

A Correlation of

SCOTT FORESMAN ■ ADDISON WESLEY

Mathematics

to the

Wisconsin

Model Academic

Standards for Mathematics

Grades K-6



G/M-206

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 Wisconsin Model Academic Standards for Mathematics. Correlation page references are to the Teacher Edition, which contains facsimile Pupil 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
Wisconsin Model Academic Standards for Mathematics**

Kindergarten

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade four, students will:

A.4.1 Use reasoning abilities to

• **perceive patterns**

25J, 25L, 37A–37B, 37–38, 39A–39B, 39–40, 41A–41B, 41–42, 43A–43B, 43–44, 45A–45B, 45–46, 95A–95B, 95–96, 101J, 101L, 113A–113B, 113–114, 285K–285L, 287A–287B, 287–288, 289A–289B, 289, 293A–293B, 293–294, 295A–295B, 295–296, 297A–297B, 297–298

• **identify relationships**

25I, 27A, 29A, 41A–41B, 41–42, 63A–63B, 63–64, 87A–87B, 87–88, 89A–89B, 89–90, 121A–121B, 121–122, 133A–133B, 133–134, 135A–135B, 135–136, 149A–149B, 149–150, 189A–189B, 189–190, 199A–199B, 199–200

• **formulate questions for further exploration**

141B, 143A–143B, 143–144, 147B, 150, 151B, 153B, 155B, 156, 199A–199B, 199–200, 201B

• **justify strategies**

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

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy pages, students are provided this opportunity.

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

A.4.2 Communicate mathematical ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity. 67A–67B, 67–68, 95A–95B, 95–96, 125A–125B, 125–126, 185A–185B, 185–186, 217A–217B, 217–218

A.4.3 Connect mathematical learning with other subjects, personal experiences, current events, and personal interests.

- **see relationships between various kinds of problems and actual events**

5B, 13B, 15B, 21A–21B, 21–22, 37B, 43B, 47A–47B, 47–48, 69B, 71A–71B, 71–72, 79B, 87B, 97A–97B, 97–98, 107B, 125B, 127A–127B, 127–128, 137B, 141B, 153B, 155A–155B, 155–156, 163B, 165B, 167B, 171B, 191A–191B, 191–192, 213B, 217B, 219–220, 225B, 239A–239B, 239–240, 259A–259B, 259–260, 281A–281B, 281–282, 299A–299B, 299–300

- **use mathematics as a way to understand other areas of the curriculum (e.g., measurement in science, map skills in social studies)**

5B, 7B, 11B, 13B, 15B, 17B, 33B, 35B, 37B, 43B, 45B, 53B, 55B, 57B, 67B, 69B, 77B, 79B, 83B, 85B, 87B, 93B, 95B, 103B, 105B, 107B, 109B, 111B, 117B, 121B, 125B, 135B, 137B, 139B, 141B, 145B, 147B, 153B, 155B, 161B, 163B, 165B, 167B, 169B, 171B, 177B, 185B, 187B, 191B, 197B, 201B, 205B, 207B, 209B, 211B, 213B, 215B, 217B, 225B, 227B, 229B, 231B, 235B, 237B, 239B

A.4.4. Use appropriate mathematical vocabulary, symbols, and notation with understanding based on prior conceptual work.

Most lessons provide students with the opportunity to meet this objective. Here are a few of the many examples.

3A, 9A, 19A, 29A, 33A, 55A, 63A, 65A, 69A, 81A, 87A, 89A, 91A, 93A, 95A, 113A, 119A, 121A, 123A, 125A, 131, 135A, 137A, 139A, 141A, 145A, 149A, 151A, 153A, 165A, 167A, 169A, 171A, 173A, 175A, 179A, 181A, 187A, 195, 197A, 199A, 201A, 203A, 205A, 207A, 211A, 213A, 215A, 223, 225A, 227A, 243, 263, 285

A.4.5. Explain solutions to problems clearly and logically in oral and written work and support solutions with evidence.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to explain solutions to problems.

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade four, students will:

B.4.1. Represent and explain whole numbers, decimals, and fractions with**• physical materials**

51I–51J, 51K–51L, 53A–53B, 53–54, 55A–55B, 55–56, 57A–57B, 57–58, 59A–59B, 59–60, 61A–61B, 61–62, 63A–63B, 63–64, 65A–65B, 65–66, 75I–75J, 75K–75L, 77A–77B, 77–78, 79A–79B, 79–80, 81A–81B, 81–82, 83A–83B, 83–84, 85A–85B, 85–86, 87A–87B, 87–88, 89A–89B, 89–90, 101I–101J, 101K–101L, 103A–103B, 103–104, 105A–105B, 105–106, 107A–107B, 107–108, 109A–109B, 109–110, 111A–111B, 111–112, 113A–113B, 113–114, 115A–115B, 115–116, 117A–117B, 117–118, 121A–121B, 121–122, 215A–215B, 215–216, 287A–287B, 287–288, 295A–295B, 295–296

• number lines and other pictorial models

51I–51J, 51K–51L, 53A–53B, 53–54, 55A–55B, 55–56, 57A–57B, 57–58, 59A–59B, 59–60, 61A–61B, 61–62, 63A–63B, 63–64, 65A–65B, 65–66, 75I–75J, 75K–75L, 77A–77B, 77–78, 79A–79B, 79–80, 81A–81B, 81–82, 83A–83B, 83–84, 85A–85B, 85–86, 87A–87B, 87–88, 89A–89B, 89–90, 91A–91B, 91–92, 101I–101J, 101K–101L, 103A–103B, 103–104, 105A–105B, 105–106, 107A–107B, 107–108, 109A–109B, 109–110, 111A–111B, 111–112, 113A–113B, 113–114, 115A–115B, 115–116, 117A–117B, 117–118, 121A–121B, 121–122, 215A–215B, 215–216, 287A–287B, 287–288, 295A–295B, 295–296

• verbal descriptions

53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 77, 79, 81, 83, 85, 87, 89, 93, 95, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 211, 213, 215, 217, 219, 287, 289, 291, 293, 295, 297, 299

• place-value concepts and notation

288A–288B, 288–289, 293A–293B, 293–294

- **symbolic renaming (e.g., $43 = 40 + 3 = 30 + 13$)**
223I, 223K, 225A–225B, 225–226, 227A–227B, 227–228, 229A–229B, 229–230, 231A–231B, 231–232 and See also Grade 1.

B.4.2. Determine the number of things in a set by

- **grouping and counting (e.g., by threes, five's, hundreds)**
101J, 101L, 103A–103B, 103–104, 105A–105B, 105–106, 107A–107B, 107, 109A, 109, 111A–111B, 111, 115A–115B, 115–116, 287A–287B, 287–288, 295A–295B, 295–296
- **combining and arranging (e.g., all possible coin combinations amounting to thirty cents)**
103A–103B, 103–104, 105A–105B, 105–106, 107A–107B, 107, 109A, 109, 111A–111B, 111, 115A–115B, 115–116
- **estimation, including rounding**
101L, 119A–119B, 119–120

B.4.3. Read, write, and order whole numbers, simple fractions (e.g., halves, fourths, tenths, unit fractions) and commonly-used decimals (monetary units).

51I, 51K–51L, 53A–53B, 53–54, 55A–55B, 55–56, 57A–57B, 57–58, 59A–59B, 59–60, 61A–61B, 61–62, 65A–65B, 65–66, 75I–75J, 75K–75L, 77A–77B, 77–78, 79A–79B, 79–80, 81–81B, 81–82, 83A–83B, 83–84, 85A–85B, 85–86, 91A–91B, 91–92, 101I, 101J–101L, 103A–103B, 103–104, 105A–105B, 105–106, 107A–107B, 107–108, 109A–109B, 109–110, 111A–111B, 111–112, 115A–115B, 115–116, 117A–117B, 117–118, 287A–287B, 287–288, 289A–289B, 289–290, 291A–291B, 291–292

B.4.4. Identify and represent equivalent fractions for halves, fourths, eighths, tenths, sixteenths.

These pages provide opportunities to introduce this objective.
215A–215B, 215–216

B.4.5. In problem-solving situations involving whole numbers, select and efficiently use appropriate computational procedures such as

- **recalling the basic facts of addition, subtraction, multiplication, and division**
249A–249B, 249–250, 259A–259B, 259–260, 279A–279B, 279–280, 281A–281B, 281–282
- **using mental math (e.g., $37 + 25$, 4×7)**
These pages provide opportunities to introduce this objective.
225A–225B, 225–226, 227A–227B, 227–228, 229A–229B, 229–230, 231A–231B, 231–232, 233A–233B, 233–234

- **estimation**

These pages offer related content.

119A–119B, 119–120, 127A–127B, 127–128

- **selecting and applying algorithms for addition, subtraction, multiplication, and division**

These pages provide opportunities to introduce this objective.

225A–225B, 225–226, 227A–227B, 227–228, 229A–229B, 229–230, 231A–231B, 231–232, 233A–233B, 233–234, 235A–235B, 235–236, 237A–237B, 237–238, 269A–269B, 269–270

- **using a calculator**

75K

B.4.6. Add and subtract fractions with like denominators.

This objective is covered in Grade 3.

B.4.7. In problem-solving situations involving money, add and subtract decimals.

These pages offer related content.

257A–257B, 257–258, 277A–277B, 277–278

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade four, students will:

C.4.1. Describe two- and three-dimensional figures (e.g., circles, polygons, trapezoids, prisms, spheres) by

- **naming them**

195K–195L, 197B, 201B, 205B

- **comparing, sorting, and classifying them**

195K–195L, 197A–197B, 197–198, 199A–199B, 199–200, 201A–201B, 201–202, 203A–203B, 203–204, 205A–205B, 205–206

- **drawing and constructing physical models to specifications**
197B, 205B, 209B
- **identifying their properties (e.g., number of sides or faces, two- or three-dimensionality, equal sides, number of right angles)**
195L, 195L, 199A–199B, 199–200, 201A–201B, 201–202, 203A–203B, 203–204, 205A–205B, 205–206
- **predicting the results of combining or subdividing two-dimensional figures**
195L, 209A–209B, 209–210
- **explaining how these figures are related to objects in the environment**
195K, 197A–197B, 197–198

C.4.2. Use physical materials and motion geometry (such as slides, flips, and turns) to identify properties and relationships, including but not limited to

- **symmetry**
211A–211B, 211–212
- **congruence**
These pages offer related content.
197A–197B, 197–198, 203A–203B, 203–204, 205A–205B, 205–206
- **similarity**
197A–197B, 197–198, 203A–203B, 203–204, 205A–205B, 205–206

C.4.3. Identify and use relationships among figures, including but not limited to

- **location (e.g., between, adjacent to, interior of)**
3A–3B, 3–4, 5A–5B, 5–6, 7A–7B, 7–8, 9A–9B, 9–10
- **position (e.g., parallel, perpendicular)**
3A–3B, 3–4, 5A–5B, 5–6, 7A–7B, 7–8, 9A–9B, 9–10
- **intersection (of two-dimensional figures)**
211A–211B, 211–212

C.4.4. Use simple two-dimensional coordinate systems to find locations on maps and to represent points and simple figures.

This objective is covered in Grade 1.

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade four, students will:

D.4.1. Recognize and describe measurable attributes, such as length, liquid capacity, time, weight (mass), temperature, volume, monetary value, and angle size, and identify the appropriate units to measure them.

131I–131J, 131K–131L, 139A–139B, 139–140, 141A–141B, 141–142, 145A–145B, 145–146, 147A–147B, 147–148, 149A–149B, 149–150, 151A–151B, 151–152, 153A–153B, 153–154, 159I–159J, 159K–159L, 173A–173B, 173–174, 175A–175B, 175–176, 177A–177B, 177–178, 179A–179B, 179–180, 181A–181B, 181–182, 183A–183B, 183–184

D.4.2. Demonstrate understanding of basic facts, principles, and techniques of measurement, including

- **appropriate use of arbitrary and standard units (metric and US Customary)**
131K–131L, 139A–139B, 139–140, 141A–141B, 141–142, 147A–147B, 147–148, 151A–151B, 151–152
- **appropriate use and conversion of units within a system (such as yards, feet, and inches; kilograms and grams; gallons, quarts, pints, and cups)**
These pages provide opportunities to introduce this objective.
131K–131L, 139A–139B, 139–140, 141A–141B, 141–142, 147A–147B, 147–148, 151A–151B, 151–152
- **judging the reasonableness of an obtained measurement as it relates to prior experience and familiar benchmarks**
147A–147B, 147–148, 151A–151B, 151–152

D.4.3. Read and interpret measuring instruments (e.g., rulers, clocks, thermometers).

151A–151B, 151–152, 153A–153B, 153–154, 159J, 173A–173B, 173–174, 175A–175B, 175–176,

D.4.4. Determine measurements directly by using standard tools to these suggested degrees of accuracy

- **length to the nearest half-inch or nearest cm**

These pages prepare students to meet this objective.
131I, 131K–131L, 139A–139B, 139–140, 141A–141B, 141–142

- **weight (mass) to the nearest ounce or nearest 5 grams**

These pages prepare students to meet this objective.
131J, 131K, 151A–151B, 151–152

- **temperature to the nearest 5°**

These pages prepare students to meet this objective.
153A–153B, 153–154

- **time to the nearest minute**

These pages prepare students to meet this objective.
159J, 173A–173B, 173–174, 175A–175B, 175–176

- **monetary value to dollars and cents**

These pages prepare students to meet this objective.
159K–159L, 179A–179B, 179–180, 181A–181B, 181–182, 183A–183B, 183–184

- **liquid capacity to the nearest fluid ounce**

These pages prepare students to meet this objective.
131L, 147A–147B, 147–148

D.4.5. Determine measurements by using basic relationships (such as perimeter and area) and approximate measurements by using estimation techniques.

131K–131L, 141A–141B, 141–142, 147A–147B, 147–148, 151A–151B, 151–152

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade four, students will:

E.4.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**

These pages provide opportunities to introduce this objective.
31A–31B, 31–32, 33A–33B, 33–34

- **determining what data to collect and when and how to collect them**

These pages provide opportunities to introduce this objective.
31A–31B, 31–32, 33A–33B, 33–34

- **collecting, organizing, and displaying data**

25K, 33A–33B, 33–34

- **drawing reasonable conclusions based on data**

25K, 33A–33B, 33–34

E.4.2. Describe a set of data using

- **high and low values, and range**

These pages provide opportunities to introduce this objective.

25K, 29A–29B, 29–30, 31A–31B, 31–32, 33A–33B, 33–34

- **most frequent value (mode)**

These pages provide opportunities to introduce this objective.

25K, 29A–29B, 29–30, 31A–31B, 31–32, 33A–33B, 33–34

- **middle value of a set of ordered data (median)**

These pages provide opportunities to introduce this objective.

25K, 29A–29B, 29–30, 31A–31B, 31–32, 33A–33B, 33–34

E.4.3. In problem-solving situations, read, extract, and use information presented in graphs, tables, or charts.

67A–67B, 67–68, 125A–125B, 125–126

E.4.4. Determine if future events are more, less, or equally likely, impossible, or certain to occur.

125A–125B, 125–126

E.4.5. Predict outcomes of future events and test predictions using data from a variety of sources.

These pages provide opportunities to introduce this objective.

125A–125B, 125–126

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade four, students will:

F.4.1. Use letters, boxes, or other symbols to stand for any number, measured quantity, or object in simple situations (e.g., $N + 0 = N$ is true for any number).
279A–279B, 279–280, 281A–281B, 281–282

F.4.2. Use the vocabulary, symbols, and notation of algebra accurately (e.g., correct use of the symbol “=”, effective use of the associative property of multiplication).

