Introduction

The Core Math: Fractions Course addresses key numbers and operations concepts regarding the nature and computation of fractional numbers, the properties of numbers and solving word problems with fractions. The subjects in this course include factors and multiples, fractions concepts, comparing fractions, equivalent fractions, estimation of fractions, fractions arithmetic, and fractions word problems. The learning objectives align to US national curriculum standards for grades 3 to 7 and align to Common Core Math Standards for grades 3 to 5. The completion time is estimated at approximately 25 hours.


The Core Math: Fractions Course is organized sequentially in seven Units with 30 lessons, 30 lesson Quizzes and 7 Unit Tests for pre-assessment and post-assessment. Each of the thirty lessons contain audio-supported on-screen instruction and a printable activity sheet with exercises and activities. Each lesson Quiz contains 6 questions generated from a set of 10 questions. Each of the seven Unit Tests contain three questions for each lesson in that Unit from a set of ten questions per lesson. There are 324 instructions screens, 193 practice sheet pages, 5 reference pages, and 600 test questions for a total of 1122 total learning objects in the Core Math: Fractions Course.

Unit 1: Factors and Multiples

Lesson 1: Factors, Prime, and Composite Numbers

Common Core Standards
- 4.OA.4

Learning Objectives
- to learn about factors and how to factor a number

Defined Vocabulary Words
- factors, prime numbers, composite numbers

Lesson Components
- Total Learning Objects – 31
- Instruction Pages - 14
- Activity Pages - 7
- Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
- Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test
Lesson 2: Factors – Word Problems
Common Core Standards
• 4.MD.2, 4.OA.3, 4.OA.4

Learning Objectives
• to learn how to solve word problems with factors

Defined Vocabulary Words
• factors, prime numbers, composite numbers, math word problem

Lesson Components
Total Learning Objects – 23
Instruction Pages – 7
Activity Pages - 6
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Length Estimation
Common Core Standards
• 4.OA.4, 6.NS.4

Learning Objectives
• to learn about finding common factors between numbers

Defined Vocabulary Words
• factors, greatest common factor

Lesson Components
Total Learning Objects – 27
Instruction Pages – 8
Activity Pages - 9
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Selection of Units
Common Core Standards
• 4.OA.4, 5.NF.5, 5.NF.5.a, 5.NF.5.b, 6.NS.4

Learning Objectives
• to learn how to find the least common multiple between numbers

Defined Vocabulary Words
• least common multiple, multiple, skip counting
Lesson Components
Total Learning Objects – 27
Instruction Pages - 9
Activity Pages - 8
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 5: Changing Measurement Units
Common Core Standards
• 4.OA.3, 5.NF.5, 5.NF.5.a, 5.NF.5.b

Learning Objectives
• to learn how to solve word problems with least common multiples

Defined Vocabulary Words
• least common multiple

Lesson Components
Total Learning Objects – 26
Instruction Pages - 7
Activity Pages - 9
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 2: Fraction Concepts

Lesson 1: Fractions and Mixed Numbers
Common Core Standards

Learning Objectives
• to learn about the concept of fractional numbers

Defined Vocabulary Words
• whole numbers, fractions, numerator, denominator, mixed number

Lesson Components
Total Learning Objects – 35
Instruction Pages - 16
Activity Pages - 9
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 60 total questions; 10 total per Lesson of which 3 are randomly selected to populate test
Lesson 2: Equivalent Fractions and Lowest Terms

Common Core Standards
- 3.NF.3, 3.NF.3.a, 3.NF.3.b, 3.NF.3.c, 4.NF.1, 4.NF.2, 4.NF.5

Learning Objectives
- to learn about equivalent fractions

Defined Vocabulary Words
- equivalent fractions, lowest terms

Lesson Components
Total Learning Objects – 32
Instruction Pages – 7
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 60 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Least Common Denominator

Common Core Standards
- 4.NF.2

Learning Objectives
- to learn about making equivalent fractions with common denominators

Defined Vocabulary Words
- like fractions, unlike fractions, equivalent fractions, common denominator, least common denominator (LCD), least common multiple (LCM)

Lesson Components
Total Learning Objects – 23
Instruction Pages – 18
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 60 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Comparison Symbols

Common Core Standards
- 3.NF.3.d, 4.NF.2

Learning Objectives
- to learn about ordering and comparing numbers using equal signs and greater than and less than symbols

