

General Information

Lesson Parts & Duration

Total Duration: 1 hour

• Place Value-Introduction to Vocabulary and Value of Digits

Subject(s)

• Place Value understanding for multi-digit whole numbers. (4.NBT.1)

Objective

• <u>Students will</u> recognize that in a multi-digit whole number, a digit represents ten times what it represents in the place to its right.

Materials

- blank paper (2 per student)
- pencil & crayons/colored pencils
- document camera or whiteboard
- **Optional:** printable "Exit Slip" (page 6)
- **Optional:** printable "Break Up Your Day" brain/movement break ideas (page 7)

Instructional Setting

• Seated with or near another student for partner work

Throughout this lesson, you will find:

- Scripted Text indicates things that need to be said directly. Bullets starting with a "T" followed by *italicized type* indicate scripted text
- Clarifiers within scripted text are in orange
- * Teacher Directions indicate things you should be doing
- Side notes provide helpful hints, ELL strategies, differentiation and information
- Break Up Your Day (Brain/Movement Breaks) are in green boxes (at the end)

Remember!

Quality over quantity. All components do not have to be accomplished; lessons may be ended at any time and resumed later.

Instructional Plan: 45-60 minutes

Pass out 2 pieces of paper per student. One will be for "Notes" and the other for practice.

Introduction

- *T* Today we will be examining how each digit in a number has value.
- *T* In addition, we will explore how a digit in one place represents ten times what it represents in the place to its right.
- *T* We can show this is true by multiplying numbers that have a 0 in the ones, tens, or hundreds places.

Setting up Paper

- *T* Write your name and date in the top right hand corner of your paper. See example & model so students can follow.
- **T** On the top center of your paper, title it "Notes". See example & model so students can follow.
- *T* Underneath your title write the statement, "I can recognize a digit represents 10 times the value of what it represents in the place to its right." See example & model so students can follow.
- *T* Below this statement write "Vocabulary". See example & model so students can follow.
- *T* The first vocabulary word we need to know is "digit."
- *T* Let's define this in our "Notes".
- T A digit is any number 0-9.
- *T* Why do you think we call larger numbers, multi-digit numbers? Call on several students.
- *T* Larger numbers are called multi-digit numbers because they are made up of many "digits", or numbers 0-9 put together.
- *T* How many digits make up the number 7,941?
- **T** Discuss with a partner near you. Call on several students. Answer: 4 digits make up the number 7,941
- *T* Underneath the definition of "digit" see if you can write an example of a 2, 3, 4, and 5-digit number. Answers will vary. Possible Examples: (2 digit) 17, (3 digit) 562, (4 digit) 2,700, (5 digit) 12,645
- *T* Share your answers with your partner.

Give time to complete this task. Monitor students and provide assistance as needed.

- *T* Below the word digit in your "Notes" let's write our next vocabulary word, Place Value. Model this step so students can follow along with your example. See example on next page.
- *T* We are going to define this word as: how much a digit is worth, depending on where it is in a number. Write this definition into your notes so that the class can copy.
- *T* The most important word to me in this definition is "Worth".
- *T* Does anyone know what the word "worth" means?
- *T* Discuss what you think the word means with your partner.

Give time to complete this task. Monitor students and provide assistance as needed.

Call on several students.

- *T* The worth of something is its value.
- *T* For example, what do you think the worth or value of a baseball is? Call on students.
- T What if that baseball was used during the World Series? Would that change its value? Call on students.

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- *T* What if the baseball was used during the World Series and it was signed by the MVP on the winning team? Call on students.
- *T* What if the baseball was just for sale at a resale store or a garage sale?
- *T* Hopefully you can see that different factors affect the Value or worth of something.
- *T* Well the value of a digit in a multi-digit number changes based on where it is in a number.
- *T* Let's draw a place value chart for ourselves on our paper.
- *T* Today we will only go up to the thousands place, although I am confident you can probably go to the millions place.

Draw a place value chart on your "Notes" paper below the definition.

Thousands	Hundreds	Tens	Ones

- *T* Now looking at this chart let's see if we can determine the "Value" of each digit in a number.
- *T* Write the number 6,923 on your chart. Model this step so students can follow along with your example. See example on next page.

Thousands	Hundreds	Tens	Ones
6	9	2	3

- *T* Only one digit fits in each "place".
- *T* The place that the digit is in tells us what the "value" of that digit is, just like the baseball changing value based on if it was a new ball, a used ball, a ball that was used in a World Series Game, or a Ball used in the World Series game and signed by the MVP!
- *T* Let's figure out the value or worth of our digits.
- *T* In order to do this, we are going to use Base-Ten Blocks.
- T Before we start let's draw some Base-Ten Blocks in our "Notes".
- *T* Underneath your Place Value Chart, write the words, Base-Ten Blocks.
- *T* Then draw a new Place Value Chart, but this time we will put blocks in it.
- T The ones block we use is called a cube.
- *T* It represents 1 one.
- T The tens block we use is called a rod.
- *T* It represents 1 ten.
- *T* The hundreds block we use is called a flat.
- T It represents 1 hundred.
- *T* And last, the thousands place we use a block. It represents 1 thousand.



FOURTH GRADE

MATH



Thousands	Hundreds	Tens	Ones
Value: 1,000	Value: 100	Value: 10	Value: 1

T Now let's go back to determining the value of the digits in our number.

