

5th Grade

Math - Unit 2 Family Letter

Dear Parents,

The focus of Unit 2 is multiplying and dividing whole numbers and adding, subtracting, multiplying and dividing decimals. Your child will be working to master the targets which are described below. Our goal is to help you understand what these learning targets will look like for your child, in order to assist you in helping your child at home. We will be practicing and applying the understanding of these concepts through the use of visual models in order to build a strong foundation. Please contact your classroom teacher and/or the school's math coach if you have additional questions about the content within this unit.

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Unit 2 Vocabulary

Product - The answer to a multiplication problem	Quotient - the answer to a division problem	Divisor - a number by which another number is to be divided.
Partial Quotients - a division algorithm based on place value	Area Model - a multiplication and division algorithm based on place value	Distributive Property - the product of a number and a sum is equal to the sum of the individual products of the addends and the number: $a \times (b + c) = (a \times b) + (a \times c)$
Addend - any of the numbers that are added together: ex: $5 \times (4 + 3)$ The numbers 4 and 3 are the addends.		

5.NBT.5 Fluently multiply multi-digit whole numbers using a standard algorithm.

To show mastery of this learning target your child will be expected to:

- multiply using a variety of algorithms (area model, partial products, traditional with meaning)
- multiply using a strategy that is based on place value, such as the strategies listed above.
- show their work while solving a multi-digit multiplication problem.

AREA MODEL

PARTIAL PRODUCTS

$9 \times 735 = \underline{\hspace{2cm}}$

	700	30	5
9	6,300	270	45

$$\begin{array}{r} 6,300 \\ 270 \\ + 45 \\ \hline 6,615 \end{array}$$

$$\begin{array}{r} 735 \\ \times 9 \\ \hline 6,300 \\ 270 \\ + 45 \\ \hline 6,615 \end{array}$$

5.NBT.6 Find whole-number quotients with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate or explain the calculation by using equations, rectangular arrays, and/or area models.

To show mastery of this learning target your child will be expected to:

- divide using a variety of algorithms that are based on place value.

Example: Partial Quotients $177 \div 8 =$

$$\begin{array}{r} 22 \text{ R}1 \\ 8 \overline{) 177} \\ \underline{- 80} \\ 97 \\ \underline{- 80} \\ 17 \\ \underline{- 16} \\ 1 \end{array}$$

Write the answer
above with the
remainder.

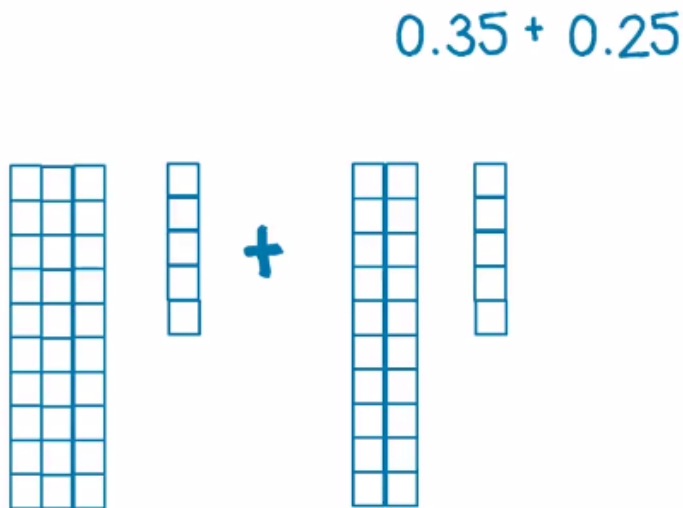
You are finished.

5.NBT.7.1 Add and subtract decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; explain the strategy used.

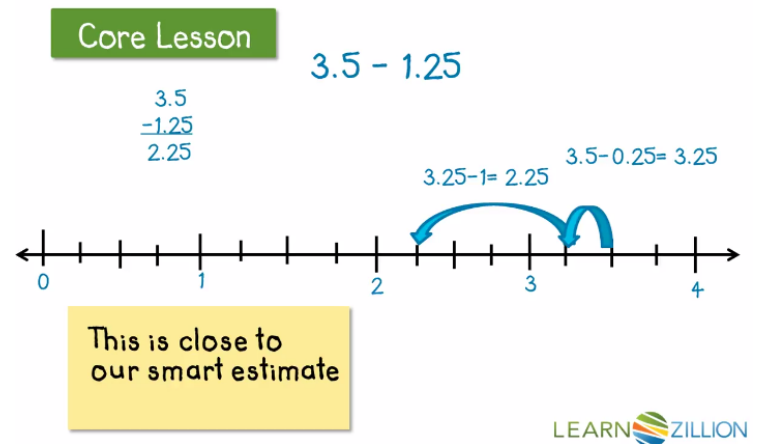
To show mastery of this learning target your child will be expected to:

- Add and subtract decimals using concrete models.
- Add and subtract decimals using strategies based on place value.
- Estimate the sum or difference prior to adding or subtracting.
- Explain the strategy used to solve the problem.
- Check their work using inverse operations (check addition with subtraction).

Concrete Model: Base Ten Blocks
Add decimals using base ten blocks



Concrete Model: Number Line
Subtract decimals on a number line



Strategies based on place value:

$$\begin{array}{r} 1 \\ 0.45 \\ +0.80 \\ \hline 1.25 \end{array}$$

Checking your work:

$$\begin{array}{r} 0.12 \\ 1.25 \\ -0.80 \\ \hline 0.45 \end{array}$$

Sample Explanation:

I used base ten blocks to add 0.35 and 0.25. First I added my hundredths, and found that 0.05 and 0.05 makes 1 tenth. Next, I added my tenths. I had 3 tenths, 2 tenths and the 1 tenth I made with hundredths. So, in total I have 6 tenths.

