

General Information

Lesson Parts & Duration

Total Duration: 1 hour

- Place Value: Value of Digits

Subject(s)

- Place Value Through the Hundred- Thousands Place: Value of Digits; Expanded Form (4.NBT.2a)

Objective

- Students will use expanded form and place value to explain the value of digits through the hundred-thousands place.
- Students will read and write whole numbers through the hundred-thousands place.

Materials

- blank paper
- pencil & crayons/colored pencils
- document camera or whiteboard
- **Optional:** printable “Expanded Form and Value of Digits” (page 7) –or– project it for students to copy
- **Optional:** printable “Exit Slip” (page 6) –or– project it for students to copy
- **Optional:** printable “Break Up Your Day” brain/movement break ideas (page 8)

Instructional Setting

- Students should be 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

Introduction

- T* All digits have a “place” which shows the digit’s quantity. Numbers can be compared when you know the digit’s place value.
- T* Place value happens in real life.
- T* For example, if you had 9 one dollar bills, 7 ten dollar bills, and 5 one-hundred dollar bills you could count the bills in their place values and calculate the amount of cash.
- T* 1-hundred-dollar bill has a value of \$100, so 5 one-hundred dollar bills has a value of \$500.
- T* 1 ten-dollar bill has the value of \$10, so 7 ten-dollar bill have a value of \$70
- T* And finally, a 1 dollar bill has a value of \$1, so 9 one dollar bills have a value of \$9 9
- T* If I were to add all of those up, how much money would I have? **Call on students. Answer \$579.**
- T* I would have \$579, we were able to figure that out by adding all the values together.
- T* The place value of a number affects the value of a digit.
- T* By moving a digit around on a place value chart, I affect the value of that digit.
- T* Using our knowledge of place value, we can create numbers that are 10 more or 10 less, 100 more or 100 less, 1,000 more or 1,000 less, etc.
- T* I am going to start by telling you a little story.

The Phone Number Mistake

One day a very young boy wanted to call his grandmother. He has the number written down as 435-2987. He picks up the phone and dials the number as 453-2987 into the phone. The phone rings twice and a man answers the phone, “Hello, this is Steve.” The boy looks at the phone very confused and worried. That wasn’t his grandmother. He looked back at the paper where the phone number was written. He realized what had happened. His grandmother’s phone number begins with 435, not 453. The boy remembered the digits, but not their place value.

- T* The message of this story is an important one.
- T* When we put numbers in a different order the value or the meaning of those numbers change.
- T* Although the numbers 435 and 453 are similar, they both share the same digits; the order of digits really matters!
- T* Today we will write our numbers in expanded form and identify both the value of digits and their place value.

Either give each student a copy of “Expanded Form and Value of Digits” sheet or give them each 1 piece of blank paper and project the “Expanded Form and Value of Digits” sheet for students to copy.

Setting up the Paper If you are having students copy the problems on blank paper.

- T* On your piece of paper please write your name and date in the top right hand corner of your paper. See example & model so students can follow.
- T* Then title your paper, "Expanded Form."
- T* We will start by writing out an example to help us.
- T* Write, "Example: $975,400 = 900,000 + 70,000 + 5,000 + 400$."

If you printed out the sheet for students start here.

- T* Reading a number out loud is a great way to hear the value of the digits.
- T* For our example if I read it slowly to you see if you can hear some of the values.
- T* Nine hundred, seventy-five thousand, four hundred.
- T* Remember that when you are reading a number it is incorrect to say the word "and" at the comma.
- T* We use the word "and" when we are reading a number with a decimal.
- T* The comma tells you to pause.
- T* For the next 6 problems, I would like you to read each number aloud with a partner.
- T* Listen for some of the values when you say the number.
- T* Then write the number in expanded form.
- T* Please work with someone either next to or near you.

| | |
|--|------------|
| Name _____ | Date _____ |
| Expanded Form | |
| Example: $975,400 = 900,000 + 70,000 + 5,000 + 400$ | |
| <ol style="list-style-type: none"> 1. 870,032 2. 34,297 3. 219,003 4. 65,541 5. 497,132 6. 14,339 | |
| Value of Digits | |
| 975,400 | |
| <ol style="list-style-type: none"> 1. The digit 5 is in the _____ place. 2. The digit 9 is in the _____ place. 3. The digit 4 is in the _____ place. 4. The value of the digit 9 is _____. 5. The value of the digit 5 is _____. 6. The value of the digit 7 is _____. 7. The 4 stands for _____. 8. The 5 stands for _____. | |
| 465,207 | |
| <ol style="list-style-type: none"> 1. The 2 stands for _____ hundreds. 2. The digit 6 is in the _____ place. 3. The value of the digit 4 is _____. 4. The digit in the thousands place is _____. 5. The digit 0 is in the _____ place. 6. The digit 7 is in the _____ place and its value is _____. | |

Allow time for students to discuss with a partner. Monitor students and ensure they are on topic.