251A–251B, 251–252, 253A–253B, 253–254, 255A–255B, 255–256, 257A–257B, 257–258, 259A–259B, 259–260, 271A–271B, 271–272, 273A–273B, 273–274, 275A–275B, 275–276, 277A–277B, 277–278, 279A–279B, 279–280, 281A–281B, 281–282

F.4.3. Work with simple linear patterns and relationships in a variety of ways, including

- **recognizing and extending number patterns**

113A–113B, 113–114, 287A–287B, 287–288, 289, 293A–293B, 293–294, 295A–295B, 295–296, 297A–297B, 297–298

- **describing them verbally**

113A–113B, 113–114, 287A–287B, 287–288, 289, 293A–293B, 293–294, 295A–295B, 295–296, 297A–297B, 297–298

- **representing them with pictures, tables, charts, graphs**

113A–113B, 113–114, 287A–287B, 287–288, 289, 293A–293B, 293–294, 295A–295B, 295–296, 297A–297B, 297–298

- **recognizing that different models can represent the same pattern or relationship**

113A–113B, 113–114, 287A–287B, 287–288, 295A–295B, 295–296, 297A–297B, 297–298

- **using them to describe real-world phenomena**

113A–113B, 113–114, 295A–295B, 295–296

F.4.4. Recognize variability in simple functional relationships by describing how a change in one quantity can produce a change in another (e.g., number of bicycles and the total number of wheels).

This objective is covered in Grade 1.

F.4.5. Use simple equations and inequalities in a variety of ways, including

- **using them to represent problem situations**
255A–255B, 255–256, 275A–275B, 275–276
- **solving them by different methods (e.g., use of manipulatives, guess and check strategies, recall of number facts).**
255A–255B, 255–256, 275A–275B, 275–276
- **recording and describing solution strategies**
255A–255B, 255–256, 275A–275B, 275–276

F.4.6. Recognize and use generalized properties and relationships or arithmetic (e.g., commutativity of addition, inverse relationships of multiplication and division).

These pages provide opportunities to introduce this objective.

225A–225B, 225–226, 227A–227B, 227–228, 229A–229B, 229–230, 231A–231B, 231–232, 233A–233B, 233–234, 235A–235B, 235–236, 247A–247B, 247–248, 249A–249B, 249–250, 251A–251B, 251–252, 253A–253B, 253–254, 255A–255B, 255–256, 258A–257B, 257–258

**Scott Foresman – Addison Wesley Mathematics
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Grade One

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade four, students will:

A.4.1 Use reasoning abilities to

• **perceive patterns**

1I, 3A–3B, 3–4, 5A–5B, 5–6, 7A–7B, 7–8, 33A–33B, 33–34, 255A–255B, 255–256, 257A–257B, 257–258, 259A–259B, 259–260, 261A–261B, 261–262

• **identify relationships**

29A–29B, 29–30, 31A–31B, 31–32, 83, 157, 161A–161B, 161–162, 241A–241B, 241–242, 243A–243B, 243–244, 263A–263B, 263–264, 297A–297B, 297–298, 343A–343B, 343–344, 347A–347B, 347–348, 435A–435B, 435–436, 439A–439B, 439–440, 441A–441B, 441–442, 445A–445B, 445–446, 447A–447B, 447–448

• **formulate questions for further exploration**

7B, 25A, 29B, 33–34, 57B, 168, 215B, 221A–221B, 221, 261B, 261–262, 309B, 310, 314, 340, 383A, 389A–389B, 397A, 445A–445B, 445–446, 482

• **justify strategies**

7A–7B, 7–8, 21A–21B, 21–22, 57A–57B, 57–58, 71A–71B, 71–72, 99A–99B, 99–100, 111A–111B, 111–112, 133A–133B, 133–134, 143A–143B, 143–144, 177A–177B, 177–178, 191A–191B, 191–192, 215A–215B, 215–216, 223A–223B, 223–224, 251A–251B, 251–252, 261A–261B, 261–262, 291A–291B, 291–292, 317A–317B, 317–318, 339A–339B, 339–340, 351A–351B, 351–352, 369A–369B, 369–370, 379A–379B, 379–380, 431A–431B, 431–432, 445A–445B, 445–446, 467A–467B, 467–468, 481A–481B, 481–482

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy and skills pages, students are provided this opportunity.

7A–7B, 7–8, 21A–21B, 21–22, 57A–57B, 57–58, 71A–71B, 71–72, 99A–99B, 99–100, 111A–111B, 111–112, 133A–133B, 133–134, 143A–143B, 143–144, 177A–177B, 177–178, 191A–191B, 191–192, 215A–215B, 215–216, 223A–223B, 223–224, 251A–251B, 251–252, 261A–261B, 261–262, 291A–291B, 291–292, 317A–317B, 317–318, 339A–339B, 339–340, 351A–351B, 351–352, 369A–369B, 369–370, 379A–379B, 379–380, 431A–431B, 431–432, 445A–445B, 445–446, 467A–467B, 467–468, 481A–481B, 481–482

A.4.2 Communicate mathematical ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity. 21A–21B, 21–22, 111A–111B, 111–112, 191A–191B, 191–192, 215A–215B, 215–216, 223A–223B, 223–224, 251A–251B, 251–252, 291A–291B, 291–292, 317A–317B, 317–318, 339A–339B, 339–340, 431A–431B, 431–432, 481A–481B, 481–482

A.4.3 Connect mathematical learning with other subjects, personal experiences, current events, and personal interests.

- **see relationships between various kinds of problems and actual events**

40, 86, 120, 152, 200, 236, 276, 326, 360, 412, 454, 490

- **use mathematics as a way to understand other areas of the curriculum (e.g., measurement in science, map skills in social studies)**

1B, 1Q, 1R, 1, 3B, 5B, 7B, 13B, 15B, 17B, 18, 19, 21B, 27B, 31B, 33B, 43A, 43B, 43M, 43N, 45B, 47B, 51B, 53B, 55, 56, 61B, 63B, 67B, 69B, 71B, 75B, 77B, 79B, 89B, 89M, 89N, 91B, 97B, 99B, 103B, 107B, 109, 110, 123A, 123B, 123M, 123N, 127B, 131, 133B, 143B, 155B, 161B, 165B, 171B, 173B, 175, 176, 177B, 181B, 183B, 185B, 193B, 203A, 203B, 203D, 203M, 203N, 205B, 209B, 211B, 213, 214, 215B, 219B, 221B, 223B, 227B, 229B, 239B, 239C, 239D, 239, 241B, 243B, 245B, 247B, 249B, 251B, 261B, 265B, 267B, 279A, 279B, 279M, 280, 291B, 297B, 303B, 307B, 309B, 311B, 313B, 317B, 319B, 329B, 329, 331B, 333B, 335B, 337B, 343B, 345B, 347B, 349, 353B, 363A, 363B, 365B, 367, 368, 371B, 377B, 383B, 385B, 387B, 389B, 391B, 395B, 397B, 401B, 403B, 405B, 415A, 415B, 415K, 419B, 421B, 423B, 427B, 429, 430, 431B, 437B, 445B, 447B, 457B, 457D, 457K, 463B, 465B, 467B, 473B, 475B, 477B, 479, 480, 481B, 483B

A.4.4. Use appropriate mathematical vocabulary, symbols, and notation with understanding based on prior conceptual work.

Most lessons provide students with the opportunity to meet this objective. Here are a few of the many examples.

3A, 25A, 27A, 29A, 31A, 35, 43, 45A, 47A, 49A, 49, 59, 63A, 65A, 65, 73, 84, 89, 91A, 97A, 101, 103A, 125A, 137A, 139A, 155, 157A, 159A, 163, 165A, 167A, 169A, 171A, 173A, 179, 181A, 183A, 185A, 191A, 195, 239, 249A, 251A, 253, 265A, 271, 279, 283A, 293, 297A, 301A, 303A, 307A, 309A, 311A, 313A, 365A, 371A, 375A, 399, 401A, 403A, 407

A.4.5. Explain solutions to problems clearly and logically in oral and written work and support solutions with evidence.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to explain solutions to problems.

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade four, students will:

B.4.1. Represent and explain whole numbers, decimals, and fractions with**• physical materials**

11A–11B, 11–12, 13A–13B, 13–14, 15A–15B, 15–16, 17A–17B, 17–18, 25A–25B, 25–26, 27A–27B, 27–28, 107A–107B, 107–108, 183A–183B, 183–184, 185A–185B, 185–186, 187A–187B, 187–188, 189A–189B, 189–190

• number lines and other pictorial models

11A–11B, 11–12, 13A–13B, 13–14, 15A–15B, 15–16, 17A–17B, 17–18, 25A–25B, 25–26, 27A–27B, 27–28, 107A–107B, 107–108, 183A–183B, 183–184, 185A–185B, 185–186, 187A–187B, 187–188, 189A–189B, 189–190

• verbal descriptions

11A–11B, 11–12, 13A–13B, 13–14, 15A–15B, 15–16, 17A–17B, 17–18, 25A–25B, 25–26, 27A–27B, 27–28, 107, 187A–187B, 187–188, 241A–241B, 241–242, 287A–287B, 287–288

• place-value concepts and notation

241A–241B, 241–242, 287A–287B, 287–288

- **symbolic renaming (e.g., $43 = 40 + 3 = 30 + 13$)**
149, 241A–241B, 241–242, 287A–287B, 287–288

B.4.2. Determine the number of things in a set by

- **grouping and counting (e.g., by threes, five's, hundreds)**
239I, 243A–243B, 243–244, 247A–247B, 247–248, 257A–257B, 257–258
- **combining and arranging (e.g., all possible coin combinations amounting to thirty cents)**
329J, 343A–343B, 343, 347B, 347
- **estimation, including rounding**
249A–249B, 249–250

B.4.3. Read, write, and order whole numbers, simple fractions (e.g., halves, fourths, tenths, unit fractions) and commonly-used decimals (monetary units).

31A–31B, 31–32, 38, 109A–109B, 109–110, 200, 239I, 241A–241B, 241–242, 279I, 287A–287B, 287–288, 299A–299B, 299–300, 301A–301B, 301–302

B.4.4. Identify and represent equivalent fractions for halves, fourths, eighths, tenths, sixteenths.

These pages provide opportunities to introduce this objective.

183A–183B, 183–184, 185A–185B, 185–186, 187A–187B, 187–188, 189A–189B, 189–190

B.4.5. In problem-solving situations involving whole numbers, select and efficiently use appropriate computational procedures such as

- **recalling the basic facts of addition, subtraction, multiplication, and division**
28, 35, 41A–41B, 41–42, 89J, 113A–113B, 113–114, 123J, 145A–145B, 145–146, 163A–163B, 163–164, 415J, 425A–425B, 425–426
- **using mental math (e.g., $37 + 25$, 4×7)**
12, 52, 68, 108, 184, 208, 244, 282, 420, 440, 472
- **estimation**
78, 206, 222, 239, 250, 272, 300, 442, 468

- **selecting and applying algorithms for addition, subtraction, multiplication, and division**

89I, 91A–91B, 91–92, 93A–93B, 93–94, 95A–95B, 95–96, 97A–97B, 97–98, 103A–103B, 103–104, 105A–105B, 105–106, 107A–107B, 107–108, 123I, 125A–125B, 125–126, 127A–127B, 127–128, 129A–129B, 129–130, 137A–137B, 137–138, 141A–141B, 141–142, 415J, 417A–417B, 417–418, 419A–419B, 419–420, 421A–421B, 421–422, 423A–423B, 423–424, 435A–435B, 435–436, 439A–439B, 439–440, 441A–441B, 441–442, 443A–443B, 443–444, 459A–459B, 459–460, 471A–471B, 471–472

- **using a calculator**

84, 118, 150, 274, 452, 488

B.4.6. Add and subtract fractions with like denominators.

These pages provide opportunities to introduce this objective.

183A–183B, 183–184, 185A–185B, 185–186, 187A–187B, 187–188, 189A–189B, 189–190

B.4.7. In problem-solving situations involving money, add and subtract decimals.

These pages offer related content.

349A–349B, 349–350, 351A–351B, 351–352, 353A–353B, 353–354

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade four, students will:

C.4.1. Describe two- and three-dimensional figures (e.g., circles, polygons, trapezoids, prisms, spheres) by

- **naming them**

155I, 157–157B, 157–158, 165A–165B, 165–166

- **comparing, sorting, and classifying them**

157A–157B, 157–158, 159A–159B, 159–160, 161A–161B, 161–162, 165A–165B, 165–166, 167A–167B, 167–168, 169A–169B, 169–170

- **drawing and constructing physical models to specifications**

158, 166, 170

- **identifying their properties (e.g., number of sides or faces, two- or three-dimensionality, equal sides, number of right angles)**

159A–159B, 159–160, 161A–161B, 161–162, 167A–167B, 167–168

- **predicting the results of combining or subdividing two-dimensional figures**

177A–177B, 177–178

- **explaining how these figures are related to objects in the environment**

157, 162, 165

C.4.2. Use physical materials and motion geometry (such as slides, flips, and turns) to identify properties and relationships, including but not limited to

- **symmetry**

171A–171B, 171–172

- **congruence**

162, 169A–169B, 169–170

- **similarity**

162, 169A–169B, 169–170

C.4.3. Identify and use relationships among figures, including but not limited to

- **location (e.g., between, adjacent to, interior of)**

173A–173B, 173–174

- **position (e.g., parallel, perpendicular)**

173A–173B, 173–174

- **intersection (of two-dimensional figures)**

171A–171B, 171–172, 183A–183B, 183–184

C.4.4. Use simple two-dimensional coordinate systems to find locations on maps and to represent points and simple figures.

315A–315B, 315–316

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade four, students will:

D.4.1. Recognize and describe measurable attributes, such as length, liquid capacity, time, weight (mass), temperature, volume, monetary value, and angle size, and identify the appropriate units to measure them.

203I–203J, 205A–205B, 205–206, 207A–207B, 207–208, 209A–209B, 209–210, 211A–211B, 211–212, 213A–213B, 213–214, 215A–215B, 215–216, 219A–219B, 219–220, 221A–221B, 221–222, 223A–223B, 223–224, 225A–225B, 225–226, 227A–227B, 227–228, 329I–329J, 330A–330B, 330–331, 333A–333B, 333–334, 335A–335B, 335–336, 337A–337B, 337–338, 339A–339B, 339–340, 343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 363I–363J, 365A–365B, 365–366, 367A–367B, 367–368, 369A–369B, 369–370, 371A–371B, 371–372, 373A–373B, 373–374, 375A–375B, 375–376, 383A–383B, 383–384, 385A–385B, 385–386, 387A–387B, 387–388, 389A–389B, 389–390, 391A–391B, 391–392, 393A–393B, 393–394, 395A–395B, 395–396

D.4.2. Demonstrate understanding of basic facts, principles, and techniques of measurement, including

- **appropriate use of arbitrary and standard units (metric and US Customary)**
371A–371B, 371–372, 373A–373B, 373–374, 375A–375B, 375–376, 383A–383B, 383–384

- **appropriate use and conversion of units within a system (such as yards, feet, and inches; kilograms and grams; gallons, quarts, pints, and cups)**

These pages provide opportunities to introduce this objective.

371A–371B, 371–372, 373A–373B, 373–374, 375A–375B, 375–376, 383A–383B, 383–384, 385A–385B, 385–386, 387A–387B, 387–388, 391A–391B, 391–392, 393A–393B, 393–394

- **judging the reasonableness of an obtained measurement as it relates to prior experience and familiar benchmarks**

365A–365B, 365–366, 367A–367B, 367–368, 369A–369B, 369–370, 371A–371B, 371–372, 373A–373B, 373–374, 375A–375B, 375–376, 383A–383B, 383–384, 385A–385B, 385–386, 387A–387B, 387–388, 389A–389B, 389–390, 391A–391B, 391–392, 393A–393B, 393–394, 395A–395B, 395–396

D.4.3. Read and interpret measuring instruments (e.g., rulers, clocks, thermometers).

