Marietta City Schools
District Unit Planner

Fifth Grade

Unit Name	***Unit 3:*** *Building Conceptual Understanding of Multiplication and Division with Whole Numbers*	**Unit Duration (Days)**	*3-4 Weeks*

GA K-12 Standards

In this unit, students build on their conceptual understanding of, and strategies for multiplication and division from previous grades and units to multiply and divide multi digit whole numbers using place value understanding, properties of operations, and the relationship between multiplication and division. Previous experience with area diagrams in fourth grade and in the previous unit will make the partial products diagram more accessible in this unit. Students will use strategies to multiply multi to four digit whole numbers and partial quotient algorithms to divide whole numbers up digits by two digits. Students will also have the opportunity to ask and answer statistical questions using the statistical reasoning framework which includes collecting, organizing, and interpreting data.

5.NR.2: **Multiply and divide multi-digit whole numbers to solve real-life, mathematical problems**.

- **5.NR.2.1** Fluently multiply multi-digit (up to 3-digit by 2-digit) whole numbers to solve real-life problems.
- **5.NR.2.2** Fluently divide multi-digit whole numbers (up to 4- digit dividends and 2-digit divisors no greater than 25) to solve real-life problems

5.NR.5: **Write, interpret, and evaluate numerical expressions within real-life problems.**

- **5.NR.5.1** Write, interpret, and evaluate simple numerical expressions involving whole numbers with or without grouping symbols to represent real-life situations.
  * This is not PEMDAS. Students should understand the purpose behind grouping with parentheses.

5.MDR.7: **Solve problems involving customary measurements, metric measurements, and time and analyze graphical displays of data to answer relevant questions.**

- **5.MDR.7.2** Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.

5.MP.1-8 Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals. *(It is important to note that MPs 1, 3 and 6 should support the learning in every lesson.)*

- **5.MP.1** Make sense of problems and persevere in solving them.
- **5.MP.2** Reason abstractly and quantitatively.
- **5.MP.3** Construct viable arguments and critique the reasoning of others.
- **5.MP.4** Model with mathematics.
- **5.MP.5** Use appropriate tools strategically.
- **5.MP.6** Attend to precision.
- **5.MP.7** Look for and make use of structure.
- **5.MP.8** Look for and express regularity in repeated reasoning.

The Framework for Statistical Reasoning and the Mathematical Modeling Framework should be taught throughout the units. The K-12 Mathematical Practices should be evidenced at some point throughout each unit depending on the tasks that are explored. It is important to note that MPs 1, 3 and 6 should support the learning in every lesson.

Essential Questions/ I CAN statements

- (5.NR.2.1) How can you multiply whole numbers using part-whole thinking?
- (5.NR.2.1) How can you apply place value understanding to multiply 2-digit and 3-digit whole numbers?
- (5.NR.2.1) How can you represent part-whole thinking using visual diagrams when multiplying 2-digit and 3-digit whole numbers?
- (5.NR.2.2) I can divide 4 digit dividends by 2 digit divisors up to 25.
- (5.NR.2.1) I can solve real world problems involving multiplication.
- (5.NR.2.2) I can solve real world problems involving division.
- (5.NR.5.1) I can recognize the purpose for grouping symbols.
- (5.NR.2.1) I can multiply 3 digit by 2 digit whole numbers.

Tier II Vocabulary Words- High Frequency Multiple Meaning	**Tier III Vocabulary Words-** Subject/ Content Related Words
algorithm, order of operations, product, expression, properties of operations, remainder	distributive property, partition division (or fair-sharing), dividend, partial product, divisor, partial quotient, equation, measurement division (or repeated subtraction), quotient, multiplicand, multiplier K-12 Mathematics Glossary

Assessments

Formative Assessment(s):

- NR 2.1 Mini
- NR 2.2 Mini
- MCS K-5 Activity & Assessment Collection

Savvas Topic Performance Task 5.NR.2 (TE p 123-124)
Students will use a real-life scenario involving the cost of baseball uniforms to multiply multi-digit numbers.

