Grade 5 Go Math! Quarter 1 Planner **15-17 Days**

Chapter 1 Place Value, Multiplication, and Expressions

Big Idea:

1. Students expand on previous work with place value to understand the relationship between adjacent places both to the left and right of a given place value. Students continue to add and subtract whole numbers with fluency, applying previous experiences using models, strategies, place value, and problem contexts in multiplication to an efficient algorithm. Students continue to work with various division examples and explore to find efficient procedures for division.
2. Students continue to explore and work with numerical expressions in preparation for the Expressions and Equations domain coming in middle school. Informal work in this area in grades 3 and 4 involved solving multi-step problems through modeling and writing equations. This work should be exploratory, and expressions need not include nesting symbols.

Adapted from the CCSS Progressions NBT K-5, pg. 18.

Professional Development Videos:

Models and Visuals for Multiplication
Models and Visuals for Division
The Distributive Property
Think Multiplication to Learn Division Facts
Multiply Whole Numbers
Multiplication Strategies Video

Quarter 1 Fluency Resources:

Fluency Resources in Go Math
Building Fluency Through Number Talks
Building Fluency Through Word Problems

Critical Area Projects:

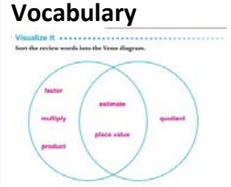
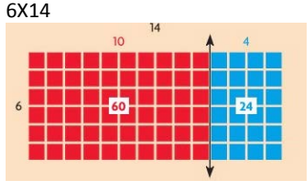
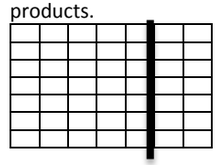
In the Chef's Kitchen Critical Area Project
The Forester Critical Area Project

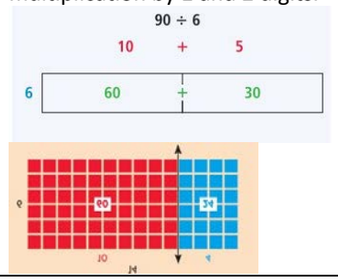
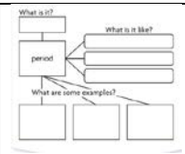
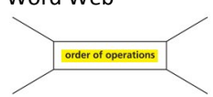
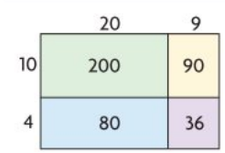
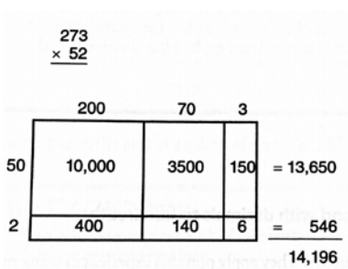
Essential Question: How can you use place value, multiplication, and expressions to represent and solve problems?
Standards: 5.NBT.1, 5.NBT.2, 5.NBT.5, 5.NBT.6, 5.OA.1, 5.OA.2

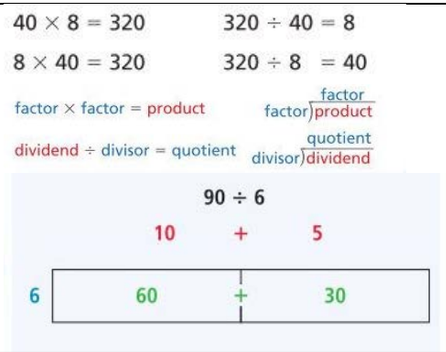
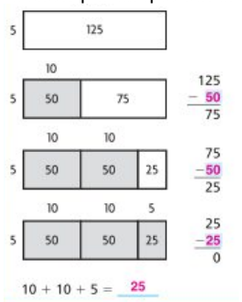
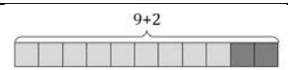
ELD Standards:

