Unit 4 - Chapter 4: Divide by 1-Digit Numbers

Content Area: **Mathematics**
Course(s): **Math 4**
Time Period: **November**
Length: **3 weeks**
Status: **Published**

Unit Summary

In this unit, we will use the four operations with whole numbers to solve problems involving multiplicative comparison, drawing and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. Students will solve multi step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. They will represent these problems using equations with a letter standing for the unknown quantity. Students will learn to assess the reasonableness of answers using mental computation and estimation strategies including rounding. Also, we will use place value understanding and properties of operations to perform multi-digit arithmetic by finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors. Student will use strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. In addition, they will learn to illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Standards

MA.4.OA.A.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.
MA.4.OA.A.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.
MA.4.NBT.B.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.
TECH.8.1.5	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

Student Learning Objectives

Students will learn to:

- use multiples of estimate quotients.
- use models to divide whole numbers that do not divide evenly.
- use remainders to solve division problems.
- divide tens, hundreds, and thousands by whole numbers to 10.
- use compatible numbers to estimate quotients.
- use the Distributive Property to find quotients.
- use repeated subtraction and multiples to find quotients.
- use partial quotients to divide.
- use base-ten blocks to model division with regrouping.

- use place value to determine where to place the first digit of a quotient.
- divide multi-digit numbers by 1-digit divisors.
- solve problems by using the strategy *draw a diagram.*

Essential Questions

- How can you use multiples to estimate quotients?
- How can you use models to divide whole numbers that do not divide evenly?
- How can you use remainders in division problems?
- How can you divide numbers through thousands by whole numbers to 10?
- How can you use compatible numbers to estimate quotients?
- How can you use the Distributive Property to find quotients?
- How can you use repeated subtraction and multiples to find quotients?
- How can you use partial quotients to divide by 1-digit divisors?
- How can you use base-ten blocks to model division with regrouping?
- How can you use place value to know where to place the first digit in the quotient?
- How can you divide mutlidigit numbers and check your answers?
- How can you use th strategy *draw a diagram* to solve multistep division problems?

Enduring Understandings

Students understand that:

- methods of estimating quotients is helpful when dividing by 1-digit divisors and checking the reasonableness of answers.
- sometimes when dividing, there is a leftover amount. It is call a remainder because it is the amount that remains after the division into equal groups is completed.
- they need to interpret the problem in order to determine what answer makes the most sense.
- understanding of place value and basic facts is helpful when dividing numbers through thousands by whole numbers to 10.
- an estimate may be too large or too small.
- division can be completed by breaking the dividend into two numbers and then dividing each number by the divisor to get two quotients and the adding the two quotients together. This is the Distributive Property.
- counters can be stacked to show the groups, and remainders will clearly be seen.
- dividing using a number line shows the actual process of dividing.
- when solving with the partial quotients strategy, any multiple of the divisor can be used as long as it is less than the dividend.
- when they become familiar with concrete models they are more likely to understand concepts in such a way that real models are not longer needed.
- when using the division algorithm, a given place value may not be evenly share and regrouping may be necessary.
- reasoning skills are needed to make predictions, solve problems, and check their solutions.
- drawing bar models can help visualize information given, it makes it easier to understand relationships and decide which operations to use.

Application

Students will be able to independently use their learning to:

- use multiples to estimate quotients.

- use models to divide whole numbers that do not divide evenly.
- use remainders to solve division problems.
- divide tens, hundreds, and thousands by whole numbers to 10.
- use compatible numbers to estimate quotients.
- use the Distributive Property to find quotients.
- use place value to determine where to place the first digit of a quotient.
- divide multi-digit numbers by 1-digit divisors.
- solve problems by using different strategies.

Skills

Students will be skilled at:

- using multiples of estimate quotients.
- using models to divide whole numbers that do not divide evenly.
- using remainders to solve division problems.
- dividing tens, hundreds, and thousands by whole numbers to 10.
- using compatible numbers to estimate quotients.
- using the Distributive Property to find quotients.
- using place value to determine where to place the first digit of a quotient.
- dividing multi-digit numbers by 1-digit divisors.
- solving problems by using different strategies.