207A–207B, 207–208, 209A–209B, 209–210, 211A–211B, 211–212, 213A–213B, 213–214, 215A–215B, 215–216, 371A–371B, 371–372, 373A–373B, 373–374, 375A–375B, 375–376, 377A–377B, 377–378, 383A–383B, 383–384, 385A–385B, 385–386, 387A–387B, 387–388, 389A–389B, 389–390, 391A–391B, 391–392, 393A–393B, 393–394, 395A–395B, 395–396, 397A–397B, 397–398

D.4.4. Determine measurements directly by using standard tools to these suggested degrees of accuracy

- **length to the nearest half-inch or nearest cm**

371A–371B, 371–372, 375A–375B, 375–376

- **weight (mass) to the nearest ounce or nearest 5 grams**

389A–389B, 389–390, 391A–391B, 391–392, 393A–393B, 393–394

- **temperature to the nearest 5°**

395A–395B, 395–396

- **time to the nearest minute**

209A–209B, 209–210, 211A–211B, 211–212

- **monetary value to dollars and cents**

329I–329J, 331A–331B, 331–332, 333A–333B, 333–334, 335A–335B, 335–336, 337A–337B, 337–338, 343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 357, 358

- **liquid capacity to the nearest fluid ounce**

383A–383B, 383–384, 385A–385B, 385–386, 387A–387B, 387–388

D.4.5. Determine measurements by using basic relationships (such as perimeter and area) and approximate measurements by using estimation techniques.

365A–365B, 365–366, 369A–369B, 369–370, 371A–371B, 371–372, 373A–373B, 373–374, 375A–375B, 375–376, 377A–377B, 377–378, 379A–379B, 379–380, 383A–383B, 383–384, 385A–385B, 385–386, 387A–387B, 387–388, 389A–389B, 389–390, 391A–391B, 391–392, 393A–393B, 393–394

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade four, students will:

E.4.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**
309B
- **determining what data to collect and when and how to collect them**
309B, 309–310, 311A–311B, 311–312
- **collecting, organizing, and displaying data**
309A–309B, 309–310, 311A–311B, 311–312
- **drawing reasonable conclusions based on data**
309A–309B, 309–310, 311A–311B, 311–312, 313A–313B, 313–314

E.4.2. Describe a set of data using

- **high and low values, and range**
These pages provide opportunities to introduce this objective,
309A–309B, 309–310, 311A–311B, 311–312, 313A–313B, 313–314, 324
- **most frequent value (mode)**
These pages provide opportunities to introduce this objective,
309A–309B, 309–310, 311A–311B, 311–312, 313A–313B, 313–314, 324
- **middle value of a set of ordered data (median)**
These pages provide opportunities to introduce this objective,
309A–309B, 309–310, 311A–311B, 311–312, 313A–313B, 313–314, 324

E.4.3. In problem-solving situations, read, extract, and use information presented in graphs, tables, or charts.

191A–191B, 191–192, 251A–251B, 251–252, 339A–339B, 339–340, 429A–429B, 429–430, 481A–481B, 481–482

E.4.4. Determine if future events are more, less, or equally likely, impossible, or certain to occur.

363J, 364, 401A–401B, 401–402, 403A–403B, 403–404

E.4.5. Predict outcomes of future events and test predictions using data from a variety of sources.

7A–7B, 7–8, 259–260, 349A–349B, 349–350, 410, 434

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade four, students will:

F.4.1. Use letters, boxes, or other symbols to stand for any number, measured quantity, or object in simple situations (e.g., $N + 0 = N$ is true for any number).

83

F.4.2. Use the vocabulary, symbols, and notation of algebra accurately (e.g., correct use of the symbol “=”, effective use of the associative property of multiplication).

49, 65, 57A–57B, 57–58, 71A–71B, 71–72, 133A–133B, 133–134

F.4.3. Work with simple linear patterns and relationships in a variety of ways, including

- **recognizing and extending number patterns**

54, 246, 255A–255B, 255–256, 257A–257B, 257–258, 261A–261B, 261–262, 269A–269B, 269–270, 273, 274, 302, 462, 476

- **describing them verbally**

255BA–255B, 255, 257A–257B, 257, 261A–261B, 261, 269A–269B, 269

- **representing them with pictures, tables, charts, graphs**

257A–257B, 257–258, 261A–261B, 261–262, 273

- **recognizing that different models can represent the same pattern or relationship**

257A–257B, 257–258, 273, 274

- **using them to describe real-world phenomena**

259–260, 261A–261B, 261–262, 269A–269B, 269–270

F.4.4. Recognize variability in simple functional relationships by describing how a change in one quantity can produce a change in another (e.g., number of bicycles and the total number of wheels).

259–260, 261A–261B, 261–262, 270

F.4.5. Use simple equations and inequalities in a variety of ways, including

- **using them to represent problem situations**

57A–57B, 57–58, 65A–65B, 65–66, 67A–67B, 67–68, 71A–71B, 71–72, 77A–77B, 77–78, 99A–99B, 99–100, 109–110, 111A–111B, 111–112, 120, 317A–317B, 317–318

- **solving them by different methods (e.g., use of manipulatives, guess and check strategies, recall of number facts).**

49A–49B, 49–50, 51A–51B, 51–52, 57A–57B, 57–58, 65A–65B, 65–66, 67A–67B, 67–68, 71A–71B, 71–72, 77A–77B, 77–78, 99A–99B, 99–100, 103, 105, 107, 109–110, 111A–111B, 111–112, 120, 317A–317B, 317–318

- **recording and describing solution strategies**

57, 67, 71, 99, 109, 111, 317

F.4.6. Recognize and use generalized properties and relationships or arithmetic (e.g., commutativity of addition, inverse relationships of multiplication and division).

51A–51B, 51–52, 83, 93A–93B, 93–94, 437A–437B, 437–438, 439A–439B, 439–440, 452

**Scott Foresman – Addison Wesley Mathematics
to the
Wisconsin Model Academic Standards for Mathematics**

Grade Two

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade four, students will:

A.4.1 Use reasoning abilities to

- **perceive patterns**

99A–99B, 99–100, 373A–373B, 373–374, 413A–413B, 413–414, 420

- **identify relationships**

91A–91B, 91–92, 115A–115B, 115–116, 167, 227A–227B, 227–228, 249A–249B, 249–250, 283, 399A–399B, 399–400

- **formulate questions for further exploration**

8, 20, 56, 191B, 233A–233B, 234, 313A–313B, 313–314, 316, 328, 353A, 354, 438, 473B

- **justify strategies**

9A–9B, 9–10, 19A–19B, 19–20, 57A–57B, 57–58, 67A–67B, 67–68, 89A–89B, 89–90, 105A–105B, 105–106, 155A–155B, 155–156, 161A–161B, 161–162, 189A–189B, 189–190, 197A–197B, 197–198, 221A–221B, 221–222, 233A–233B, 233–234, 251A–251B, 251–252, 265A–265B, 265–266, 311A–311B, 311–312, 327A–327B, 327–328, 351A–351B, 351–352, 377A–377B, 377–378, 405A–405B, 405–406, 413A–413B, 413–414, 439A–439B, 439–440, 453A–453B, 453–454, 479A–479B, 479–480, 487A–487B, 487–488

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy and skills pages, students are provided this opportunity.

9A–9B, 9–10, 19A–19B, 19–20, 57A–57B, 57–58, 67A–67B, 67–68, 89A–89B, 89–90, 105A–105B, 105–106, 155A–155B, 155–156, 161A–161B, 161–162, 189A–

189B, 189–190, 197A–197B, 197–198, 221A–221B, 221–222, 233A–233B, 233–234, 251A–251B, 251–252, 265A–265B, 265–266, 311A–311B, 311–312, 327A–327B, 327–328, 351A–351B, 351–352, 377A–377B, 377–378, 405A–405B, 405–406, 413A–413B, 413–414, 439A–439B, 439–440, 453A–453B, 453–454, 479A–479B, 479–480, 487A–487B, 487–488

A.4.2 Communicate mathematical ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity. 67A–67B, 67–68, 105A–105B, 105–106, 189A–189B, 189–190, 251A–251B, 251–252, 311A–311B, 311–312, 327A–327B, 327–328, 351A–351B, 351–352, 405A–405B, 405–406, 439A–439B, 439–440, 479A–479B, 479–480

A.4.3 Connect mathematical learning with other subjects, personal experiences, current events, and personal interests.

- **see relationships between various kinds of problems and actual events**

38, 76, 130, 170, 206, 242, 286, 336, 386, 422, 462, 496

- **use mathematics as a way to understand other areas of the curriculum (e.g., measurement in science, map skills in social studies)**

3B, 17B, 25B, 69B, 123B, 135B, 279B, 291B, 297B, 299B, 311B, 313B, 323B, 327B, 329B, 341B, 343B, 353B, 363B, 391B, 413B, 467B, 485B

A.4.4. Use appropriate mathematical vocabulary, symbols, and notation with understanding based on prior conceptual work.

Most lessons provide students with the opportunity to meet this objective. Here are a few of the many examples. 1B, 3A, 17A, 23A, 27A, 27B, 47B, 91A, 91–92, 95A, 99B, 109A–109B, 109–110, 121A–121B, 121–122, 127, 141A, 175A, 249, 269, 341A, 373A, 395A, 399–400, 407A, 413A, 429A, 467A, 469A, 475A

A.4.5. Explain solutions to problems clearly and logically in oral and written work and support solutions with evidence.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to explain solutions to problems.

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade four, students will:

B.4.1. Represent and explain whole numbers, decimals, and fractions with

- **physical materials**

91, 96, 391A–391B, 391–392, 393A–393B, 393–394, 395A–395B, 395–396, 397A–397B, 397–398

- **number lines and other pictorial models**

91, 95A–95B, 95–96, 271A–271B, 271–272, 273A–273B, 273–274, 275A–275B, 275–276, 277A–277B, 277–278, 389I, 391A–391B, 391–392, 393A–393B, 393–394, 305A–395B, 395–396, 397A–397B, 397–398

- **verbal descriptions**

95A–95B, 95–96, 97, 101A–101B, 101–102, 271A–271B, 271–272, 273, 389I, 392, 408

- **place-value concepts and notation**

91, 96, 389I, 391A–391B, 391–392, 393A–393B, 393–394, 305A–395B, 395–396, 397A–397B, 397–398

- **symbolic renaming (e.g., $43 = 40 + 3 = 30 + 13$)**

35, 395A–395B, 395–396

B.4.2. Determine the number of things in a set by

- **grouping and counting (e.g., by threes, five's, hundreds)**

99A–99B, 99–100, 467A–467B, 467–468

- **combining and arranging (e.g., all possible coin combinations amounting to thirty cents)**

117A–117B, 117–118

- **estimation, including rounding**

230

B.4.3. Read, write, and order whole numbers, simple fractions (e.g., halves, fourths, tenths, unit fractions) and commonly-used decimals (monetary units).

97A–97B, 97–98, 271A–271B, 271–272, 273A–273B, 273–274, 395A–395B, 395–396, 407A–407B, 407–408, 409A–409B, 409–410, 419

B.4.4. Identify and represent equivalent fractions for halves, fourths, eighths, tenths, sixteenths.

These pages provide opportunities to introduce this objective.

269A–269B, 269–270, 271A–271B, 271–272, 273A–273B, 273–274, 277A–277B, 277–278

B.4.5. In problem-solving situations involving whole numbers, select and efficiently use appropriate computational procedures such as

- **recalling the basic facts of addition, subtraction, multiplication, and division**

11, 23A–23B, 23–24, 25A–25B, 25–26, 27A–27B, 27–28, 29A–29B, 29–30, 35, 36, 411, 43A–43B, 43–44, 45A–45B, 45–46, 47A–47B, 47–48, 51A–51B, 51–52, 53A–53B, 53–54, 61A–61B, 61–62, 63A–63B, 63–64, 65A–65B, 65–66, 73, 74

- **using mental math (e.g., $37 + 25$, 4×7)**

146, 193A–193B, 193–194, 216, 396

- **estimation**

114, 141A–141B, 141–142, 149A–149B, 149–150, 230

- **selecting and applying algorithms for addition, subtraction, multiplication, and division**

411, 43A–43B, 43–44, 45A–45B, 45–46, 47A–47B, 47–48, 49A–49B, 49–50, 51A–51B, 51–52, 53A–53B, 53–54, 61A–61B, 61–62, 63A–63B, 63–64, 65A–65B, 65–66, 73, 74, 135A–135B, 135–136, 137A–137B, 137–138, 139A–139B, 139–140, 145A–145B, 145–146, 147A–147B, 147–148

- **using a calculator**

36, 74, 168, 193–194, 204, 240, 420, 460, 494

B.4.6. Add and subtract fractions with like denominators.

These pages provide opportunities to introduce this objective.

269A–269B, 269–270, 271A–271B, 271–272, 273A–273B, 273–274, 275A–275B, 275–276, 277A–277B, 277–278

B.4.7. In problem-solving situations involving money, add and subtract decimals.

These pages offer related content.

185A–185B, 185–186, 225A–225B, 225–226

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade four, students will:

C.4.1. Describe two- and three-dimensional figures (e.g., circles, polygons, trapezoids, prisms, spheres) by

- **naming them**
247A–247B, 247–428, 249A–249B, 249–250
- **comparing, sorting, and classifying them**
247A–247B, 247–428, 249A–249B, 249–250
- **drawing and constructing physical models to specifications**
245I, 255A–255B, 255–256, 284
- **identifying their properties (e.g., number of sides or faces, two- or three-dimensionality, equal sides, number of right angles)**
247A–247B, 247–248, 265A–265B, 265–266
- **predicting the results of combining or subdividing two-dimensional figures**
255A–255B, 255–256
- **explaining how these figures are related to objects in the environment**
247A–247B, 247–248

C.4.2. Use physical materials and motion geometry (such as slides, flips, and turns) to identify properties and relationships, including but not limited to

- **symmetry**
261A–261B, 261–262
- **congruence**
257A–257B, 257–258
- **similarity**
257A–257B, 257–258

C.4.3. Identify and use relationships among figures, including but not limited to

- **location (e.g., between, adjacent to, interior of)**
259A–259B, 259–260
- **position (e.g., parallel, perpendicular)**
259A–259B, 259–260
- **intersection (of two-dimensional figures)**
261A–261B, 261–262

C.4.4. Use simple two-dimensional coordinate systems to find locations on maps and to represent points and simple figures.

325A–325B, 325–326

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade four, students will:

D.4.1. Recognize and describe measurable attributes, such as length, liquid capacity, time, weight (mass), temperature, volume, monetary value, and angle size, and identify the appropriate units to measure them.

109A–109B, 109–110, 111A–111B, 111–112, 113A–113B, 113–114, 115A–115B, 115–116, 117A–117B, 117–118, 119A–119B, 119–120, 121A–121B, 121–122, 123A–123B, 123–124, 291A–291B, 291–292, 293A–293B, 293–294, 295A–295B, 295–296, 297A–297B, 297–298, 299A–299B, 299–300, 301A–301B, 301–302, 303A–303B, 303–304, 305A–305B, 305–306, 341A–341B, 341–342, 343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 349A–349B, 349–350, 353A–353B, 353–354, 355A–355B, 355–356, 357A–357B, 357–358, 359A–359B, 359–360, 363A–363B, 363–364, 365A–365B, 365–366, 367A–367B, 367–368, 369A–369B, 369–370, 383

D.4.2. Demonstrate understanding of basic facts, principles, and techniques of measurement, including

- **appropriate use of arbitrary and standard units (metric and US Customary)**
343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 355A–355B, 355–356, 357A–357B, 357–358, 365A–365B, 365–366, 367A–367B, 367–368, 369A–369B, 369–370

- **appropriate use and conversion of units within a system (such as yards, feet, and inches; kilograms and grams; gallons, quarts, pints, and cups)**
117A–117B, 117–118, 305, 355A–355B, 355–356
- **judging the reasonableness of an obtained measurement as it relates to prior experience and familiar benchmarks**
343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 357A–357B, 357–358, 365A–365B, 365–366, 367A–367B, 367–368

D.4.3. Read and interpret measuring instruments (e.g., rulers, clocks, thermometers).

343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 369A–369B, 369–370

D.4.4. Determine measurements directly by using standard tools to these suggested degrees of accuracy

- **length to the nearest half-inch or nearest cm**
343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348
- **weight (mass) to the nearest ounce or nearest 5 grams**
363A–363B, 363–364, 365A–365B, 365–366, 367A–367B, 367–368
- **temperature to the nearest 5°**
369A–369B, 369–370
- **time to the nearest minute**
293A–293B, 293–294, 295A–295B, 295–296
- **monetary value to dollars and cents**
109–124, 127
- **liquid capacity to the nearest fluid ounce**
These pages prepare students to meet this objective.
339I, 353A–353B, 353–354, 355A–355B, 355–356

D.4.5. Determine measurements by using basic relationships (such as perimeter and area) and approximate measurements by using estimation techniques.