ELD.PI.5.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.5.3-Offering opinions and negotiating with/persuading others.
ELD.PI.5.5-Listening actively and asking/answering questions about what was heard.
ELD.PI.5.9- Expressing information and ideas in oral presentations.
ELD.PI.5.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.5.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content/Strategies	Model/Tool Go Math! Teacher Resources G5	Connections (ENGAGE Prior Knowledge)	Vocabulary	Academic Language Support	Journal
1.1	Investigate • Place Value and Patterns	5.NBT.1 Companion Pg.91 MP 5 MP 7	How can you describe the relationship between two place-value positions?	Understanding the base-ten system, each place value position is 10 times greater than the value to its right and $\frac{1}{10}$ of the value of the position to its left. Provides clarity for work with powers of 10 and exponents Model using base ten and a place value chart. Investigate: How many of the small cubes would it take to make 1 long?	Base –Ten Blocks Place Value Chart Digit Tiles	Use digit tiles to create 3-4 digit numbers; have students find the value of the digits. Have students use the digits 0-6 to create the largest/smallest number possible using their place value charts. Discuss the value of the digit as it relates to the place on the chart.	place value position; how many times greater; how many times as much as; what's the relationship between	**ELD Standards** • ELD Standards • ELA/ELD Framework • ELPD Framework • ELL Math Instruction Framework	Write a number that has four digits with the same number in all places, such as 4,444. Circle the digit with the greatest value. Underline the digit with the smallest value. Explain how many times

				How many of the longs would it take to make 1 flat? How many of the flats would it take to make 1 large cube? Ten is how many times greater than 1? Use playing cards, dice, and money to generate numbers, including decimals, to compare the values of various places. PicoFermiBagel Game		Carrie has 140 coins. She has 10 times as many coins as she had last month. How many coins did Carrie have last month?		**Access Strategies** • Organizing Learning for Student Access to Challenging Content • Student Engagement Strategies • Problem Solving Steps and Approaches **Equitable Talk** • Accountable Talk Simply Stated • Equitable Talk Conversation Prompts • Accountable Talk Posters • Five Talk Moves Bookmark • Effective Math Talks **Cooperative Learning** • Cooperative Learning Role Cards • Collaborative Learning Table Mats • Seating Chart Suggestions **Math Word Wall - Grades 3-6** **Vocabulary**  **Vocabulary builder** graphic organizer pg.9B:	greater one digit is than the other.
1.2	Place Value of Whole Numbers	5.NBT.1 Companion Pg.91 MP 2 MP 7	How do you read, write, and represent whole numbers through hundred-millions?	Commas tell when to say the name of the period. A place value chart contains periods. Use a place value chart to read and write numbers in standard, word, and expanded form. PicoFermiBagel Game	Place Value Chart Digit Tiles	Select other ways to write 50,897. Mark all that apply. a. (5x10,000)+(8x10)+(9x10)+(7x1) b. 50,000 +800 +90+7 c. 5,000+800+90+7 d. fifty thousand, eight hundred ninety-seven	period; place value patterns; increases; decrease; digits, value		Write standard form, expanded form, and word form at the top of the page. Write five numbers that are at least 8 digits long. Show this number using the different forms.
1.3	Algebra • Properties	5.OA.1 Companion Pg.52 MP 2 MP 8	How can you use properties of operations to solve problems?	Distributive property can be used to find products mentally. This reviews the area model, partial products from 4th grade to prepare them for the multiplication algorithm, which is the fluency standard for 5th grade. Use concrete models to help students for using the Distributive Property. 6X14  Background for lesson 1.9	Base-Ten Grid Paper (distributive property)	Show students a 7x7 rectangle. Have students break the rectangle up into smaller rectangles and identify the partial products. 	Distributive Property; factor; product; partial products; difference; properties; parentheses		Explain how you could mentally find 8x45 by using the distributive property. (Break the number(s) down in order to solve this mentally.)
1.4	Algebra • Powers of 10 and Exponents	5.NBT.2 Companion Pg.93 MP 5 MP 7	How can you use an exponent to show powers of 10?	Students can count the number of times 10 is used as a repeated factor and write that number as the exponent. When multiplying 62 X100, students should be able to justify that the product represents 62 groups of 100, which is written as 6,200.	Base Ten Blocks	Valerie earns $24 per hour. Which expression can be used to show how much money she earns in 7 hours? A. (7X20)+(7+4) B. (7X20)+(7X4) C. (7+20)+(7+4) D. (7X20)X(7+4)	base; exponent; exponent form; powers of ten;		Consider $7x10^3$. Write a pattern to find the value of the expression.
1.5	Algebra • Multiplication Strategies	5.NBT.2 Companion Pg.93 MP 7 MP 8	How can you use a basic fact and a pattern to multiply by a 2-digit number?	When we multiply multiples of ten by 2-digit numbers, the pattern is the same as multiplying them by one-digit numbers, but there are more digits in the factors. The number of zeros in the products increases as the number of zeros in the factors increase.	Mental Math Number Line Color Code	Review patterns: 2x10, 2x100, 2x1000 – extend 12 x 10, 12 x 100 Express 10^4 in 2 different ways.	multiplication patterns, powers of 10; product; whole-number factor		Do the products 40x500 and 40x600 have the same number of zeroes? Explain.

