

Unit Title: Divide by a One Digit Number

Grade Level: 4

Subject Area: *mathematics*

Duration/Length/Number of class periods:

Description: Students will use their knowledge of place value and multiplication to divide a multi-digit number by a single-digit number.

Established Goals:

Common Core Standards:

CCSS.MATH.CONTENT.4.NBT.A.1

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.*

CCSS.MATH.CONTENT.4.NBT.A.3

Use place value understanding to round multi-digit whole numbers to any place.

CCSS.MATH.CONTENT.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.

MN State Standards:

4.1.6 6. Use the relationship between multiplication and division to divide whole numbers to the thousands place by one-digit divisors. Divide two-digit divisors that are multiples of 10 by whole numbers to the thousands place. Strategies may include mental strategies, partial quotients, the commutative, associative and distributive properties and repeated subtraction. (MP7, MP8)

4.1.7 7. Write numerical equations to represent and solve multiplication and division word problems, including problems in which remainders must be interpreted. (MP4) {CC1, CC2}

4.2.6 6. Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one-digit divisor. Strategies may include mental strategies, partial quotients and the commutative, associative and distributive properties. (MP1)

What **Enduring Understandings** are desired?

Estimation and knowledge of place value are useful tools for checking for reasonable answers when dividing multi-digit numbers by single-digit numbers.

Multi-digit numbers can be decomposed into equal groups of numbers with remaining values.

What **Essential Questions** will be considered?

How does division affect numbers?

How can one interpret a remainder in daily activities?

Students will know / be able to: Divide a multi-digit number by a single-digit number

Description: This unit scaffolds students to be able to complete long division math problems up to a three digit number divided by a single-digit number. Students will use knowledge from previous units on place value, rounding, and multiplication to apply to the step-by-step procedure of long division. Students will use base ten blocks to demonstrate grouping, regrouping, and remainders.	For mat ive	S u m m a t i v e	Intr odu ctor y Acti vity	Lea rnin g Acti vity	Stu den t Tec hno logy Use d	Teac her Tech nolo gy Used	ISTE Stan dard s
<u>Divide Multiples of 10, 100, & 1,000</u> Introductory Activity: Students will watch and complete interactive activities from a nearpod lesson on fact families to review prior lessons/ units on the relationship between multiplication and division. Link: https://nearpod.com/t/math/5th/fact-family-multiplication-division-L84995213 Learning Activity: Students will follow along in their My Math workbook for lesson one. The teacher will lead students in guided practice for completing division problems with multiples of ten, 100, and 1,000. Once the majority of students are confident in their ability to finish division problems using the multiple of tens pattern, students will complete their independent practice pages in their workbook. Students who need additional support will work in a small group with a teacher.	x	x	x	x	x	x	6c, 1c,

Formative Assessment: The nearpod lesson in the beginning of class will act as an assessment on the student's ability to use fact families when solving one digit by one digit division problems. The video includes questions throughout to check for student understanding and the teacher is able to see all student responses. Summative Assessment: Students will complete an Exit Ticket at the end of the lesson. The problem will be the following: Complete each set of patterns: $45 \div 5 =$ $450 \div 5 =$ $4,500 \div 5 =$ $45,000 \div 5 =$ In addition to the Exit Ticket, students will complete a homework assignment for lesson one in their My Math Workbook. Student Technology Used: Students will use their chromebooks for the Nearpod activity in the beginning of the lesson. Teacher Technology Used: The teacher will use their chromebook and a projector/ smart board for projecting the Nearpod activity and the guided lesson from My Math.							
<u>Estimate Quotients</u> Introductory Activity: Students will play a Blooket on basic rounding. Link: https://dashboard.blooket.com/set/620feafa14c9b83af7e620b8 Learning Activity: Students will follow along in their My Math workbooks as the teacher introduces the topic - estimating quotients. Students will round three digit numbers to a compatible number for dividing by a one digit number. For example, in $345 \div 7$, 345 would round up to 350, making it easier to divide by 7. The whole class will work together in guided practice, and once students feel confident to work independently they will complete workbook pages 337 and 338. Students who need additional support will work in a small group with a teacher.	x	x	x	x	x	x	5c

Formative Assessment: The teacher will ask students on a scale 1-5 how confident they are in working independently on this lesson at the end of guided practice. Students who are at a five are encouraged to move on independently, and if there are a large number of students in between the teacher will continue with guided practice. Summative Assessment: Students will complete an Exit Ticket with two questions- one to review the previous day's lesson, one to check for understanding on estimating quotients. Complete each set of patterns: $63 \div 7 =$ $630 \div 7 =$ $6,300 \div 7 =$ $63,000 \div 7 =$ Estimate the quotient by rounding 162 to the nearest 10 $162 \div 2 =$ In addition to the Exit Ticket questions, students will be assigned a homework page from their book to be completed by the following day. Student Technology Used: Students will use their chromebooks for the Blooket activity in the beginning of the lesson. Teacher Technology Used: The teacher will use their chromebook and a projector/ smart board for projecting the Blooket activity and the guided lesson from My Math.							
<u>Hands on- Use Place Value to Divide</u> Introductory Activity: Students will use an online, interactive math manipulatives to practice using base ten blocks for division. Link to online manipulatives: https://docs.google.com/presentation/d/1jadlg9nk64U9gWtj4OEbd-AEzVtCXQeH-y44LPXIF3M/present?slide=id.g27b693dca5_0_261	x	x	x	x	x	x	5b, 1c

