

**Course Overview/Description**

*Core Connections, Course 1* is the first of a three-year sequence of courses designed to prepare students for a rigorous college preparatory algebra course.

On a daily basis, students in *Core Connections, Course 1* use problem-solving strategies, questioning, investigating, analyzing critically, gathering and constructing evidence, and communicating rigorous arguments justifying their thinking. Students learn in collaboration with others while sharing information, expertise, and ideas. The course helps students to develop multiple strategies to solve problems and to recognize the connections between concepts.

**Scope and Sequence**

Timeframe	Unit	Instructional Topics
<p>13 days with 2-3 additional days for closure, review and assessments</p>	<p>Chapter 1: Introduction and Representation</p>	<p>Visualizing Information                      Perimeter and Area Relationships                      Describing and Extending Patterns                      Representing Data                      Making Sense of a Logic Problem                      Multiple Representations                      Representing Comparisons                      Characteristics of Numbers                      Products, Factors, and Factor Pairs</p>
<p>12 days with 2-3 additional days for closure, review, and assessments</p>	<p>Chapter 2: Arithmetic Strategies and Area</p>	<p>Dot Plots and Bar Graphs                      Histograms and Stem-and-Leaf Plots                      Exploring Area                      Square Units and Area of Rectangles                      Area and Perimeter                      Using Rectangles to Multiply                      Using Generic Rectangles                      Generic Rectangles and the Greatest Common Factor</p>

<p>15 days with 2-3 additional days for closure, review, and assessments</p> <p>11 days with 2-3 additional days for closure, review, and assessments</p>	<p>Chapter 3: Portions and Integers</p> <p>Chapter 4: Variables and Ratios</p>	<p>Using the Multiplicative Identity  Portions as Percents  Connecting Percents with Decimals and Fractions  Multiple Representations of a Portion  Completing the Web  Investigating Ratios  Addition, Subtraction, and Opposites</p> <p>Introduction to Variables  Writing Equivalent Expressions  Using Variables to Generalize  Enlarging Two-Dimensional Shapes  Enlarging and Reducing Figures  Enlargement and Reduction Ratios  Ratios in Other Contexts</p>
<p>15 days with 2-3 additional days for closure, review, and assessments</p>	<p>Chapter 5: Multiplying Fractions and Area</p>	<p>Representing Fraction Multiplication  Describing Parts of Parts  Calculating Parts of Parts  Multiplying Mixed Numbers  Making Sense of Decimal Multiplication  Fraction Multiplication Number Sense  Rearranging Areas  Area of a Parallelogram  Area of a Triangle  Area of a Trapezoid</p>
<p>16 days with 2-3 additional days for closure, review, and assessments</p>	<p>Chapter 6: Dividing and Building Expressions</p>	<p>Dividing  Fractions as Division Problems  Problem Solving with Division  Solving Problems Involving Fraction Division  Order of Operations  Area of a Rectangular Shape  Naming Perimeters of Algebra Tiles  Combining Like Terms  Evaluating Algebraic Expressions</p>
<p>15 days with 2-3 additional days for closure,</p>	<p>Chapter 7: Rates and Operations</p>	<p>Comparing Rates  Comparing Rates with Tables and Graphs  Unit Rates</p>

<p>review, and assessments</p>		<p>Analyzing Strategies for Dividing Fractions  Other Strategies for Dividing Fractions  Division with Fractions and Decimals  Fraction Division as Ratios  Inverse Operations  Distributive Property  Distributive Property and Expressions Vocabulary  Writing Algebraic Equations and Inequalities</p>
<p>15 days with 2-3 additional days for closure, review, and assessments</p>	<p>Chapter 8: Statistics and Multiplication Equations</p>	<p>Measures of Central Tendency  Choosing Mean or Median  Shape and Spread  Box Plots and Interquartile Range  Comparing and Choosing Representations  Statistical Questions  Writing Multiplication Equations  Distance, Rate, and Time  Unit Conversion</p>
<p>18 days with 2-3 additional days for closure, review, and assessments</p>	<p>Chapter 9: Volume and Percents</p>	<p>Volume of Rectangular Prisms  Nets and Surface Area  Multiplicative Growth and Percents  Composition and Decomposition of Percents  Percent Discounts  Simple Interest and Tips  A Culminating Portions Challenge  Representing and Predicting Patterns  Analyzing Data to Identify a Trend</p>

## Course Details

### **UNIT: Chapter 1: Introduction and Representation** -- 13 Days

#### **Learning Targets**

Section 1.1 In this section you will get to know the members of your class and your study team. You will work with your classmates on challenging problems and activities. You will also find ways to explain your thinking and learn from the thinking of others.