1.6	Multiply by 1-Digit Numbers	5.NBT.5 Companion Pg.93 MP 1 MP 4 MP 5	How do you multiply by 1-digit numbers?	Estimate before multiplying, use place value and regrouping. Use strategies like *Area model, Partial Products,* and *Distributive Property* to reinforce conceptual understanding BEFORE using Algorithm. Use grid paper to generate area models for multiplication by 1 and 2 digits. 	Place Value Chart Base-Ten Grid Paper Base Ten 15x20 (place value and regrouping)	Decomposing Numbers: Write the following numbers in expanded form: a. 357 b. 403 c. 220 d. 4987 e. 8,002 Draw area model or use partial products to show: Which has more wheels 34 tricycles or 26 cars?	regrouping; multiply or regroup the tens, hundreds, thousands; product; digit	 **Literature Connection**: A Drive Through History  .  Vocabulary builder: Word Web 	Show how to solve the problem 378x6 using place value with regrouping. Explain how you knew when to regroup.
1.7	Multiply by 2-Digit Numbers	5.NBT.5 Companion Pg.98 MP 4 MP 5 MP 6	How do you multiply by a 2-digit number?	Students should understand that multiplying by a 2-digit number using place value and regrouping involves two partial products. The second partial product will always have a zero in the ones place. . Use strategies like *Area model, Partial Products,* and *Distributive Property* to reinforce conceptual understanding BEFORE using Algorithm. Ex. 14 x 29  	Place Value Chart Base-Ten Grid Paper Base Ten 15x20 Base Ten 50x70 (regrouping, partial products)	Use Base Ten 15x20 grid paper to show the following asking students to tell how many squares: 4 rows of 15 6 rows of 15 10 rows 15 12 rows 15 14 rows 15 Discuss the partial products for each one and make a connection to the partial products in 14 x 15. It is 3,452 miles round trip to Craig's aunt's house. If he travels to her house 3 times this year, how many miles did he travel in all? Use area model /partial products.	Partial products; patterns of zeros; regrouping; 2-digit number		Write a problem multiplying a 3-digit number by a 2-digit number. Show all the steps to solve it by using place value and regrouping and by using partial products.
1.8	Relate Multiplication to Division (*Save this lesson for the	5.NBT.6 Companion Pg.98 MP 2 MP 5 MP 6	How is multiplication used to solve a division problem?	Use BASE TEN BLOCKS first to help break apart the dividend. Use the distributive property to relate multiplication to division. Then scaffold back to the area model, showing the inverse of multiplication as division.	Base-Ten Grid Paper Base Ten 15x20 Base Ten 50x70	How many digits will be in the product 5,672 X 1? 5,672 X 5? There are 8 teachers going to a science museum. If each teacher	Inverse operations, distributive property, quotient; arrays; area model;		For the problem 135÷5, draw two different ways to break apart the array. Use the distributive property to write