343A–343B, 343–344, 345A–345B, 345–346, 347A–347B, 347–348, 353, 357A–357B, 357–358, 363, 365A–365B, 365–366, 367A–367B, 367–368

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade four, students will:

E.4.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**
313
- **determining what data to collect and when and how to collect them**
313
- **collecting, organizing, and displaying data**
312, 313A–313B, 313–314, 315A–315B, 315–316, 319A–319B, 319–320, 321A–321B, 321–322, 323A–323B, 323–324
- **drawing reasonable conclusions based on data**
312, 313A–313B, 313–314, 315A–315B, 315–316, 319A–319B, 319–320, 321A–321B, 321–322, 323A–323B, 323–324, 327–328

E.4.2. Describe a set of data using

- **high and low values, and range**
333
- **most frequent value (mode)**
333
- **middle value of a set of ordered data (median)**
These pages provide opportunities to introduce this objective.
289J, 311A–311B, 311–312, 313A–313B, 313–314, 319A–319B, 319–320, 321A–321B, 321–322, 323A–323B, 323–324, 327–328

E.4.3. In problem-solving situations, read, extract, and use information presented in graphs, tables, or charts.

105A–105B, 105–106, 189A–189B, 189–190, 327A–327B, 327–328, 405A–405B, 405–406

E.4.4. Determine if future events are more, less, or equally likely, impossible, or certain to occur.

339J, 373A–373B, 373–374, 375A–375B, 375–376

E.4.5. Predict outcomes of future events and test predictions using data from a variety of sources.

373A–373B, 373–374, 375A–375B, 375–376

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade four, students will:

F.4.1. Use letters, boxes, or other symbols to stand for any number, measured quantity, or object in simple situations (e.g., $N + 0 = N$ is true for any number).

29A–29B, 29–30, 35, 474

F.4.2. Use the vocabulary, symbols, and notation of algebra accurately (e.g., correct use of the symbol “=”, effective use of the associative property of multiplication).

35, 91A–91B, 91–92, 221A–221B, 221–222, 399A–399B, 399–400, 443A–443B, 443–444, 473A–473B, 473–474, 487A–487B, 487–488

F.4.3. Work with simple linear patterns and relationships in a variety of ways, including

- **recognizing and extending number patterns**
99A–99B, 99–100, 167, 413A–413B, 413–414, 420

- **describing them verbally**
99A–99B, 99–100, 167, 413A–413B, 413–414

- **representing them with pictures, tables, charts, graphs**
99A–99B, 99–100, 167

- **recognizing that different models can represent the same pattern or relationship**

99A–99B, 99–100

- **using them to describe real-world phenomena**

These pages offer related content.

99A–99B, 99–100, 167, 413A–413B, 413–414, 420

F.4.4. Recognize variability in simple functional relationships by describing how a change in one quantity can produce a change in another (e.g., number of bicycles and the total number of wheels).

This page prepares students to meet this objective. 167

See also Grade 1 and Grade 3.

F.4.5. Use simple equations and inequalities in a variety of ways, including

- **using them to represent problem situations**

221A–221B, 221–222

- **solving them by different methods (e.g., use of manipulatives, guess and check strategies, recall of number facts).**

35, 155A–155B, 155–156, 197A–197B, 197–198, 351A–351B, 351–352, 479A–479B, 479–480

- **recording and describing solution strategies**

148, 468

F.4.6. Recognize and use generalized properties and relationships or arithmetic (e.g., commutativity of addition, inverse relationships of multiplication and division).

23A–23B, 23–24, 187A–187B, 187–188, 227A–227B, 227–228

**Scott Foresman – Addison Wesley Mathematics
to the
Wisconsin Model Academic Standards for Mathematics**

Grade Three

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade four, students will:

A.4.1 Use reasoning abilities to

- **perceive patterns**

8A–8B, 8–9, 24A–24B, 24–27, 277, 282, 286, 288A–288B, 288–289, 332A–332B, 332–335, 340A–340B, 340–341, 344A–344B, 344–345, 402A–402B, 402–403, 505, 695

- **identify relationships**

18A–18B, 18–21, 168A–168B, 168–169, 338A–338B, 338–339, 506A–506B, 506–509, 564, 568A–568B, 568–571, 615

- **formulate questions for further exploration**

24B, 32B, 81, 157, 207, 236B, 237, 335, 474B, 529, 685, 690B

- **justify strategies**

14A–14B, 14–15, 32A–32B, 32–33, 42A–42B, 42–43, 76A–76B, 76–78, 102A–102B, 102–103, 140A–140B, 140–143, 160A–160B, 160–161, 216A–216B, 216–217, 236A–236B, 236–237, 270A–270B, 270–273, 284A–284B, 284–285, 332A–332B, 332–335, 346A–346B, 346–347, 380A–380B, 380–381, 404A–404B, 404–405, 436A–436B, 436–439, 474A–474B, 474–475, 528A–528B, 528–529, 540A–540B, 540–541, 578A–578B, 578–579, 588A–588B, 588–589, 644A–644B, 644–645, 656A–656B, 656–657, 688A–688B, 688–689, 708A–708B, 708–709

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy and skill pages, students are provided this opportunity. 14A–14B, 14–15, 32A–32B, 32–33, 42A–42B, 42–43, 76A–76B, 76–78, 102A–102B, 102–103, 140A–140B, 140–143, 160A–160B,

160–161, 216A–216B, 216–217, 236A–236B, 236–237, 270A–270B, 270–273, 284A–284B, 284–285, 332A–332B, 332–335, 346A–346B, 346–347, 380A–380B, 380–381, 404A–404B, 404–405, 436A–436B, 436–439, 474A–474B, 474–475, 528A–528B, 528–529, 540A–540B, 540–541, 578A–578B, 578–579, 588A–588B, 588–589, 644A–644B, 644–645, 656A–656B, 656–657, 688A–688B, 688–689, 708A–708B, 708–709

A.4.2 Communicate mathematical ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity. 140A–140B, 140–143, 236A–236B, 236–237, 270A–270B, 270–273, 436A–436B, 436–439

A.4.3 Connect mathematical learning with other subjects, personal experiences, current events, and personal interests.

- **see relationships between various kinds of problems and actual events**

21, 101, 155, 215, 264, 323, 377, 448, 453, 500, 525, 575, 600, 614, 629, 654

- **use mathematics as a way to understand other areas of the curriculum (e.g., measurement in science, map skills in social studies)**

4B, 10B, 20, 26, 28B, 30, 36B, 38, 44B, 68, 70B, 72B, 76B, 84, 88, 90B, 96B, 99, 104B, 128B, 130, 134, 140B, 142, 148B, 150B, 152B, 154, 160B, 162B, 164, 192B, 194, 200B, 204B, 206, 210, 214, 218B, 220, 228B, 230, 232B, 236B, 260B, 266B, 270B, 272, 276B, 280B, 290, 318B, 322, 323B, 324B, 326, 334, 344B, 346B, 348B, 370B, 374B, 376, 392B, 398B, 400, 428B, 430, 432B, 438, 442B, 450B, 452, 454B, 456B, 458, 460B, 466, 470, 474B, 498B, 508, 512B, 518B, 524, 532B, 534B, 536B, 568B, 570, 572B, 574, 584B, 588B, 616B, 620, 622B, 628, 630B, 634, 636B, 640B, 656B, 680B, 682, 692, 696B, 700B, 706

A.4.4. Use appropriate mathematical vocabulary, symbols, and notation with understanding based on prior conceptual work.

Most lessons provide students with the opportunity to meet this objective. Here are a few of the many examples. 50–51, 110–111, 176–177, 244–245, 300–301, 354–355, 412–413, 482–483, 548–549, 596–597, 664–665, 716–717

A.4.5. Explain solutions to problems clearly and logically in oral and written work and support solutions with evidence.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to explain solutions to problems. 102A–102B, 102–103, 588A–588B, 588–589, 708A–708B, 708–709

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade four, students will:

B.4.1. Represent and explain whole numbers, decimals, and fractions with

- **physical materials**

2J, 6A–6B, 6–7, 8A–8B, 8–9, 10A–10B, 10–11, 12A–12B, 12–13, 23, 128A–128B, 128–131, 146A–146B, 146–147, 150A–150B, 150–151, 512A–512B, 512–513, 564A–564B, 564–567

- **number lines and other pictorial models**

2J, 23, 512A–512B, 512–513

- **verbal descriptions**

2I–2J, 6A–6B, 6–7, 8A–8B, 8–9, 10A–10B, 10–11, 12A–12B, 12–13, 23, 128A–128B, 128–131, 146A–146B, 146–147, 150A–150B, 150–151, 512A–512B, 512–513, 564A–564B, 564–567

- **place-value concepts and notation**

2I–2J, 6A–6B, 6–7, 8A–8B, 8–9, 10A–10B, 10–11, 12A–12B, 12–13, 128A–128B, 128–131, 146A–146B, 146–147, 150A–150B, 150–151, 564A–564B, 564–567

- **symbolic renaming (e.g., $43 = 40 + 3 = 30 + 13$)**

2I–2J, 8, 146A–146B, 146–147

B.4.2. Determine the number of things in a set by

- **grouping and counting (e.g., by threes, five's, hundreds)**

258I, 260A–260B, 260–261, 262A–262B, 262–265, 266A–266B, 266–267, 276A–276B, 276–277, 280

- **combining and arranging (e.g., all possible coin combinations amounting to thirty cents)**

36B, 36–39

- **estimation, including rounding**

These pages offer related content.

86A–86B, 86–89, 98A–98B, 98–101

B.4.3. Read, write, and order whole numbers, simple fractions (e.g., halves, fourths, tenths, unit fractions) and commonly-used decimals (monetary units).

6A–6B, 6–7, 10A–10B, 10–11, 12A–12B, 12–13, 18A–18B, 18–21, 22A–22B, 22–23, 498A–498B, 498–501, 502A–502B, 502–503, 506A–560B, 506–509, 564A–564B, 564–565, 566A–566B, 566–567, 568A–568B, 568–571

B.4.4. Identify and represent equivalent fractions for halves, fourths, eighths, tenths, sixteenths.

504A–504B, 504–505

B.4.5. In problem-solving situations involving whole numbers, select and efficiently use appropriate computational procedures such as

- **recalling the basic facts of addition, subtraction, multiplication, and division**

70A–70B, 70–71, 276A–276B, 276–279, 282A–282B, 282–283, 286A–286B, 286–287, 288A–288B, 288–291, 292A–292B, 292–293, 316A–316B, 316–317, 318A–318B, 318–319, 320A–320B, 320–323, 324A–324B, 324–327, 328A–328B, 328–329, 340A–340B, 340–341, 384A–384B, 384–385, 386A–386B, 386–387, 388A–388B, 388–389, 390A–390B, 390–391, 392A–392B, 392–393, 396A–396B, 396–397, 402A–402B, 402–403

- **using mental math (e.g., $37 + 25$, 4×7)**

80A–80B, 80–81, 82A–82B, 82–84, 94A–94B, 94–95, 96A–96B, 96–97, 167, 612A–612B, 612–614, 618A–618B, 618–621

- **estimation**

86A–86B, 86–89, 91, 98A–98B, 98–101, 616A–616B, 616–617, 622A–622B, 622–623, 624A–624B, 624–625

- **selecting and applying algorithms for addition, subtraction, multiplication, and division**

80A–80B, 80–81, 82A–82B, 82–85, 94A–94B, 94–95, 96A–96B, 96–97, 260A–260B, 260–261, 262A–262B, 262–265, 276A–276B, 276–279, 280A–280B, 280–281,

282A–282B, 282–283, 286A–286B, 286–287, 288A–288B, 288–291, 314J, 316A–316B, 316–317, 318A–318B, 318–319, 320A–320B, 320–323, 324A–324B, 324–327, 370A–370B, 370–371, 372A–372B, 372–373, 384A–384B, 384–385, 386A–386B, 386–387, 388A–388B, 388–389, 390A–390B, 390–391, 392A–392B, 392–393, 396A–396B, 396–397, 402A–402B, 402–403

- **using a calculator**

89, 401, 571, 621, 709

B.4.6. Add and subtract fractions with like denominators.

520A–520B, 520–521

B.4.7. In problem-solving situations involving money, add and subtract decimals.

162A–162B, 162–165

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade four, students will:

C.4.1. Describe two- and three-dimensional figures (e.g., circles, polygons, trapezoids, prisms, spheres) by

- **naming them**

428A–428B, 428–431, 432A–432B, 432–433, 446A–446B, 446–449, 450A–450B, 450–453, 454

- **comparing, sorting, and classifying them**

428A–428B, 428–431, 432A–432B, 432–433, 446A–446B, 446–449, 450A–450B, 450–453, 454

- **drawing and constructing physical models to specifications**

431, 432B, 432, 449

- **identifying their properties (e.g., number of sides or faces, two- or three-dimensionality, equal sides, number of right angles)**

426I, 428A–428B, 428–431, 432–433, 446A–446B, 446–449, 450A–450B, 450–453, 454

- **predicting the results of combining or subdividing two-dimensional figures**
458, 460A–460B, 460–461
- **explaining how these figures are related to objects in the environment**
428B, 429–430, 433–435, 448, 452–453

C.4.2. Use physical materials and motion geometry (such as slides, flips, and turns) to identify properties and relationships, including but not limited to

- **symmetry**
460A–460B, 460–461
- **congruence**
456A–456B, 456–459
- **similarity**
456A–456B, 456–459

C.4.3. Identify and use relationships among figures, including but not limited to

- **location (e.g., between, adjacent to, interior of)**
429A–429B, 429–430, 432A–432B, 432–433
- **position (e.g., parallel, perpendicular)**
442A–442B, 442–443
- **intersection (of two-dimensional figures)**
442A–442B, 442–443, 460A–460B, 460–461

C.4.4. Use simple two-dimensional coordinate systems to find locations on maps and to represent points and simple figures.

218A–218B, 218–221

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade four, students will:

D.4.1. Recognize and describe measurable attributes, such as length, liquid capacity, time, weight (mass), temperature, volume, monetary value, and angle size, and identify the appropriate units to measure them.

36A–36B, 36–39, 192A–192B, 192–195, 196A–196B, 196–197, 496J, 532A–532B, 532–533, 534A–534B, 534–535, 536A–536B, 536–537, 538A–538B, 538–539, 582A–582B, 582–583, 584A–584B, 584–587, 678I, 680A–680B, 680–683, 684A–684B, 684–685, 690A–690B, 690–693, 694A–694B, 694–695, 696A–696B, 696–697

D.4.2. Demonstrate understanding of basic facts, principles, and techniques of measurement, including

- **appropriate use of arbitrary and standard units (metric and US Customary)**
496J, 532A–532B, 532–533, 534A–534B, 534–535, 536A–536B, 536–537, 538A–538B, 538–539, 562J, 582A–582B, 582–583, 584A–584B, 584–587, 678I, 680A–680B, 680–683, 684A–684B, 684–685, 690A–690B, 690–693, 694A–694B, 694–695, 696A–696B, 696–697
- **appropriate use and conversion of units within a system (such as yards, feet, and inches; kilograms and grams; gallons, quarts, pints, and cups)**
496J, 532A–532B, 532–533, 534A–534B, 534–535, 536A–536B, 536–537, 538A–538B, 538–539, 562J, 582A–582B, 582–583, 584A–584B, 584–587, 678I, 680A–680B, 680–683, 684A–684B, 684–685, 690A–690B, 690–693, 694A–694B, 694–695, 696A–696B, 696–697
- **judging the reasonableness of an obtained measurement as it relates to prior experience and familiar benchmarks**
496J, 532A–532B, 532–533, 534A–534B, 534–535, 536A–536B, 536–537, 538A–538B, 538–539, 562J, 582A–582B, 582–583, 584A–584B, 584–587, 678I, 680A–680B, 680–683, 684A–684B, 684–685, 690A–690B, 690–693, 694A–694B, 694–695, 696A–696B, 696–697

D.4.3. Read and interpret measuring instruments (e.g., rulers, clocks, thermometers).

