

Correlation of Basic Math Skills to the NCTM Standards

STANDARD 1 Number and Operations

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- ◆ Understand meanings of operations and how they relate to one another
- ◆ Compute fluently and make reasonable estimates

Basic Math Skills

Whole numbers, relationships among numbers, number systems:

pages 1–35, 36–57, 64–67, 83–85, 95–98, 106–107, 124, 141–147, 308–309, 342–346.

Operations: pages 8–35, 38–39, 44–49, 68–89, 99–113, 158–166, 196–199, 201–204, 223–238, 310–323, 326–329, 330–333, 343–349, 351–354, 373–374.

Computation with Calculator Practice: pages 29, 39, 65, 113, 127, 147, 183, 204, 233, 248, 268–269, 298, 333; estimation: 7, 166, and throughout; paper/pencil computation throughout the textbook.

STANDARD 2 Algebra

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Understand patterns, relations, and functions
- ◆ Represent and analyze mathematical situations and structures using algebraic symbols
- ◆ Use mathematical models to represent and understand quantitative relationships
- ◆ Analyze change in various contexts

Basic Math Skills

Pages 306–341, 373–374.

STANDARD 3 Geometry

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
- ◆ Specify locations and describe spatial relationships using coordinate geometry and other representational systems
- ◆ Apply transformations and use symmetry to analyze mathematical situations
- ◆ Use visualization, spatial reasoning, and geometric modeling to solve problems

Basic Math Skills

Pages 170–189, 362–366.

STANDARD 4 Measurement

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Understand measurable attributes of objects and the units, systems, and processes of measurement
- ◆ Apply appropriate techniques, tools, and formulas to determine measurements

Basic Math Skills

Measurable attributes and processes of measurement: pages 190–215, 216–241, 242–259, 288–305.

Determining measurements: pages 176–179, 183, 186, 190–215, 216–241, 242–259, 288–305.

STANDARD 5 Data Analysis and Probability

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them
- ◆ Select and use appropriate statistical methods to analyze data
- ◆ Develop and evaluate inferences and predictions that are based on data
- ◆ Understand and apply basic concepts of probability

Basic Math Skills

Data organization, display, and evaluation: pages 261–279, 284, 373.

Graphs that mislead: pages 280–283.

STANDARD 6 Problem Solving

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Build new mathematical knowledge through problem solving
- ◆ Solve problems that arise in mathematics and in other contexts
- ◆ Apply and adapt a variety of appropriate strategies to solve problems
- ◆ Monitor and reflect on the process of mathematical problem solving

Basic Math Skills

Problem-Solving exercises: pages 10, 14, 20, 25, 28, 71, 73, 74, 76, 78, 84, 85, 94, 98, 100, 102, 105, 111, 113, 115, 129, 131, 133, 145, 146, 150, 152, 155, 157, 159, 183, 200, 203, 205, 208, 231, 246, 255, 298, 316, 329.

Application exercises: pages 32, 54, 86, 118, 134, 166, 186, 212, 238, 256, 284, 302, 338.

Most exercises throughout the textbook encourage problem-solving skills.

STANDARD 7 Reasoning and Proof

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Recognize reasoning and proof as fundamental aspects of mathematics
- ◆ Make and investigate mathematical conjectures
- ◆ Develop and evaluate mathematical arguments and proofs
- ◆ Select and use various types of reasoning and methods of proof

Basic Math Skills

Reasoning skills/processes, conjectures, and argumentation are applied throughout exercises in each lesson, in Problem-Solving and Application exercises listed under the previous standard, and in Chapter Reviews.

STANDARD 8 Communication

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Organize and consolidate their mathematical thinking through communication
- ◆ Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- ◆ Analyze and evaluate the mathematical thinking and strategies of others
- ◆ Use the language of mathematics to express mathematical ideas precisely

Basic Math Skills

Oral explanation and discussion: Problem-Solving exercises throughout provide opportunities for oral language. See Problem-Solving exercises on pages 10, 14, 20, 25, 28, 71, 73, 74, 76, 78, 84, 85, 94, 98, 100, 102, 105, 111, 113, 115, 129, 131, 133, 145, 146, 150, 152, 155, 157, 159, 183, 200, 203, 205, 208, 231, 246, 255, 298, 316, 329 and Applications on pages 32, 54, 86, 118, 134, 166, 186, 212, 238, 256, 284, 302, 338.

Writing About Mathematics: pages 3, 48, 62, 95, 130, 151, 180, 207, 221, 254, 266, 291, 309.

Graphical representations: pages 261–287, 290, 296–302, 308–313, 324–325.

Definitions of topic-relevant vocabulary terms are included in most lessons throughout.

STANDARD 9 Connections

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Recognize and use connections among mathematical ideas
- ◆ Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
- ◆ Recognize and apply mathematics in contexts outside of mathematics

Basic Math Skills

Relationships between basic math skills principles and whole numbers, fractions, decimals, percents, geometry, measurement, graphing, and algebra are explored throughout the text and underlying principles are presented as an integrated whole.

The role of basic math skills in other areas is explored in the chapter openers on pages 1, 36–37, 58–59, 90–91, 122–123, 138–139, 170–171, 190–191, 216–217, 242–243, 260–261, 288–289; in Applications on pages 32, 54, 86, 118, 134, 166, 186, 212, 238, 256, 284, 302, 338; and in Technology Connections on pages 3, 41, 77, 93, 125, 154, 185, 206, 229, 253, 279, 300, 333.

Mathematical connections to careers and other subject areas are also explored in the Teacher's Edition.

STANDARD 10 Representation

Instructional programs from prekindergarten through grade 12 should enable all students to:

- ◆ Create and use representations to organize, record, and communicate mathematical ideas
- ◆ Select, apply, and translate among mathematical representations to solve problems
- ◆ Use representations to model and interpret physical, social, and mathematical phenomena

Basic Math Skills

Representations: Throughout the text, particularly pages 30, 32, 37–56, 60, 86, 106–107, 118, 134, 176–179, 186, 238, 256, 260–287, 296–298, 302, 307–338.