	beginning of Chapter 2)				(arrays, partial quotients and products) Base Ten Blocks	pays $15 to get inside, how much did the teachers' pay? Use an area model to solve.	multiplication sentence; rectangular; break apart the product		products for each different way. Think 5 x __ = 135.
1.9	Problem Solving • Multiplication and Division (*Save this lesson for the beginning of Chapter 2)	5.NBT.6 Companion Pg.99 MP 1 MP 2 MP 4	How can you use the strategy *solve a simpler problem* to help you solve a division problem?	Solve division problems with difficult numbers by breaking the numbers into numbers that are easier to divide. Continue to use the Base Ten Blocks and division strategies, not the algorithm. Review lesson 1.3 concepts regarding distributive property. Create friendly dividends with addends that are multiples of the divisor. Make connections to division using the area model to show partial quotients. 	Base Ten 50x70 (arrays, partial quotients and products) Base Ten Blocks Solve a simpler problem	Use area model /partial products to solve. Mario eats a breakfast sandwich that has 345 calories. If she eats the same kind of sandwich every day for 12 days, how many calories would she have for breakfast?	Friendly dividend; quotient		Marco is planting a garden. He has seeds for 84 tomato plants, 42 sweet corn plants, and 28 cucumber plants. He plants then in 7 rows. How many seeds are planted in each row?
1.10	Algebra • Numerical Expressions	5.OA.1,2 Companion Pg.99 MP 1 MP 2 MP 4	How can you use a numerical expression to describe a situation?	Students look for the language that represents the operation. Then decide in which order the operations need to be completed. For multistep problems, students need to identify the correct expression given four expressions that represent the problem. Have students use a table to match stories and expressions. Story | Expression	Digit Cards Operation Cards	 Draw a picture that represents $4 \times (9 + 2)$ OR Write Yes or No to indicate whether the expression represents multiplying the sum of 8 and 2 by 6. a. $8 + 2 \times 6$ b. $(8 + 2) \times 6$ c. $8 + (2 \times 6)$	Numerical expression; more than; difference; product; increased by; decreased by; quotient		Write a numerical expression. Then write words to match the expression. Example: 40 – 25 Maria has 25 fewer points than Selma. Selma has 40 ponts.

						d. $6 \times (8 + 2)$ e. $6 \times 8 + 2$			
1.11	Algebra • Evaluate Numerical Expressions	5.OA.1 Companion Pg.52 MP 3 MP 4	In what order must operations be evaluated to find the solution to a problem?	Use order of operations to evaluate numerical expressions, algebraic expressions, and ultimately solve expressions.	GEMS Poster (order of operations)	Mary bought a purse for $25 and 5 pairs of socks that cost $4 each. Use numbers and symbols to write to show how much money Mary spent.	Evaluate, order of operations; parentheses;		Show how using parentheses can change the order and answer for a given expression. 5 + 10 x 8 – 2
1.12	Algebra • Grouping Symbols	5.OA.1 Companion Pg.52 MP 2 MP 4	In what order must operations be evaluated to find a solution when there are parentheses within parentheses?	The grouping symbols are parentheses ( ), brackets, and braces. When working with multiple grouping symbols, we work from the innermost set to the outer most set. Exploratory rather than mastery.	GEMS Poster (order of operations)	Jerome buys 3 gallons of milk and 2 loaves of bread at the grocery store. Each gallon of milk costs $2 and each loaf of bread costs $4. Which expression can be used to express how much money does Jerome spend at the grocery store? a. 6 + 8 b. (3+2)x(2+4) c. (3x2)+(2x4) d. 14	Innermost, outermost		Explain how to use grouping symbols to organize information appropriately. Why does the order of operations really matter?