190I, 192A–192B, 192–195, 196A–196B, 196–197, 496J, 532–533, 534A–534B, 534–535, 536A–536B, 536–537, 538A–538B, 538–539, 562J, 582A–582B, 582–583, 584A–584B, 584–587, 680A–680B, 680–683, 684A–684B, 684–685, 690A–690B, 690–693, 694A–694B, 694–695, 696A–696B, 696–697

D.4.4. Determine measurements directly by using standard tools to these suggested degrees of accuracy

- **length to the nearest half-inch or nearest cm**
534A–534B, 534–535, 582A–582B, 582–583
- **weight (mass) to the nearest ounce or nearest 5 grams**
690A–690B, 690–693, 694A–694B, 694–695
- **temperature to the nearest 5°**
696A–696B, 696–697
- **time to the nearest minute**
196A–196B, 196–197
- **monetary value to dollars and cents**
36A–36B, 36–39
- **liquid capacity to the nearest fluid ounce**
These pages prepare students to meet this objective.
678I, 680A–680B, 680–683

D.4.5. Determine measurements by using basic relationships (such as perimeter and area) and approximate measurements by using estimation techniques.

533, 535, 582–583, 628, 681, 682, 685, 691, 697

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade four, students will:

E.4.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**
207
- **determining what data to collect and when and how to collect them**
204A–204B, 204–207, 226A–226B, 226–227, 228A–228B, 228–231, 232A–232B,
232–235, 236A–236B, 236–237
- **collecting, organizing, and displaying data**
204A–204B, 204–207, 208A–208B, 208–210, 226A–226B, 226–227, 228A–228B,
228–231, 232A–232B, 232–235, 236A–236B, 236–237
- **drawing reasonable conclusions based on data**
212A–212B, 212–215, 216A–216B, 216–217, 222A–222B, 222–223

E.4.2. Describe a set of data using

- **high and low values, and range**
208A–208B, 208–209
- **most frequent value (mode)**
208A–208B, 208–210
- **middle value of a set of ordered data (median)**
211

E.4.3. In problem-solving situations, read, extract, and use information presented in graphs, tables, or charts.

236A–236B, 236–237, 270A–270B, 270–273

E.4.4. Determine if future events are more, less, or equally likely, impossible, or certain to occur.

678J, 700A–700B, 700–701, 702A–702B, 702–703

E.4.5. Predict outcomes of future events and test predictions using data from a variety of sources.

678J, 702A–702B, 702–703, 704A–704B, 704–707

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade four, students will:

F.4.1. Use letters, boxes, or other symbols to stand for any number, measured quantity, or object in simple situations (e.g., $N + 0 = N$ is true for any number).

76A–76B, 76–77, 89, 96A–96B, 96–97, 287, 293, 614, 629, 655

F.4.2. Use the vocabulary, symbols, and notation of algebra accurately (e.g., correct use of the symbol “=”, effective use of the associative property of multiplication).

66A–66B, 66–69, 70A–70B, 70–71, 76A–76B, 76–77, 168A–168B, 168–169, 260A–260B, 260–261, 262A–262B, 262–265, 286A–286B, 286–287, 342A–342B, 342–343, 344A–344B, 344–345, 384A–384B, 384–385, 404A–404B, 404–405

F.4.3. Work with simple linear patterns and relationships in a variety of ways, including

- **recognizing and extending number patterns**

24A–24B, 24–27, 72A–72B, 72–73, 258J, 344A–344B, 344–345, 695

- **describing them verbally**

24A–24B, 24–27, 72A–72B, 72–73, 344A–344B, 344–345, 695

- **representing them with pictures, tables, charts, graphs**

24A–24B, 24–27, 72A–72B, 72–73, 258J, 344A–344B, 344–345, 695

- **recognizing that different models can represent the same pattern or relationship**

344

- **using them to describe real-world phenomena**

344A–344B, 344–345, 695

F.4.4. Recognize variability in simple functional relationships by describing how a change in one quantity can produce a change in another (e.g., number of bicycles and the total number of wheels).

344A–344B, 344–345

F.4.5. Use simple equations and inequalities in a variety of ways, including

- **using them to represent problem situations**

76A–76B, 76–77, 168A–168B, 168–169

- **solving them by different methods (e.g., use of manipulatives, guess and check strategies, recall of number facts).**

76A–76B, 76–77, 168A–168B, 168–169

- **recording and describing solution strategies**

76A–76B, 76–77, 168A–168B, 168–169

F.4.6. Recognize and use generalized properties and relationships or arithmetic (e.g., commutativity of addition, inverse relationships of multiplication and division).

66A–66B, 66–67, 263, 286, 342

**Scott Foresman – Addison Wesley Mathematics
to the
Wisconsin Model Academic Standards for Mathematics**

Grade Four

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade four, students will:

A.4.1 Use reasoning abilities to

- **perceive patterns**

10A–10B, 10–11, 37, 90A–90B, 90–91, 128A–128B, 128–131, 136A–136B, 136–137, 139, 140A–140B, 140–143, 256, 314, 366A–366B, 366–367, 406, 454, 641

- **identify relationships**

148A–148B, 148–149, 434A–434B, 434–437, 596A–596B, 596–599, 624A–624B, 624–627, 658A–658B, 658–661

- **formulate questions for further exploration**

154B, 156A–156B, 156–157, 222B, 230B, 230–231, 564B, 578B, 601, 690B

- **justify strategies**

12A–12B, 12–13, 24A–24B, 24–25, 38A–38B, 38–39, 90A–90B, 90–91, 94A–94B, 94–95, 140A–140B, 140–143, 156A–156B, 156–157, 198A–198B, 198–199, 222A–222B, 222–223, 278A–278B, 278–281, 290A–290B, 290–291, 326A–326B, 326–329, 342A–342B, 342–343, 384A–384B, 384–385, 396A–396B, 396–399, 460A–460B, 460–461, 474A–474B, 474–475, 512A–512B, 512–513, 538A–538B, 538–539, 584A–584B, 584–585, 600A–600B, 600–601, 648A–648B, 648–649, 662A–662B, 662–663, 696A–696B, 696–697, 714A–714B, 714–715

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy and skills pages, students are provided this opportunity.

12A–12B, 12–13, 24A–24B, 24–25, 38A–38B, 38–39, 90A–90B, 90–91, 94A–94B, 94–95, 140A–140B, 140–143, 156A–156B, 156–157, 198A–198B, 198–199, 222A–

222B, 222–223, 278A–278B, 278–281, 290A–290B, 290–291, 326A–326B, 326–329, 342A–342B, 342–343, 384A–384B, 384–385, 396A–396B, 396–399, 460A–460B, 460–461, 474A–474B, 474–475, 512A–512B, 512–513, 538A–538B, 538–539, 584A–584B, 584–585, 600A–600B, 600–601, 648A–648B, 648–649, 662A–662B, 662–663, 696A–696B, 696–697, 714A–714B, 714–715

A.4.2 Communicate mathematical ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity.

140A–140B, 140–143, 198A–198B, 198–199, 222A–222B, 222–223, 326A–326B, 326–329, 342A–342B, 342–343, 460A–460B, 460–461, 512A–512B, 512–513, 538A–538B, 538–539, 662A–662B, 662–663

A.4.3 Connect mathematical learning with other subjects, personal experiences, current events, and personal interests.

- **see relationships between various kinds of problems and actual events**

19, 67, 163, 215, 273, 335, 370, 382, 383, 388, 447, 466, 470, 507, 571, 627, 640, 703

- **use mathematics as a way to understand other areas of the curriculum (e.g., measurement in science, map skills in social studies)**

4B, 8B, 9, 18, 22B, 30B, 32B, 34B, 36, 38B, 66, 68B, 70, 76B, 78, 80B, 84, 86B, 94B, 126, 130, 134, 140B, 146B, 150B, 154B, 166B, 190B, 194, 200B, 204B, 206B, 210, 214, 218, 222B, 226B, 228, 232B, 258B, 260, 264B, 266, 270B, 272, 274B, 280, 282B, 286B, 290B, 316B, 318, 320B, 322, 326B, 328, 332B, 334, 338B, 340B, 344B, 372B, 376, 392B, 396B, 404B, 408B, 410, 434B, 436, 440B, 442, 446, 448B, 452B, 454, 456B, 458B, 460B, 468B, 470, 476B, 500B, 502B, 506, 508B, 518, 520B, 522B, 524B, 526, 538B, 564B, 566, 576, 580, 584B, 588B, 592B, 596B, 598, 600B, 623B, 626, 628B, 630B, 638B, 642B, 644, 652B, 656B, 660, 662B, 690B, 694, 696B, 702, 706B, 708, 714B

A.4.4. Use appropriate mathematical vocabulary, symbols, and notation with understanding based on prior conceptual work.

Most lessons provide students with the opportunity to meet this objective. Here are a few of the many examples. 4B, 10B, 16B, 20B, 34B, 62B, 72B, 80B, 82B, 96B, 98B, 124B, 128B, 132B, 136B, 140B, 148B, 152B, 160B, 166B, 190B, 226B, 234B, 256B, 258B, 288B, 316B, 366B, 368B, 372B, 434B, 438B, 452B, 464B, 502B, 522B, 530B, 574B, 594B, 628B, 652B, 654B, 658B, 664B, 700B

A.4.5. Explain solutions to problems clearly and logically in oral and written work and support solutions with evidence.

The Talk About It and Journal sections in the TE pages of every lesson provide students with an opportunity to explain solutions to problems. Here are some additional pages that provide students with this opportunity. 342A–342B, 342–343, 538A–538B, 538–539

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade four, students will:

B.4.1. Represent and explain whole numbers, decimals, and fractions with**• physical materials**

4A–4B, 4–7, 8A–8B, 8–9, 10A–10B, 10–11, 34A–34B, 34–37, 500A–500B, 500–501, 502A–502B, 502–503, 504A–504B, 504–507, 516A–516B, 516–519, 520A–520B, 520–521, 524A–524B, 524–527, 624A–624B, 624–627, 628A–628B, 628–629, 630A–630B, 630–631

• number lines and other pictorial models

4A–4B, 4–7, 8A–8B, 8–9, 10A–10B, 10–11, 16A–16B, 16–18, 34A–34B, 34–37, 500A–500B, 500–501, 502A–502B, 502–503, 504A–504B, 504–507, 516A–516B, 516–519, 520A–520B, 520–521, 524A–524B, 524–527, 624A–624B, 624–627, 628A–628B, 628–629, 630A–630B, 630–631

• verbal descriptions

4A–4B, 4–7, 8A–8B, 8–9, 10A–10B, 10–11, 16A–16B, 16–19, 34A–34B, 34–37, 500A–500B, 500–501, 502A–502B, 502–503, 504A–504B, 504–507, 516A–516B, 516–519, 520A–520B, 520–521, 524A–524B, 524–527, 624A–624B, 624–627, 628A–628B, 628–629, 630A–630B, 630–631

• place-value concepts and notation

4A–4B, 4–7, 8A–8B, 8–9, 10A–10B, 10–11, 16A–16B, 16–19

• symbolic renaming (e.g., $43 = 40 + 3 = 30 + 13$)

4A–4B, 4–7, 8A–8B, 8–9, 10A–10B, 10–11

B.4.2. Determine the number of things in a set by

- **grouping and counting (e.g., by threes, five's, hundreds)**

This topic is introduced, developed and applied throughout grades K–3.

- **combining and arranging (e.g., all possible coin combinations amounting to thirty cents)**

31

- **estimation, including rounding**

23

B.4.3. Read, write, and order whole numbers, simple fractions (e.g., halves, fourths, tenths, unit fractions) and commonly-used decimals (monetary units).

4A–4B, 4–7, 8A–8B, 8–9, 10A–10B, 10–11, 16A–16B, 16–19, 34A–34B, 34–37, 500A–500B, 500–501, 502A–502B, 502–503, 504A–504B, 504–507, 516A–516B, 516–519, 520A–520B, 520–521, 524A–524B, 524–527, 624A–624B, 624–627, 628A–628B, 628–629, 630A–630B, 630–631

B.4.4. Identify and represent equivalent fractions for halves, fourths, eighths, tenths, sixteenths.

516A–516B, 516–519, 624

B.4.5. In problem-solving situations involving whole numbers, select and efficiently use appropriate computational procedures such as

- **recalling the basic facts of addition, subtraction, multiplication, and division**
132A–132B, 132–135, 148A–148B, 148–149, 150A–150B, 150–151, 256A–256B, 256–257, 314A–314B, 314–315

- **using mental math (e.g., $37 + 25$, 4×7)**

62A–62B, 62–63, 64A–64B, 64–65, 262A–262B, 262–263, 366A–366B, 366–367

- **estimation**

60I, 68A–68B, 68–71, 72A–72B, 72–74, 254I, 258A–258B, 258–261, 316A–316B, 316–319, 364J, 368A–368B, 368–371, 637

- **selecting and applying algorithms for addition, subtraction, multiplication, and division**

80A–80B, 80–81, 86A–86B, 86–88, 128A–128B, 128–131, 132A–132B, 132–135, 136A–136B, 136–139, 148A–148B, 148–149, 150A–150B, 150–151, 254J, 264A–264B, 264–267, 314A–314B, 314–315, 320A–320B, 320–323, 364I–364J, 406A–406B, 406–407

- **using a calculator**
389, 411, 467, 519, 641

B.4.6. Add and subtract fractions with like denominators.

564A–564B, 564–567, 574A–574B, 574–577

B.4.7. In problem-solving situations involving money, add and subtract decimals.

76A–76B, 76–79, 82A–82B, 82–85

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade four, students will:

C.4.1. Describe two- and three-dimensional figures (e.g., circles, polygons, trapezoids, prisms, spheres) by

- **naming them**
434A–434B, 434–437, 438A–438B, 438–439, 444A–444B, 444–447, 448A–448B, 448–449
- **comparing, sorting, and classifying them**
432I, 434A–434B, 434–437, 438A–438B, 438–439, 444A–444B, 444–447
- **drawing and constructing physical models to specifications**
435, 439, 444A–444B, 444–445, 447, 448
- **identifying their properties (e.g., number of sides or faces, two- or three-dimensionality, equal sides, number of right angles)**
432I, 434A–434B, 434–437, 438A–438B, 438–439, 444A–444B, 444–447
- **predicting the results of combining or subdividing two-dimensional figures**
447, 456A–456B, 456–457
- **explaining how these figures are related to objects in the environment**
434B, 436, 444B, 446, 448B, 449

C.4.2. Use physical materials and motion geometry (such as slides, flips, and turns) to identify properties and relationships, including but not limited to

- **symmetry**
456A–456B, 456–457
- **congruence**
452A–452B, 452–455
- **similarity**
458A–458B, 458–459

C.4.3. Identify and use relationships among figures, including but not limited to

- **location (e.g., between, adjacent to, interior of)**
452A–452B, 452–455
- **position (e.g., parallel, perpendicular)**
440A–440B, 440–443, 452A–452B, 452–455
- **intersection (of two-dimensional figures)**
456A–456B, 456–457

C.4.4. Use simple two-dimensional coordinate systems to find locations on maps and to represent points and simple figures.

212A–212B, 212–215, 692A–692B, 692–695

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade four, students will:

D.4.1. Recognize and describe measurable attributes, such as length, liquid capacity, time, weight (mass), temperature, volume, monetary value, and angle size, and identify the appropriate units to measure them.