***It is the responsibility of each schools' grade level PLC to identify appropriate instructional lessons and resources, based on data and student needs, using the suggested pacing duration**. The following learning tasks have been vetted to align to the standards included in this unit. The GA Dept. of Education strongly recommends that any additional tasks, resources, and/or assessments used for instruction should be vetted using the Quality Assurance Rubric, to ensure alignment to the state standards.*

Objective or Content	Learning Experiences	Differentiation Considerations

	GA DOE Learning Plans	MCS Curriculum Resources	GADOE Intervention Tasks
5.NR.2.1 Fluently multiply multi-digit (up to 3-digit by 2-digit) whole numbers to solve real-life problems **5.MDR.7.2** Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.	**Making Sense of Multiplication, Part 1** *In this learning plan, students examine different ways to write the product of a three-digit number and a two-digit number as a sum of vertical partial products while making connections to the area model diagram and the written strategy. (Suggested Timeframe: 1-2 days)* ● Teacher Guidance ● Student Reproducibles **Making Sense of Multiplication, Part 2** *In this learning plan, students examine different ways to write the product of a three-digit number and a two-digit number as a sum of vertical partial products while making connections to the area model diagram and the written strategy. (Suggested Timeframe: 2-3 days)* ● Teacher Guidance ● Student Reproducibles **Area Models with Multiplication** *In this learning plan, students will extend their knowledge of multiplication strategies by using part-whole thinking to solve real-life two-digit and three-digit whole number multiplication problems.* ● Teacher Guidance ● Student Reproducibles ● Blackline Masters	**SAVVAS Topic 3: Fluently Multiply Multi-Digit Whole Numbers** *Students will extend their understanding of multi- digit multiplication with whole numbers.* ● Lesson 3-2: Estimate Products (For Prerequisite Skills) ● Lesson 3-3: Multiply by 1-Digit Numbers ● Lesson 3-4: 2-Digit by 2-Digit Numbers ● Lesson 3-6: Multiply Whole Numbers with Zeros ● Lesson 3-7: Practice Multiplying Multi-Digit Numbers ● Lesson 3-8: Solve Word Problems Using Multiplication ● Lesson 3-9 Problem Solving Critique Reasoning (Extension) **MIP Module 3: Multiplying with Multidigit Whole Numbers** *The key idea focused on in this module is understanding and fluently using a standard algorithm for multiplying multi-digit whole numbers.* ● Review Multiplication Strategies, p. 69 ● Introducing 3 digit by 2 digit Multiplication, p. 70 ● Bridging to the Standard Algorithm, p. 74 ● Standard Algorithm with a 2 digit Multiplier, p. 76	A Little Bit More/A Little Bit LessDerive multiplication facts from 2, 5- and 10-times tables. Animal Arrays Solve multiplication problems using repeated addition.
5.NR.2.2 Fluently divide multi-digit whole numbers (up to 4- digit dividends and 2- digit divisors no greater than 25) to solve real-life problems.	**Partial Quotient Expressions** *In this learning plan, students write equivalent division expressions that are more helpful to find the value. Students use number sense to solve some expressions mentally and learn to choose their own ways of decomposing dividends to determine quotients. (Suggested Timeframe: 1-2 days)* ● Teacher Guidance ● Student Reproducibles **Making Sense of Division**	**SAVVAS Topic 5: Use Models and Strategies to Divide Whole Numbers** *Students will extend their understanding of multi- digit division with whole numbers.* ● Lesson 5-1: Use Patterns and Mental Math to Divide ● Lesson 5-2: Estimate Quotients with 2-Digit Divisors (prerequisite) ● Lesson 5-3: Use Models and Properties to Divide with 2-Digit Divisors ● Lesson 5-4: Use Partial Quotients to Divide	Cross Products Solve multiplication and division problems by using tidy numbers. Multiplication Smorgasbord Solve multiplication and division problems by using place value strategies.

