

Common Core and Mathematics: Grades K–5

In *Common Core and Mathematics: Grades K–5*, you will explore the Common Core State Standards for Mathematics (CCSSM). This course will provide information on the background of the new standards as well as details on the standards for content and the standards for practice. Additionally, the course covers the six domains for grades K–5 including strategies, ideas for assessment, and common misconceptions. By the end of this course, you will have an understanding of these topics, along with some ideas and tools on how to implement the CCSSM in your classroom.

Course Objectives

After completing this course, you should be able to:

Module 1

- Recognize the rationale and the advantages of having a common set of standards across the nation.
- Examine the sequence of standards and the rationale behind it.

Module 2

- Understand the structure and organization of the Common Core State Standards for Mathematics, including the conceptual categories, domains, clusters, and standards.
- Connect the five building blocks of mathematics with the grade-level domains.
- Recognize the appropriate usage of the various types of representation.

Module 3

- Recognize the eight standards of mathematical practice and how including all standards in the curriculum increases the chance that students will be successful in math.
- Adapt strategies to develop the eight standards for mathematical practice in your classroom.

Module 4

- Interpret the intended outcomes for the topics of counting and cardinality and operations and algebraic thinking based on the Common Core.
- Develop instructional strategies using manipulatives (objects or virtual) to encourage mathematical reasoning, to make math more meaningful to students, and to encourage deeper understanding of counting and cardinality and operations and algebraic thinking.

Module 5

- Interpret the intended outcomes for the domains of numbers and operations in base 10 and numbers and operations-fractions based on the Common Core.
- Develop instructional strategies using manipulatives and technology to encourage mathematical reasoning, to make math more meaningful to students, and to encourage deeper understanding of numbers and operations in base 10 and fractions.

Module 6

- Interpret the intended outcomes for the domains of geometry and measurement and data based on the Common Core.
- Develop instructional strategies using manipulatives or technology to encourage mathematical reasoning, to make math more meaningful to students, and to encourage deeper understanding of geometry and measurement and data.

Course Syllabus

Module 1	Introducing the Common Core State Standards for Mathematics <ul style="list-style-type: none">• Reading 1: Coming to Terms with Common Core Standards• Video 1: Common Core State Standards: A New Foundation for Student Success• Reading 2: The Common Core State Standards for Mathematics• Video 2: Writing the Math Standards• Media: The Importance of Mathematics Progressions• Knowledge Check• Application: CCSSM—A First Look• Post-Module Reflection
Module 2	Standards for Mathematical Content <ul style="list-style-type: none">• Module Welcome• Reading 1: Standards for Mathematical Content• Video: Promoting Creativity and Innovation in the Classroom• Reading 2: <i>Educational Leadership</i>—In Defense of Mathematical Foundations• Reading 3: Visual Representation• Knowledge Check• Application: Visual Representation• Post-Module Reflection

Module 3	Eight Standards of Mathematical Practice <ul style="list-style-type: none">• Module Welcome• Reading 1: Standards for Mathematical Practice—An Overview• Video 1: Mathematics Fluency—A Balanced Approach• Video 2: The Importance of Mathematical Practices• Reading 2: Standards for Mathematical Practice: Standards 1–4• Reading 3: Standards for Mathematical Practice: Standards 5–8• Video 3: 21st Century Skills• Knowledge Check• Application: The Eight Standards for Mathematical Practice• Post-Module Reflection
Module 4	Counting & Cardinality and Operations & Algebraic Thinking <ul style="list-style-type: none">• Module Welcome• Video 1: Gathering Momentum for Algebra• Reading 1: Counting and Cardinality and Operations and Algebraic Thinking• Video 2: The Power of Formative Assessment to Advance Learning• Reading 2: <i>Educational Leadership</i>—Singapore Math: Simple or Complex?• Video 3: Math Curriculum Makeover• Knowledge Check• Application: Practice Standards 1 and 2 in Your Classroom• Post-Module Reflection

Module 5	Numbers & Operations in Base 10 and Numbers & Operations—Fractions <ul style="list-style-type: none">• Reading 1: Numbers & Operations in Base 10 and Numbers & Operations—Fractions• Video 1: Multiplicative Reasoning Tutorial• Video 2: Equivalent Fractions Tutorial• Video 3: Collaboration and Project-Based Learning• Reading 2: <i>Educational Leadership</i>—Teaching the iGeneration• Knowledge Check• Application: Practice Standards 4 and 5 in Your Classroom• Post-Module Reflection
Module 6	Geometry and Measurement & Data <ul style="list-style-type: none">• Module Welcome• Reading 1: Geometry and Measurement & Data• Video 1: Perimeter and Area Tutorial• Video 2: Brain-Compatible Learning: Math Strategies• Reading 2: <i>Educational Leadership</i>—Thinking Is Literacy, Literacy Thinking• Video 3: Teaching Critical Thinking• Knowledge Check• Application: Practice Standards 3 and 6 in Your Classroom• Post-Module Reflection

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