

**3.N.6 Use and explain the commutative property of addition and multiplication**

Lesson 2-1, pp. 66A–66B, 66; Lesson 5-2, pp. 262A, 262–264

**3.N.7 Use 1 as the identity element for multiplication**

Lesson 5-9, pp. 286A–286B, 286–287

**3.N.8 Use the zero property of multiplication**

Lesson 5-9, pp. 286A–286B, 286–287

**3.N.9 Understand and use the associative property of addition**

Lesson 2-1, pp. 66A–66B, 66–67

**3.N.10 Develop an understanding of fractions as part of a whole unit and as parts of a collection**

Lesson 9-1, pp. 498A–498B, 498–501; Lesson 9-2, pp. 502A–502B, 502–503; Lesson 9-3, pp. 504A–504B, 504–505; Lesson 9-4, pp. 506A–506B, 506–509; Lesson 9-7, pp. 516A–516B, 516–517; Lesson 9-8, pp. 518A–518B, 518–519

**3.N.11 Use manipulatives, visual models, and illustrations to name and**

**represent unit fractions ( $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}$ , and  $\frac{1}{10}$ ) as part of a whole or a set of**

**objects**

Lesson 9-1, pp. 498B, 499; Lesson 9-2, pp. 502A–502B, 502–503; Lesson 9-3, pp. 504A–504B, 504–505; Lesson 9-4, pp. 506A–506B, 506–509; Lesson 9-5, pp. 510A–510B, 510–511

**3.N.12 Understand and recognize the meaning of numerator and denominator in the symbolic form of a fraction**

Lesson 9-2, pp. 502A–502B, 502–503

**3.N.13 Recognize fractional numbers as equal parts of a whole**

Lesson 9-1, pp. 498A–498B, 498–501; Lesson 9-17, pp. 542–543

**3.N.14 Explore equivalent fractions ( $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ )**

Lesson 9-3, pp. 504A–504B, 504–505

**3.N.15 Compare and order unit fractions ( $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ) and find their approximate locations on a number line**

Lesson 9-4, pp. 506A–506B, 506–509; Lesson 9-6, pp. 512A–512B, 512–513

***Number Theory*****3.N.16 Identify odd and even numbers**

Lesson 1-9, p. 24; Ch. 5, Diagnosing Readiness, p. 258; Lesson 5-5, p. 276

**3.N.17 Develop an understanding of the properties of odd/even numbers as a result of addition or subtraction**

Related content:

Lesson 1-9, pp. 24; Lesson 2-3, pp. 72–73

***Students will understand meanings of operations and procedures, and how they relate to one another.***

***Operations*****3.N.18 Use a variety of strategies to add and subtract 3-digit numbers (with and without regrouping)**

Lesson 3-2, pp. 128A–128B, 128–131; Lesson 3-3, pp. 132A–132B, 132–135;  
Lesson 3-4, pp. 136A–136B, 136–137; Lesson 3-8, pp. 150A–150B, 150–151;  
Lesson 3-9, pp. 152A–152B, 152–155; Lesson 3-10, pp. 156A–156B, 156–157

**3.N.19 Develop fluency with single-digit multiplication facts**

Lesson 5-5, pp. 276A–276B, 276–279; Lesson 5-6, pp. 280A–280B, 280–281; Lesson 5-9, pp. 286A–286B, 286–287; Lesson 5-10, pp. 288A–288B, 288–291; Lesson 5-11, pp. 292A–292B, 292–293, Lesson 5-12, pp. 294A–294B, 294–295; Ch. 6, pp. 314I, 314J; Lesson 6-1, pp. 316A–316B, 316–317; Lesson 6-2, pp. 318A–318B, 318–319; Lesson 6-3, pp. 320A–320B, 320–323; Lesson 6-4, pp. 324A–324B, 324–327; Lesson 6-5, pp. 328A–328B, 328–329; Lesson 6-6, pp. 340A–340B, 340–341; Lesson 6-12, pp. 348A–348B, 348–349

**3.N.20 Use a variety of strategies to solve multiplication problems with factors up to  $12 \times 12$** 

Lesson 5-1, pp. 260A–260B, 260–261; Lesson 5-2, pp. 262–265; Lesson 5-3, pp. 266B, 266–267; Lesson 5-4, pp. 270B, 270–275; Lesson 5-7, pp. 282A–282B, 282–283; Lesson 6-7, pp. 338A–338B, 338–339; Lesson 6-12, pp. 348A–348B, 348–349; Lesson 8-15, pp. 476–477

**3.N.21 Use the area model, tables, patterns, arrays, and doubling to provide meaning for multiplication**

Ch.5, Investigation, pp.258I–258J; Lesson 5-1, pp. 260A–260B, 260–261; Lesson 5-2, pp. 262A–262B, 262–265; Lesson 5-3, p. 267; Lesson 5-4, pp. 270B, 270–275; Lesson 5-7, p. 282; Lesson 5-9, p. 286; Lesson 5-10, pp. 288A–288B, 288–289; Lesson 6-1, pp.316A–316B, 316; Lesson 6-2, pp. 318A–318B, 318–319; Lesson 6-6, pp. 332A–332B, 332–335; Lesson 6-8, pp. 340A–340B, 340–341; Lesson 7-5, pp. 384; Lesson 11-5, pp. 622A–622B, 622–623

**3.N.22 Demonstrate fluency and apply single-digit division facts**

Ch. 7, Investigation, p. 368I–368J; Lesson 7-5, pp. 384A–384B, 384–385; Lesson 7-6, pp. 386A–386B, 386–387; Lesson 7-7, pp. 388A–388B, 388–389; Lesson 7-8, pp. 390A–390B, 390–391; Lesson 7-9, pp. 392A–392B, 392–393; Lesson 7-10, pp. 396A–396B, 396–397; Lesson 7-12, pp. 402A–402B, 402–403

**3.N.23 Use tables, patterns, halving, and manipulatives to provide meaning for division**

Ch. 7, Investigation, pp. 368I, 368J; Lesson 7-1, pp. 370A–370B, 370–371; Lesson 7-2, pp. 372A–372B, 372–373; Lesson 7-3, pp. 374A–374B, 374–377; Lesson 7-5, pp. 384A–384B, 384–385; Lesson 7-6, pp. 386A–386B, 386–387; Lesson 7-7, p. 389; Lesson 7-12, pp. 402A–402B, 402–403; Lesson 11-12, pp. 648A–648B, 648–649; Lesson 11-16, pp. 658A–658B



**3.N.24 Develop strategies for selecting the appropriate computational and operational method in problem solving situations**

Lesson 1-11, pp. 32A–32B, 32–33; Lesson 1-14, pp. 42A–42B, 42–43; Lesson 2-13, pp. 104A–104B, 104–105; Lesson 3-5, pp. 140A–140B, 140–143; Lesson 3-13, pp. 166A–166B, 166–167; Lesson 6-11, pp. 346A–346B, 346–347; Lesson 7-4, pp. 380A–380B, 380–381; Lesson 8-3, pp. 436A–436B, 436–439; Lesson 9-11, pp. 528A–528B, 528–529; Lesson 9-17, pp. 542A–542B; Lesson 11-1, pp. 612A–612B, 612–615; Lesson 11-3, pp. 618A–618B, 618–621; Lesson 11-6, pp. 630A–630B, 630–631; Lesson 11-10, pp. 640A–640B, 640–641; Lesson 11-11, pp. 644A–644B, 644–645; Lesson 12-3, pp. 688A–688B, 688–689

*Students will compute accurately and make reasonable estimates.*

**Estimation****3.N.25 Estimate numbers up to 500**

Lesson 2-7, pp. 86A–86B, 86–89; Lesson 2-8, pp. 90A–90B, 90–91; Lesson 2-11, pp. 98A–98B, 98–101; Lesson 6-12, pp. 348A–348B, 348–349; Lesson 11-2, pp. 616A–616B, 616–617; Lesson 11-4, pp. 622A–622B, 622–623; Ch. 11, Section A Review, pp. 624A–624B

**3.N.26 Recognize real world situations in which an estimate (rounding) is more appropriate**

Related content:

Lesson 2-7, pp. 86A–86B, 86–89; Lesson 2-11, pp. 98A–98B, 98–101; Lesson 3-11, pp. 160A–160B, 160–161

**3.N.27 Check reasonableness of an answer by using estimation**

Lesson 1-14, pp. 42A–42B, 42–43; Lesson 2-7, pp. 86A–86B, 86–89; Lesson 2-8, p. 91; Lesson 2-11, pp. 98A–98B, 98–101; Lesson 11-2, pp. 616A–616B, 616–617; Lesson 11-4, pp. 622A–622B, 622–623; Ch. 11, Section A Review, pp. 624A–624B

