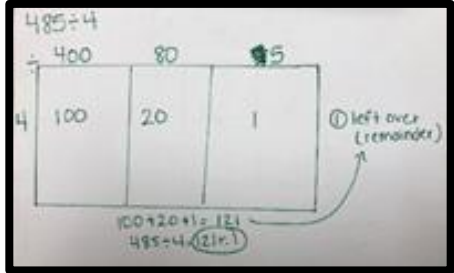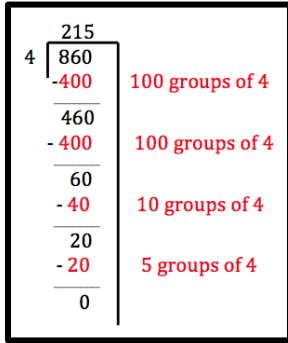# Dividing Multi-Digit Whole Numbers

Overarching Student Learning Goals In this unit, your child will work to build an understanding of the following:	Resources/Tasks to support your child at home.
Estimate to determine the reasonableness of quotients. Students apply their understanding of estimating whole numbers, and the relationship between division and multiplication to estimate quotients and determine if a quotient is reasonable. They can also estimate before solving a division problem to help them solve. *Example 1: Estimate 736 ÷ 12* • *Estimate the divisor and dividend: 740 ÷ 10.* • *Use multiplication with a missing factor to determine the estimated quotient: 10 x Q = 740 or divide.* • *10 x 74 = 740, so the estimated quotient is 74.* *Example 2: Estimate 736 ÷ 12* • *Estimate the dividend only to be a multiple of the divisor 12.* • *Multiples of 12 are: 12, 24, 36, 48, 60, 72, 84. 72 is the closest to 73.* • *Estimate 736 ÷ 12 to 720 ÷ 12. 12 x 6 = 72, so 720 ÷ 12 = 60.*	• Have students use estimation to justify whether the quotient of a division equation is reasonable. *Example: Use estimation to determine if the quotient to determine if the quotient for the following problem is reasonable: 801 ÷ 9 = 83* *Example answer: The quotient is reasonable because 810 ÷ 9 = 90, which is close to 83.* • Khan Academy: Estimating multi-digit division https://goo.gl/vxHmah • Learn Zillion Video- Divide 4-digit dividends by 2-digit divisors by estimating and adjusting the quotient https://goo.gl/asWMCH

Students can model and justify their reasoning of division using pictures, words, and numbers.
Students use place value understanding with base-ten models, area models, partial quotients and the standard algorithm when dividing with 1-digit and 2-digit divisors in this unit.
 	
	• Questions to ask students while solving division with 2-digit divisor problems throughout the unit:
	  o *What does each part of the expression represent?*
	  o *What does the dividend represent?*
	  o *What does the divisor represent?*
	  o *What does the quotient represent?*
	  o *What does the remainder represent?*
	  o *How does your model relate to the problem?*
	
	• Khan Academy: Area Models to Visualize Division Using Place Value https://goo.gl/RaARP3

For more information on the learning goals and your child's progress, please contact your child's teacher.

Students can understand the meaning of remainders.

Students solve division story problems using the prior strategies they have learned, then determine how to use the remainder in different after solving for the quotient.

Encourage students to use any strategy they choose to solve the problem, the focus is more on using the numbers correctly based on the story problem.

Example: A fifth grade class needs to rent vans for their field trip. There are 26 people going. Each van can only hold 8 people.

Question	Model	Think	What to do with the remainder
How many vans will be completely full?		$26 \div 8 = 3$ r 2 means that there are 3 completely full vans two people leftover.	The answer is the quotient. Drop the remainder.
How many people are in the last van?		$26 \div 8 = 3$ r 2 means there are 2 people who must sit in the last van.	The answer is the remainder.
How many vans are needed?		$26 \div 8 = 3$ r 2 means another van would be needed for the last 2 people. 4 vans would be needed for the trip.	Add 1 to the quotient.
How many more people would it take to fill the last van?		$26 \div 8 = 3$ r 2 means that there are 2 people on the last van. Since each van seats 8 people, another 6 people could ride on that last van.	Use the remainder to identify how many more to make the next whole.

- As shown in the example, use the same story scenario with different questions to explore all the ways to interpret a remainder. Discuss similarities and differences of each solution. Encourage your child to draw models to show their thinking.

- Pose questions to help students contextualize the equation and numbers back to the story problem:
  - What does the divisor represent?
  - What does the quotient represent?
  - What does the remainder represent?

- Khan Academy: Interpreting Remainders
  https://goo.gl/6hCZoT

- Khan Academy: Intro to Remainders
  https://goo.gl/udhZ2B