Defined Vocabulary Words
• comparison symbols

**Lesson Components**
Total Learning Objects – 15
Instruction Pages - 10
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 60 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

**Lesson 5: Comparing Fractions**

**Common Core Standards**
• 3.NF.3.d, 4.NF.2

**Learning Objectives**
• to learn about ordering and comparing fractions using equal signs and greater than and less than symbols

**Defined Vocabulary Words**
• equivalent fractions, common denominator, least common denominator (LCD)

**Lesson Components**
Total Learning Objects – 18
Instruction Pages - 12
Activity Pages - 6
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

**Lesson 6: Mixed Numbers**

**Common Core Standards**
• 4.NF.2

**Learning Objectives**
• to learn how to convert mixed numbers to improper fractions

**Defined Vocabulary Words**
• improper fraction, mixed numbers

**Lesson Components**
Total Learning Objects – 14
Instruction Pages - 10
Activity Pages - 4
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test
Unit 3: Estimation of Fractions

Lesson 1: Benchmarks
Common Core Standards
• 4 OA.3

Learning Objectives
• to learn about benchmark fractions

Defined Vocabulary Words
• benchmarks

Lesson Components
Total Learning Objects – 19
Instruction Pages - 14
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Estimating and Benchmarks
Common Core Standards
• 4 OA.3

Learning Objectives
• to learn about using benchmark fractions to estimate a calculation with fractions

Defined Vocabulary Words
• benchmarks, estimate

Lesson Components
Total Learning Objects – 10
Instruction Pages – 6
Activity Pages - 4
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions - 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Adding and Subtracting Fractions with Benchmarks
Common Core Standards
• 4 OA.3, 5.NF.2

Learning Objectives
• to learn how to estimate the addition or subtraction of fractions using benchmark fractions
Defined Vocabulary Words
- benchmarks, estimate

Lesson Components
Total Learning Objects – 21
Instruction Pages – 14
Activity Pages - 7
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Multiplying and Dividing Fractions with Benchmarks
Common Core Standards
- 4 OA.3

Learning Objectives
- to learn how to estimate the multiplication or division of fractions using benchmark fractions

Defined Vocabulary Words
- benchmarks, estimate

Lesson Components
Total Learning Objects – 16
Instruction Pages - 8
Activity Pages - 8
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 4: Addition and Subtraction of Fractions

Lesson 1: Adding and Subtracting Like Fractions
Common Core Standards
- 4.NF.3, 4.NF.3.a, 4.NF.3.b, 4.NF.3.c

Learning Objectives
- to learn how to add fractions with common denominators

Defined Vocabulary Words
- like fractions

Lesson Components
Total Learning Objects – 19
Instruction Pages - 12
Activity Pages - 7
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Adding and Subtracting Unlike Fractions

Common Core Standards
- 4.NF.3, 4.NF.3.a, 4.NF.3.b, 4.NF.3.c, 5.NF.1, 5.NF.2

Learning Objectives
- to learn how to add fractions with different denominators

Defined Vocabulary Words
- unlike fractions

Lesson Components
Total Learning Objects – 19
Instruction Pages – 11
Activity Pages - 8
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Adding Mixed Numbers

Common Core Standards
- 4.NF.3, 4.NF.3.a, 4.NF.3.b, 4.NF.3.c, 5.NF.1, 5.NF.2

Learning Objectives
- to learn how to add mixed numbers by regrouping

Defined Vocabulary Words
- mixed number, regrouping

Lesson Components
Total Learning Objects – 18
Instruction Pages – 13
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Subtracting Mixed Numbers

Common Core Standards
- 4.NF.3, 4.NF.3.a, 4.NF.3.c, 5.NF.1, 5.NF.2

Learning Objectives
- to learn how to subtract mixed numbers
Defined Vocabulary Words
- mixed number, regrouping

Lesson Components
Total Learning Objects – 16
Instruction Pages - 11
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 5: Adding and Subtracting Fractions – Word Problems
Common Core Standards
- 4.NF.3.d, 4.MD.2, 4.MD.4, 5.NF.1, 5.NF.2, 7.EE.3, 7.NS.3

Learning Objectives
- to learn how to solve word problems with addition and subtraction of fractions

Defined Vocabulary Words
- mixed number, regrouping

Lesson Components
Total Learning Objects – 21
Instruction Pages - 12
Activity Pages - 9
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 5: Multiplication with Fractions