## Algebra Strand

*Students will perform algebraic procedures accurately.*

### *Equations and Inequalities*

**3.A.1 Use the symbols  $<$ ,  $>$ ,  $=$  (with and without the use of a number line) to compare whole numbers and unit fractions  $\left(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \text{ and } \frac{1}{10}\right)$**

Lesson 1-7, pp. 18A–18B, 18–21; Lesson 3-14, pp. 168A–168B, 168–169;  
Lesson 9-4, pp. 506A–506B, 506–509

*Students will recognize, use, and represent algebraically patterns, relations, and functions.*

### *Patterns, Relations, and Functions*

**3.A.2 Describe and extend numeric (+, -) and geometric patterns**

Lesson 1-9, pp. 24A–24B, 24–27; Lesson 6-6, pp. 332A–332B, 332–335; Lesson 12-5, p. 695

## Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

### *Shapes*

**3.G.1 Define and use correct terminology when referring to shapes (circle, triangle, square, rectangle, rhombus, trapezoid, and hexagon)**

Lesson 8-6, pp. 446A–446B, 446–449; Lesson 8-7, pp. 450A–450B, 450–453;  
Lesson 8-8, pp. 454A–454B, 454–455; Lesson 8-15, pp. 476–477

**3.G.2 Identify congruent and similar figures**

Lesson 8-9, pp. 456A–456B, 456–459

**3.G.3 Name, describe, compare, and sort three-dimensional shapes: cube, cylinder, sphere, prism, and cone**

Lesson 8-1, pp. 428A–428B, 428–431; Lesson 8-2, pp. 432A–432B, 432–433

**3.G.4 Identify the faces on a three-dimensional shape as two-dimensional shapes**

Lesson 8-2, pp. 432A–432B, 432–433

*Students will apply transformations and symmetry to analyze problem solving situations.*

***Transformational Geometry*****3.G.5 Identify and construct lines of symmetry**

Lesson 8-10, pp. 460A–460B, 460–461; Lesson 8-15, pp. 476–477

**Measurement Strand**

*Students will determine what can be measured and how, using appropriate methods and formulas.*

***Units of Measurement*****3.M.1 Select tools and units (customary) appropriate for the length measured**

Lesson 9-15, pp. 539

**3.M.2 Use a ruler/yardstick to measure to the nearest standard unit (whole and  $\frac{1}{2}$  inches, whole feet, and whole yards)**

Lesson 9-12, pp. 532A–532B, 532–533; Lesson 9-13, pp. 534A–534B, 534–535;  
Lesson 9-14, pp. 536A–536B, 536–537; Lesson 9-15, pp. 538A–538B, 538–539

**3.M.3 Measure objects, using ounces and pounds**

Lesson 12-4, pp. 690A–690B, 690–692

**3.M.4 Recognize capacity as an attribute that can be measured**

Lesson 12-1, pp. 680A–680B, 680–683; Lesson 12-2, pp. 684A–684B, 684–685

**3.M.5 Compare capacities (e.g., Which contains more? Which contains less?)**

See Grade 2.

**3.M.6 Measure capacity, using cups, pints, quarts, and gallons**

Lesson 12-1, pp. 680A–680B, 680–683

*Students will use units to give meaning to measurements.*

**Units****3.M.7 Count and represent combined coins and dollars, using currency symbols (\$0.00)**

Lesson 1-12, pp. 36A–36B, 36–39

**3.M.8 Relate unit fractions to the face of the clock:**

**Whole = 60 minutes;  $\frac{1}{2}$  = 30 minutes;  $\frac{1}{4}$  = 15 minutes**

These pages can be used to introduce this objective:

Lesson 4-1, pp. 192A–192B, 192–195

*Students will develop strategies for estimating measurements.*

**Estimation****3.M.9 Tell time to the minute, using digital and analog clocks**

Lesson 4-1, pp. 192A–192B, 192–195; Lesson 4-2, pp. 196A–196B, 196–197;

**3.M.10 Select and use standard (customary) and non-standard units to estimate measurements**

Ch. 9, Investigation, p. 496J; Lesson 9-12, p. 533; Lesson 9-13, p. 535; Lesson 11-5, pp. 629; Ch. 12, Diagnosing Readiness, 678I; Lesson 12-1, pp. 681, 682; Lesson 12-2, p. 685; Lesson 12-4, p. 691; Lesson 12-6, p. 697

## Statistics and Probability Strand

*Students will collect, organize, display, and analyze data.*

### *Collection of Data*

#### **3.S.1 Formulate questions about themselves and their surroundings**

Lesson 4-5, p. 207

#### **3.S.2 Collect data using observation and surveys, and record appropriately**

Lesson 4-5, pp. 204A–204B, 204–207

### *Organization and Display of Data*

#### **3.S.3 Construct a frequency table to represent a collection of data**

The activity on this page can be used to introduce frequency tables.

Lesson 4-6, pp. 211

#### **3.S.4 Identify the parts of pictographs and bar graphs**

Lesson 4-7, pp. 212A–212B, 212–214; Lesson 4-11, pp. 226A–226B, 226–227;

Lesson 4-12, pp. 228A–228B, 228–231

#### **3.S.5 Display data in pictographs and bar graphs**

Lesson 4-7, pp. 212A–212B; Lesson 4-11, pp. 226A–226B, 226–227; Lesson 4-

12, pp. 228A–228B, 228–231

#### **3.S.6 State the relationships between pictographs and bar graphs**

These pages can be used to discuss the relationship between these two types of graphs.

Lesson 4-7, pp. 212A–212B, 212–214; Lesson 4-14, p. 236B

### *Analysis of Data*

#### **3.S.7 Read and interpret data in bar graphs and pictographs**

Lesson 4-7, pp. 212A–212B, 212–214; Lesson 4-11, pp. 226A–226B, 226–227;

Lesson 4-12, pp. 228A–228B, 228–231

***Students will make predictions that are based upon data analysis.***

***Predictions from Data***

**3.S.8 Formulate conclusions and make predictions from graphs**

Lesson 4-5, pp. 205–206; Lesson 4-6, pp. 209–210; Lesson 4-7, pp. 212–215;  
Lesson 4-8, pp. 216–217; Lesson 4-10, pp. 222–223; Lesson 4-11, pp. 226–227;  
Lesson 4-12, pp. 228A, 228–231; Lesson 4-13, pp. 232–235; Lesson 4-14, pp.  
236, 236B; Lesson 4-15, pp. 238-239

**Scott Foresman – Addison Wesley Mathematics  
to the  
New York Core Curriculum Mathematics Standards**

**Grade Four**

**PROCESS STRANDS**

**Problem Solving Strand**

***Students will:***

- ***build new mathematical knowledge through problem solving;***
- ***solve problems that arise in mathematics and in other contexts;***
- ***apply and adapt a variety of appropriate strategies to solve problems;***
- ***monitor and reflect on the process of mathematical problem solving.***

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

**Reasoning and Proof Strand**

***Students will:***

- ***recognize reasoning and proof as fundamental aspects of mathematics;***
- ***make and investigate mathematical conjectures;***
- ***develop and evaluate mathematical arguments and proofs;***
- ***select and use various types of reasoning and methods of proof.***

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.

## Communication Strand

### **Students will:**

- **organize and consolidate their mathematical thinking through communication;**
- **communicate their mathematical thinking coherently and clearly to peers, teachers, and others;**
- **analyze and evaluate the mathematical thinking and strategies of others;**
- **use the language of mathematics to express mathematical ideas precisely.**

Writing in Math and Talk About It questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students' questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher's Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

## Connections Strand

### **Students will:**

- **recognize and use connections among mathematical ideas;**
- **understand how mathematical ideas interconnect and build on one another to produce a coherent whole;**
- **recognize and apply mathematics in contexts outside of mathematics.**

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher's Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.



## Representation Strand

### *Students will:*

- *create and use representations to organize, record, and communicate mathematical ideas;*
- *select, apply, and translate among mathematical representations to solve problems;*
- *use representations to model and interpret physical, social, and mathematical phenomena.*

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher’s Edition for each lesson prompt students to use multiple ways to represent the lessons’ underlying mathematical concepts.

