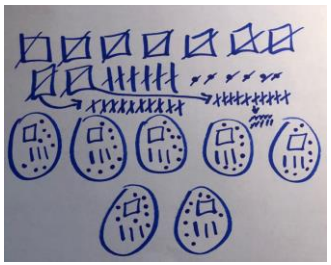
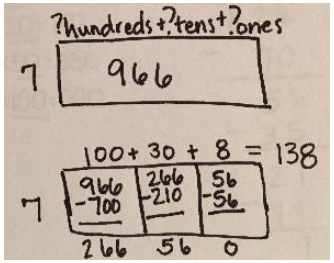
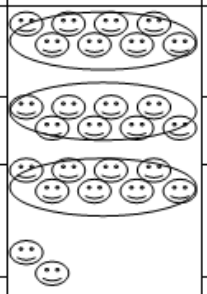
Grade 4

Using Place Value to Divide Multi-Digit Numbers

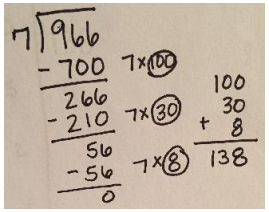
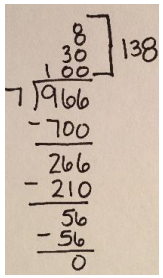
Check out the "Parent Quick Smarts" videos for this unit by using the links: https://goo.gl/2Lo8fi and https://goo.gl/FT3yGh

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.**
Recognize when a remainder is necessary in division, and interpret what to do with it based on context. *Example: A fourth grade class needs to rent vans for their field trip. There are 26 people going. Each van can only hold 8 people.* See table below.	• 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. • Khan Academy: Intro to Remainders https://goo.gl/udhZ2B
Use concrete or pictorial models based on place value strategies to demonstrate the division process. Students use concrete base ten blocks, base ten quick pictures or area models to show how place value connects to division with 1-digit divisors. Continue to make connections between the different models used. *Example: 966 ÷ 7* Base Ten Model  Area Model 	• Using a spinner, dice or cards create or pose different division problems with 1-digit divisors for your child to model using base ten blocks or a quick picture. Then encourage them to also use an area model. Make connections between the two models by asking, "How are the strategies similar? How are they different?" • Khan Academy: Division with Area Models https://goo.gl/fpFuLR

Question	Model	Think	What to do with the remainder
How many vans will be completely full?		26 ÷ 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 ÷ 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 ÷ 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 ÷ 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.

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

Grade 4

Use strategies based on place value to determine quotients with 1-digit divisors. *(Note: Although the traditional algorithm of long division may be introduced in 4th grade, students are not expected to master this algorithm until middle school.)* Students subtract larger multiples of the divisor to determine the quotient. Then record the steps as an equation using the "Distributive Property." *Example: 966 ÷ 7* <u>Partial Quotients</u>   <u>Distributive Property</u> 966 ÷ 7 = (700 ÷ 7) + (210 ÷ 7) + (56 ÷ 7) = 100 + 30 + 8 = 138	• Using a spinner, dice or cards create or pose different division problems with 1-digit divisors for your child to solve using partial quotients by subtracting larger multiples of the divisor. • Khan Academy: Division Using Place Value https://goo.gl/ve85qJ
Use estimation and/or multiplication to determine reasonableness of quotients. Use basic facts, multiples and place value to justify the most reasonable estimation of a quotient. *Note: This estimation strategy is also described as using "compatible numbers."* *Example:* Estimate the quotient of 142÷6. Think: Using basic facts, I know that 6 x 20=120 and 6 x 30 is 180. Since 142 is closer to 120, 20 is the more reasonable estimate.	• When your child solves any division problem, having them use estimation before solving to determine reasonableness of the answer. After they have determined the quotient, have them use multiplication to check their answer. • Video: Estimate the Quotients Using Multiples https://goo.gl/KGTY14