Section 1.2 Next, you will find different ways to represent mathematical ideas: using words, numbers and symbols, diagrams, and different kinds of tables. You will explain your ideas to your team and listen carefully to their ideas.

### **UNIT: Chapter 2: Arithmetic Strategies and Area** -- 12 Days

#### **Learning Targets**

Section 2.1 To begin the chapter, you will learn several ways to represent data that you collect. You will learn to make mathematically justified statements about how accurately your class was able to determine the length of one minute without using a clock!

Section 2.2 Section 2.2 focuses on area. You will learn how to measure area using a variety of units, and why standard units are useful. You will also learn about perimeter and its relationship to area.

Section 2.3 In this section, you will take a closer look at multiplication and how it relates to area.

### **UNIT: Chapter 3: Portions and Integers** -- 15 Days

#### **Learning Targets**

Section 3.1 In the first section, you will develop a useful tool for finding equivalent fractions and verifying that they are equivalent. You will also represent portions of wholes as percents, decimals, and fractions. Then you will work to find efficient ways to move between equivalent representations of the portions.

Section 3.2 In this section you will describe motion on a number line using integers. You will learn how addition can help you predict the starting or ending point of a series of moves. Then you will relate this movement to finding distance. Finally, you will connect your understanding of movement along a number line to distance on a coordinate graph.

### **UNIT: Chapter 4: Variables and Ratios** -- 11 days

#### **Learning Targets**

Section 4.1 You will write expressions with variables and learn about equivalent expressions. You will work with your team to find strategies for representing and finding unknown lengths.

Sections 4.2 In this section, you will learn how to enlarge and reduce figures while maintaining their shapes. You will also learn about using ratios to describe relationships between shapes of different sizes.

**UNIT: Chapter 5: Multiplying Fractions and Area** -- 15 days

**Learning Targets**

Section 5.1 You will learn how to multiply fractions by examining portions of fractions. Then you will connect this process to finding the products of mixed numbers.

Section 5.2 In the second section, you will extend what you learned in the first section to find products of decimals. This will also help you understand how multiplication by a number greater than or less than 1 affects the product.

Section 5.3 You will find the areas of different shapes such as parallelograms, triangles, and trapezoids by rearranging them into rectangles.

Section 5.4 Finally, you will reflect about what you have learned in Chapters 1 through 5.

**UNIT: Chapter 6: Dividing and Building Expressions** -- 16 days

**Learning Targets**

Section 6.1 In this section, you will begin by looking at integer division by dividing different amounts of licorice among different numbers of people. You will use diagrams and other strategies to divide the licorice equally. Then you will divide fractions and mixed numbers and use your knowledge of division to solve problems.

Section 6.2 This section introduces algebra tiles and use their areas and perimeters to develop the skills of building expressions and combining like terms. You will simplify and evaluate algebraic expressions for given values.

**UNIT: Chapter 7 Rates and Operations** -- 15 days

**Learning Targets**

Section 7.1 You will compare ratios and rates using different representations, such as numbers, tables, and graphs. You will learn ways to rewrite ratios so that they can be compared more easily.

Section 7.2 You will extend your understanding of division with fractions to include mixed numbers and decimals and develop efficient methods for doing so.

Section 7.3 As you play math tricks, you will learn symbolic manipulation skills such as simplifying, combining like terms, distributing multiplication across addition and making zeros.

**UNIT: Chapter 8: Statistics and Multiplication Equations** -- 15 days

**Learning Targets**

Section 8.1 This section introduces another method of representing data, the box plot. You will decide which of the representations you have learned and which measure of central tendency will best help you compare sets of data. You will also look at the shape and spread of data.

Section 8.2 In this section, you will investigate statistical questions and learn how to write them.

Section 8.3 You will identify the relationship between distance, rate, and time and will use it to solve word problems. You will compare rates that do not involve the same units and determine when unit conversion is necessary.

**UNIT: Chapter 9: Volume and Area** -- 18 days

**Learning Targets**

Section 9.1 In this section, you will learn about volume and surface area of three-dimensional solids. You will develop strategies for calculating the volume and the surface area of a prism. Then you will compare how surface area and volume are related by building three-dimensional rectangular prisms. Finally, you will visualize shapes using nets.

Section 9.2 Here, you will calculate percents to solve problems involving tips, interest, sale prices, and discounts.

Section 9.3 You will work with your team to solve challenging problems using what you have learned throughout the entire course. You will reflect about your learning and how you have been thinking as you have solved problems this year.

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<sup>1</sup> Updated 3:22 5-11-2021