## CONTENT STANDARDS

### NUMBER SENSE AND OPERATIONS STRAND

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

#### **4.N.1 Skip count by 1,000’s**

Related content:

Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-3, pp. 10A–10B, 10–11; Lesson 5-1, pp. 256A–256B, 256–257; Lesson 6-1, pp. 314A–314B, 314–315

#### **4.N.2 Read and write whole numbers to 10,000**

Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-2, pp. 8A–8B, 8–9; Lesson 1-3, pp. 10A–10B, 10–11

#### **4.N.3 Compare and order numbers to 10,000**

Lesson 1-5, pp. 16A–16B, 16–19

**4.N.4 Understand the place value structure of the base ten number system: 10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand; 10 thousands = 1 ten thousand**

Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-2, pp. 8A–8B, 8–9; Lesson 1-3, pp. 10A–10B, 10–11; Lesson 1-14, pp. 40A–40B, 40–41

**4.N.5 Recognize equivalent representations for numbers up to four digits and generate them by decomposing and composing numbers**

Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-3, pp. 10A–10B, 10–11

**4.N.6 Understand, use, and explain the associative property of multiplication**

Lesson 5-10, pp. 288A–288B, 288–289

**4.N.7 Develop an understanding of fractions as locations on number lines and as divisions of whole numbers**

Chapter 9, Investigation, p. 498I; Lesson 9-1, pp. 500A–500B, 500–501; Lesson 9-2, pp. 502A–502B, 502–503; Lesson 9-3, pp. 504A–504B, 504–507; Lesson 9-4, pp. 508A–508B, 508–511; Lesson 9-5, pp. 512A–512B, 512–515

**4.N.8 Recognize and generate equivalent fractions (halves, fourths, thirds, fifths, sixths, and tenths) using manipulatives, visual models, and illustrations**

Lesson 9-6, pp. 516A–516B, 516–519

**4.N.9 Use concrete materials and visual models to compare and order unit fractions or fractions with the same denominator (with and without the use of a number line)**

Lesson 9-8, pp. 522A–522B, 522–523

**4.N.10 Develop an understanding of decimals as part of a whole**

Lesson 11-1, pp. 624A–624B, 624–627; Lesson 11-2, pp. 628B, 628; Lesson 11-3, pp. 630B, 630

**4.N.11 Read and write decimals to hundredths, using money as a context**

Ch. 1, Lesson 1-10, pp. 30A–30B, 30–31; Lesson 1-9, pp. 28A–28B, 28–29; Lesson 11-1, pp. 624A–624B, 625; Lesson 11-2, pp. 628A–628B, 628–629

**4.N.12 Use concrete materials and visual models to compare and order decimals (less than 1) to the hundredths place in the context of money**

Lesson 11-3, p. 630B

***Number Theory*****4.N.13 Develop an understanding of the properties of odd/even numbers as a result of multiplication**

Lesson 3-2, pp. 128B, 128; Lesson 7-11, pp. 402A–402B, 402–403

***Students will understand meanings of operations and procedures, and how they relate to one another.***

### **Operations**

#### **4.N.14 Use a variety of strategies to add and subtract numbers up to 10,000**

Lesson 2-1, pp. 62A–62B, 62–63; Lesson 2-2, pp. 64A–64B, 64–67; Lesson 2-5, pp. 76A–76B, 76–79; Lesson 2-6, pp. 80A–80B, 80–81; Lesson 2-7, pp. 82A–82B, 82–85; Lesson 2-8, pp. 86A–86B, 86–87; Lesson 2-14, pp. 102A–102B, 102–103

#### **4.N.15 Select appropriate computational and operational methods to solve problems**

Lesson 1-4, pp. 12A–12B, 12–13; Lesson 1-8, pp. 24A–24B, 24–25; Lesson 1-13, pp. 38A–38B, 38–39; Lesson 1-4, pp. 40A–40B, 40–41; Lesson 2-10, pp. 94A–94B, 94–95; Lesson 2-11, pp. 96A–96B, 96–97; Lesson 2-14, pp. 102A–102B, 102–103; Lesson 3-5, pp. 140A–140B, 140–143; Lesson 3-10, pp. 154A–154B, 154–155; Lesson 3-11, pp. 156A–156B, 156–157; Lesson 3-15, pp. 168A–168B, 168–169; Lesson 4-4, pp. 198A–198B, 198–199; Lesson 4-11, pp. 222A–222B, 222–225; Lesson 4-15, pp. 234A–234B, 234–237; Lesson 5-7, pp. 278A–278B, 278–279; Lesson 5-8, pp. 282A–282B, 282–285; Lesson 5-11, pp. 290A–290B, 290–291; Lesson 5-12, pp. 292B, 292–294; Lesson 6-4, pp. 326A–326B, 326–330; Lesson 6-7, pp. 338A–338B, 338–339; Lesson 6-9, pp. 342A–342B, 342–343; Lesson 6-10, pp. 344B, 344–346; Lesson 7-6, pp. 384A–384B, 384–385; Lesson 7-10, pp. 396A–396B, 396–400; Lesson 7-15, pp. 412–414; Lesson 8-12, pp. 474A–474B, 474–475; Lesson 8-14, pp. 478A–478B, 478–480; Lesson 9-5, pp. 512A–512B, 512–514; Lesson 9-14, pp. 540B, 540–542; Lesson 10-12, pp. 600A–600B, 600–601; Lesson 10-13, pp. 602B, 602–604; Lesson 11-8, pp. 648A–648B, 648–650; Lesson 11-15, pp. 666A–666B, 666–668; Lesson 12-2, pp. 690A–690B, 690–691; Lesson 12-4, pp. 696A–696B, 696–697; Lesson 12-9, pp. 714A–714B, 714–715; Lesson 12-10, pp. 716A–716B, 716–718;

**4.N.16 Understand various meanings of multiplication and division**

Lesson 3-1, pp. 124A–124B, 124–127; Lesson 3-2, pp. 128A–128B, 128–131;  
Lesson 3-6, pp. 146A–146B, 146–147

**4.N.17 Use multiplication and division as inverse operations to solve problems**

Chapter 3, Investigation, p. 122J; Lesson 3-7, pp. 148A–148B, 148–149; Lesson  
3-8, pp. 150A–150B, 150–151; Lesson 3-9, pp. 152A–152B, 152–153

**4.N.18 Use a variety of strategies to multiply two-digit numbers by one-digit numbers (with and without regrouping)**

Ch. 5, Investigations, p. 254J; Lesson 5-3, pp. 262A–262B, 262–263; Lesson 5-  
4, pp. 264A–264B, 264–267; Lesson 5-5, pp. 270A–270B, 270–272

**4.N.19 Use a variety of strategies to multiply two-digit numbers by two-digit numbers (with and without regrouping)**

Lesson 6-3, pp. 320A–320B, 320–321; Lesson 6-5, pp. 332A–332B, 332–334

**4.N.20 Develop fluency in multiplying and dividing multiples of 10 and 100 up to 1,000**

Lesson 5-1, pp. 256A–256B, 256–257; Lesson 7-13, pp. 406A–406B; Lesson 7-  
13, pp. 406–407

**4.N.21 Use a variety of strategies to divide two-digit dividends by one-digit divisors (with and without remainders)**

Lesson 7-4, pp. 374A–374B, 374–375; Lesson 7-5, pp. 380A–380B, 380–383

**4.N.22 Interpret the meaning of remainders**

Lesson 7-3, pp. 372A–372B, 372–373; Lesson 7-6, pp. 384A–384B, 384–385

**4.N.23 Add and subtract proper fractions with common denominators**

Lesson 10-2, pp. 564A–564B, 564–567; Lesson 10-4, pp. 574A–574B, 574–577

**4.N.24 Express decimals as an equivalent form of fractions to tenths and hundredths**

Lesson 1-12, p. 37; Lesson 11-7, pp. 642A–642B, 642–645

**4.N.25 Add and subtract decimals to tenths and hundredths using a hundreds chart**

638A–638B, 638–641, 642A–642B, 642–645

*Students will compute accurately and make reasonable estimates.*

**Estimation****4.N.26 Round numbers less than 1,000 to the nearest tens and hundreds**

Lesson 1-6, pp. 20A–20B, 20–21

**4.N.27 Check reasonableness of an answer by using estimation**

Lesson 1-13, pp. 38A–38B, 38–39; Ch. 2, Investigation, p. 60I; Lesson 2-3, pp. 68A–68B, 68–71; Lesson 2-4, pp. 72A–72B, 72–74; Ch. 5, Investigation, p. 254I; Lesson 5-2, pp. 258A–258B, 258–261; Lesson 5-6, pp. 274A–274B, 274–275; Lesson 5-9, pp. 286A–286B, 286–287; Lesson 6-2, pp. 316A–316B, 316–319; Lesson 6-8, pp. 340A–340B, 340–341; Ch. 7, Investigation, p. 364J; Lesson 7-2, pp. 368A–368B, 368–371; Lesson 7-14, pp. 408A–408B, 408–411; Lesson 11-5, pp. 636A–636B, 636–637