Using the base ten blocks, students will present a multi-digit number like 39 and divide the blocks into 3 equal groups. Learning Activity: Students will practice using models with base ten blocks to group and regroup multi-digit numbers that are divided by single digit numbers. Base ten blocks can be drawn, used physically, or used virtually via the link above. The whole class will work on guided practice together and when students are confident in working independently they will complete pages 134-135. Students who need additional support will work in a small group with a teacher. Formative Assessment: As students transition from guided practice to independent practice, the teacher will call on students to come up to the board with a partner to complete a problem. Summative Assessment: At the end of class, students will complete an online quiz provided by McGraw Hill My Math accounts. This will be a “Check My Progress” to review students' knowledge in lessons 1-3. Student Technology Used: Students will use their chromebooks for the virtual manipulatives activity in the beginning of the lesson and for the Check My Progress at the end of class. Teacher Technology Used: The teacher will use their chromebook and a projector/ smart board for projecting the guided lesson from My Math.							
<u>Divide with Remainders</u> Introductory Activity: Students will be divided into small groups and asked to solve division problems using base ten block drawings as models for regrouping on a whiteboard. Students will compete with the other groups to answer 3-4 questions correctly before beginning the lesson. Learning Activity: Students will follow step by step directions for dividing a multi-digit number by a single digit number. Students will start with dividing the largest place value digit by the single digit and following the pattern of divide, multiply, subtract, bring down until there is a remainder left. This lesson typically will run two days to allow enough time for guided practice and	x	x	x	x	x	x	5a, 5b, 5c, 1c

independent practice. Lined paper will be used to help students keep their numbers and steps well organized, and multiplication tables will be allowed to help students who struggle with their multiplication facts. Formative Assessment: . Before moving to independent practice, students will play a quick game of four corners. The corners will be labeled as follows: “I am ready to work on my own!”, “I think I am ready, but want more practice”, “I need more practice but it’s starting to make sense” and “I am not ready and need a lot more practice” Summative Assessment: Students will complete an activity desmos solving remainder riddles. Link to activity: https://teacher.desmos.com/activitybuilder/custom/5ae330b2f430d44aab791bec?collections=5ca4fa27796959571e3ec462 In addition, students will complete a homework page for the lesson that will be due the following day. Student Technology Used: Students will use their chromebook for the Desmos activity. Teacher Technology Used: The teacher will use their chromebook and a projector/ smart board for projecting the guided lesson from My Math.							
<u>Divide Greater Numbers</u> Introductory Activity: Students will use their chromebooks to contribute to an Answer Garden for solving a long division math problem. Students will be given the problem $2\overline{)324}$. Students will use scratch paper or whiteboards to solve their problem and show their work and then will submit their answer to the Answer Garden (https://answergarden.ch/) Learning Activity: Students will solve long division problems, dividing a three digit number by a single-digit number. Students will follow a step-by-step procedure that works from the greatest place value to the least, following the steps: divide, multiply, subtract, bring down. The teacher will lead guided practice for students, and as students become more comfortable groups of 2-3 will be invited up to the board to work out problems. As a class we will see	x	x	x	x	x	x	6a, 5d, 1c

how each group solved the problem, where mistakes were made and why, and congratulate student understanding and success. As students gain more confidence, they will be encouraged to work on independent practice while the teacher works with smaller groups of students who need additional support. Formative Assessment: . The Answer Garden instruction activity will act as a formative assessment, as well as small group problem solving on the board during the learning activity. Summative Assessment: Students will complete a test that highlights the standards and skills taught throughout the unit. This test comes directly from McGraw Hill My Math. Student Technology Used: Students will use their chromebook for the Answer Garden activity. Teacher Technology Used: The teacher will use their chromebook and a projector/ smart board for projecting the guided lesson from My Math.							
--	--	--	--	--	--	--	--

Materials, tools and resources: This unit plan is based off of the McGraw-Hill, My Math fourth grade curriculum guide. The teacher will need the teacher addition - volume one and students will need a volume one My Math workbook. In addition to the McGraw-Hill curriculum, teachers and students will need a chromebook/laptop for completing online activities. Students will need whiteboards, paper, and writing utensils to complete workbook activities.
Unit Plan Author: Natalie Fiedler, St. Paul City School
Additional credit given to: McGraw-Hill Education, My Math Curriculum, Fourth Grade, Volume One