2J, 30A–30B, 30–31, 32A–32B, 32–33, 188I, 190A–190B, 190–191, 192A–192B, 192–195, 196A–196B, 196–197, 200A–200B, 200–201, 560J, 588A–588B, 588–589, 590A–

590B, 590–591, 592A–592B, 592–593, 594A–594B, 594–595, 596A–596B, 596–599, 622J, 652A–652B, 652–653, 654A–654B, 654–655, 656A–656B, 656–657, 664A–664B, 664–665

D.4.2. Demonstrate understanding of basic facts, principles, and techniques of measurement, including

- **appropriate use of arbitrary and standard units (metric and US Customary)**
588A–588B, 588–589, 590A–590B, 590–591, 592A–592B, 592–593, 594A–594B, 594–595, 596A–596B, 596–599, 622J, 652A–652B, 652–653, 654A–654B, 654–655, 656A–656B, 656–657, 658A–658B, 658–661
- **appropriate use and conversion of units within a system (such as yards, feet, and inches; kilograms and grams; gallons, quarts, pints, and cups)**
588A–588B, 588–589, 590A–590B, 590–591, 592A–592B, 592–593, 594A–594B, 594–595, 596A–596B, 596–599, 652A–652B, 652–653, 654A–654B, 654–655, 656A–656B, 656–657, 658A–658B, 658–661, 664A–664B, 664–665
- **judging the reasonableness of an obtained measurement as it relates to prior experience and familiar benchmarks**
560J, 588A–588B, 588–589, 590A–590B, 590–591, 592A–592B, 592–593, 594A–594B, 594–595, 596A–596B, 596–599, 622J, 652A–652B, 652–653, 654A–654B, 654–655, 656A–656B, 656–657, 658A–658B, 658–661

D.4.3. Read and interpret measuring instruments (e.g., rulers, clocks, thermometers).

188I, 190A–190B, 190–191, 192A–192B, 192–195, 196A–196B, 196–197, 200A–200B, 200–201, 560J, 588A–588B, 588–589, 590A–590B, 590–591, 592A–592B, 592–593, 594A–594B, 594–595, 596A–596B, 596–599, 622J, 652A–652B, 652–653, 654A–654B, 654–655, 656A–656B, 656–657, 664A–664B, 664–665

D.4.4. Determine measurements directly by using standard tools to these suggested degrees of accuracy

- **length to the nearest half-inch or nearest cm**
560J, 622J, 590A–590B, 590–591, 652A–652B, 652–653
- **weight (mass) to the nearest ounce or nearest 5 grams**
These pages prepare students to meet this objective.
594A–594B, 594–595, 622J, 656A–656B, 656–657

- **temperature to the nearest 5°**

664A–664B, 664–665

- **time to the nearest minute**

190A–190B, 190–191

- **monetary value to dollars and cents**

2J, 30A–30B, 30–31, 32A–32B, 32–33

- **liquid capacity to the nearest fluid ounce**

These pages prepare students to meet this objective.

592A–592B, 592–593, 654A–654B, 654–655

D.4.5. Determine measurements by using basic relationships (such as perimeter and area) and approximate measurements by using estimation techniques.

188I, 191, 432J, 468A, 468, 471, 474A, 560J, 588A–588B, 588–589, 591, 592, 593, 600A–600B, 600–601, 652A–652B, 652–653, 654, 656, 661, 665

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade four, students will:

E.4.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**

230A–230B, 230–231

- **determining what data to collect and when and how to collect them**

230A–230B, 230–231

- **collecting, organizing, and displaying data**

188J, 204A–204B, 204–205, 206A–206B, 206–207, 208A–208B, 208–211, 216A–216B, 216–219, 222A–222B, 222–223, 230A–230B, 230–231

- **drawing reasonable conclusions based on data**

188J, 204A–204B, 204–205, 206A–206B, 206–207, 208A–208B, 208–211, 216A–216B, 216–219, 220–221, 222A–222B, 222–223, 226A–226B, 226–229, 230A–230B, 230–231, 232–233, 405

E.4.2. Describe a set of data using

- **high and low values, and range**
226A–226B, 226–229
- **most frequent value (mode)**
226A–226B, 226–229
- **middle value of a set of ordered data (median)**
226A–226B, 226–229

E.4.3. In problem-solving situations, read, extract, and use information presented in graphs, tables, or charts.

188J, 204A–204B, 204–205, 206A–206B, 206–207, 208A–208B, 208–211, 216A–216B, 216–219, 220–221, 222A–222B, 222–223, 226A–226B, 226–229, 230A–230B, 230–231, 232A–232B, 232–233, 405

E.4.4. Determine if future events are more, less, or equally likely, impossible, or certain to occur.

686J, 700A–700B, 700–703

E.4.5. Predict outcomes of future events and test predictions using data from a variety of sources.

686J, 704A–704B, 704–705, 706A–706B, 706–709, 710A–710B, 710–711

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade four, students will:

F.4.1. Use letters, boxes, or other symbols to stand for any number, measured quantity, or object in simple situations (e.g., $N + 0 = N$ is true for any number).

9, 60J, 98A–98B, 98–99, 100A–100B, 100–101, 130, 166A–166B, 166–167, 191, 195, 263, 373, 383, 389, 396A–396B, 396–400, 688A–688B, 688–689, 690A–690B, 690–691

F.4.2. Use the vocabulary, symbols, and notation of algebra accurately (e.g., correct use of the symbol “=”, effective use of the associative property of multiplication).

60J, 100A–100B, 100–101, 166A–166B, 166–167, 135, 191, 195, 263, 288, 373, 383, 389, 396A–396B, 396–400, 688A–688B, 688–689, 690A–690B, 690–691

F.4.3. Work with simple linear patterns and relationships in a variety of ways, including

- **recognizing and extending number patterns**

37, 90A–90B, 90–91, 122I, 128A–128B, 128–131, 136A–136B, 136–137, 140A–140B, 140–142, 256, 314, 406, 641

- **describing them verbally**

90A–90B, 90–91, 122I, 128A–128B, 128–131, 136A–136B, 136–137, 140A–140B, 140–142, 256, 314, 406, 641

- **representing them with pictures, tables, charts, graphs**

90A–90B, 90–91, 128A–128B, 128–131, 136A–136B, 136–137, 139, 140A–140B, 140–142, 686J, 692A–692B, 692–695

- **recognizing that different models can represent the same pattern or relationship**

10A–10B, 10–11, 128A–128B, 128–131

- **using them to describe real-world phenomena**

139, 140A–140B, 140–142, 692A, 692

F.4.4. Recognize variability in simple functional relationships by describing how a change in one quantity can produce a change in another (e.g., number of bicycles and the total number of wheels).

140A–140B, 140–142

F.4.5. Use simple equations and inequalities in a variety of ways, including

- **using them to represent problem situations**

167, 396A–396B, 396–400, 689, 690A–690B, 690–691, 692

- **solving them by different methods (e.g., use of manipulatives, guess and check strategies, recall of number facts).**

100A–100B, 100–101, 166A–166B, 166–167, 191, 195, 263, 373, 383, 389

- **recording and describing solution strategies**

100A–100B, 100–101, 166A–166B, 166–167, 396A–396B, 396–400

F.4.6. Recognize and use generalized properties and relationships or arithmetic (e.g., commutativity of addition, inverse relationships of multiplication and division).

62, 129A–129B, 129–130, 132, 135, 148A–148B, 148–149, 288A–288B, 288–289

**Scott Foresman – Addison Wesley Mathematics
to the
Wisconsin Model Academic Standards for Mathematics**

Grade Five

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade eight, students will:

A.8.1 Use reasoning abilities to

- **evaluate information**

19, 79, 81, 105, 111, 143, 145, 169, 181, 209, 211, 227, 239, 275, 279, 293, 351, 355, 407, 433, 437, 483, 557, 559, 570A–570B, 570–571, 573, 605, 607, 625, 659, 661, 664A–664B, 664–665, 705, 720A–720B, 720–721

- **perceive patterns**

14A–14B, 14–17, 66A–66B, 66–67, 75, 84A–84B, 84–85, 136A–136B, 136–137, 142–143, 144A–144B, 144–145, 202A–202B, 202–203, 237

- **identify relationships**

40A–40B, 40–41, 106A–106B, 106–107, 132A–132B, 132–135, 203, 336A–336B, 336–337, 426A–426B, 426–429, 646A–646B, 646–647, 648A–648B, 648–651, 668A–668B, 668–669

- **formulate questions for further exploration**

118A–8B, 18–19, 70B, 76B, 110B, 169, 172B, 260A–260B, 261, 434B, 552B

- **evaluate strategies**

18A–18B, 18–19, 32A–32B, 32–33, 42A–42B, 42–43, 80A–80B, 80–81, 104A–104B, 104–105, 144A–144B, 144–145, 168A–168B, 168–169, 210A–210B, 210–211, 226A–226B, 226–227, 276A–276B, 276–277, 292A–292B, 292–293, 352A–352B, 352–353, 356A–356B, 356–357, 406A–406B, 406–407, 434A–434B, 434–435, 484A–484B, 484–485, 504A–504B, 504–505, 558A–558B, 558–559, 570A–570B, 570–571, 606A–606B, 606–607, 624A–624B, 624–625, 660A–660B, 660–661, 664A–664B, 664–665, 706A–706B, 706–707, 720A–720B, 720–721

- **justify strategies**

18A–18B, 18–19, 32A–32B, 32–33, 42A–42B, 42–43, 80A–80B, 80–81, 104A–104B, 104–105, 144A–144B, 144–145, 168A–168B, 168–169, 210A–210B, 210–211, 226A–226B, 226–227, 276A–276B, 276–277, 292A–292B, 292–293, 352A–352B, 352–353, 356A–356B, 356–357, 406A–406B, 406–407, 434A–434B, 434–435, 484A–484B, 484–485, 504A–504B, 504–505, 558A–558B, 558–559, 570A–570B, 570–571, 606A–606B, 606–607, 624A–624B, 624–625, 660A–660B, 660–661, 664A–664B, 664–665, 706A–706B, 706–707, 720A–720B, 720–721

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy and skills pages, students are provided this opportunity.

18A–18B, 18–19, 32A–32B, 32–33, 42A–42B, 42–43, 80A–80B, 80–81, 104A–104B, 104–105, 144A–144B, 144–145, 168A–168B, 168–169, 210A–210B, 210–211, 226A–226B, 226–227, 276A–276B, 276–277, 292A–292B, 292–293, 352A–352B, 352–353, 356A–356B, 356–357, 406A–406B, 406–407, 434A–434B, 434–435, 484A–484B, 484–485, 504A–504B, 504–505, 558A–558B, 558–559, 570A–570B, 570–571, 606A–606B, 606–607, 624A–624B, 624–625, 660A–660B, 660–661, 664A–664B, 664–665, 706A–706B, 706–707, 720A–720B, 720–721

- **defend work**

19, 79, 81, 105, 111, 143, 145, 169, 181, 209, 211, 227, 239, 275, 279, 293, 351, 355, 407, 433, 437, 483, 557, 559, 570–571, 573, 605, 607, 625, 659, 661, 664–665, 705, 720–721

A.8.2 Communicate logical arguments clearly to show why a result makes sense.

434A–434B, 434–437, 570A–570B, 570–571, 664A–664B, 664–665, 720A–720B, 720–721

A.8.3 Analyze nonroutine problems by modeling, illustrating, guessing, simplifying, generalizing, shifting to another point of view, etc.

80A–80B, 80–81, 210A–210B, 210–211, 352A–352B, 352–355, 558A–558B, 558–559

A.8.4. Develop effective oral and written presentations that include

- **appropriate use of technology**

11, 28B, 32B, 40B, 70B, 88B, 91, 106B, 162B, 164B, 167, 168B, 172B, 180B, 202B, 214B, 221, 222B, 230B, 234B, 262B, 273, 276B, 305, 342B, 352B, 367, 397, 412B, 414B, 426B, 464B, 481, 530, 552B, 562B, 563, 567, 601, 610B, 651, 702B, 720, 728B

- **the conventions of mathematical discourse (e.g., symbols, definitions, labeled drawings)**

Most lessons feature Talk About It as part of the ongoing assessment, which provide additional opportunities for students to use the conventions of mathematical discourse. 12B, 26B, 42B, 70B, 80B, 92B, 94B, 106B, 132B, 144B, 172B, 210B, 214B, 222B, 230B, 260B, 262B, 286B, 296B, 300B, 332B, 352B, 356B, 368B, 394B, 412B, 460B, 472B, 476B, 500B, 532B, 548B, 550B, 552B, 562B, 568B, 570B, 602B, 606B, 614B, 624B, 664B, 670B, 672B, 702B, 718B, 720B, 728B

- **mathematical language**

The Talk About It and Journal sections of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity.

12B, 26B, 42B, 70B, 80B, 92B, 94B, 106B, 132B, 144B, 172B, 210B, 214B, 222B, 230B, 260B, 262B, 286B, 296B, 300B, 332B, 352B, 356B, 368B, 394B, 412B, 460B, 472B, 476B, 500B, 532B, 548B, 550B, 552B, 562B, 568B, 570B, 602B, 606B, 614B, 624B, 664B, 670B, 672B, 702B, 718B, 720B, 728B

- **clear organization of ideas and procedures**

The Talk About It and Journal sections of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity. 570A–570B, 570–571, 664A–664B, 664–665, 720A–720B, 720–721

- **understanding of purpose and audience**

The Talk About It and Journal features of every lesson require students to understand purpose and audience.

A.8.5. Explain mathematical concepts, procedures, and ideas to others who may not be familiar with them.

The Talk About It and Journal sections of every lesson provide opportunities for students to explain concepts, procedures, and ideas to others who may not be familiar with them.

A.8.6. Read and understand mathematical texts and other instructional materials and recognize mathematical ideas as they appear in other contexts.

8B, 14B, 16, 24, 26B, 30, 68B, 74, 76B, 86B, 90, 96, 102, 104B, 108B, 135, 140, 144B, 148B, 154, 158B, 166, 174B, 178, 204B, 206, 216, 220, 232B, 236, 238B, 265, 278, 288B, 290, 292B, 299, 302B, 306B, 328B, 330, 334, 344, 346B, 348, 364B, 366, 370, 394B, 398B, 406B, 410B, 417, 418B, 428, 468, 474B, 478B, 480, 484B, 486, 490B, 493, 502B, 528B, 530, 536B, 538, 542B, 564B, 566, 568B, 594B, 598B, 600, 616B, 620B, 648B, 652B, 654B, 662B, 696B, 700B, 708, 716B, 724B, 726

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade eight, students will:

B.8.1. Read, represent, and interpret various rational numbers (whole numbers, integers, decimals, fractions, and percents) with verbal descriptions, geometric models, and mathematical notation (e.g., expanded, scientific, exponential).

2I, 6A–6B, 6–7, 8A–8B, 8–11, 410A–410B, 410–413, 414A–414B, 414–415, 416A–416B, 416–417, 430A–430B, 430–431, 712A–712B, 712–714

B.8.2. Perform and explain operations on rational numbers (add, subtract, multiply, divide, raise to a power, extract a root, take opposites and reciprocals, determine absolute value).

