Grade: 6 Unit: 2	The Number System	10 Weeks
Progression		
5th Grade	Students added, subtracted, multiplied, and divided whole numbers and decimals to the hundredths place. They divided fractions by whole numbers and whole numbers by fractions. They multiplied fractions by fractions. They plotted coordinate pairs on the XY plane, including non-whole point values. All student work K-5 focused on positive numbers and zero.	
6th Grade	**Students will learn to: <u>understand</u> and apply division of fractions by fractions, extend their work with decimals to smaller decimal places, understand the meaning of negative numbers and absolute value, extend their understanding of the XY plane to include negative numbers. Students will extend their understanding of factors and multiples to include greatest common factor (numbers within 100) and least common multiple (numbers within 12).** ***By the end of this grade, all students are expected to be fluent with the long division method.****	
7th Grade	Students will extend their work by: adding, subtracting, multiplying, and dividing with rational numbers, including negatives.	

STUDENT LEARNING GOALS

Mathematics Standards *(Appendices A & B)*

6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, *e.g., by using visual fraction models and equations to represent the problem.*

6.NS.2: Fluently divide multi-digit numbers using the standard algorithm.

6.NS.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

6.NS.4: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

6.NS.5: Understand that positive and negative numbers are used together to describe quantities having opposite directions or values *(e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.*

6.NS.6: Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

A: Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, *e.g., -(-3) = 3, and that 0 is its own opposite.*
B: Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
C: Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

6.NS.7: Understand ordering and absolute value of rational numbers.

A: Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
B: Write, interpret, and explain statements of order for rational numbers in real-world contexts
C: Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.
D: Distinguish comparisons of absolute value from statements about order.

6.NS.8: Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

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

MP6: Attend to precision

Technology Integration *(Appendix C)*	**21st Century Skills** *(Appendix D)*
IS1. Information Strategies IS2. Information Use	TCS1. Use of Information TCS5. Problem Solving

Key Vocabulary

Absolute Value	**Integers**
Greatest Common Factor	**Negative Numbers**
Least Common Multiple	**Opposite Numbers**
Multiplicative Inverse	**Positive Numbers**
Quadrants	**Signed Numbers**
Reciprocal	

Enduring Understandings	Essential Questions
• I can explain how to divide fractions by fractions • I can divide multi-digit whole numbers • I can add and subtract multi-digit decimals • I can multiply and divide decimals • I can find common factors and common multiples • I can recognize real-world uses for negative numbers and locate them on a number line • I can plot points in 4 quadrants of the coordinate plane	• What does it mean to divide a fraction by another fraction? • Why is it important to be fluent with the four operations? • What are negative numbers and how are they used? • How can common factors and multiples make calculations simpler?

Assessment Plan	
Summative Assessment(s)/Performance Based Assessments including 21st Century Learning	**Formative and Diagnostic Assessment(s)**
RCC Interim Assessment, Student p.140-141 RCC Performance Task, Student p.142	STAR Math Assessment (Fall / Winter) RCC Embedded Tasks and Assessments

Learning Plan Components	
Text	**Ready Common Core Mathematics Instruction 6**, 2014, Curriculum Associates, ISBN: 978-0-7609-8641-7
Print	**Ready Common Core Mathematics Teacher Resource Book 6**, 2014, Curriculum Associates, ISBN: 978-0-7609-8648-6
Electronic	www.teacher-toolbox.com www.stratfordmath.wikispaces.com www.xtramath.org
Week 1	Students will: • Understand the meaning of division • Use a model to show division of fractions • Use an understanding of multiplication of fractions to explain division of fractions

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 6: Understand Division with Fractions	Visual (p.60) Performance (p.64) Differentiation (p.65)		Teacher-Toolbox (1 Tutorial, 2 Tools for Instruction)
Week 2	Students will: • Solve word problems using division of fractions • Write an equation to solve a problem using division of fractions • Write a story problem that will use division of fractions		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 7: Divide with Fractions	Hands-On (p.69) Visual (p.67, 68) Differentiation (p.77)	CC Practice (p.76)	Teacher-Toolbox (2 Tutorials, 2 Tools for Instruction)