Lesson 1: Multiplying Whole Numbers by Fractions
Common Core Standards
- 4.NF.4.a, 4.NF.4.b, 4.NF.4.c, 5.NF.4, 5.NF.4.a, 5.NF.5, 5.NF.5.a, 4.NF.5.b, 7.NS.2.c

Learning Objectives
- to learn how to multiply whole numbers by fractions

Defined Vocabulary Words
- numerator, denominator

Lesson Components
Total Learning Objects – 19
Instruction Pages - 13
Activity Pages - 6
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

**Lesson 2: Multiplying Fractions by Fractions**

**Common Core Standards**
- 5.NF.4, 5.NF.4.a, 5.NF.5, 5.NF.5.a, 5.NF.5.b, 7.NS.2.c

**Learning Objectives**
- to learn how to multiply fractions by fractions

**Defined Vocabulary Words**
- numerator, denominator

**Lesson Components**
- Total Learning Objects – 14
- Instruction Pages – 8
- Activity Pages - 6
- Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
- Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

**Lesson 3: Multiplying Mixed Numbers by Fractions**

**Common Core Standards**
- 5.NF.4, 5.NF.4.a, 5.NF.5, 5.NF.5.a, 5.NF.5.b, 7.NS.2.c

**Learning Objectives**
- to learn how to multiply mixed numbers by fractions

**Defined Vocabulary Words**
- mixed number, improper fraction

**Lesson Components**
- Total Learning Objects – 15
- Instruction Pages – 6
- Activity Pages - 9
- Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
- Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

**Lesson 4: Multiplying by Fractions – Word Problems**

**Common Core Standards**
- 4.NF.4.c, 4.OA.2, 5.NF.6, 7.EE.3, 7.NS.3

**Learning Objectives**
- to learn how to solve word problems with multiplication of fractions
Defined Vocabulary Words
- mixed number, improper fraction

Lesson Components
Total Learning Objects – 15
Instruction Pages - 8
Activity Pages - 7
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 6: Division with Fractions

Lesson 1: Dividing Whole Numbers by Fractions
Common Core Standards
- 5.NF.7, 5.NF.7.a, 5.NF.7.b, 6.NS.1

Learning Objectives
- to learn about how to divide whole numbers by fractions

Defined Vocabulary Words
- divisor, reciprocal

Lesson Components
Total Learning Objects – 15
Instruction Pages - 10
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Dividing Fractions by Fractions
Common Core Standards
- 5.NF.7, 5.NF.7.a, 5.NF.7.b, 6.NS.1

Learning Objectives
- to learn how to divide fractions by fractions

Defined Vocabulary Words
- reciprocal

Lesson Components
Total Learning Objects – 13
Instruction Pages – 8
Activity Pages - 5
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Lesson 3: Dividing Mixed Numbers by Fractions

**Common Core Standards**
- 5.NF.7, 5.NF.7.a, 5.NF.7.b, 6.NS.1

**Learning Objectives**
- to learn how to divide mixed numbers by fractions

**Defined Vocabulary Words**
- mixed number, improper fractions

**Lesson Components**
- Total Learning Objects – 12
- Instruction Pages – 8
- Activity Pages - 4
- Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
- Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Dividing by Fractions – Word Problems

**Common Core Standards**
- 5.NF.7, 5.NF.7.b, 5.NF.7.c, 6.NS.1, 7.EE.3, 7.NS.3

**Learning Objectives**
- to learn how to solve word problems with division by fractions

**Defined Vocabulary Words**
- reciprocal

**Lesson Components**
- Total Learning Objects – 12
- Instruction Pages - 6
- Activity Pages - 6
- Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
- Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 7: Working With Fractions

Lesson 1: Performing Fraction Arithmetic Operations

**Common Core Standards**
- 5.OA.1
Learning Objectives
• to learn how to do mixed operations with fractions

Defined Vocabulary Words
• order of operations

Lesson Components
Total Learning Objects – 15
Instruction Pages - 11
Activity Pages - 4
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 20 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Solving Fraction Word Problems

Common Core Standards
• 5.NF.4.b, 7.EE.3, 7.NS.3

Learning Objectives
• to learn how to solve word problems using mixed operations with fractions

Defined Vocabulary Words
• order of operations

Lesson Components
Total Learning Objects – 27
Instruction Pages – 19
Activity Pages - 8
Quiz Questions – 10 total questions; 5 randomly selected to populate quiz
Test Questions – 20 total questions; 10 total per Lesson of which 3 are randomly selected to populate test