



Grade 4 - Unit 6 - Refining Multiplication and Division Strategies

Unit Focus

The instruction in Unit 6 picks up where Unit 2 left off, further developing the skills and concepts associated with multi-digit multiplication and division. Students discover that the models they have been using and strategies they have developed for multi-digit multiplication work equally well for division. They learn to divide numbers into the thousands by 1-digit divisors, using strategies based on the relationship between multiplication and division, as well as on place value, and the properties of operations.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer		
Standards <ul style="list-style-type: none">Common Core<ul style="list-style-type: none"><i>Mathematics: 4</i><ul style="list-style-type: none">Use the four operations with whole numbers to solve problems.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. (<i>CCSS.MATH.CONTENT.4.OA.A.3</i>)Use place value understanding and properties of operations to perform multi-digit arithmetic.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. (<i>CCSS.MATH.CONTENT.4.NBT.B.5</i>)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. (<i>CCSS.MATH.CONTENT.4.NBT.B.6</i>)Solve problems involving measurement and conversion of measurements.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. (<i>CCSS.MATH.CONTENT.4.MD.A.3</i>)Mathematical Practices<ul style="list-style-type: none">Construct viable arguments and critique the reasoning of others. (<i>CCSS.MATH.MP.3</i>)Model with mathematics. (<i>CCSS.MATH.MP.4</i>) Madison Public Schools Profile of a Graduate <p>Analyzing: Examining information/data/evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences. (<i>POG.1.2</i>)</p>	<i>Students will be able to independently use their learning to...</i> T1 Construct viable arguments using clear and appropriate mathematical language and critique the reasoning of others. T2 Apply models to solve problems.		
	Meaning		
	Understanding(s)	Essential Question(s)	
	<i>Students will understand that...</i> U1 Mathematicians construct viable arguments to explain problems, solutions, and mathematical representations. U2 Mathematicians create or use models to generalize, represent, and solve problems.	<i>Students will keep considering...</i> Q1 Have I sufficiently supported my answer and shown my work? Q2 How can I strengthen my argument and reasoning? Q3 What model best represents this problem?	
	Acquisition of Knowledge and Skill		
Knowledge	Skill(s)		
<i>Students will know...</i> K1 strategies for multiplication also work for division. K2 the dividend is the area and the divisor and quotient are the dimensions of an array or area model. K3 strategies for multiplying and dividing including: five is half of ten, doubling and halving strategies, partial products, partial quotients, over strategies. K4 Vocabulary: product, factor, dividend, divisor, quotient, partial product, partial quotient	<i>Students will be skilled at...</i> S1 using arrays and ratio tables to model and solve multi-digit multiplication and division problems S2 using a variety of strategies to find a product/quotient S3 using what they know about multiplication to solve division problems S4 interpreting remainders		