How can you help your child at home?

- When your child is adding and subtracting decimals vertically, help them understand why we line up the decimals in order to line up the place values. With whole numbers, we line everything up on the right side, but when decimals come into play, that does not hold true.
- If your child is asked to explain his or her thinking, try having them write down their steps as they go to help remember what he or she did and why. Or, try recording your child explaining his or her steps out verbally and then play it back so he or she can more easily write their steps.
- Another option to help your child to explain is to provide them with some key vocabulary words that he or she should use while explaining . (hundredths, tenths, ones, regroup etc.)

5.NBT.7.2 Multiply and divide decimals to the hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between multiplication and division; explain the strategy used.

To show mastery of this learning target your child will be expected to:

- Multiply and divide decimals using concrete models/pictures.
- Multiply and divide decimals using strategies based on place value.
- Estimate your answer, do the multiplication/division without the decimal point, then insert the decimal after based on your estimate.
- Explain the strategy used to solve the problem.
- Check their work using inverse operations (check multiplication with division).

Multiplication of Decimals

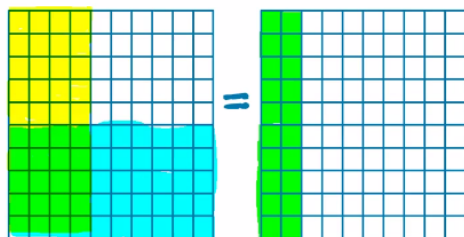
Concrete Models

Use multiplication to multiply decimals by decimals

Core Lesson

$$0.4 \times 0.5$$

Ones	Tenths	Hundredths
0	2	0

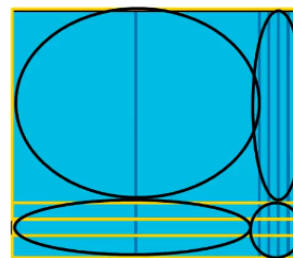
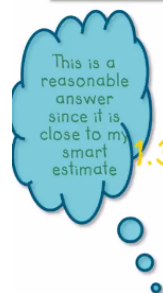


Concrete Models

Multiplying whole numbers and decimals using an area model

Core Lesson

$$2.4 \times 1.3$$



2.4

$$\begin{array}{r} 2.4 \\ \times 1.3 \\ \hline 0.3 \times 0.4 = 0.12 \\ 0.3 \times 2 = 0.6 \\ 1 \times 0.4 = 0.4 \\ + 1 \times 2 = 2 \\ \hline 3.12 \end{array}$$

Multiplication Algorithm: Partial Products

$$\begin{array}{r} 1.2 \\ \times 2.6 \\ \hline \end{array}$$

$$1.0 \times 2.0 = 2.00$$

$$1.0 \times 0.6 = 0.60$$

$$2.0 \times 0.2 = 0.40$$

$$0.2 \times 0.6 = 0.12$$

Multiplication Algorithm: Using Estimation

$$2.6 \times 1.2$$

Estimation

$$3 \times 1 = 3$$

$$\begin{array}{r} 26 \\ \times 12 \\ \hline 200 \\ 40 \\ 60 \\ \hline 12 \\ \hline 312 \end{array}$$

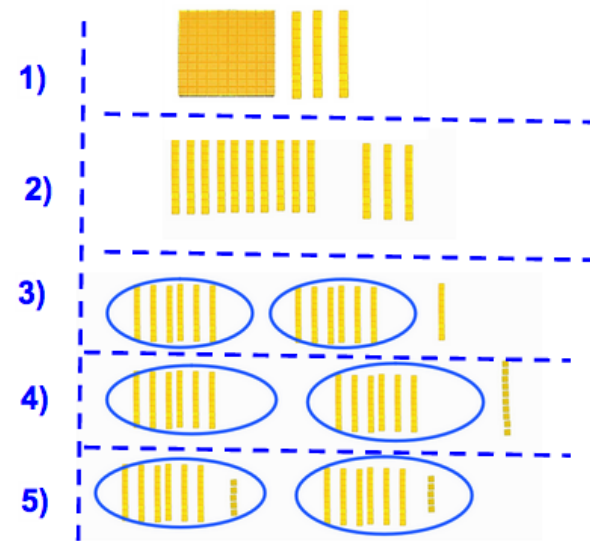
My estimation was around 3, so my decimal should go between the 3 and the 1!

3.12

Division of Decimals

Concrete Models: Dividing by using equal shares

$$1.3 \div 2 = 0.65$$



Algorithm: Traditional Division

$$352.2 \div 3 = 117.4$$

Estimate: $300 \div 3 = 100$

$$\begin{array}{r} 117.4 \\ 3 \overline{) 352.2} \\ \underline{-3} \\ 05 \\ \underline{-3} \\ 22 \\ \underline{-21} \\ 12 \\ \underline{-12} \\ 00 \end{array}$$

How can you help your child at home:

- Encourage your child to estimate prior to multiplying or dividing decimals. Estimation is a powerful tool to help us check our answers and ensure that they are reasonable.
- Provide your child with graph paper, or turn lined paper sideways if your child is struggling to stay organized while computing.
- Look for opportunities when you have to multiply or divide decimals in real life. Take advantage of those opportunities and discuss how and why it's important to understand how to multiply and divide decimals.

Standards of Mathematical Practice:

The Standards of Mathematical Practice that we will focus on during this unit are listed below. The Standards of Mathematical Practice are not targets, and will not be on the report card. These are practices included in the Common Core that outline what good mathematicians do. We will be looking to see that your child utilizes these practices as they apply the math concepts throughout this unit. .

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Choose mathematical tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.