

Course Title : CPM Course 2

7th grade math

Course Overview/Description

Core Connections Course 2 is the second of a three year sequence of courses designed to prepare students for a rigorous college preparatory algebra course. The big ideas of this course are problem-based lessons, collaborative student work and spaced practice. All are based on methodological research for teaching mathematics that leads to conceptual understanding. Students use questioning, investigating, gathering evidence and communicating to justify their thinking. The course helps develop multiple strategies to solve problems and to recognize the connections between student learning.

Scope and Sequence

| Timeframe | Unit | Instructional Topics |
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| 3 Weeks 3 days ~ Closure, Team Test and Individual Test | Chapter 1 ~ Introduction and Probability | *Finding Number Patterns *Investigating Probability and Sample Space *Compound Probability *Rewriting Fractions as Decimals as Percents and vice versa *Finding Unknowns |
| 3 Weeks 3 days ~ Closure, Team Test and Individual Test | Chapter 2 ~ Fractions and Integer Addition | *Fraction - to - Decimal -to- Percent Conversions *Composing Integers *Adding and Subtracting Rational Numbers * Multiplications as Repeated Addition *Multiplying Portions and Mixed |

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| | | <p>Numbers</p> <ul style="list-style-type: none"> *Choosing a Graph and Graphing Data |
| <p>3 Weeks</p> <p>3 days ~ Closure, Team Test and Individual Test</p> | <p>Chapter 3 ~ Arithmetic Properties</p> | <ul style="list-style-type: none"> *Identifying Terms and Grouping Expressions *Subtracting Integers *Adding Integers *Multiplication as Repeated Subtraction *Multiplication of Decimals *Adding, Subtracting, Multiplying and Dividing Integers *Division of Rational Numbers *Arithmetic Properties |
| <p>4 Weeks</p> <p>3 days ~ Closure, Team Test and Individual Test</p> | <p>Chapter 4 ~ Proportions and Expressions</p> | <ul style="list-style-type: none"> *Similar Figures *Proportional Relationships with Tables and Graphs *Unit Rate *Combining Like Terms *Distributive Property *Simplifying with Zero |
| <p>4 Weeks</p> <p>3 days ~ Closure, Team Test and Individual Test</p> | <p>Chapter 5 ~ Probability and Solving Word Problems</p> | <ul style="list-style-type: none"> *Part-Whole Relationships *Finding and using Percentages *Probability *Compound Independent Events *Probability Tables and Trees *Word problems |
| <p>4 Weeks</p> <p>3 days ~ Closure, Team Test and Individual Test</p> | <p>Chapter 6 ~ Solving Inequalities and Equations</p> | <ul style="list-style-type: none"> *Comparing Expressions *Solving One Variable Expressions *Solving Equations *Using a Table to Write equations from Word Problems |

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| | | *Cases with Infinite or No Solutions |
| 3 Weeks 3 days ~ Closure, Team Test and Individual Test | Chapter 7 ~ Proportions and Percents | *Distance, Rate and Time *Scaling Quantities *Equations with Fraction and Decimal Coefficients *Simple Interest *Solving Proportions with Missing Information |
| 3 weeks 3 days ~ Closure, Team Test and Individual Test | Chapter 8 ~ Statistics and Angle Relationships | *Measurement Precision *Representative Samples and Random Samples *Classifying Angles *Constructing Shapes *Building Triangles |
| 4 Weeks 3 days ~ Closure, Team Test and Individual Test | Chapter 9 ~ Circles and Volume | *Circumference, Diameter and Pi *Area of Circles *Area of Composite Shapes *Surface Area and Volume *Cross Sections *Volume and Scaling *Applying Ratios |

Course Details

Chapter 1 ~ Introduction and Probability

Learning Targets:

Section 1.1

This section will introduce you to several of the big ideas of the course. Each problem will require your study team to work together using several problem-solving strategies.

Section 1.2

In this section, you will learn to find the probability of a specific event. You will also learn about the meaning of probability and how it is expressed mathematically. After collecting experimental data, you will explore the difference between theoretical and experimental probability. You will then find the probabilities of two separate events.

