Sherman School
Unit Overview

Subject: Mathematics **Grade: 4**
Unit: Multiplication & Division, Data & Fractions **Pacing: 20 days/March**

Essential Question(s): What is the relationship between multiplication and division and how can we use this to help solve various problems?

Big Idea(s):

- Every ratio can be represented by an infinite set of different but equivalent ratios.
- Some real-world problems involving joining equal groups, separating equal groups, comparison, or combinations can be solved using multiplication; others can be solved using division.

CCSS Priority Standards
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.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.) 4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)
4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. 4.MD.4: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

4.MP.1 Make sense of problems and persevere in solving them.

Skills **(What Students Need to Be Able To Do)**
● Solve multi-step story problems involving only whole numbers, using addition, multiplication and division. ● Multiply a 2 or 3-digit whole number by a 1-digit whole number using strategies based on place value and the properties of operations. ● Multiply two 2-digit numbers using strategies based on place value and the properties of operations. ● Use equations or rectangular arrays to explain strategies for multiplying with multi-digit numbers. ● Divide a 2- or 3-digit number by a 1-digit number, using strategies based on place value, the properties of operations, or the relationship between multiplication and division. ● Use equations or rectangular arrays to explain strategies for dividing a multi-digit number by a 1-digit number. ● Apply the area and perimeter formulas for a rectangle to solve a problem. ● Make a line plot to display a data set comprised of measurements taken in halves, fourths, and eighths of a unit.

Research Based Effective Teaching Strategies
Summarizing and note taking
Homework and practice
Non-linguistic representations
Cooperative learning
Productive struggle
Setting objectives and providing feedback
Questions, cues, and advance organizers
Explicit instruction

Assessments:
M1, S1 Unit 6 Pre-Assessment

M1, S4 Multiplication Problem Strings Work Sample
M2, S5 Area & Perimeter Checkpoint
M4, S3 Unit 6 Post-Assessment
6A-6D Workplace Observational Assessments, Bridges

Instructional Resources:
Unit 6 Multiplication & Division, Data & Fractions, Bridges; The Math Learning Center
March Number Corner; The Math Learning Center
The Math Forum
Teacher Made Resources