

Introduction	2
Unit 1: FACTORS AND MULTIPLES	
Lesson 1: Factors, Prime, and Composite Numbers	2
Lesson 2: Factors – Word Problems	2
Lesson 3: Greatest Common Factor	3
Lesson 4: Multiples and Least Common Multiple	3
Lesson 5: Least Common Multiple - Word Problems	4
Unit 2: FRACTION CONCEPTS	
Lesson 1: Fractions and Mixed Numbers	4
Lesson 2: Equivalent Fractions and Lowest Terms	4
Lesson 3: Least Common Denominator	5
Lesson 4: Comparison Symbols	5
Lesson 5: Comparing Fractions	6
Lesson 6: Mixed Numbers and Improper Fractions	6
Unit 3: ESTIMATION OF FRACTIONS	
Lesson 1: Benchmarks	6
Lesson 2: Estimating with Benchmarks	7
Lesson 3: Adding and Subtracting Fractions with Benchmarks	7
Lesson 4: Multiplying and Dividing Fractions with Benchmarks	8
Unit 4: ADDITION AND SUBTRACTION OF FRACTIONS	
Lesson 1: Adding and Subtracting Like Fractions	8
Lesson 2: Adding and Subtracting Unlike Fractions	8
Lesson 3: Adding Mixed Numbers	9
Lesson 4: Subtracting Mixed Numbers	9
Lesson 5: Adding and Subtracting Fractions – Word Problems	10
Unit 5: MULTIPLICATION WITH FRACTIONS	
Lesson 1: Multiplying Whole Numbers by Fractions	10
Lesson 2: Multiplying Fractions by Fractions	10
Lesson 3: Multiplying Mixed Numbers by Fractions	11
Lesson 4: Multiplying by Fractions – Word Problems	11
Unit 6: DIVISION WITH FRACTIONS	
Lesson 1: Dividing Whole Numbers by Fractions	12
Lesson 2: Dividing Fractions by Fractions	12
Lesson 3: Dividing Mixed Numbers	12
Lesson 4: Dividing with Fractions – Word Problems	13
Unit 7: WORKING WITH FRACTIONS	
Lesson 1: Performing Fraction Arithmetic Operations	13
Lesson 2: Solving Fraction Word Problems	14
APPENDIX A: Glossary - Contains definitions for 27 math terms used in the Fractions Course.	
APPENDIX B: Multiplication Table	

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 learning objectives align to US national curriculum standards for grades 3 to 6 including alignment to Common Core Math standards for grade 1: 1.G.3, grade 2: 2.G.3, grade 3: 3.G.2, 3.NF.1, 3.NF.2, 3.NF.2a, 3.NF.3, 3.NF.3a, 3.NF.3b, 3.NF.3c, 3.NF.3d, grade 4: 4.MD.2, 4.MD.4, 4.OA.2, 4.OA.3, 4.OA.4, 4.NF.1, 4.NF.2, 4.NF.3, 4.NF.3.a, 4.NF.3.b, 4.NF.3.c, 4.NF.3.d, 4.NF.4, 4.NF.4.a, 4.NF.4.b, 4.NF.4.c, 4.NF.5, grade 5: 5.NF.1, 5.NF.2, 5.NF.4, 5.NF.4.a, 5.NF.4.b, 5.NF.5, 5.NF.5.a, 5.NF.5.b, 5.NF.6, 5.NF.7, 5.NF.7.a, 5.NF.7.b, 5.NF.7.c, 5.OA.1, grade 6: 6.NS.1, 6.NS.4, and grade 7: 7.EE.3, 7.NS.2.c, and 7.NS.3.

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 instruction 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**

- 1.G.3, 2.G.3, 3.G.2, 3.NF.1, 3.NF.2, 3.NF.2.a, 3.NF.3, 3.NF.3.c, 4.NF.1, 4.NF.2, 4.NF.5

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

Test Questions – 40 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

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