

General Information

Lesson Parts & Duration

Total Duration: 1 hour

- Place Value: Introduction to Vocabulary and Value of Digits Through the Thousandths Place

Subject(s)

- Place Value understanding for multi-digit whole numbers and decimals to the thousandths place. (5.NBT.A1)

Objective

- Students will recognize that in a multi-digit whole number, a digit represents ten times what it represents in the place to its right and $\frac{1}{10}$ what it represents in the place to the left.

Materials

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

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: 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 the right and 1/10 what it represents in the place to the left.” **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* The root word multi means more than one or many.
- 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 using decimals. **Answers will vary. Possible Examples: (2 digit) 1.7, (3 digit) 56.2, (4 digit) 270.1, (5 digit) 12,645**
- T* Share your answers with your partner.

Notes		Name & Date	
I can recognize a digit represents 10 times the value of what it represents in the place to the right and 1/10 what it represents in the place to the left.			
Vocabulary:			
Digit: A digit is a number 0-9			
Examples:	2	3	4
5			

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* 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 to share their answers.**
- 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 to share their answers.

- T** What if that baseball was used during the World Series? Would that change its value? **Call on students to share their answers.**
- 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 to share their answers.**
- 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, and down to the thousandths place.
- T** Do you hear the difference when I say the word "thousands" and "thousandths?" **Exaggerate the "ths" at the end of Thousandths so that they can hear the difference. Call on students to share their answers.**
- T** When I am pronouncing the decimal places, you will hear a "ths" at the end.

Notes				Name & Date			
I can recognize a digit represents 10 times the value of what it represents in the place to the right and 1/10 what it represents in the place to the left							
Vocabulary: Digit: A digit is a number 0-9							
Examples: 2 3 4 5							
Examples: 1.7 56.2 270.1 12.645							
Place Value: how much a digit is worth, depending on where it is in a number.							
Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
6	9	2	3	.	2	9	6

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


Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
				.			

- 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 6,923.296 on your chart. **Model this step so students can follow along with your example. See example on next page.**

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
6	9	2	3	.	2	9	6

- 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** When we look at our 3 decimal places: tenths, hundredths, and thousandths we can use some base 10 blocks to understand how they relate to whole numbers.
- T** Let's add a little chart into our "Notes" so we can refer back if we get confused.
- T** Let's imagine that one whole equaled a Base-Ten block. **Model this by either drawing it or using Base-Ten Blocks. Also, have the students add a chart into their notes.**
- T** The block is made up of 1,000 little cubes.
- T** Our tenths place is represented by a "flat" .
- T** It would take 10 flats, to equal one big cube.


T Each has a value of $1/10$.

T The next place to the right is our hundredths place, represented by a rod. 

T It would take 10 rods to equal one flat, or a tenth.

T It would take 100 rods to equal one block.

T Each has a value of $1/100$.

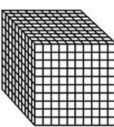
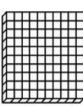
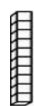

T Last we have the thousandths place represented by a cube. 

T It would take 10 cubes to equal one rod, or a hundredth.

T 100 cubes to equal a flat, or a tenth.

T And 1,000 cubes to equal a block, or one whole.

T Each has a value of $1/1,000$

Ones	.	Tenths	Hundredths	Thousandths
 <p><i>T</i> The block is made up of 1,000 little cubes</p>	.	 <ul style="list-style-type: none"> It would take 10 flats, to equal one big cube. Each one is worth $1/10$ 	 <ul style="list-style-type: none"> It would take 10 rods to equal one flat, or a tenth. It would take 100 rods to equal one block. Each has a value of $1/100$. 	 <ul style="list-style-type: none"> It would take 10 cubes to equal one rod, or a hundredth. 100 cubes to equal a flat, or a tenth. And 1,000 cubes to equal a block, or one whole. Each has a value of $1/1,000$

T Flip your "Notes" over to the backside of the paper.

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

T How many of each Base-Ten block would we use to make our number?

T Work with your partner to draw the blocks that would represent our number of 6,923.296.

Answer:

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
6	9	2	3	.	2	9	6
6,000	900	20	3	.	$2/10$	$9/100$	$6/1000$

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

T So, what would be the Value of each digit?

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.