 ${\it T}$ $\,$ How many of each Base-Ten blocks would we use to make our number $\,$

T Work with your partner to draw the blocks that would represent our number of 6,923.

ANSWER:



Give time to complete this task. Monitor students and provide assistance as needed.

T So, what would be the value of each digit? Answer: 6,000; 900; 20; 3

Thousands	Hundreds	Tens	Ones
	9	2	3
Value: 6,000	Value: 900	Value: 20	Value: 3

- *T* Now looking at the value of the digits, how many would I need to bundle or group together to make 1 of the place to the left?
- *T* Discuss with your partner.

Give time to complete this task. Monitor students and provide assistance as needed.

Call on students to share their answers.

- *T* Many of you determined you would need 10 to be able to group them and make one of the Place to the left.
- *T* For example: it takes 10 ones to equal 1 ten, 10 tens to equal 1 hundred, and 10 hundreds to equal 1 thousand.

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MATH

- *T* Does anyone know what mathematical operation I would use to move a digit from one place to the next? In other words, how could I move my digit 2 from the tens place to the hundreds place.
- *T* Hint, will I be multiplying or dividing it?
- T So instead of having 2 tens, I would have 2 hundreds? Answer: multiply it by 10 ($20 \times 10 = 200$)
- *T* Discuss with your partner.

Give time to complete this task. Monitor students and provide assistance as needed.

- *T* Turn your notes over and make a 2 by 4 grid. see example
- *T* We are going to practice using the idea that a digit represents 10 times the value of what it represents in the place to the right.
- *T* In the first row, we are going to write our two rules:
- *T* When you move a number one place to the right, you multiply by 10.
- *T* **Example:** 7 tens = 70 one
- *T* The ones place is to the right of the tens place. $7 \times 10 = 70$
- *T* In the next box write: When you move a number one place to the left, you divide by 10.
- *T* **Example:** 70 ones = 7 tens
- *T* The tens place is to the left of the ones place. 70/10=7
- *T* In the second row, you will write: 6 tens = _____ ones. Answer: 60 ones
- *T* In the second box, write out the equation that you could use to solve this. Answer: $6 \times 10 = 60$.

Call on students to share their answers.

- *T* In the next row, write: 60 hundreds = _____thousands. Be careful because this time you are moving in the other direction, from right to left. Answer: 6 thousands.
- T In the second box of this row, write the equation that you can use to solve this. Answer: 60/10=6

Call on students to share their answers.

- T As you can see we can bundle our hundreds in groups of 10.
- *T* Every time we have 10 in a place, we bundle it together and we can send 1 over to the column to the left.
- T In the 3rd row, write: 500 ones = _____ tens Answer: 50 tens
- T In the second box of this row, write the equation that you can use to solve this. Answer: 500/10= 50 tens

*You may use the exit slip at the end of this lesson as a quick assessment of student understanding. Either print them out (page6), or simply have students copy the problems on a half sheet of paper.

If a number is one place to the left , you multiply by 10. (x10) - It is 10 times more, than the place to it's right	If a number is one place to the right , you divide by 10.
Example: 7 tens = 70	Example: 70 ones =
The ones place is to	The tens place is to
the right of the tens place. 7 x 10= 70	the left of the ones place. 70/10=7
C tons - onos	Equation:
Answer: 60 ones	Answer: 6 x 10 = 60.
60 hundreds	Equation:
=thousands.	Answer: 60/10=6
Answer: o thousands.	
	Equation
500 ones = tens	Equation:

MATH



Name: _____Date: _____

Exit Slip: Segment 1

A digit represents 10 times the value of what it represents in the place to the right.

- 1. Draw a place value chart through the thousands place.
- On your chart, write a 4-digit number of your choice. a.

Below each digit show the value of the digit using both Base-Ten Blocks and number form. b.

Place Value Names		
Number		
Base-Ten Blocks		
Value:		

2. Fill in the blank to make each statement true. Show the equation used to complete each statement.

- a. 90 ones = _____ tens
- b. 8 tens = _____ ones
 c. 7 hundreds = _____ tens

					Name:	ANSWER KEY	Date:		
				Exit Slip	: Segment 1				
	A digit represents 10 times the value of what it represents in the place to the right.								
	2. Draw a	place value	chart throug	gh the thous	ands place.				
a	. On you	ur chart, wri	te a 4-digit r	number of yo	our choice.				
b	. Below	each digit sh	now the valu	e of the digi	t using both	Base-Ten Blocks	and number fo		
[Thousands	Hundrods	Tons	Ones	7			
	Names	mousanus	nunureus	Tens	Offes				
	Number	5	1	4	2	-			
	Base-Ten Blocks								
	Value:	5,000	100	40	2	_			
3	. Fill in t	the blank to	make each s	tatement tru	ie. Show the	$\frac{1}{2}$ equation used to	o complete each		
S	tatement.					equation abou to	comprote cuer		
a	. 90 one	es = 9	tens						
b	8 tens	= 80	ones						
c	7 hund	$\frac{1}{1}$	tens						
J			00110						



Make sure to "Break Up Your Day!"

This can be used in the middle of a lesson or at the end of your lesson. It is an engaging movement and brain break idea to get your students moving and ready to refocus!

Break Up Your Day: <u>Math Outside!</u>

- Students take scratch paper/pencil and find numbers outside.
- Students write multiplication problems they see on the playground. (examples: 3 basketball courts times 6 students equals 18 basketball players, four hopscotches times 5 students equals 20 students playing hopscotch.)