Grade: 4 Unit: 2	Multiplication and Division 1	7 Weeks

Progression	
3rd Grade	Students learned to view multiplication as equal groupings, arrays, and repeated addition. They gained fluency with multiplication with 100, knowing products of 1-digit numbers from memory. Students used the relationship between multiplication and division to solve word problems within 100.
4th Grade	**Students will extend their understanding of multiplication to include factors, multiples, and prime numbers. They will also model and solve multi-step word problems. In Unit 3, students will use place value strategies to multiply and divide outside of 100. <u>Students are not required to master the standard algorithms for multiplication or division in 4th grade.</u>**
5th Grade	Students will extend their understanding of multiplication and division to include decimal numbers. They will be expected to be fluent with the standard algorithm for multiplication by the end of 5th grade.

STUDENT LEARNING GOALS

Mathematics Standards *(Appendices A & B)*

4.OA.1: Interpret a multiplication equation as a comparison, *e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.* Represent verbal statements of multiplicative comparisons as multiplication equations.

4.OA.2: Multiply or divide to solve word problems involving multiplicative comparison, *e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.*

4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

4.OA.4: Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

4.OA.5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

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)*	Composite Number Division Equation Expression Factor Pair Factors Multiple Multiplication	Pattern Prime Number Product Reasonable Remainder Rule Symbol Unknown
IS1. Information Strategies IS2. Information Use	TCS1. Use of Information TCS5. Problem Solving		

Enduring Understandings	Essential Questions
- I can multiply and divide to compare numbers - I can identify factor pairs for a number - I can identify multiples of a number - I can tell if a number is prime or composite - I can generate and describe patterns - I can model and solve multi-step word problems using equations	- How are numbers related through multiplication and division? - What do the factors of a number tell me about that number? - How can I use equations to solve multi-step problems?

Assessment Plan	
Summative Assessment(s)/Performance Based Assessments including 21st Century Learning RCC Interim Assessment, Student p.92-93 RCC Performance Task, Student p. 94	**Formative and Diagnostic Assessment(s)** STAR Math Assessment (Fall) RCC Embedded Tasks and Assessments

Learning Plan Components	
Text	**Ready Common Core Mathematics Instruction 4**, 2014, Curriculum Associates, ISBN: 978-0-7609-8639-4
Print	**Ready Common Core Mathematics Teacher Resource Book 4**, 2014, Curriculum Associates, ISBN: 978-0-7609-8646-2
Electronic	www.teacher-toolbox.com www.stratfordmath.wikispaces.com www.xtramath.org
Week 1	Students will: - Find the key words in a word problem that indicate a multiplicative comparison - Write an equation to represent a multiplicative comparison indicated by a word problem

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 5: *Understand* Multiplication	Hands-On (p.43) Formative (p. 48) Differentiated (p.49)	*Interpreting Multiplication SF 3-1	

Week 2	Students will: • Use drawings and symbols to represent a multiplicative comparison problem • Use an equation to solve for the unknown in a multiplicative comparison problem		

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 6: Multiplication and Division in Word Problems	Visual (p.52, 56) Hands-On (p.59) Differentiated (p.59)	CC Practice (p.58)	Teacher-Toolbox (2 Tutorials, 3 Tools for Instruction)

Week 3	Students will: • Use understanding of multiplication facts to list all of the factors of a given whole number • Use understanding of multiplication and division facts to determine if a whole number is a multiple of another number • Apply understanding of multiples and factors to solving problems		

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 7: Multiples and Factors	Visual (p.64, 67) Hands-On (p.71) Differentiated (p.71) GA Factor Findings GA Investigating Prime and Composite Numbers	CC Practice (p.70) *Determining Factors and Multiples	Teacher-Toolbox (2 Tutorials, 3 Tools for Instruction)

Week 4	Students will: • Use rules to generate or extend a number pattern • Use manipulatives or drawings to show a shape pattern • Analyze and describe patterns in numbers and shapes		

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 8: Number and Shape Patterns	Hands-On (p.77, 81) Formative (p.39) Differentiated (p.81) GA Earth Day Project	CC Practice (p. 80) *Creating Patterns *Identifying Pattern Attributes SF 3-2	Teacher-Toolbox (2 Tutorials)

Week 5	Students will: • Use equations with a letter standing for the unknown to represent multi-step word problems		

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 9: Model Multi-Step Problems	Hands-On (p.89) Differentiated (p.89)	CC Practice (p.88)	Teacher-Toolbox (1 Tutorial, 2 Tools for Instruction)

Week 6	Students will: • Solve multi-step word problems • Interpret the remainder in a division word problem • Use estimation strategies to see if an answer is reasonable		

Lessons	Tasks / Activities	Worksheets	Technology
RCC Lesson 10: Solve Multi-Step Problems	Hands-On (p.91, 93, 97) Differentiated (p.97) GA School Newspaper	CC Practice (p.96) *Two Step Problems (w/ and w/o answer bank) *Solving Word Problems (w/ and w/o answer bank) SF 3-11	Teacher-Toolbox (2 Tutorials, 2 Tools for Instruction)

Week 7	Students will: • Demonstrate mastery of objectives

Summative Assessment	**Performance Task**
RCC Unit 2 Interim Assessment -Student p. 92-93 -Scoring Guide (p. 99)	RCC Unit 1 Performance Task -Student p. 94 -Rubric (p. 100-101)