Chapter 2 ~ Fractions and Integer Addition

Learning Targets:

Section 2.1

In this section, you will look at numbers represented as fractions and as decimals. You will investigate the question, “What makes some decimals repeat?”

Section 2.2

In Section 2.2, you will extend your understanding of length to help you add and multiply positive and negative integers and rational numbers.

Section 2.3

This section reviews your work with coordinate graphs from previous courses. You will plot and read points on graphs and learn how to scale them so that they are useful for showing the relationship that they represent.

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| Chapter 3 ~ Arithmetic Properties |
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Learning Targets:**Section 3.1**

In this section, you will find strategies for grouping operations within number expressions so you can simplify them accurately.

Section 3.2

Section 3.2 connects subtraction of integers to your earlier work with adding and multiplying integers. You will expand your knowledge of how to find differences and products.

Section 3.3

In this section, you will extend your understanding of operations with fractions and decimals to include division.

Chapter 4 ~ Proportions and Expressions

Learning Targets:

Section 4.1

You will examine several similar shapes to determine how those shapes are related. You will use the patterns that you identify to find missing lengths and areas on shapes and to make scale drawings.

Section 4.2

This section introduces the idea of a proportional relationship through tables, graphs, equations, and real-life situations. You will learn strategies for solving proportional situations.

Section 4.3

Here, you will be introduced to algebra tiles. You will use their areas and perimeters to build expressions and combine like terms. You will work with algebraic expressions, simplifying and evaluating them for given values.

Chapter 5 ~ Probability and Solving Word Problems**Learning Targets:****Section 5.1**

This section introduces a linear diagram that you will use to represent relationships between parts and the whole to solve problems.

Section 5.2

You will investigate probability using a deck of cards and a random number generator. You will learn to represent multiple events using a probability tree, a list, and a table. You will also revisit the idea of the fairness of events and compare experimental and theoretical probabilities.

Section 5.3

This section will introduce the 5-D Process as a problem-solving method. You will learn how to understand a problem by drawing, describing, and defining its elements. You will learn strategies that lead to writing and solving equations later in the course.

Chapter 6 ~ Solving Inequalities and Equations

Learning Targets:

Section 6.1

In the first section, you will learn additional strategies for comparing expressions. The strategies will involve maintaining equivalence and determining relationships between expressions. You will also solve inequalities and represent their solutions on a number line.

Section 6.2

Using algebra tiles, here you will explore what you can learn when expressions are equal. Solving equations will also provide you an opportunity to develop efficient simplification strategies and to learn how to know that your solution is correct. You will also consider special cases, such

as when an equation has no solution.

Chapter 7 ~ Proportions and Percents

Learning Targets:

Section 7.1

You will identify the relationship between distance, rate, and time and will use it to solve word problems. You will connect your work with percents and scale factors to solve new problems involving part-whole relationships. You will also develop strategies to solve equations with fractional and decimal coefficients. Finally, you will explore percent change and simple interest.

Section 7.2

This section reviews and extends the idea of proportional relationships that you studied in Chapter 4. You will learn new strategies for solving proportional situations.

Chapter 8 ~ Statistics and Angle Relationships

Learning Targets:

Section 8.1

In this section, you will collect, analyze, describe and compare data.

Section 8.2

In Section 8.2 you will design surveys in order to collect representative data that will help you draw conclusions about the larger population of interest.

Section 8.3

You will build and compare shapes. To compare shapes completely, you will build an angle-measuring device and then use it to investigate angles.

Chapter 9 ~ Circles and Volume

Learning Targets:

Section 9.1

In this section, you will learn about the relationship between the diameter and the circumference of a circle. You will also learn how to calculate the area of a circle

from its radius or diameter.

Section 9.2

You will compare how surface area and volume are related by building three-dimensional rectangular prisms. Then you will visualize the shapes made when you slice prisms and use nets to see the surfaces of a prism.