Assessments: **Go Math Prerequisite Skills Inventory**
Go Math Chapter 1 Test
Go Math Chapter 1 Performance Task: Talking about Phones
Portfolio Assessment
SBAC Claim 1 Example Stems

Grade 5 Go Math! Quarter 1 Planner **12-14 Days**
Chapter 2 Divide Whole Numbers

Big Idea:

1. Division is a complex operation and students who depend on following rote steps cannot determine whether their answer is reasonable. Using relationships between multiplication and division, estimation, rounding divisors, place value understanding, and connecting strategies to the meaning of division all contribute to an understanding of the process that is meaningful rather than having students follow a series of rote steps.
2. Modeling division with base-ten blocks reinforces place value as well as the partitive (fair share- amount in each group) and measurement (how many groups) models for division. Have students consider the situation and use conceptual understanding of division, so they can proceed by narrowing in on the quotient using multiples of 10.
3. As students transition from concrete models to putting their ideas in writing, they can use partial products to show their thinking. Some students may find their work with area models to be helpful in thinking about division. Using this model, they need to remember that they are looking for the missing factor and therefore need to break the dividend (product) into smaller parts. The division algorithm is a 6th grade standard.

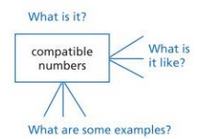
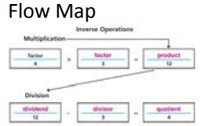
Adapted from The Common Core Math Companion (Gojak & Miles, 2015, pg. 100).

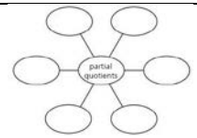
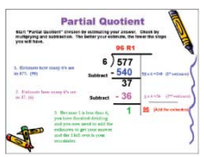
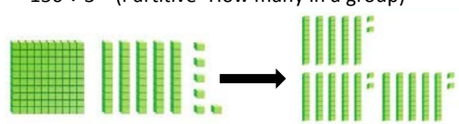
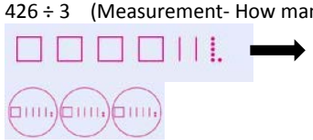
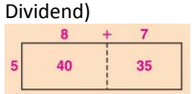
Professional Development Videos:
Division Whole Numbers

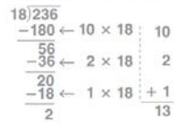
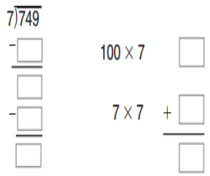
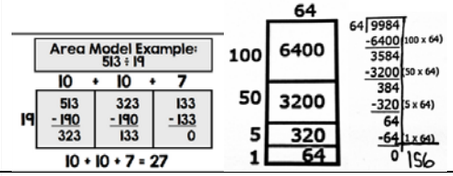
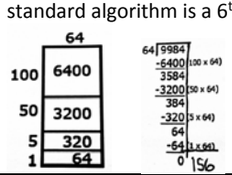
Essential Question: How can you divide whole numbers?
Standards: 5.NBT.6, 5.NF.3

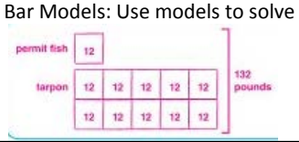
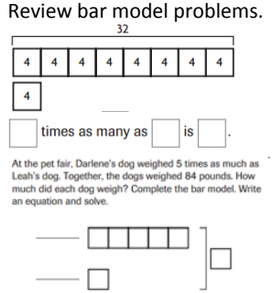
ELD Standards:

ELD.PI.5.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.5.3-Offering opinions and negotiating with/persuading others.
ELD.PI.5.5-Listening actively and asking/answering questions about what was heard.
ELD.PI.5.9- Expressing information and ideas in oral presentations.
ELD.PI.5.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.5.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content/Strategies	Model/Tool Go Math! Teacher Resources G5	Connections (ENGAGE Prior Knowledge)	Vocabulary	Academic Language Support	Journal Prompt
2.1	Place the First Digit Use the problems in this lesson to divide using strategies, models taught in 2.3, 2.4 *Option: Teach AFTER 2.3 and 2.4. Estimate and Use Partial Product, Area Model strategies.	5.NBT.6 Companion Pg.99 MP 1	How can you tell where to place the first digit of a quotient without dividing?	"Students will link the use of concrete materials to act out "fair share" problems with the numerical representation and place-value language associated with long division. The materials enable us to create a rationale for why we start in the highest place value." (DeGroot and Whalen, 2006) Students can use estimation to place the first digit in a quotient and to determine if the solution to a division problem is reasonable. One way to estimate quotients is to use compatible numbers. Once students Estimate, have students use Partial Quotients to solve. Create story context for practice problems.	Base Ten Blocks Estimate, compatible numbers	Have students figure out the following mentally and discuss how this helps them determine where to place the first digit. 25 x ____ = 150 25 x ____ = 200 50 x ____ = 350 5 x ____ = 525	dividend; divisor; quotient; remainder; regroup; place the first digit; is it reasonable; how many hundreds; compatible	**Vocabulary Strategy:**  Flow Map  Bubble Map	One case can hold 4 boxes of juices. Each box holds 6 juices. How many cases are needed to hold 144 juices?