**Algebra Strand**

*Students will represent and analyze algebraically a wide variety of problem solving situations.*

**Variables and Expressions****4.A.1 Evaluate and express relationships using open sentences with one operation**

Lesson 2-12, pp. 98A–98B, 98–99; Lesson 2-13, pp. 100A–100B, 100–101; Lesson 3-12, pp. 160A–160B, 160–163; Lesson 3-14, pp. 166A–166B, 166–167; Lesson 12-2, pp. 690A–690B, 690–691

***Students will perform algebraic procedures accurately.***

***Equations and Inequalities***

**4.A.2 Use the symbols  $<$ ,  $>$ ,  $=$ , and  $\neq$  (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths)**

Lesson 1-5, pp. 16B, 16–19; Lesson 9-9, pp. 524A–524B, 524–527; Lesson 11-3, pp. 630–631

**4.A.3 Find the value or values that will make an open sentence true, if it contains  $<$  or  $>$**

Related content:

Lesson 1-5, pp. 16B, 16–19; Lesson 9-9, pp. 524A–524B, 524–527; Lesson 11-3, pp. 630–631; Lesson 12-1, pp. 688A-688B, 688-689

***Students will recognize, use, and represent algebraically patterns, relations, and functions.***

***Patterns, Relations, and Functions***

**4.A.4 Describe, extend, and make generalizations about numeric ( $+$ ,  $-$ ,  $\times$ ,  $\div$ ) and geometric patterns**

Lesson 1-3, pp. 10–11; Lesson 1-12, p. 37; Lesson 2-8, pp. 88–89; Lesson 2-9, pp. 90A–90B, 90–91; Lesson 3-2, pp. 128B, 128; Lesson 3-4, pp. 136B, 136; Lesson 5-1, pp. 256; Lesson 6-1, pp. 314A–314B, 314; Lesson 6-9, pp. 342A–342B, 342–343; Lesson 7-1, pp. 366A–366B, 366–367; Lesson 7-13, pp. 406A–406B, 406; Lesson 8-6, p. 454; Lesson 11-6, p. 641

**4.A.5 Analyze a pattern or a whole-number function and state the rule, given a table or an input/output box**

Ch. 2, Investigation, p. 60J; Lesson 2-9, p. 91; Lesson 2-12, pp. 98B, 99; Lesson 3-2, p. 128; Lesson 3-13, pp. 164A-164B, 164-165

## Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

### Shapes

**4.G.1 Identify and name polygons, recognizing that their names are related to the number of sides and angles (triangle, quadrilateral, pentagon, hexagon, and octagon)**

Lesson 8-2, pp. 438A–438B, 438–439; Lesson 8-4, pp. 444A–444B, 444–447

**4.G.2 Identify points and line segments when drawing a plane figure**

Related content:

Lesson 8-3, pp. 440A–440B, 440–443; Lesson 8-5, pp. 448A–448B, 448–449

**4.G.3 Find perimeter of polygons by adding sides**

Lesson 8-10, pp. 464A–464B, 464–467

**4.G.4 Find the area of a rectangle by counting the number of squares needed to cover the rectangle**

Lesson 8-11, pp. 468A–468B, 468–470

**4.G.5 Define and identify vertices, faces, and edges of three-dimensional shapes**

Lesson 8-1, pp. 434A–434B, 434–436

*Students will identify and justify geometric relationships, formally and informally.*

### Geometric Relationships

**4.G.6 Draw and identify intersecting, perpendicular, and parallel lines**

Lesson 8-3, pp. 440A–440B, 440–442

**4.G.7 Identify points and rays when drawing angles**

Lesson 8-3, pp. 440A–440B, 440–443

**4.G.8 Classify angles as acute, obtuse, right, and straight**

Lesson 8-3, pp. 440A–440B, 440–443

**Measurement Strand**

*Students will determine what can be measured and how, using appropriate methods and formulas.*

**Units of Measurement****4.M.1 Select tools and units (customary and metric) appropriate for the length being measured**

Lesson 10-7, pp. 588A–588B, 588–589; Lesson 10-8, pp. 590A–590B, 590–591;  
Lesson 11-9, pp. 652A–652B, 652–653

**4.M.2 Use a ruler to measure to the nearest standard unit (whole,  $\frac{1}{2}$  and  $\frac{1}{4}$  inches, whole feet, whole yards, whole centimeters, and whole meters)**

Lesson 10-7, pp. 588A–588B, 588–589; Lesson 10-8, pp. 590A–590B, 590–591;  
Lesson 11-9, pp. 652A–652B, 652–653

**4.M.3 Know and understand equivalent standard units of length: 12 inches = 1 foot; 3 feet = 1 yard**

Ch. 10, Investigation, p. 560J; Lesson 10-11, pp. 596A–596B, 596–598; Lesson 11-12, pp. 658A–658B, 658–661

**4.M.4 Select tools and units appropriate to the mass of the object being measured (grams and kilograms)**

Ch. 11, Investigation, p. 622J; Lesson 11-11, pp. 656A–656B, 656–657

**4.M.5 Measure mass, using grams**

Ch. 11, Investigation, p. 622J; Lesson 11-11, pp. 656A–656B, 656–657

**4.M.6 Select tools and units appropriate to the capacity being measured (milliliters and liters)**

Lesson 11-10, pp. 654A–654B, 654–655



**4.M.7 Measure capacity, using milliliters and liters**

Lesson 11-10, pp. 654A–654B, 654–655

*Students will use units to give meaning to measurements.*

**Units****4.M.8 Make change, using combined coins and dollar amounts**

Lesson 1-11, pp. 32A-32B, 32-33

**4.M.9 Calculate elapsed time in hours and half hours, not crossing A.M./P.M.**

Lesson 4-3, pp. 196A–196B, 196–197; Lesson 4-15, pp. 234A-234B, 234-235

**4.M.10 Calculate elapsed time in days and weeks, using a calendar**

Lesson 4-5, pp. 200A–200B, 200–201

**Statistics and Probability Strand**

*Students will collect, organize, display, and analyze data.*

**Collection of Data****4.S.1 Design investigations to address a question from given data**

Lesson 4-13, pp. 230A–230B, 230–231

**4.S.2 Collect data using observations, surveys, and experiments and record appropriately**

Ch. 4, Investigation, p. 188J; Lesson 4-6, pp. 204A–204B, 204–205; Lesson 4-7, pp. 206A–206B, 206–207; Lesson 4-8, pp. 208A–208B, 208–211; Lesson 4-10, pp. 216A–216B, 216–219; Lesson 4-11, pp. 222A–222B, 222–223; Lesson 4-13, pp. 230A–230B, 230–231

## ***Organization and Display of Data***

### **4.S.3 Represent data using tables, bar graphs, and pictographs**

Lesson 3-4, pp. 138–139; Lesson 3-5, pp. 140A–140B, 140–14; Lesson 4-6, pp. 204A–204B, 204–205; Lesson 4-8, pp. 208A–208B, 208–211; Lesson 4-9, pp. 212A–212B, 212–213; Lesson 4-11, pp. 222A–222B, 222–223; Lesson 4-15, pp. 234A–234B, 234–235; Lesson 6-9, pp. 342A–342B, 342–343; Lesson 10-6, pp. 584A–584B, 584–585

## ***Analysis of Data***

### **4.S.4 Read and interpret line graphs**

Lesson 4-10, pp. 216A–216B, 216–219

***Students will make predictions that are based upon data analysis.***

## ***Predictions from Data***

### **4.S.5 Develop and make predictions that are based on data**

Lesson 4-6, p. 205; Lesson 4-7, p. 207; Lesson 4-10, pp. 216A–216B;  
Lesson 4-10, pp. 217–218, 230–231; Lesson 11-13, pp. 662A–662B, 662–663

### **4.S.6 Formulate conclusions and make predictions from graphs**

Ch. 4, Investigation, p. 188J; Lesson 4-6, pp. 204A–204B, 204–205; Lesson 4-7, pp. 206A–206B, 206–207; Lesson 4-8, pp. 208A–208B, 208–211; Lesson 4-10, pp. 216A–216B, 216–219, 220–221; Lesson 4-11, pp. 222A–222B, 222–223; Lesson 4-12, pp. 226A–226B, 226–229; Lesson 4-13, pp. 230A–230B, 230–231; Lesson 4-14, pp. 232A–232B, 232–233; Lesson 9-12, pp. 536A–536B, 536–537

**Scott Foresman – Addison Wesley Mathematics  
to the  
New York Core Curriculum Standards for Mathematics**

**Grade Five**

**PROCESS STRANDS**

**Problem Solving Strand**

***Students will:***

- ***build new mathematical knowledge through problem solving;***
- ***solve problems that arise in mathematics and in other contexts;***
- ***apply and adapt a variety of appropriate strategies to solve problems;***
- ***monitor and reflect on the process of mathematical problem solving.***

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

**Reasoning and Proof Strand**

***Students will:***

- ***recognize reasoning and proof as fundamental aspects of mathematics;***
- ***make and investigate mathematical conjectures;***
- ***develop and evaluate mathematical arguments and proofs;***
- ***select and use various types of reasoning and methods of proof.***

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.

