Grade: 5 Unit: 2	Number and Operations - Fractions	9-10 Weeks

Progression	
4th Grade	Students learned to decompose fractions in multiple ways, add fractions with like denominators, and multiply fractions by whole numbers. Denominators were limited to: 2, 3, 4, 5, 6, 8, 10, 12, and 100.
5th Grade	**Students will learn to add and subtract fractions with unlike denominators, multiply fractions by fractions, and understand division with unit fractions, including word problems.**
6th Grade	Students will extend their work through division of fractions by fractions. Additionally, students will be introduced to ratios and proportional reasoning.

STUDENT LEARNING GOALS

Mathematics Standards *(Appendices A & B)*

CCSS.Math.Content.5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.

CCSS.Math.Content.5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.

CCSS.Math.Content.5.NF.B.3 Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

CCSS.Math.Content.5.NF.B.4.a Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.

CCSS.Math.Content.5.NF.B.4.b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

CCSS.Math.Content.5.NF.B.5.a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

CCSS.Math.Content.5.NF.B.5.b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

CCSS.Math.Content.5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

CCSS.Math.Content.5.NF.B.7.a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

CCSS.Math.Content.5.NF.B.7.b Interpret division of a whole number by a unit fraction, and compute such quotients.

CCSS.Math.Content.5.NF.B.7.c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

(Include MP1 and MP6 for all units for 2014-2015)

MP1: Make sense of problems and persevere in solving them.

MP6: Attend to Precision

Interdisciplinary Standards		Key Vocabulary	
Technology Integration *(Appendix C)*	**21st Century Skills** *(Appendix D)*	Area Benchmark Fraction Common Denominator Denominator Divide Equation Equivalent Fractions Factor	Fraction Multiply Numerator Product Quotient Remainder Unit Fraction
IS1. Information Strategies IS2. Information Use	TCS1. Use of Information TCS5. Problem Solving		

Enduring Understandings	Essential Questions
• I can add and subtract fractions with unlike denominators, for example: 3/5 + 1/4 = 17/20 • I can estimate sums or differences of fractions, for example: 2 3/8 + 5 1/2 is a little less than 8 • I can multiply fractions, for example: 2/3 X 5/6 = 10/18 or 5/9 • I can divide unit fractions, for example: 4 ÷ 1/7 = 28	• How do we add and subtract fractions with unlike denominators? • How do I estimate sums and differences of fractions using benchmarks? • How do I multiply fractions? • How do I divide with unit fractions?

Assessment Plan	
Summative Assessment(s)/Performance Based Assessments including 21st Century Learning RCC Interim Assessment, Student p. 160-161 RCC Performance Task, Student p. 162	**Formative and Diagnostic Assessment(s)** STAR Math Assessment (Fall) RCC Embedded Tasks and Assessments

Learning Plan Components	
Text	**Ready Common Core Mathematics Instruction 2**, 2014, Curriculum Associates, ISBN: 978-0-7609-8637-0
Print	**Ready Common Core Mathematics Teacher Resource Book 2**, 2014, Curriculum Associates, ISBN: 978-0-7609-8644-8
Electronic	www.teacher-toolbox.com www.stratfordmath.wikispaces.com www.xtramath.org www.gregtangmath.com - Satisfraction: Identify, Simplify, Compare, Calculate www.mathplayground.com www.mathchimp.com www.aaamath.com http://www.visualfractions.com/

Week 1	Students will: • Given two fractions with unlike denominators, rewrite the fractions with a common denominator. • Use visual fraction models to represent adding and subtracting fractions with unlike denominators. • Use equivalent fractions to add and subtract fractions with unlike denominators		
Lessons	**Tasks / Activities**	**Worksheets/HW**	**Technology**
RCC Lesson 10: Add and Subtract Fractions (TRB p.96-105)	Closest to 25 Adding Fractions Magic Squares Addition Fractions The-Difference-Between-2-Mixed-Numbers The-Sum-of-Two-Mixed-Numbers 5nf1_Assessment Task 1 5nf1_Assessment Task 2 Engage NY Module 3 Topic B Engage NY Module 3 Topic C GA – Equal to One Whole, More or Less? GA – Flip it Over	MI p. 86-95 PPS p.101-110 HW 1-6	RCC Teacher-Toolbox : Add and Subtract Fractions - Level E How to Add Fractions - Math Playground How to Compare Fractions Fractions Board Game
Week 2	Students will: • Solve word problems involving adding fractions with unlike denominators. • Solve word problems involving subtracting fractions with unlike denominators. • Estimate reasonableness of solutions to word problems involving adding and subtracting fractions		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 11: Add and Subtract Fractions in Word Problems (TRB p. 106-113)	Assessment Fraction Word Problem 1 Addition Assessment Fraction Word Problem 1 Subtraction 5nf2_Assessment Task 1 5nf2_Assessment Task 2 Engage NY Module 3 Topic D GA – Fraction Addition and Subtraction GA – Create Three	MI p. 96-103 PPS p. 111-118 HW 1-5 Addition and Subtraction Word Problems	RCC Teacher-Toolbox : Add and Subtract Fractions in Word Problems - Level E Mr. McGlover Add Fractions with Unlike Denominators
Week 3	Students will: • Use visual fraction models to represent a problem situation • Solve word problems involving division of whole numbers where the quotient is a fraction or • mixed number • Understand that the fraction a/b = a ÷ b		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 12: Fractions as Division (TRB p. 114-121)	Math Center Review 5nf3_Assessment Task 1 5nf3_Assessment Task 2 Engage NY Module 4 Topic B	MI p. 104-111 PPS p. 119-126 HW 1-2	RCC Teacher-Toolbox : Fractions as Division – Level E Identify Fractions on a Number Line Identify Fractions with Circles Identify Mixed Numbers on a Number Line Find Grampy