				259 9|2331 900 100 (100 x 9) 1431 900 100 (100 x 9) 531 450 50 (50 x 9) 81 81 9 (9 x 9) 0 259				 **Grab and Go Activities:** ***Niagara Falls Numbers***  Students read the book and solve division problems about Niagara Falls. ***Activities*** ***Divide and Conquer***  Students complete orange Activity Card 15 by making and solving problems with 3-digit dividends and 2-digit divisors. ***What's Left?***  Students write and solve division problems to make a specific remainder. ***Activities*** ***15-Minute March***  Students complete blue Activity Card 15 by finding how many 15-minute time increments are in a given length of time.	
2.2	Divide by 1-Digit Divisors **option – use the problems in this lesson to divide using strategies, models, in 2.3, 2.4	5.NBT.6 Companion Pg.99 MP 1 MP 2	How do you solve and check division problems?	Students use inverse operations in the form of related number sentences. 	Inverse Operations Number Line Student Number Line	What's My Pattern? 24 ÷ 8 = 240 ÷ 8 = 2400 ÷ 8 = 24000 ÷ 8 =	Inverse operations; 1-digit divisor; quotient; dividend; remainder		What strategies could you use to solve 5,618 ÷ 9? Does a remainder in an answer always mean how much is left over?
2.3	Investigate • Division with 2-Digit Divisors **option – Teach 2-3 before 2-1, 2-2 using base ten blocks.	5.NBT.6 Companion Pg.99 MP 4 MP 5 MP 6	How can you use base ten blocks to model and understand division of whole numbers?	To find a quotient, students use base-ten blocks to make a rectangular area model that represents the dividend. Start with 1-digit divisors, then move to 2-digit divisors. **Modeling:** Have students model the sharing concept of division with base ten blocks. 156 ÷ 3 (Partitive- How many in a group)  426 ÷ 3 (Measurement- How many groups)  75 ÷ 5 (Distributive Property-Decomposing Dividend)  196 ÷ 14 (Base Ten Blocks-Area Model)	Base Ten Blocks Quick Picture Base-Ten Grid Paper Base Ten 15x20 Base Ten 50x70	Relate multiplication to division 375 ÷3 375 ÷5 375 ÷10	Inverse operations; 1-digit divisor; quotient; dividend; remainder		Show how to solve it by drawing a quick picture. 168 ÷ 14