## Communication Strand

### **Students will:**

- ***organize and consolidate their mathematical thinking through communication;***
- ***communicate their mathematical thinking coherently and clearly to peers, teachers, and others;***
- ***analyze and evaluate the mathematical thinking and strategies of others;***
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### **Students will:**

- ***recognize and use connections among mathematical ideas;***
- ***understand how mathematical ideas interconnect and build on one another to produce a coherent whole;***
- ***recognize and apply mathematics in contexts outside of mathematics.***

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher’s Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.

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### *Students will:*

- *create and use representations to organize, record, and communicate mathematical ideas;*
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## CONTENT STANDARDS

### NUMBER SENSE AND OPERATIONS STRAND

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

##### **5.N.1 Read and write whole numbers to millions**

Lesson 1-1, pp. 4A–4B, 4–5; Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-5, pp. 14A–14B, 14–17

##### **5.N.2 Compare and order numbers to millions**

Lesson 1-2, pp. 6A–6B, 6–7

##### **5.N.3 Understand the place value structure of the base ten number system**

**10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand; 10 thousands = 1 ten thousand; 10 ten thousands = 1 hundred thousand; 10 hundred thousands = 1 million**

Lesson 1-1, pp. 4A–4B, 4–5; Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-4, pp. 12A–12B, 12–13; Lesson 1-5, pp. 14A–14B, 14–17

**5.N.4 Create equivalent fractions, given a fraction**

Lesson 7-7, pp. 410A-410B, 410-411; Lesson 7-8, pp. 412A-412B, 412-413;  
Lesson 7-9, pp. 414-415; Lesson 7-10, pp. 416A-416B, 416-417; Lesson 7-12,  
pp. 420A-420B, 420-423

**5.N.5 Compare and order fractions including unlike denominators (with and without the use of a number line) *Note: Commonly used fractions such as those that might be indicated on ruler, measuring cup, etc.***

Lesson 7-11, pp. 418A–418B, 418–419; Lesson 7-12, pp. 420A–420B, 420–423

**5.N.6 Understand the concept of ratio**

Lesson 11-1, pp. 646A–646B, 646–647; Lesson 11-2, pp. 648A–648B, 648–651;  
Lesson 11-3, pp. 652A–652B, 652–653; Lesson 11-4, pp. 654A–654B, 654–655

**5.N.7 Express ratios in different forms**

Lesson 11-1, pp. 646A–646B, 646–647; Lesson 11-2, pp. 648A–648B, 648–651;  
Lesson 11-3, pp. 652A–652B, 652–653

**5.N.8 Read, write, and order decimals to thousandths**

Ch. 1, Investigation, p. 21; Lesson 1-3, pp. 8–11; Lesson 1-4, pp. 12A–12B, 12–13

**5.N.9 Compare fractions using  $<$ ,  $>$ , or  $=$** 

Lesson 7-11, pp. 418A–418B, 418–419; Lesson 7-12, pp. 420A–B, 420–423

**5.N.10 Compare decimals using  $<$ ,  $>$ , or  $=$** 

Lesson 1-4, pp. 12A–12B, 12–13; Lesson 1-5, pp. 14–17

**5.N.11 Understand that percent means part of 100, and write percents as fractions and decimals**

Lesson 11-8, pp. 668A–668B, 668–669; Lesson 11-9, pp. 670A–670B; Lesson 11-11, pp. 676A–676B

**Number Theory**

**5.N.12 Recognize that some numbers are only divisible by one and themselves (prime) and others have multiple divisors (composite)**

Lesson 3-11, pp. 164A–164B, 164–167

**5.N.13 Calculate multiples of a whole number and the least common multiple of two numbers**

Lesson 8-3, pp. 464A–464B, 464–465; Lesson 8-4, pp. 466–469

**5.N.14 Identify the factors of a given number**

Lesson 3-10, pp. 162A–162B, 162–163; Lesson 3-11, pp. 164A–164B, 164–167;  
Lesson 7-9, pp. 414A–414B, 414–415; Lesson 7-10, pp. 416A–416B

**5.N.15 Find the common factors and the greatest common factor of two numbers**

Lesson 7-9, pp. 414A–414B, 414–415; Lesson 7-10, pp. 416A–416B, 416–417

*Students will understand meanings of operations and procedures, and how they relate to one another.*

**Operations**

**5.N.16 Use a variety of strategies to multiply three-digit by three-digit numbers**

These pages prepare students to meet this objective.

Lesson 2-4, pp. 72A–72B, 72–74; Lesson 2-5, pp. 76A–76B, 76–77; Lesson 4-12, pp. 238–239; Lesson 6-12, pp. 372–373; Lesson 7-16, pp. 438–439; Lesson 9-12, pp. 562–563; Lesson 11-11, pp. 676–677

**5.N.17 Use a variety of strategies to divide three-digit numbers by one- and two-digit numbers**

Lesson 3-2, pp. 136A–136B, 136–137; Lesson 3-3, pp. 138A–138B, 138–141; Lesson 3-5, pp. 148A–148B, 148–151; Lesson 3-6, pp. 152A–152B, 152–155; Lesson 3-7, pp. 156A–156B, 156–157; Lesson 4-4, pp. 214A–214B, 214–217; Lesson 4-5, pp. 218A–218B, 218–221; Lesson 4-6, pp. 222A–222B, 222–223; Lesson 4-12, pp. 238A–238B, 238–239

**5.N.18 Evaluate an arithmetic expression using order of operations including multiplication, division, addition, subtraction and parentheses**

Lesson 3-13, pp. 172A–172B, 172–173

**5.N.19 Simplify fractions to lowest terms**

Lesson 7-10, pp. 416A–416B, 416–417; Lesson 7-16, pp. 438–439; Lesson 8-1, pp. 460A–460B, 460–461; Lesson 8-2, pp. 462–463; Lesson 8-4, pp. 466–469; Lesson 8-5, pp. 472A–472B, 472–473; Lesson 8-7, pp. 476–477; Lesson 8-8, pp. 478–481; Lesson 8-12, pp. 496–499; Lesson 8-13, pp. 500–501; Lesson 8-16, pp. 506–507

**5.N.20 Convert improper fractions to mixed numbers, and mixed numbers to improper fractions**

Lesson 7-3, pp. 400A–400B, 400–401

**5.N.21 Use a variety of strategies to add and subtract fractions with like denominators**

Lesson 8-1, pp. 460A–460B, 460–461

**5.N.22 Add and subtract mixed numbers with like denominators**

Lesson 8-5, pp. 472A–472B, 472–473

**5.N.23 Use a variety of strategies to add, subtract, multiply, and divide decimals to thousandths**

Lesson 1-12, pp. 38A–38B, 38–39; Lesson 1-13, pp. 40A–40B, 40–41; Lesson 2-9, pp. 88–91; Lesson 2-10, pp. 92A–92B, 92–93; Lesson 2-11, pp. 94A–94B, 94–97; Lesson 2-16, pp. 110A–110B, 110–111; Lesson 3-16, pp. 180–181; Lesson 4-9, pp. 230A–230B, 230–231; Lesson 4-10, pp. 232A–232B, 232–233; Lesson 4-11, pp. 234A–234B, 234–237; Lesson 10-10, pp. 625–626



***Students will compute accurately and make reasonable estimates.***

***Estimation***

**5.N.24 Round numbers to the nearest hundredth and up to 10,000**

Lesson 1-8, pp. 26A–26B, 26–27; Lesson 6-12, pp. 372–373

**5.N.25 Estimate sums and differences of fractions with like denominators**

Lesson 8-6, pp. 474A–474B, 474–475

**5.N.26 Estimate sums, differences, products, and quotients of decimals**

Lesson 1-9, pp. 28A–28B, 28–31; Lesson 2-8, pp. 86A–86B, 86–87; Lesson 3-3, pp. 138A–138B, 138–141; Lesson 4-2, pp. 204A–204B, 204–207