2J, 36A–36B, 36–37, 38A–38B, 38–39, 40A–40B, 40–41, 72A–72B, 72–75, 88A–88B, 88–91, 91A–91B, 91–92, 94A–94B, 94–97, 152A–152B, 152–155, 214A–214B, 214–217, 234A–234B, 234–237, 398A–398B, 398–399, 404A–404B, 404–405, 430A–430B, 430–431, 716A–716B, 716–717, 718A–718B, 718–719

B.8.3. Generate and explain equivalencies among fractions, decimals, and percents

668A–668B, 668–669

B.8.4. Express order relationships among rational numbers using appropriate symbols ($=$, $<$, $>$, \leq , \geq)

6A–6B, 6–7, 12A–12B, 12–13, 418A–418B, 418–423

B.8.5. Apply proportional thinking in a variety of problem situations that include, but are not limited to

- **ratios and proportions (e.g., rates, scale drawings, similarity)**

646A–646B, 646–647, 648A–648B, 648–651, 652A–652B, 652–653, 654A–654B, 654–655, 662A–662B, 662–663

- **percents, including those greater than 100 and less than one (e.g., discounts, rate of increase or decrease, sales tax)**

644J, 668A–668B, 668–669, 670A–670B, 670–671, 672A–672B, 672–675

B.8.6. Model and solve problems involving number-theory concepts such as

- **prime and composite numbers**

164A–164B, 164–167

- **divisibility and remainders**

152A–152B, 152–155, 162A–162B, 162–163, 168A–168B, 168–169, 179, 214A–214B, 214–217, 224A–224B, 224–225

- **greatest common factors**

414A–414B, 414–415

- **least common multiples**

464A–464B, 464–465

B.8.7. In problem-solving situations, select and use appropriate computational procedures with rational numbers such as

- **calculating mentally**

2J, 22A–22B, 22–25, 66A–66B, 66–67, 70A–70B, 70–71, 77, 465, 477, 492, 497, 615, 617, 650, 670A–670B, 670–671

- **estimating**

28A–28B, 28–30, 37, 68A–68B, 68–69, 74, 86A–86B, 86–87, 130J, 138A–138B, 138–141, 154, 157, 161, 204A–204B, 204–207, 474A–474B, 474–475, 494A–494B, 494–495, 672A–672B, 672–673

- **creating, using, and explaining algorithms**

38A–38B, 38–39, 40A–40B, 40–41, 72A–72B, 72–75, 88A–88B, 88–91, 92A–92B, 92–93, 94A–94B, 94–97, 130J, 136A–136B, 136–137, 152A–152B, 152–155, 156A–156B, 156–157, 202A–202B, 202–203, 214A–214B, 214–217, 230A–230B, 230–231

- **using technology (e.g., scientific calculators, spreadsheets)**

11, 28B, 32B, 40B, 70B, 88B, 91, 106B, 162B, 164B, 167, 168B, 172B, 180B, 202B, 214B, 221, 222B, 230B, 234B, 262B, 273, 276B, 305, 342B, 352B, 367, 397, 412B, 414B, 426B, 464B, 481, 530, 552B, 562B, 563, 567, 601, 610B, 651, 702B, 720, 728B

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade eight, students will:

C.8.1. Describe special and complex two- and three-dimensional figures (e.g., rhombus, polyhedron, cylinder) and their component parts (e.g., base, altitude, and slant height) by

- **naming, defining, and giving examples**

340A–340B, 340–341, 342A–342B, 342–345, 346A–346B, 346–349, 594A–594B, 594–597

- **comparing, sorting and classifying them**

326J, 340A–340B, 340–341, 342A–342B, 342–345, 346A–346B, 346–349, 594A–594B, 594–597

- **identifying and contrasting their properties (e.g., symmetrical, isosceles, regular)**

340A–340B, 340–341, 342A–342B, 342–345, 346A–346B, 346–349, 594A–594B, 594–597

- **drawing and constructing physical models to specifications**

326I, 349, 371, 592I, 598A–598B, 598–601

- **explaining how these figures are related to objects in the environment**

340, 342, 344, 348, 351, 352, 595A–595B, 595–596

C.8.2. Identify and use relationships among the component parts of special and complex two- and three-dimensional figures (e.g., parallel sides, congruent faces).

340A–340B, 340–341, 342A–342B, 342–345, 346A–346B, 346–349, 594A–594B, 594–597, 598A–598B, 598–601

C.8.3. Identify three-dimensional shapes from two-dimensional perspectives and draw two-dimensional sketches of three-dimensional objects preserving their significant features.

592I, 598A–598B, 598–601

C.8.4. Perform transformations on two-dimensional figures and describe and analyze the effects of the transformations on the figures.

364A–364B, 364–367

C.8.5. Locate objects using the rectangular coordinate system.

174A–174B, 174–175, 724A–724B, 724–727

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade eight, students will:

D.8.1. Identify and describe attributes in situations where they are not directly or easily measurable (e.g., distance, area of an irregular figure, likelihood of occurrence).

542B, 544, 545, 548A–548B, 548–549

D.8.2. Demonstrate understanding of basic measurement facts, principles, and techniques including the following

- **approximate comparisons between metric and US Customary units (e.g., a liter and a quart are about the same; a kilometer is about six-tenths of a mile)**

539

- **knowledge that direct measurement produces approximate, not exact, measures**

528A–528B, 528–531, 532A–532B, 532–533, 534A–534B, 534–535, 536A–536B, 536–539, 614A–614B, 614–615, 616A–616B, 616–617, 620A–620B, 620–621, 622A–622B, 622–623

- **the use of smaller units to produce more precise measures**

532A–532B, 532–533

D.8.3. Determine measurement directly using standard units (metric and US Customary) with these suggested degrees of accuracy

- **lengths to the nearest mm or 1/16 of an inch**

532A–532B, 532–533, 534A–534B, 534–535

- **weight (mass) to the nearest 0.1 g or 0.5 ounce**

These pages prepare students to meet this objective.

620A–620B, 620–621, 622A–622B, 622–623

- **liquid capacity to the nearest ml**

These pages prepare students to meet this objective.

614A–614B, 614–615, 616A–616B, 616–617

- **angles to the nearest degree**

332A–332B, 332–335

- **temperature to the nearest C° or F°**

568A–568B, 568–569

- **elapsed time to the nearest second**

These pages prepare students to meet this objective.

564A–564B, 564–567

D.8.4. Determine measurements indirectly using

- **estimation**

529, 530, 537, 538, 541, 544, 549, 603, 613, 615, 617, 621

- **conversion of units within a system (e.g., quarts to cups, millimeters to centimeters)**

528A–528B, 528–531, 536A–536B, 536–539, 562A–562B, 562–563, 614A–614B, 614–615, 616A–616B, 616–617, 620A–620B, 620–621, 622A–622B, 622–623

- **ratio and proportion (e.g., similarity, scale drawings)**

646A–646B, 646–647, 648A–648B, 648–651, 652A–652B, 652–653, 662A–662B, 662–665

- **geometric formulas to derive lengths, areas, volumes of common figures (e.g., perimeter, circumference, surface area)**

526I, 540A–540B, 540–541, 542A–542B, 542–545, 548A–548B, 548–549, 592J, 602A–602B, 602–603, 610A–610B, 610–613

- **the Pythagorean relationship**

These pages offer related content.

340A–340B, 340–345

- **geometric relationships and properties for angle size (e.g., parallel lines and transversals; sum of angles of a triangle; vertical angles)**

328A–328B, 328–331, 332A–332B, 332–335, 336A–336B, 336–337, 342A–342B, 342–345, 363

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade eight, students will:

E.8.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**
260A–260B, 260–261, 269
- **designing and conducting a statistical investigation**
260A–260B, 260–261, 269
- **using technology to generate displays, summary statistics, and presentations**
273

E.8.2. Organize and display data from statistical investigations using

- **appropriate tables, graphs, and/or charts (e.g., circle, bar or line for multiple sets of data)**
262A–262B, 262–265, 266A–266B, 266–269, 274A–274B, 274–275, 276A–276B, 276–279, 286A–286B, 286–287, 288A–288B, 288–291
- **appropriate plots (e.g., line, stem-and-leaf, box, scatter)**
260A–260B, 260–261, 270A–270B, 270–273, 274A–274B, 274–275, 288A–288B, 288–291

E.8.3. Extract, interpret, and analyze information from organized and displayed data by using

- **frequency and distribution, including mode and range**
260A–260B, 260–261, 270A–270B, 270–273, 282A–282B, 282–285

- **central tendencies of data (mean and median)**

282A–282B, 282–285

- **indicators of dispersion (e.g., outliers)**

285, 289

E.8.4. Use the results of data analysis to

- **make predictions**

260A–260B, 260–261, 262A–262B, 262–265, 266A–266B, 266–269, 286A–286B, 286–287, 288A–288B, 288–291

- **develop convincing arguments**

262A–262B, 262–265, 266A–266B, 266–269, 286A–286B, 286–287, 288A–288B, 288–291

- **draw conclusions**

262A–262B, 262–265, 266A–266B, 266–269, 286A–286B, 286–287, 288A–288B, 288–291

E.8.5. Compare several sets of data to generate, test, and, as the data dictate, confirm or deny hypotheses.

262A–262B, 262–265, 266A–266B, 266–269, 286A–286B, 286–287, 288A–288B, 288–291

E.8.6. Evaluate presentations and statistical analyses from a variety of sources for

- **credibility of the source**

These pages prepare students to meet this objective.

260A–260B, 260–261

- **techniques of collection, organization, and presentation of data**

260A–260B, 260–261, 262A–262B, 262–265, 266A–266B, 266–269, 270A–270B, 270–273, 274–275, 276A–276B, 276–279, 286A–286B, 286–287, 288A–288B, 288–291

- **missing or incorrect data**

These pages provide opportunities to introduce this objective.

260A–260B, 260–261, 262A–262B, 262–265, 266A–266B, 266–269, 270A–270B, 270–273, 274–275, 276A–276B, 276–279, 286A–286B, 286–287, 288A–288B, 288–291, 292A–292B, 292–293

- **inferences**

These pages prepare students to meet this objective.

260A–260B, 260–261, 262A–262B, 262–265, 266A–266B, 266–269, 286A–286B, 286–287, 288A–288B, 288–291

- **possible sources of bias**

These pages offer related content.

260A–260B, 260–261

E.8.7. Determine the likelihood of occurrence of simple events by

- **using a variety of strategies to identify possible outcomes (e.g., lists, tables, tree diagrams)**

258J, 296A–296B, 296–299, 300A–300B, 300–301

- **conducting an experiment**

296A–296B, 296–299, 300A–300B, 300–301

- **designing and conducting simulations**

296A–296B, 296–299, 300A–300B, 300–301

- **applying theoretical notions of probability (e.g., that four equally likely events have a 25% chance of happening)**

These pages offer related content.

296A–296B, 296–299, 300A–300B, 300–301, 302A–302B, 302–305

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade eight, students will:

F.8.1. Work with algebraic expressions in a variety of ways, including

- **using appropriate symbolism, including exponents and variables**

100A–100B, 100–103, 104A–104B, 104–105, 203, 211, 696A–696B, 696–699, 700A–700B, 700–701, 702A–702B, 702–703, 704A–704B, 704–705, 706, 709

- **evaluating expressions through numerical substitution**

100A–100B, 100–103, 696A–696B, 696–699, 700A–700B, 700–701

- **generating equivalent expressions**
100A–100B, 100–103, 696A–696B, 696–699
- **adding and subtracting expressions**
100A–100B, 100–103, 104A–104B, 104–105, 108A–108B, 108–109, 700A–700B, 700–701

F.8.2. Work with linear and nonlinear patterns and relationships in a variety of ways, including

- **representing them with tables, with graphs, and with algebraic expressions, equations, and inequalities**
14A–14B, 14–17, 237, 698, 728A–728B, 728–729
- **describing and interpreting their graphical representations (e.g., slope, rate of change, intercepts)**
728A–728B, 728–729
- **using them as models of real-world phenomena**
728A–728B, 728–729
- **describing a real-world phenomenon that a given graph might represent**
728A–728B, 728–729

F.8.3. Recognize, describe, and analyze functional relationships by generalizing a rule that characterizes the pattern of change among variables. These functional relationships include exponential growth and decay (e.g., cell division, depreciation).

106A–106B, 106–107, 694J, 720A–720B, 720–721

F.8.4. Use linear equations and inequalities in a variety of ways, including

- **writing them to represent problem situations and to express generalizations**
706A–706B, 706–709
- **solving them by different methods (e.g., informally, graphical, with formal properties, with technology)**
700A–700B, 700–701, 702A–702B, 702–705, 728A–728B, 728–729

- **writing and evaluating formulas (including solving for a specified variable)**
700A–700B, 700–701, 702A–702B, 702–705, 706A–706B, 706–709

- **using them to record and describe solution strategies**
700A–700B, 700–701, 702A–702B, 702–705

F.8.5. Recognize and use generalized properties and relations, including

- **additive and multiplicative property of equations and inequalities**
694I, 696A–696B, 696–699

- **commutativity and associativity of addition and multiplication**
22A–22B, 22–25, 66A–66B, 66–67

- **distributive property**
70A–70B, 70–71

- **inverses and identities for addition and multiplication**

These pages offer related content.

22A–22B, 22–25, 66A–66B, 66–67, 70A–70B, 70–71

- **transitive property**

These pages prepare students to meet this objective.

108A–108B, 108–109, 137, 163, 700A–700B, 700–701, 702A–702B, 702–703

**Scott Foresman – Addison Wesley Mathematics
to the
Wisconsin Model Academic Standards for Mathematics
Grade Six**

A. MATHEMATICAL PROCESSES

CONTENT STANDARD: Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and nonroutine problems.

By the end of grade eight, students will:

A.8.1 Use reasoning abilities to

- **evaluate information**

4B, 16B, 24B, 30B, 32B, 44B, 52B, 78B, 80B, 90B, 94B, 100B, 110B, 116B, 146B, 170B, 212B, 216B, 220B, 224B, 252B, 264B, 274B, 300B, 312B, 324B, 330B

- **perceive patterns**

212A–212B, 212–213, 444A–444B, 444–447

- **identify relationships**

172A–172B, 172–175, 251, 358A–358B, 358–361

- **formulate questions for further exploration**

16B, 98B, 281, 312B, 380B, 386B, 428B, 433

- **evaluate strategies**

20A–20B, 20–21, 36A–36B, 36–37, 52A–52B, 52–53, 98A–98B, 98–99, 116A–116B, 116–119, 156A–156B, 156–157, 180A–180B, 180–181, 212A–212B, 212–213, 226A–226B, 226–227, 264A–264B, 264–265, 278A–278B, 278–279, 312A–312B, 312–313, 324A–324B, 324–325, 362A–362B, 362–363, 374A–374B, 374–377, 414A–414B, 414–415, 434A–434B, 434–435, 490A–490B, 490–491, 512A–512B, 512–513, 560A–560B, 560–561, 582A–582B, 582–583, 648A–648B, 648–649, 674A–674B, 674–675, 706A–706B, 706–707, 710A–710B, 710–711

- **justify strategies**

20A–20B, 20–21, 36A–36B, 36–37, 52A–52B, 52–53, 98A–98B, 98–99, 116A–116B, 116–119, 156A–156B, 156–157, 180A–180B, 180–181, 212A–212B, 212–213, 226A–226B, 226–227, 264A–264B, 264–265, 278A–278B, 278–279, 312A–312B, 312–313, 324A–324B, 324–325, 362A–362B, 362–363, 374A–374B, 374–377, 414A–414B, 414–415, 434A–434B, 434–435, 490A–490B, 490–491, 512A–512B, 512–513, 560A–560B, 560–561, 582A–582B, 582–583, 648A–648B, 648–649, 674A–674B, 674–675, 706A–706B, 706–707, 710A–710B, 710–711

- **test reasonableness of results**

The last phase of the Problem–Solving Plan requires students to look back and check that their answer is reasonable. On these problem–solving strategy and skills pages, students are provided this opportunity.

20A–20B, 20–21, 36A–36B, 36–37, 52A–52B, 52–53, 98A–98B, 98–99, 116A–116B, 116–119, 156A–156B, 156–157, 180A–180B, 180–181, 212A–212B, 212–213, 226A–226B, 226–227, 264A–264B, 264–265, 278A–278B, 278–279, 312A–312B, 312–313, 324A–324B, 324–325, 362A–362B, 362–363, 374A–374B, 374–377, 414A–414B, 414–415, 434A–434B, 434–435, 490A–490B, 490–491, 512A–512B, 512–513, 560A–560B, 560–561, 582A–582B, 582–583, 648A–648B, 648–649, 674A–674B, 674–675, 706A–706B, 706–707, 710A–710B, 710–711

- **defend work**

4B, 13, 16B, 17, 19, 21, 23, 24B, 26, 29, 30B, 31, 32B, 35, 39, 42, 44B, 52B, 57, 64, 77, 78B, 79, 80B, 81, 85, 90B, 92, 94B, 96, 99, 100B, 105, 110B, 111, 116B, 119, 123, 146B, 170B, 212B, 216B, 220B, 224B, 252B, 264B, 274B, 300B, 312B, 324B, 330B

A.8.2 Communicate logical arguments clearly to show why a result makes sense.

13, 17, 19, 21, 23, 26, 29, 31, 35, 39, 42, 57, 64, 77, 79, 81, 85, 92, 96, 99, 105, 111, 119, 123, 560–561

A.5.3 Analyze nonroutine problems by modeling, illustrating, guessing, simplifying, generalizing, shifting to another point of view, etc.