				 Have one student build, the other student draw, and both discuss the solution.				***Activities*** ***Decide and Divide***  Students complete purple Activity Card 15 by estimating quotients and then dividing 3-digit dividends by 2-digit divisors.	
2.4	Partial Quotients **option – this should before 2-1, 2-2. Then teach 2-1 & 2-2 using partial quotients.	5.NBT.6 Companion Pg.99 MP 3	How can you use partial quotients to divide by 2 digit divisors?	The partial quotients method of division is a bridge to the traditional algorithm. Traditional method involves often involves a great deal of regrouping and Partial Quotients simply involves finding and subtracting multiples of the divisor until the result is less than the divisor or zero. 	Partial Quotients Base-Ten Grid Paper Base Ten 15x20 Base Ten 50x70	Use base ten blocks/area model to compute: 6×325	Partial quotients; dividend; divisor		Use Partial Quotients. Fill in the blanks. 
2.5	Estimate with 2 Digit Divisors	5.NBT.6 Companion Pg.99 MP 1 MP 3	How can you use compatible numbers to estimate quotients?	Students connect their understanding of basic facts, patterns of products with zeros, and compatible numbers to make an estimate that helps them identify and place the first digit. Have students Estimate and then use Partial Quotients to find the quotients. 	Estimate, compatible numbers Base Ten 50x70	Use a Number Line to relate multiplication and division with remainders. 44 ÷ 7 = ___ 46 ÷ 4 = ___ 98 ÷ 8 = ___ 49 ÷ 3 = ___	Compatible numbers, estimate; 2-digit divisors; estimate		Explain how using partial quotients to divide is similar to using the distributive property.
2.6	Divide by 2-Digit Divisors **option – this is not a 5th grade standard. Use problems to divide using strategies, models, or partial quotients.	5.NBT.6 Companion Pg.99 MP 1 MP 8	How can you divide by 2 digit divisors?	Use compatible numbers and estimate to place the first digit. Students repeat these steps: divide, multiply, subtract, and compare, and then regroup when necessary (algorithm). Continue to use partial Quotient as using the standard algorithm is a 6th grade standard. (6NS2) 	Estimate, compatible numbers Base Ten 50x70	Use the following examples to divide by 2-digit numbers and model estimation strategies: 250 ÷ 25 = 252 ÷ 12 = 580 ÷ 20 =	2-digit divisors; compatible numbers		Solve the problem using the partial quotients method. The circus sets up chairs in rows with 12 seats in each row. How many rows will you need if 684 people are expected to attend the show?
2.7	Interpret the Remainder	5.NF.3 Companion Pg.157 MP 2 MP 4	When solving a division problem, when do you write the remainder as a fraction?	The remainder should be written as a fraction when the remainder needs to be part of the quotient. The context of a problem determines whether the remainder should be written as a fraction. In some cases, a remainder will not be used or a remainder	Remainder as a fraction Base Ten 50x70	Choose Yes or No to tell whether the division sentence has a remainder. a. $32 \div 2$ b. $41 \div 5$ c. $36 \div 9$	Remainder; remainder as a fraction; quotient		Suppose you have 192 marbles in bags of 15 marbles each. Find the total number of bags of marbles that you have.

				means that 1 must be added to the quotient to solve the problem. Continue to use partial Quotient as using the standard algorithm is a 6th grade standard. (6NS2)		d. $65 \div 4$			Write the quotient with the remainder written as a fraction.
2.8	Adjust Quotients **optional lesson	5.NBT.6 Companion Pg.99 MP 1 MP 2	How can you adjust the quotient if your estimate is too high or too low?	If the product is greater than the dividend, decrease the estimate by 1. If the difference is greater than or equal to the divisor, increase the estimate by 1. Continue to use partial Quotient as using the standard algorithm is a 6th grade standard. (6NS2)	Estimating Quotients Base Ten 50x70	Use the following examples to generate estimates of compatible numbers: 352 ÷ 5 = __ 528 ÷ 5 = __ 639 ÷ 10 = __ 247 ÷ 2 = __ 473 ÷ 25 = __ Aliya is planning a party for 127 people. If each table can seat 8 people, what is the least number of tables Aliya will need?	Difference; quotient; adjustment; divisor; too high; estimate		Explain how you can use multiplication to estimate and solve a division problem. 490 x __ = 35
2.9	Problem Solving• Division	5.NBT.6 Companion Pg.99 MP 1 MP 2 MP 4	How can the strategy *draw a diagram* help you solve a division problem?	Drawing diagrams, such as bar models, helps students organize information in a way they can understand. It is easier for students to understand the relationship of one quantity to the other when they draw rectangles to represent both quantities. Bar Models: Use models to solve division problems. 	Bar Model *(Draw a diagram)* Bar Model Example Base Ten 50x70	Review bar model problems. 	Bar model; diagram		Jaime read 8 times as many pages as his little brother. They read 405 pages altogether. How many pages did Jaime read? Draw a bar model to help you solve the problem.

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