**5.N.27 Justify the reasonableness of answers using estimation**

Lesson 1-9, pp. 28A–28B, 28–30; Lesson 1-11, pp. 37; Lesson 1-14, pp. 42–43; Lesson 2-2, pp. 68A–68B, 68–69; Lesson 2-8, pp. 86A–86B, 86–87; Ch. 3, Investigation, p. 130J; Lesson 3-3, pp. 138A–138B, 138–141; Lesson 3-6, pp. 154; Lesson 3-7, pp. 157; Lesson 3-9, pp. 161; Lesson 3-16, pp. 180A–180B, 180–181; Lesson 4-2, pp. 204A–204B, 204–207; Lesson 8-6, pp. 474A–474B, 474–475; Lesson 8-11, pp. 494A–494B, 494–495; Lesson 11-10, pp. 672A–672B, 672–673

**Algebra Strand**

***Students will represent and analyze algebraically a wide variety of problem solving situations.***

***Variables and Expressions***

**5.A.1 Define and use appropriate terminology when referring to constants, variables, and algebraic expressions**

Lesson 2-12, pp. 100A–100B, 100–103; Lesson 2-13, pp. 104A–104B, 104–105

**5.A.2 Translate simple verbal expressions into algebraic expressions**

Lesson 2-13, pp. 104A–104B, 104–105; Lesson 12-4, pp. 706A–706B, 706–709

**5.A.3 Substitute assigned values into variable expressions and evaluate using order of operations**

Lesson 3-13, pp. 172A–172B, 172–173

*Students will perform algebraic procedures accurately.*

***Equations and Inequalities*****5.A.4 Solve simple one-step equations using basic whole-number facts**

Lesson 2-15, pp. 108A–108B, 108–109; Lesson 2-12, pp. 700A–700B, 700–701, Lesson 12-2, pp. 700A–700B, 700–701; Lesson 12-3, pp. 702A–702B, 702–703

**5.A.5 Solve and explain simple one-step equations using inverse operations involving whole numbers**

Lesson 3-1, pp. 132–135; Lesson 12-2, pp. 700A–700B, 700–701; Lesson 12-1, pp. 696A–696B, 696–699; Lesson 12-2, pp. 700A–700B, 700–701; Lesson 12-3, pp. 702A–702B, 702–703; Lesson 12-4, pp. 706A–706B, 706–709

**5.A.6 Evaluate the perimeter formula for given input values**

Lesson 9-5, pp. 540A–540B, 540–541

*Students will recognize, use, and represent algebraically patterns, relations, and functions.*

***Patterns, Relations, and Functions*****5.A.7 Create and explain patterns and algebraic relationships (e.g., 2, 4, 6, 8...) algebraically:  $2n$  (doubling)**

Lesson 1-5, pp. 14B, 14–17; Lesson 2-1, pp. 66–67; Lesson 2-7, pp. 84B, 84–85; Lesson 2-14, pp. 106–107; Lesson 3-2, pp. 136A–136B, 136–137, Lesson 3-3, pp. 142–143, 144A–144B; Lesson 3-4, pp. 144–145; Lesson 4-1, p. 202

**5.A.8 Create algebraic or geometric patterns using concrete objects or visual drawings (e.g., rotate and shade geometric shapes)**

Lesson 3-3, pp. 143; Lesson 3-4, pp. 144A–144B, 144–145

## Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

### Shapes

#### **5.G.1 Calculate the perimeter of regular and irregular polygons**

Lesson 9-5, pp. 540A–540B, 540–541; Lesson 9-16, pp. 573–574

*Students will identify and justify geometric relationships, formally and informally.*

### Geometric Relationships

#### **5.G.2 Identify pairs of similar triangles**

Lesson 6-9, pp. 360A–360B, 360–361

#### **5.G.3 Identify the ratio of corresponding sides of similar triangles**

Lesson 6-9, pp. 360A–360B, 360–361

#### **5.G.4 Classify quadrilaterals by properties of their angles and sides**

Lesson 6-6, pp. 346A–346B, 346–348; Lesson 6-12, pp. 372A–372B, 372–373

#### **5.G.5 Know that the sum of the interior angles of a quadrilateral is 360 degrees**

Lesson 6-6, pp. 346A–346B, 346–348

#### **5.G.6 Classify triangles by properties of their angles and sides**

Lesson 6-5, pp. 342A–342B, 342–345

#### **5.G.7 Know that the sum of the interior angles of a triangle is 180 degrees**

Lesson 6-5, pp. 343–344

**5.G.8 Find a missing angle when given two angles of a triangle**

Lesson 6-5, pp. 343–344

**5.G.9 Identify pairs of congruent triangles**

Lesson 6-9, p. 361

**5.G.10 Identify corresponding parts of congruent triangles**

Lesson 6-9, pp. 361–362

***Students will apply transformations and symmetry to analyze problem solving situations.***

***Transformational Geometry*****5.G.11 Identify and draw lines of symmetry of basic geometric shapes**

Lesson 6-11, pp. 368A–368B, 368–370; Lesson 6-12, pp. 372A–372B, 372–373

***Students will apply coordinate geometry to analyze problem solving situations.***

***Coordinate Geometry*****5.G.12 Identify and plot points in the first quadrant**

Lesson 3-14, pp. 174A–174B, 174–175; Lesson 12-9, pp. 724A–724B, 724–727

**5.G.13 Plot points to form basic geometric shapes (identify and classify)**

Lesson 3-14, pp. 174A–174B, 174–175

**5.G.14 Calculate perimeter of basic geometric shapes drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths and parallel to the axes)**

Related content:

Lesson 3-14, pp. 174A–174B, 174–175; Lesson 9-5, pp. 540A–540B, 540–541

## Measurement Strand

*Students will determine what can be measured and how, using appropriate methods and formulas.*

### *Units of Measurement*

**5.M.1 Use a ruler to measure to the nearest inch,  $\frac{1}{2}$ ,  $\frac{1}{4}$ , and  $\frac{1}{8}$  inch**

Lesson 9-2, pp. 532A–532B, 532–533

**5.M.2 Identify customary equivalent units of length**

Lesson 9-1, pp. 528A–528B, 528–531

**5.M.3 Measure to the nearest centimeter**

Lesson 9-3, pp. 534A–534B, 534–535

**5.M.4 Identify equivalent metric units of length**

Lesson 9-4, pp. 536A–536B, 536–539

**5.M.5 Convert measurement within a given system**

Lesson 9-1, pp. 528A–528B, 528–531; Lesson 9-4, pp. 536A–536B, 536–539

### *Tools and Methods*

**5.M.6 Determine the tool and technique to measure with an appropriate level of precision: lengths and angles**

Lesson 6-2, pp. 332A–332B, 332–335; Lesson 6-6, pp. 349; Lesson 9-1, p. 531; Lesson 9-2, pp. 532A–532B, 532–533; Lesson 9-3, pp. 534A–534B, 534–535

*Students will use units to give meaning to measurements.*

### *Units*

**5.M.7 Calculate elapsed time in hours and minutes**

Lesson 9-13, pp. 564A–564B, 564–567

**5.M.8 Measure and draw angles using a protractor**

Lesson 6-2, pp. 332A–332B, 332–335; Lesson 6-6, p. 349

*Students will develop strategies for estimating measurements.*

**Estimation****5.M.9 Determine personal references for customary units of length**

(e.g., your pace is approximately 3 feet, your height is approximately 5 feet, etc.)