5.MDR.7.2 Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.	*In this learning plan, students will explore the use of the partial quotient strategy to solve multi-digit division problems. (Suggested Timeframe: 1-2 days)* ● Teacher Guidance ● Student Reproducibles **Is It All the Same?** *In this learning plan, students analyze story problems that demonstrate three different division situations. (Suggested Timeframe: 1-2 days)* ● Teacher Guidance ● Student Reproducibles **Area Model with Division** *In this learning plan, students will apply part-whole thinking to solve 3-digit by 2-digit whole number division problems. Students will write, evaluate, and interpret mathematical expressions with and without using symbols. (Suggested Timeframe: 1-2 Days)* ● Teacher Guidance ● Student Reproducibles ● Blackline Masters	● Lesson 5-5: Use Sharing to Divide: 2-Digit Divisors ● Lesson 5-6: Use Sharing to Divide: Greater Dividends ● Lesson 5-7: Choose a Strategy to Divide ● Lesson 5-8: Problem Solving Make Sense and Persevere **MIP Module 4: Dividing with Multi-digit Whole Numbers** *The key ideas focused on in this module include, exploring whole number division with up to 4-digit dividends and 2-digit divisors using place value strategies and an understanding of inverse operations, modeling and explaining the division process, and understanding remainders.* ● Dividing with Up To 2-Digit Divisors, p. 88 ● Division with 2-Digit Divisors Using the Area Model, p. 91 ● Partial Quotients with 2-Digit Divisors, p. 92	Cut and PasteSolve multiplication and division problems by using proportional adjustment
5.NR.5.1 Write, interpret, and evaluate simple numerical expressions involving whole numbers with or without grouping symbols to represent real-life situations. **5.MDR.7.2** Ask questions and answer them based on gathered information, observations, and appropriate graphical	**The Grass is Always Greener** *In this learning plan, students will solve a real-world scenario in which they have to decide which company's sod is the better buy for a daycare. Students bring back their understanding of the area to reason through the situation and justify their thinking. (Suggested Timeframe: 1-2 days)* ● Teacher Guidance ● Student Reproducibles **Class Celebration** *In this learning plan, students will write and evaluate expressions using order of operations and multiply and divide multi-digit numbers. (Suggested Timeframe: 1-2 days)* ● Teacher Guidance ● Student Reproducibles	**These standards are more integrated than explicitly taught. These lessons can be used as pre-requisite skills if needed.* **SAVVAS Topic 13: Write and Interpret Numerical Expressions** *Students will write numerical expressions for multiplication and division problems.* ● Lesson 13-2: focus on multiplication and division) **MIP Module 2: Writing and Interpreting Numerical Expressions** *The key ideas focused on in this module include, interpreting math expressions, writing expressions for mathematical situations, simplifying expressions using order of operations, and comparing two expressions without evaluating them.* ● Expressions From Phrases, p. 53	Don't Subtract- Add! Solve subtraction problems by using addition (for help with division). Fun With Fives Derive multiplication facts from 2, 5- and 10-times tables.

displays to solve problems relevant to everyday life.			

Content Resources	
GA DOE Links: ● GA DOE Grade 5 Unit 3 *Building Conceptual Understanding of Multiplication and Division with Whole Numbers* ● GA DOE Grade Comprehensive Grade Level Overview ● GA DOE Grade Level Guide for Effective Mathematics Instruction ● K-5 Georgia Mathematics Strategies Toolkit ● Mathematics to Support English Language Learners ● Georgia Numeracy Project ● K-12 Mathematical Modeling Framework ● K-12 Statistical Reasoning Framework ● K-12 Mathematical Practices	**Additional Resources:** ● Elmer's Multiplication Error ● Family Football Night ● Double it Half it ● Multiply and Divide Multi-Digit Numbers ● Multiplication and Division Word Problems ● Multiplication and Division Word Problems