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.
- T** Does anyone know what mathematical equation I can do 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** 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** Below the Place Value Chart, I would like you to make a 2 by 4 grid. **See example to the right.**

- 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, and $1/10$ the value of what it represents to the left.

- T** In the first row, we are going to write our two rules:

- T** If a number is one place to the left, you multiply by 10. ($\times 10$)– It is 10 times more, than the place to its right.

- T** Example: The tens place is 10x the value of the ones place. 7 tens = 70 ones

- T** The hundreds place is 100x the value of the ones place. It is 10 x the value.

- T** In the next box write: If a number is one place to the right, you divide by 10. ($1/10$ the value)

- T** Example: The tenths place is $1/10$ the value of the ones place.

- T** The hundredths place is $1/100$ the value of the ones place.

- T** Example: 70 ones = 7 tens

- T** We are going to use our number from our place value chart for the next 6 problems.

- 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. **Call on students to share their answers. Answer: $6 \times 10 = 60$.**

- T** In the next row, write: 60 hundreds = _____ thousands. Be careful because this time you are moving in the other direction. **Answer: 6 thousands.**

- T** In the second box of this row, write the equation that you can use to solve this. **Call on students to share their answers. Answer: $60/10=6$**

- 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**

<p>If a number is one place to the left, you multiply by 10. ($\times 10$)– It is 10 times more, than the place to its right. Example: The tens place is 10x the value of the ones place The hundreds place is 100x the value of the ones place.</p>	<p>If a number is one place to the right, you divide by 10. ($1/10$ the value) Example: The tenths place is $1/10$ the value of the ones place. The hundredths place is $1/100$ the value of the ones place.</p>
<p>6 tens = _____ ones. Answer: 60 ones</p>	<p>Equation: Answer: $6 \times 10 = 60$.</p>
<p>60 hundreds = _____ thousands. Answer: 6 thousands.</p>	<p>Equation: Answer: $60/10=6$</p>
<p>500 ones = _____ tens Answer: 50 tens</p>	<p>Equation: Answer: $500/10= 50$ tens</p>

You may use the exit slip at the end of this lesson as a quick assessment of student understanding. Either print them out (page 6), or simply have students copy the problems on a half sheet of paper.

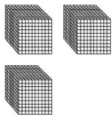
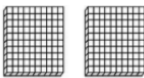


Name: Answer Key Date: _____

Exit Slip: Segment 1

A digit represents 10 times the value of what it represents in the place to the right and $\frac{1}{10}$ what it represents to the left.

- 1) Draw a place value chart showing the ones through the thousandths place.
- a) On your chart, write a 4-digit number of your choice.
- b) Below each digit show the value of the digit using both Base-Ten Blocks and number form.

Answers will vary based on the number students select

Place Value Names	Ones	.	Tenths	Hundredths	Thousandths
Number	3	.	2	3	5
Base-Ten Blocks		.			
Value:	3	.	$\frac{2}{10}$	$\frac{3}{100}$	$\frac{5}{1,000}$

- 2) Fill in the blank to make each statement true. Show the equation used to complete each statement.
- a) 90 ones = 9 tens
- b) 8 tens = 80 ones
- c) 7 hundreds = 70 tens

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: Thumbs Up!



- Student is called on to state their favorite number from 1 to 20.
- Other students signify whether they see that number somewhere in the classroom.
- Tally their responses. The number with the most votes or Thumbs Up is the winner for the activity!

Name: _____ Date: _____

Exit Slip

A digit represents 10 times the value of what it represents in the place to the right and $\frac{1}{10}$ what it represents to the left.

- 3) Draw a place value chart showing the ones through the thousandths place.
 - a) On your chart, write a 4-digit number of your choice.
 - b) Below each digit show the value of the digit using both Base-Ten Blocks and number form.

Place Value Names					
Number					
Base-Ten Blocks					
Value:					

- 4) 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: _____ Date: _____

Exit Slip

A digit represents 10 times the value of what it represents in the place to the right and $\frac{1}{10}$ what it represents to the left.

- 5) Draw a place value chart showing the ones through the thousandths place.
 - a) On your chart, write a 4-digit number of your choice.
 - b) Below each digit show the value of the digit using both Base-Ten Blocks and number form.

Place Value Names					
Number					
Base-Ten Blocks					
Value:					

- 6) 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