Lesson 9-1, p. 528B

**5.M.10 Determine personal references for metric units of length**

Related content:

Lesson 9-3, pp. 534A–534B, 534–535

**5.M.11 Justify the reasonableness of estimates**

Lesson 9-1, pp. 529, 530; Lesson 9-4, pp. 537, 538; Lesson 9-5, p. 541; Lesson 9-6, p. 544

**Statistics and Probability Strand**

*Students will collect, organize, display, and analyze data.*

**Collection of Data****5.S.1 Collect and record data from a variety of sources (e.g., newspapers, magazines, polls, charts, and surveys)**

Lesson 5-1, pp. 260A–260B, 260–261; Lesson 12-11, pp. 730–731

**Organization and Display of Data****5.S.2 Display data in a line graph to show an increase or decrease over time**

Lesson 5-3, pp. 266A–266B, 266–269; Lesson 5-8, pp. 288A–288B, 288–291

***Analysis of Data*****5.S.3 Calculate the mean for a given set of data and use to describe a set of data**

Lesson 5-6, pp. 282A–282B, 282–285

***Students will make predictions that are based upon data analysis.***

***Predictions from Data*****5.S.4 Formulate conclusions and make predictions from graphs**

Lesson 5-2, p. 262A–262B, 262–265; Lesson 5-3, pp. 266A–266B, 266–269;  
Lesson 5-4, pp. 270A–270B, 270–273, 274–275

***Students will understand and apply concepts of probability.***

***Probability*****5.S.5 List the possible outcomes for a single-event experiment**

Lesson 2-6, pp. 80A–80B, 80–81; Ch. 5, Investigation, p. 258J; Lesson 5-10, pp. 296A–296B, 296–299

**5.S.6 Record experiment results using fractions/ratios**

Lesson 5-11, pp. 300A–300B, 300–301

**5.S.7 Create a sample space and determine the probability of a single event, given a simple experiment (e.g., rolling a number cube)**

Lesson 5-10, pp. 296A–296B, 296–299; Lesson 5-11, pp. 300A–300B, 300–301;  
Lesson 5-12, pp. 302A–302B, 302–305

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**Grade Six**

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## CONTENT STRANDS

### NUMBER SENSE AND OPERATIONS STRAND

*Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.*

#### *Number Systems*

##### **6.N.1 Read and write whole numbers to trillions**

Lesson 1-1, pp. 4A-4B, 4-7

##### **6.N.2 Define and identify the commutative and associative properties of addition and multiplication**

Lesson 1-9, pp. 28A-28B, 28-29; Lesson 1-11, pp.32A-32B, 32-35

##### **6.N.3 Define and identify the distributive property of multiplication over addition**

Lesson 1-10, pp. 30A-30B, 30-31

##### **6.N.4 Define and identify the identity and inverse properties of addition and multiplication**

Lesson 1-9, pp. 28A-28B, 28-29; Lesson 12-2, pp. 700A-700B, 700-701

**6.N.5 Define and identify the zero property of multiplication**

Lesson 1-9, pp. 28A-28B, 28-29

**6.N.6 Understand the concept of rate**

Lesson 6-3, pp. 306A-306B, 306-309; Lesson 6-4, pp. 312A-312B, 312-313

**6.N.7 Express equivalent ratios as a proportion**

Lesson 6-2, pp. 302A-302B, 302-305; Lesson 6-5, pp. 316A-316B, 316-317; Lesson 6-10, pp. 330A-330B, 330-333; Lesson 7-11, pp.388A-388B, 388-389

**6.N.8 Distinguish the difference between rate and ratio**

Lesson 6-1, pp. 300A-300B, 300-301; Lesson 6-3, pp. 306A-306B, 306-309; Lesson 6-4, pp. 312A-312B, 312-313

**6.N.9 Solve proportions using equivalent fractions**

Lesson 3-7, pp. 164A-164B, 164-167; Lesson 6-6, pp. 318A-318B, 318-321; Lesson 6-7, pp. 322A-322B, 322-323; Lesson 6-8, pp. 324A-324B, 324-325; Lesson 7-11, pp.388A-388B, 388-389

**6.N.10 Verify the proportionality using the product of the means equals the product of the extremes**

Lesson 6-7, pp. 322A-322B, 322-323; Lesson 8-4, pp. 414A-414B, 414-415

**6.N.11 Read, write, and identify percents of a whole (0% to 100%)**

Lesson 7-1, pp. 354A-354B, 354-357; Lesson 7-3, pp. 362A-362B, 362-363; Lesson 7-6, pp. 370A-370B, 370-371; Lesson 7-7, pp. 374A-374B, 374-377; Lesson 7-8, pp.380A-380B, 380-383; Lesson 7-9, pp.384A-384B, 384-385; Lesson 7-11, pp.388A-388B, 388-389; Lesson 9-15, pp. 520A-520B, 520-521

**6.N.12 Solve percent problems involving percent, rate, and base**

Lesson 7-10, pp. 386A-386B, 386-387

**6.N.13 Define absolute value and determine the absolute value of rational numbers (including positive and negative)**

Lesson 8-1, pp. 408A-408B, 408-409; Lesson 8-3, pp. 412A-412B, 412-413

**6.N.14 Locate rational numbers on a number line (including positive and negative)**

Lesson 8-1, pp. 408A-408B, 408-409; Lesson 8-2, pp. 410A-410B, 410-411; Lesson 8-3, pp. 412A-412B, 412-413

**6.N.15 Order rational numbers (including positive and negative)**

Lesson 1-3, pp. 12A-12B, 12-13; Lesson 1-17, pp. 54A-54B, 54-55; Lesson 8-1, pp. 408A-408B, 408-409; Lesson 8-2, pp. 410A-410B, 410-411; Lesson 8-3, pp. 412A-412B, 412-413

*Students will understand meanings of operations and procedures, and how they relate to one another.*

**Operations****6.N.16 Add and subtract fractions with unlike denominators**

Lesson 4-1, pp. 204A-204B, 204-205; Lesson 4-2, pp. 206A-206B, 206-209

**6.N.17 Multiply and divide fractions with unlike denominators**

Lesson 5-2, pp. 252A-252B, 252-255; Lesson 5-6, pp. 266A-266B, 266-269

**6.N.18 Add, subtract, multiply, and divide mixed numbers with unlike denominators**

Lesson 4-5, pp. 218A-218B, 218-219; Lesson 4-6, pp. 220A-220B, 220-223; Lesson 5-4, pp. 258A-258B, 258-259; Lesson 5-7, pp. 270A-270B, 270-271; Lesson 5-10, pp. 278A-278B, 278-279; Lesson 5-11, pp. 280A-280B, 280-281; Lesson 6-11, pp. 334A-334B, 334-335

**6.N.19 Identify the multiplicative inverse (reciprocal) of a number**

Lesson 5-6, pp. 266A-266B, 266-269

**6.N.20 Represent fractions as terminating or repeating decimals**

Lesson 3-10, pp. 172A-172B, p. 172-175; Lesson 3-11, pp. 176A-176B, 176-179; Lesson 5-1, pp. 248A-248B, 248-251

**6.N.21 Find multiple representations of rational numbers (fractions, decimals, and percents 0 to 100)**

Lesson 8-3, pp. 412A-412B, 412-413

**6.N.22 Evaluate numerical expressions using order of operations (may include exponents of two and three)**

Lesson 1-8, pp. 24A-24B, 24-27

**6.N.23 Represent repeated multiplication in exponential form**

Lesson 1-2, pp. 8A-8B, 8-11

**6.N.24 Represent exponential form as repeated multiplication**

Lesson 1-2, pp. 8A-8B, 8-11

**6.N.25 Evaluate expressions having exponents where the power is an exponent of one, two, or three**

Lesson 1-2, pp. 8A-8B, 8-11; Lesson 1-13, pp. 40A-40B, 40-43

*Students will compute accurately and make reasonable estimates.*

***Estimation*****6.N.26 Estimate a percent of quantity (0% to 100%)**

Lesson 7-1, pp. 354A-354B, 354-357; Lesson 7-2, pp. 358A-358B, 358-361; Lesson 7-3, pp. 362A-362B, 362-363; Lesson 7-4, pp. 366A-366B, 366-367; Lesson 7-6, pp. 370A-370B, 370-371; Lesson 9-15, pp. 520A-520B, 520-521

**6.N.27 Justify the reasonableness of answers using estimation (including rounding)**

Lesson 1-16, pp. 52A-52B, 52-53; Lesson 4-4, pp. 216A-216B, 216-217; Lesson 5-3, pp. 256A-256B, 256-257; Lesson 5-11, pp. 280A-280B, 280-281; Lesson 7-3, pp. 362A-362B, 362-363; Lesson 7-5, pp. 368A-368B, 368-369

## Algebra Strand

*Students will represent and analyze algebraically a wide variety of problem solving situations.*

### *Variables and Expressions*

#### **6.A.1 Translate two-step verbal expressions into algebraic expressions**

Lesson 1-13, pp. 40A-40B, 40-43; Lesson 5-8, pp. 274A-274B, 274-275; Lesson 12-4, pp. 710A-710B, 710-711

#### **6.A.2 Use substitution to evaluate algebraic expressions (may include exponents of one, two and three)**

Lesson 1-13, pp. 40A-40B, 40-43; Lesson 12-4, pp. 710A-710B, 710-711

*Students will perform algebraic procedures accurately.*

### *Equations and Inequalities*

#### **6.A.3 Translate two-step verbal sentences into algebraic equations**

Lesson 1-13, pp. 40A-40B, 40-43; Lesson 2-13, pp. 116A-116B, 116-119; Lesson 4-9, pp. 228A-228B, 228-229