37, 312A–312B, 312–313, 374A–374B, 374–377, 490A–490B, 490–491, 706A–706B, 706–707

A.8.4. Develop effective oral and written presentations that include

- **appropriate use of technology**

11, 43, 102, 109, 163, 167, 225, 255, 333, 357, 425, 499, 519, 580, 593, 597, 627, 641, 657, 661, 667

- **the conventions of mathematical discourse (e.g., symbols, definitions, labeled drawings)**

Most lessons feature Talk About It as part of the ongoing assessment, which provide additional opportunities for students to use the conventions of mathematical discourse.

4B, 16B, 24B, 30B, 32B, 44B, 52B, 78B, 80B, 90B, 94B, 100B, 110B, 116B, 146B, 170B, 212B, 216B, 220B, 224B, 252B, 264B, 274B, 300B, 312B, 324B, 330B

- **mathematical language**

The Talk About It and Journal sections of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity.

4B, 16B, 24B, 30B, 32B, 44B, 52B, 78B, 80B, 90B, 94B, 100B, 110B, 116B, 146B, 170B, 212B, 216B, 220B, 224B, 252B, 264B, 274B, 300B, 312B, 324B, 330B

- **clear organization of ideas and procedures**

The Talk About It and Journal sections of every lesson provide students with an opportunity to communicate mathematical ideas. Here are some additional pages that provide students with this opportunity.

13, 17, 19, 21, 23, 26, 29, 31, 35, 39, 42, 57, 64, 77, 79, 81, 85, 92, 96, 99, 105, 111, 119, 123

- **understanding of purpose and audience**

The Talk About It and Journal features of every lesson require students to understand purpose and audience.

A.8.5. Explain mathematical concepts, procedures, and ideas to others who may not be familiar with them.

The Talk About It and Journal sections of every lesson provide opportunities for students to explain concepts, procedures, and ideas to others who may not be familiar with them.

A.8.6. Read and understand mathematical texts and other instructional materials and recognize mathematical ideas as they appear in other contexts.

6, 10, 34, 42, 46, 50, 88, 92, 102, 108, 118, 144, 148, 162, 167, 208, 222, 250, 304, 308, 320, 332, 356, 360, 382, 424, 442, 474, 478, 482, 486, 498, 508, 518, 549, 567, 574, 578, 589, 596, 622, 626, 630, 640, 644, 657, 660, 670, 702, 714, 720, 723

B. NUMBER OPERATIONS AND RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

By the end of grade eight, students will:

B.8.1. Read, represent, and interpret various rational numbers (whole numbers, integers, decimals, fractions, and percents) with verbal descriptions, geometric models, and mathematical notation (e.g., expanded, scientific, exponential).

4A–4B, 4–7, 76A–76B, 76–77, 140J, 160A–160B, 160–163, 164A–164B, 164–167, 168A–168B, 168–169, 352I, 354A–354B, 354–357, 358A–358B, 358–361, 370A–370B, 370–371, 408A–408B, 408–409

B.8.2. Perform and explain operations on rational numbers (add, subtract, multiply, divide, raise to a power, extract a root, take opposites and reciprocals, determine absolute value).

74I–74J, 86A–86B, 86–89, 90A–90B, 90–93, 94A–94B, 94–97, 100A–100B, 100–103, 202I–202J, 204A–204B, 204–205, 206A–206B, 206–209, 218A–218B, 218–219, 220A–220B, 220–223, 224A–224B, 224–225, 248A–248B, 248–251, 252A–252B, 252–255, 258A–258B, 258–259, 266A–266B, 266–269, 270A–270B, 270–271, 406J, 418A–418B, 418–421, 422A–422B, 422–425, 426A–426B, 426–427, 428A–428B, 428–429

B.8.3. Generate and explain equivalencies among fractions, decimals, and percents

358A–358B, 358–361

B.8.4. Express order relationships among rational numbers using appropriate symbols ($=$, $<$, $>$, \leq , \geq)

78A–78B, 78–79, 164A–164B, 164–167, 168A–168B, 168–169, 176A–176B, 176–178, 406I, 410A–410B, 410–411

B.8.5. Apply proportional thinking in a variety of problem situations that include, but are not limited to

- **ratios and proportions (e.g., rates, scale drawings, similarity)**

306A–306B, 306–309, 316A–316B, 316–317, 330A–330B, 330–333

- **percents, including those greater than 100 and less than one (e.g., discounts, rate of increase or decrease, sales tax)**
352J, 354A–354B, 354–357, 358A–358B, 358–361, 368A–368B, 368–369, 370A–370B, 370–371, 380A–380B, 380–383, 384A–384B, 384–385, 386A–386B, 386–387

B.8.6. Model and solve problems involving number-theory concepts such as

- **prime and composite numbers**
147A–147B, 147–149
- **divisibility and remainders**
142A–142B, 142–145
- **greatest common factors**
150A–150B, 150–151
- **least common multiples**
140I, 152A–152B, 152–153

B.8.7. In problem-solving situations, select and use appropriate computational procedures with rational numbers such as

- **calculating mentally**
30A–30B, 30–31, 32A–32B, 32–35, 366A–366B, 366–367
- **estimating**
16A–16B, 16–17, 18A–18B, 18–19, 74I–74J, 82A–82B, 82–83, 216A–216B, 216–217, 256A–256B, 256–257, 368A–368B, 368–369
- **creating, using, and explaining algorithms**
74I–74J, 86A–86B, 86–89, 90A–90B, 90–93, 94A–94B, 94–97
- **using technology (e.g., scientific calculators, spreadsheets)**
11, 43, 102, 109, 163, 167, 225, 255, 333, 357, 425, 499, 519, 580, 593, 597, 627, 641, 657, 661, 667

C. GEOMETRY

CONTENT STANDARD: Students in Wisconsin will be able to use geometric concepts, relationships, and procedures to interpret, represent, and solve problems. [Note: Familiar mathematical content dealing with measurement of geometric objects (e.g., length, area, volume) is presented in “D. Measurement.”]

By the end of grade eight, students will:

C.8.1. Describe special and complex two- and three-dimensional figures (e.g., rhombus, polyhedron, cylinder) and their component parts (e.g., base, altitude, and slant height) by

- **naming, defining, and giving examples**

494A–494B, 494–495, 496A–496B, 496–499, 500A–500B, 500–501, 586A–586B, 586–589

- **comparing, sorting and classifying them**

494A–494B, 494–495, 496A–496B, 496–499, 500A–500B, 500–501, 586A–586B, 586–589

- **identifying and contrasting their properties (e.g., symmetrical, isosceles, regular)**

494A–494B, 494–495, 496A–496B, 496–499, 500A–500B, 500–501, 586A–586B, 586–589

- **drawing and constructing physical models to specifications**

476A–476B, 476–479, 484A–484B, 484–487, 490A–490B, 490–491, 495, 496B, 497–499, 500B, 501, 502A–502B, 502–503, 509, 511

- **explaining how these figures are related to objects in the environment**

498–499, 503, 513, 580B, 588

C.8.2. Identify and use relationships among the component parts of special and complex two- and three-dimensional figures (e.g., parallel sides, congruent faces).

494A–494B, 494–495, 496A–496B, 496–499, 500A–500B, 500–501, 502A–502B, 502–503, 586A–586B, 586–589

C.8.3. Identify three-dimensional shapes from two-dimensional perspectives and draw two-dimensional sketches of three-dimensional objects preserving their significant features.

586A–586B, 586–589

C.8.4. Perform transformations on two-dimensional figures and describe and analyze the effects of the transformations on the figures.

510A–510B, 510–511

C.8.5. Locate objects using the rectangular coordinate system.

440A–440B, 440–442

D. MEASUREMENT

CONTENT STANDARD: Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

By the end of grade eight, students will:

D.8.1. Identify and describe attributes in situations where they are not directly or easily measurable (e.g., distance, area of an irregular figure, likelihood of occurrence).

These pages prepare students to meet this objective.

540J, 542A–542B, 542–545, 546A–546B, 546–549, 550A–550B, 550–551, 552A–552B, 552–553

D.8.2. Demonstrate understanding of basic measurement facts, principles, and techniques including the following

- **approximate comparisons between metric and US Customary units (e.g., a liter and a quart are about the same; a kilometer is about six-tenths of a mile)**
552A–552B, 552–553

- **knowledge that direct measurement produces approximate, not exact, measures**
542A–542B, 542–545, 546A–546B, 546–549, 550A–550B, 550–551, 552A–552B, 552–553

- **the use of smaller units to produce more precise measures**
550A–550B, 550–551

D.8.3. Determine measurement directly using standard units (metric and US Customary) with these suggested degrees of accuracy

- **lengths to the nearest mm or 1/16 of an inch**
550A–550B, 550–551
- **weight (mass) to the nearest 0.1 g or 0.5 ounce**
These pages prepare students to meet this objective.
542A–542B, 542–545, 546A–546B, 546–549
- **liquid capacity to the nearest ml**
These pages prepare students to meet this objective.
546A–546B, 546–549
- **angles to the nearest degree**
476A–476B, 476–479
- **temperature to the nearest C° or F°**
722A–722B, 722–723
- **elapsed time to the nearest second**
554A–554B, 554–557

D.8.4. Determine measurements indirectly using

- **estimation**
540I, 553
- **conversion of units within a system (e.g., quarts to cups, millimeters to centimeters)**
542A–542B, 542–553
- **ratio and proportion (e.g., similarity, scale drawings)**
298I–298J, 316A–316B, 316–317, 330A–330B, 330–333
- **geometric formulas to derive lengths, areas, volumes of common figures (e.g., perimeter, circumference, surface area)**
540I–540J, 564A–564B, 564–567, 568A–568B, 568–569, 570A–570B, 570–571, 572A–572B, 572–575, 576A–576B, 576–579, 580A–580B, 580–581, 590–597
- **the Pythagorean relationship**
499

- **geometric relationships and properties for angle size (e.g., parallel lines and transversals; sum of angles of a triangle; vertical angles)**
480A–480B, 480–483

E. STATISTICS AND PROBABILITY

CONTENT STANDARD: Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

By the end of grade eight, students will:

E.8.1. Work with data in the context of real-world situations by

- **formulating questions that lead to data collection and analysis**
These pages prepare students to meet this objective.
620A–620B, 620–623
- **designing and conducting a statistical investigation**
These pages prepare students to meet this objective.
620A–620B, 620–623
- **using technology to generate displays, summary statistics, and presentations**
638B, 641

E.8.2. Organize and display data from statistical investigations using

- **appropriate tables, graphs, and/or charts (e.g., circle, bar or line for multiple sets of data)**
618I, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–644, 648A–648B, 648–649
- **appropriate plots (e.g., line, stem-and-leaf, box, scatter)**
628A–628B, 628–631, 632A–632B, 632–633, 640

E.8.3. Extract, interpret, and analyze information from organized and displayed data by using

- **frequency and distribution, including mode and range**
624A–624B, 624–627

- **central tendencies of data (mean and median)**

624A–624B, 624–627

- **indicators of dispersion (e.g., outliers)**

628A–628B, 629–630

E.8.4. Use the results of data analysis to

- **make predictions**

618I, 620A–620B, 620–623, 628A–628B, 628–631, 632–633, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–645, 646–647, 648A–648B, 648–649, 650A–650B, 650–651

- **develop convincing arguments**

618I, 620A–620B, 620–623, 628A–628B, 628–631, 632–633, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–645, 646–647, 648A–648B, 648–649, 650A–650B, 650–651

- **draw conclusions**

618I, 620A–620B, 620–623, 628A–628B, 628–631, 632–633, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–645, 646–647, 648A–648B, 648–649, 650A–650B, 650–651

E.8.5. Compare several sets of data to generate, test, and, as the data dictate, confirm or deny hypotheses.

618I, 620A–620B, 620–623, 628A–628B, 628–631, 632–633, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–645, 646–647, 648A–648B, 648–649, 650A–650B, 650–651

E.8.6. Evaluate presentations and statistical analyses from a variety of sources for

- **credibility of the source**

These pages prepare students to meet this objective.

620A–620B, 620–623

- **techniques of collection, organization, and presentation of data**

618I, 620A–620B, 620–623, 628A–628B, 628–631, 632–633, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–645, 646–647, 648A–648B, 648–649, 650A–650B, 650–651

- **missing or incorrect data**

650A–650B, 650–651

- **inferences**

618I, 620A–620B, 620–623, 628A–628B, 628–631, 632–633, 636A–636B, 636–637, 638A–638B, 638–641, 642A–642B, 642–645, 646–647, 648A–648B, 648–649, 650A–650B, 650–651

- **possible sources of bias**

620A–620B, 620–623

E.8.7. Determine the likelihood of occurrence of simple events by

- **using a variety of strategies to identify possible outcomes (e.g., lists, tables, tree diagrams)**

618J, 654A–654B, 654–657

- **conducting an experiment**

662A–662B, 662–663, 664A–664B, 664–667

- **designing and conducting simulations**

662A–662B, 662–663, 664A–664B, 664–667

- **applying theoretical notions of probability (e.g., that four equally likely events have a 25% chance of happening)**

662A–662B, 662–663, 664A–664B, 664–667

F. ALGEBRAIC RELATIONSHIPS

CONTENT STANDARD: Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

By the end of grade eight, students will:

F.8.1. Work with algebraic expressions in a variety of ways, including

- **using appropriate symbolism, including exponents and variables**

40A–40B, 40–43, 44A–44B, 44–47

- **evaluating expressions through numerical substitution**

40A–40B, 40–43

- **generating equivalent expressions**
44A–44B, 44–47
- **adding and subtracting expressions**
48A–48B, 48–51

F.8.2. Work with linear and nonlinear patterns and relationships in a variety of ways, including

- **representing them with tables, with graphs, and with algebraic expressions, equations, and inequalities**
444A–44B, 444–447, 448A–448B, 448–449, 696I, 716A–716B, 716–717, 718A–718B, 718–720
- **describing and interpreting their graphical representations (e.g., slope, rate of change, intercepts)**
448A–448B, 448–449, 696J, 718A–718B, 718–720
- **using them as models of real-world phenomena**
These pages prepare students to meet this objective.
448A–448B, 448–449, 719–721
- **describing a real-world phenomenon that a given graph might represent**
These pages prepare students to meet this objective.
448A–448B, 448–449, 719–721

F.8.3. Recognize, describe, and analyze functional relationships by generalizing a rule that characterizes the pattern of change among variables. These functional relationships include exponential growth and decay (e.g., cell division, depreciation).

444A–444B, 444–447, 716A–716B, 716–717

F.8.4. Use linear equations and inequalities in a variety of ways, including

- **writing them to represent problem situations and to express generalizations**
448A–448B, 448–449, 696J, 698A–698B, 698–699, 700A–700B, 700–703, 712A–712B, 712–715, 716A–716B, 716–717, 718A–718B, 718–721

- **solving them by different methods (e.g., informally, graphical, with formal properties, with technology)**
448A–448B, 448–449, 696J, 698A–698B, 698–699, 700A–700B, 700–703, 712A–712B, 712–715, 716A–716B, 716–717, 718A–718B, 718–721
- **writing and evaluating formulas (including solving for a specified variable)**
448A–448B, 448–449, 696J, 698A–698B, 698–699, 700A–700B, 700–703, 712A–712B, 712–715, 716A–716B, 716–717, 718A–718B, 718–721
- **using them to record and describe solution strategies**
448A–448B, 448–449, 696J, 698A–698B, 698–699, 700A–700B, 700–703, 712A–712B, 712–715, 716A–716B, 716–717, 718A–718B, 718–721

F.8.5. Recognize and use generalized properties and relations, including

- **additive and multiplicative property of equations and inequalities**
28A–28B, 28–29, 700A–700B, 700–701
- **commutativity and associativity of addition and multiplication**
28A–28B, 28–29
- **distributive property**
30A–30B, 30–31
- **inverses and identities for addition and multiplication**
28A–28B, 28–29, 700A–700B, 700–701
- **transitive property**
These pages prepare students to meet this objective.
48A–48B, 48–51, 112A–112B, 112–113, 276A–276B, 276–277, 712A–712B, 712–715