

Alignment with Standards

Alignment with the NCTM Principles and Standards 2000

In 1989, the National Council of Teachers of Mathematics (NCTM) released its *Curriculum and Evaluation Standards for School Mathematics*. This document provided guidance for developing and implementing a vision of mathematics and instruction that serves all students. In 2000, NCTM expanded and elaborated on the 1989 standards to create the *Principles and Standards for School Mathematics*. This document reflects the research on teaching, learning, and technology that has evolved over the past ten years. These standards have served as a guide in developing *Connected Mathematics*.

The following chart shows the alignment of *Connected Mathematics* with NCTM *Principles and Standards 2000*.

CONTENT STANDARDS

Number and Operations

Prime Time (Grade 6)

Bits and Pieces I (Grade 6)

Bits and Pieces II (Grade 6)

Bits and Pieces III (Grade 6)

Comparing and Scaling (Grade 7)

Accentuate the Negative (Grade 7)

Looking for Pythagoras (Grade 8)

Algebra

Variables and Patterns (Grade 7)

Moving Straight Ahead (Grade 7)

Thinking With Mathematical Models (Grade 8)

Looking for Pythagoras (Grade 8)

Growing, Growing, Growing (Grade 8)

Frogs, Fleas, and Painted Cubes (Grade 8)

Say It With Symbols (Grade 8)

Shapes of Algebra (Grade 8)

Geometry

Shapes and Designs (Grade 6)

Ruins of Montarek (Grade 6)

Stretching and Shrinking (Grade 7)

Filling and Wrapping (Grade 7)

Looking for Pythagoras (Grade 8)

Kaleidoscopes, Hubcaps, and Mirrors (Grade 8)

Measurement

Shapes and Designs (Grade 6)

Covering and Surrounding (Grade 6)

Stretching and Shrinking (Grade 7)

Filling and Wrapping (Grade 7)

Data Around Us (Grade 7)

Looking for Pythagoras (Grade 8)

Data Analysis and Probability

Data About Us (Grade 6)

How Likely Is It? (Grade 6)

What Do You Expect? (Grade 7)

Data Distributions (Grade 7)

Samples and Populations (Grade 8)

PROCESS STANDARDS

Problem Solving

All units

Because *Connected Mathematics* is a problem-centered curriculum, problem solving is an important part of every unit.

Reasoning and Proof

All units

Throughout the curriculum, students are encouraged to look for patterns, make conjectures, provide evidence for their conjectures, refine their conjectures and strategies, connect their knowledge, and extend their findings. Informal reasoning evolves into more deductive arguments as students proceed from Grade 6 through Grade 8.

Communication

All units

As students work on the problems, they must communicate ideas with others. Emphasis is placed on students' discussing problems in class, talking through their solutions, formalizing their conjectures and strategies, and learning to communicate their ideas to a more general audience. Students learn to express their ideas, solutions, and strategies using written explanations, graphs, tables, and equations.

Connections

All units

In all units, the mathematical content is connected to other units, to other areas of mathematics, to other school subjects, and to applications in the real world. Connecting and building on prior knowledge is important for building and retaining new knowledge.

Representation

All units

Throughout the units, students organize, record, and communicate information and ideas using words, pictures, graphs, tables, and symbols. They learn to choose appropriate representations for given situations and to translate among representations. Students also learn to interpret information presented in various forms.

Alignment with State Frameworks

Connected Mathematics addresses all content topics that might be required at middle school level. Because topics are covered in depth in individual units, districts may choose to use a particular unit at a grade level above or below its position in the teaching sequence. The chart on page 18 shows the recommended teaching order within each mathematics strand. If units are moved out of sequence to be taught *before* the recommended location and grade level, the district should carefully check to see that requisite connected units have been taught. Obvious examples are Bits and Pieces I, II, and III. These should not be taught in a different order. Another is the sequence of units in grade 7, Variables and Patterns, Stretching and Shrinking, Comparing and Scaling, Accentuate the Negative, and Moving Straight Ahead. These build on each other and should be taught in the recommended order.