#### **6.A.4 Solve and explain two-step equations involving whole numbers using inverse operations**

Lesson 1-14, pp. 44A-44B, 44-47; Lesson 1-15, pp. 48A-48B, 48-51; Lesson 12-5, pp. 712A-712B, 712-715

#### **6.A.5 Solve simple proportions within context**

Lesson 6-6, pp. 318A-318B, 318-321; Lesson 6-7, pp. 322A-322B, 322-323; Lesson 6-8, pp. 324A-324B, 324-325

#### **6.A.6 Evaluate formulas for given input values (circumference, area, volume, distance, temperature, interest, etc.)**

Lesson 6-9, pp. 328A-328B, 328-329; Lesson 7-10, pp. 386A-386B, 386-387; Lesson 10-7, pp. 564A-564B, 564-567; Lesson 10-8, pp. 568A-568B, 568-569; Lesson 10-10, pp. 572A-572B, 572-575; Lesson 10-11, pp. 576A-576B, 576-579; Lesson 10-12, pp. 580A-580B, 580-581; Lesson 10-15, pp. 590A-590B, 590-593; Lesson 10-16, pp. 594A-594B, 594-597; Lesson 12-8, pp. 722A-722B, 722-723; Lesson 12-9, pp. 724A-724B, 724-725

## Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

## Shapes

### **6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning**

Lesson 9-10, pp. 506A-506B, 506-509; Lesson 10-13, pp. 582A-582B, 582-583

### **6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas**

Lesson 10-8, pp. 568A-568B, 568-569; Lesson 10-10, pp. 572A-572B, 572-575

### **6.G.3 Use a variety of strategies to find the area of regular and irregular polygons**

Lesson 10-8, pp. 568A-568B, 568-569; Lesson 10-10, pp. 572A-572B, 572-575

### **6.G.4 Determine the volume of rectangular prisms by counting cubes and develop the formula**

Lesson 10-16, pp. 594A-594B, 594-597

### **6.G.5 Identify radius, diameter, chords and central angles of a circle**

Lesson 9-9, pp. 502A-502B, 502-503; Lesson 10-13, pp. 582A-582B, 582-583

### **6.G.6 Understand the relationship between the diameter and radius of a circle**

Lesson 9-9, pp. 502A-502B, 502-503

### **6.G.7 Determine the area and circumference of a circle, using the appropriate formula**

Lesson 10-11, pp. 576A-576B, 576-579; Lesson 10-12, pp. 580A-580B, 580-581

### **6.G.8 Calculate the area of a sector of a circle, given the measure of a central angle and the radius of the circle**

Lesson 10-12, pp. 580A-580B, 580-581

**6.G.9 Understand the relationship between the circumference and the diameter of a circle**

Lesson 10-11, pp. 576A-576B, 576-579; Lesson 10-13, pp. 582A-582B, 582-583;  
Lesson 10-17, pp. 598A-598B, 598-599

*Students will apply coordinate geometry to analyze problem solving situations.*

**Coordinate Geometry****6.G.10 Identify and plot points in all four quadrants**

Lesson 8-11, pp. 440A-440B, 440-443

**6.G.11 Calculate the area of basic polygons drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths)**

Related content:

Lesson 10-9, pp. 570A-570B, 570-571; Lesson 10-10, pp. 572A-572B, 572-575

**Measurement Strand**

*Students will determine what can be measured and how, using appropriate methods and formulas.*

**Units of Measurement****6.M.1 Measure capacity and calculate volume of a rectangular prism**

Lesson 10-1, pp. 542A-542B, 542-545; Lesson 10-2, pp. 546A-546B, 546-549; Lesson 10-16, pp. 594A-594B, 594-597

**6.M.2 Identify customary units of capacity (cups, pints, quarts, and gallons)**

Lesson 10-1, pp. 542A-542B, 542-545

**6.M.3 Identify equivalent customary units of capacity (cups to pints, pints to quarts, and quarts to gallons)**

Lesson 3-12, pp. 180A-180B, 180-181; Lesson 10-1, pp. 542A-542B, 542-545



**6.M.4 Identify metric units of capacity (liter and milliliter)**

Lesson 10-2, pp. 546A-546B, 546-549

**6.M.5 Identify equivalent metric units of capacity (milliliter to liter and liter to milliliter)**

Lesson 10-2, pp. 546A-546B, 546-549

***Tools and Methods*****6.M.6 Determine the tool and technique to measure with an appropriate level of precision: capacity**

Lesson 10-1, pp. 542A-542B, 542-545; Lesson 10-2, pp. 546A-546B, 546-549; Lesson 10-16, pp. 594A-594B, 594-597; Lesson 10-17, pp. 598A-598B, 598-599

***Students will develop strategies for estimating measurements.***

***Estimation*****6.M.7 Estimate volume, area, and circumference (see figures identified in geometry strand)**

Lesson 10-8, pp. 568A-568B, 568-569; Lesson 10-10, pp. 572A-572B, 572-575; Lesson 10-11, pp. 576A-576B, 576-579; Lesson 10-16, pp. 594A-594B, 594-597; Lesson 10-17, pp. 598A-598B, 598-599

**6.M.8 Justify the reasonableness of estimates**

Related content:

Lesson 10-4, pp. 552A-552B, 552-553; Lesson 10-5, pp. 554A-554B, 554-557; Lesson 10-6, pp. 560A-560B, 560-561

**6.M.9 Determine personal references for capacity**

Lesson 10-1, pp. 542A-542B, 542-545; Lesson 10-2, pp. 546A-546B, 546-549; Lesson 10-4, pp. 552A-552B, 552-553

**Statistics and Probability Strand**

*Students will collect, organize, display, and analyze data.*

***Collection of Data***

**6.S.1 Develop the concept of sampling when collecting data from a population and decide the best method to collect data for a particular question**

Lesson 11-1, pp. 620A-620B, 620-623

***Organization and Display of Data***

**6.S.2 Record data in a frequency table**

Lesson 11-3, pp. 628A-628B, 628-631

**6.S.3 Construct Venn diagrams to sort data**

Lesson 2-5, pp. 86A-86B, 86-89; Lesson 3-3, pp. 150A-150B, 150-151; Lesson 8-3, pp. 412A-412B, 412-413; Lesson 11-14, pp. 668A-668B, 668-671

**6.S.4 Determine and justify the most appropriate graph to display a given set of data (pictograph, bar graph, line graph, histogram, or circle graph)**

Lesson 11-3, pp. 628A-628B, 628-631; Lesson 11-8, pp. 648A-648B, 648-649; Lesson 11-16, pp. 674A-674B, 674-675; Lesson 11-17, pp. 676A-676B, 676-677

***Analysis of Data***

**6.S.5 Determine the mean, mode and median for a given set of data**

Lesson 11-2, pp. 624A-624B, 624-627; Lesson 11-17, pp. 676A-676B, 676-677

**6.S.6 Determine the range for a given set of data**

Lesson 11-2, pp. 624A-624B, 624-627

**6.S.7 Read and interpret graphs**

Lesson 11-1, pp. 620A-620B, 620-623; Lesson 11-2, pp. 624A-624B, 624-627; Lesson 11-3, pp. 628A-628B; Lesson 11-4, pp. 632A-632B, 632-633; Lesson 11-5, pp. 636A-636B, 636-637; Lesson 11-6, pp. 638A-638B, 638-641; Lesson 11-7, pp. 642A-642B, 642-645; Lesson 11-8, pp. 648A-648B, 648-649; Lesson 11-9, pp. 650A-650B, 650-651; Lesson 11-10, pp. 654A-654B, 654-657; Lesson 11-16, pp. 674A-674B, 674-675

***Students will make predictions that are based upon data analysis.***

***Predictions from Data***

**6.S.8 Justify predictions made from data**

Lesson 11-2, pp. 624A-624B, 624-627; Lesson 11-6, pp. 638A-638B, 638-641

***Students will understand and apply concepts of probability.***

***Probability***

**6.S.9 List possible outcomes for compound events**

Lesson 5-5, pp. 264A-264B, 264-265; Lesson 11-10, pp. 654A-654B, 654-657

**6.S.10 Determine the probability of dependent events**

Lesson 11-5, pp. 636A-636B, 636-637; Lesson 11-13, pp. 664A-664B, 664-667

**6.S.11 Determine the number of possible outcomes for a compound event by using the fundamental counting principle and use this to determine the probabilities of events when the outcomes have equal probability**

Lesson 11-10, pp. 654A-654B, 654-657; Lesson 11-12, pp. 662A-662B, 662-663; Lesson 11-13, pp. 664A-664B, 664-667; Lesson 11-15, pp. 672A-672B, 672-673