Week 4	Students will: • Understand what multiplication by a fraction means • Use visual fraction models to multiply a whole number by a fraction • Use visual fraction models to multiply a fraction by a fraction		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 13: Understand Products of Fractions (TRB p. 122-129)	5nf4_Assessment Task 1 5nf4_Assessment Task 2 Engage NY Module 4 Topic C Engage NY Module 4 Topic E GA – Sharing Candy Bars GA – Sharing Candy Bars Differently	MI p. 112-117 PPS p. 127-134 HW 1-5	RCC Teacher-Toolbox : Understand Products of Fractions - Level E Multiply Fractions with a Number Line Multiplicative Inverse Multiply Fractions Advanced

Week 5	Students will: • Find the area of rectangles with fractional side lengths using tiles • Find the area of rectangles with fractional side lengths by multiplying side lengths • Show that the number of squares that tile a rectangle of fractional side lengths is the same as the product of the side lengths		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 14: Multiply Fractions Using an Area Model (TRB p. 130-139)	5nf4_Assessment Task 3 5nf4_Assessment Task 7 Engage NY Module 5 Topic C GA – Reasoning with Fractions	MI p. 118-127 PPS p. 135-144 HW 1-3	RCC Teacher-Toolbox : Multiplying a Whole Number and a Fraction - Level E 5.NF.B.4 Video 5.NF.B.4 Video Hooda Math

Week 6	Students will: • Understand that when one of the factors in a multiplication problem increases or decreases, the product also increases or decreases • Understand that multiplying a number times a number greater than 1 results in product greater than the original number • Understand that multiplying a number times a number less than 1 results in a product less than the original number • Understand that multiplying a number less than 1 times another number less than 1 results in a product less than either fraction		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 15: Understand Multiplication as Scaling (TRB p. 140-147)	5nf5_Assessment Task 1 5nf5_Assessment Task 2 Engage NY Module 4 Topic F GA - Measuring for a Pillow	MI p. 128-133 PPS p. 145-152 HW 1-4	RCC Teacher-Toolbox : Understand Multiplication as Scaling - Level E 5.NF.B.5 Video

Week 7	Students will: • Represent real-world problems involving multiplication of fractions using visual models and equations • Solve real world problems involving multiplication of fractions using visual models and equations		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 16: Multiply Fractions in Word Problems (TRB p. 148-157)	Assessment - Mixed Number-x-Fraction Models Assessment - Whole-Number-x-Mixed-Number-Models 5nf6_Assessment Task 1 5nf6_Assessment Task 2 Engage NY Module 4 Topic D GA – Comparing MP3s	MI p. 134-143 PPS p. 153-162 HW 1-6 Multiplication Fraction Word Problems	RCC Teacher-Toolbox Multiplying a Whole Number and a Fraction - Level E Fractional Word Problems with Thinking Blocks
Week 8	Students will: • Identify situations that involve dividing a unit fraction by a whole number • Identify situations that involve dividing a whole number by a unit fraction • Use a visual fraction model to find the quotient of a unit fraction divided by a whole number or the quotient of a whole number divided by a unit fraction • Write a multiplication sentence to show that a division sentence involving a whole number and a fraction is true		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 17: Understand Division with Unit Fractions (TRB p. 158-165)	Divide-a-Unit-Fraction-by-a-Whole-Number Divide-a-Whole-Number-by-a-Unit-Fraction-1 Dividing-a-Whole-Number-by-a-Unit-Fraction-2 5nf7_Assessment Task 1 5nf7_Assessment Task 2 Engage NY Module 4 Topic G GA – Dividing with Unit Fractions	MI p. 144-149 PPS p. 163-170 HW 1-5	RCC Teacher-Toolbox : Understand Division with Unit Fractions - Level E Divide Fractions with a Line Divide Fractions with Circles Find Grammy Dividing Fractions Math Playground
Week 9	Students will: • Represent and solve real-world problems involving division of unit fractions by whole numbers using visual fraction models and equations • Represent and solve real-world problems involving division of whole numbers by unit fractions using visual fraction models and equation		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 18: Divide Unit Fractions in Word Problems (TRB p. 166-175)	5nf7_Assessment Task 4 5nf7_Assessment Task 5 Engage NY Module 4 Topic G GA - Adjusting Recipes	MI p. 150-159 PPS p. 171-180 HW 1-4 Division Fraction Word Problems	RCC Teacher-Toolbox : Divide Unit Fractions in Word Problems – Level E Computation Castle Mystery Picture Game Fractional Word Problems with Thinking Blocks

Week 10	Students will: • Demonstrate mastery of unit objectives

Summative Assessment	Performance Task
RCC Unit 2 Interim Assessment - Practice and Problem Solving Unit Games p. 181-192 -Student p. 160-161 -Scoring Guide (p. 177)	RCC Unit 2 Performance Task -Student p. 162 -Rubric (p. 179)