Week 3	Students will: • Fluently divide multi-digit numbers using the standard algorithm (4-digit by 2-digit) • Understand how to set up a problem based on the context of the problem • Be able to interpret what a quotient represents • Recognize that what is known or not known (# of groups vs. size of groups) is based on the type of division needed		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 8: Divide Multi-Digit Numbers	Hands-On (p.79, 80, 87) Differentiation (p.87)	CC Practice (p.86)	Teacher-Toolbox (2 Tutorials, 1 Tool for Instruction)
Week 4	Students will: • Understand the role of place value in the operations of addition and subtraction • Identify when it is appropriate to use the standard algorithm • Estimate sums and differences before using the standard algorithm, and use these sums and differences to check reasonableness of answers • Add and subtract multi-digit decimals • Model the operations of addition and subtraction with manipulatives, diagrams, and story contexts for multi-digit decimals		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 9: Add and Subtract Decimals	Hands-On (p.94, 97) Visual (p.91) Differentiation (p.97)	CC Practice (p.96)	Teacher-Toolbox (2 Tutorials)
Week 5	Students will: • Fluently multiply and divide multi-digit decimals using the standard algorithm for each operation • Understand the role of place value in the operations of multiplication and division • Identify when it is appropriate to use the standard algorithm • Use estimation to approximate products and quotients to check for reasonableness of answers • Model the operations of multiplication and division with manipulatives, diagrams, and story contexts for multi-digit decimals		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 10: Multiply and Divide Decimals	Hands-On (p.102, 109) Visual (p.101) Differentiation (p.109)	CC Practice (p.108)	Teacher-Toolbox (2 Tutorials, 1 Tool for Instruction)
Week 6	Students will: • Understand that the greatest common factor and least common multiple are ways to discuss number relationships in multiplication and division • Use the distributive property to express a sum of two numbers with a common factor as a multiple of a sum of two whole numbers with no common factor • Find the GCF of two whole numbers less than or equal to 100 and the LCM of two whole numbers less than or equal to 12 • Model factorization of whole numbers 1-100		
Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 11: Common Factors and Multiples	Hands-On (p.115, 119) Visual (p.111) Differentiation (p.119)	CC Practice (p.119)	Teacher-Toolbox (2 Tutorials, 2 Tools for Instruction)

Week 7	Students will: • Relate positive and negative numbers to the real world • Understand integers and other rational numbers as points on a number line • Understand the sign of a number indicates its direction on the number line from zero • Recognize that the opposite of an opposite of a number is the number itself; 0 is its own opposite

Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 12: *Understand* Positive and Negative Numbers	Visual (p.122, 124) Performance (p. 126) Differentiation (p.127)		Teacher-Toolbox (1 Tutorial)

Week 8	Students will: • Write, interpret, and explain statements of order for rational numbers • Understand absolute value of a rational number as the distance from 0 on the number line • Interpret absolute value as the magnitude of the number from 0 in a real-world situation • Distinguish comparisons of absolute value from statements about order

Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 13: Absolute Value and Ordering of Numbers	Hands-On (p.134, 137) Differentiation (p.137)	CC Practice (p.136)	Teacher-Toolbox (1 Tutorial, 2 Tools for Instruction)

Week 9	Students will: • Identify the origin and four quadrants of the coordinate plane, and plot ordered pairs in all quadrants • Use the signs of coordinates to locate points in quadrants, and that coordinates of the same magnitude represent reflections across one or both axes • Use coordinates and absolute values to find distances between points • Solve real-world problems by graphing points in all quadrants

Lessons	**Tasks / Activities**	**Worksheets**	**Technology**
RCC Lesson 14: The Coordinate Plane	Hands-On (p.145, 149) Visual (p.144) Differentiation (p.149)	CC Practice (p.148)	Teacher-Toolbox (2 Tutorials, 2 Tools for Instruction)

Week 10	Students will: • Demonstrate mastery of the unit objectives

Summative Assessment	**Performance Task**
RCC Unit 1 Interim Assessment -Student p. 140-141 -Scoring Guide (p. 151)	RCC Unit 1 Performance Task -Student p. 142 -Rubric (p. 152-153)