- T* Ok, let's quickly check your work.
- T* Who would like to share their answer for number 1? **Call on student to answer.** Answer: $800,000 + 70,000 + 30 + 2$.
- T* Who would like to share their answer for number 2? **Call on student to answer.** Answer: $30,000 + 4,000 + 200 + 90 + 7$.
- T* Who would like to share their answer for number 3? **Call on student to answer.** Answer: $200,000 + 10,000 + 9,000 + 3$.
- T* Who would like to share their answer for number 4? **Call on student to answer.** Answer: $60,000 + 5,000 + 500 + 40 + 1$.
- T* Who would like to share their answer for number 5? **Call on student to answer.** Answer: $400,000 + 90,000 + 7,000 + 100 + 30 + 2$.
- T* Who would like to share their answer for number 6? **Call on student to answer.** Answer: $10,000 + 4,000 + 300 + 30 + 9$.
- T* Excellent work!
- T* Now your knowledge of using expanded form is going to help you to identify the value of different digits.
- T* Your job now is to analyze digits in 2 different numbers: 975,400 and 465,207.
- T* Before you start let's analyze a number together as a class.
- T* The number is 378,291. Write this number on the board so that students can look at it while answering questions about the number.

- T** The 2 stands for? **Call on a student. Answer: 200 or 2 hundreds**
- T** The digit 7 is in _____ place? **Call on a student. Answer: ten-thousands place**
- T** The value of the digit 3 is? **Call on a student. Answer: 300,000**
- T** The digit in the thousands place is? **Call on a student. Answer: 8**
- T** The digit 9 is in the _____ place? **Call on a student. Answer: ten's place**
- T** The digit 1 is in the _____ place and its value is ___? **Call on a student. Answer: ones; 1**
- T** Now, I would like you to stand up with your paper and pencil and find a partner who has the same number of brothers and sisters as you do.
- T** If you are an only child you are looking for someone else that is an only child.
- T** If you are unable to find a partner, I will find one for you.

Allow students to find a partner, if they are unable to find a partner, simply pair them up.

- T** With your partner, you will practice identifying values of digits within a number.
- T** It may be helpful to first write your number in expanded form to help you.
- T** If you and your partner finish early you can scramble up the digits in these numbers and then try to answer the questions again.
- T** Once everyone is finished we will review your answers and then you will have a chance to show your teacher what you have learned by completing similar questions independently!

Allow 10-15 minutes to complete. If time allows you may want to review the answers as a whole class before moving onto the assessment component.

***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. Answer Key found on next page.**

| Name _____ ANSWER KEY Date _____ | |
|--|---|
| Expanded Form | |
| Example: 975,400 = 900,000 + 70,000 + 5,000 + 400 | |
| 1. | 870,032 800,000 + 70,000 + 30 + 2 |
| 2. | 34,297 30,000 + 4,000 + 200 + 90 + 7 |
| 3. | 219,003 200,000 + 10,000 + 9,000 + 3 |
| 4. | 65,541 60,000 + 5,000 + 500 + 40 + 1 |
| 5. | 497,132 400,000 + 90,000 + 7,000 + 100 + 30 + 2 |
| 6. | 14,339 10,000 + 4,000 + 300 + 30 + 9 |
| Value of Digits | |
| 975,400 | |
| 1. | The digit 5 is in the thousand's place. |
| 2. | The digit 9 is in the hundred-thousand's place. |
| 3. | The digit 4 is in the hundred's place. |
| 4. | The value of the digit 9 is 900,000 . |
| 5. | The value of the digit 5 is 5,000 . |
| 6. | The value of the digit 7 is 70,000 . |
| 7. | The 4 stands for 400 or 4 hundred . |
| 8. | The 5 stands for 5,000 or 5 thousand . |
| 465,207 | |
| 1. | The 2 stands for 2 hundreds . |
| 2. | The digit 6 is in the ten-thousand's place. |
| 3. | The value of the digit 4 is 400,000 . |
| 4. | The digit in the thousands place is 5 . |
| 5. | The digit 0 is in the tens place. |
| 6. | The digit 7 is in the ones place and its value is 7 . |

 **Make sure to "Break Up Your Day!"** 

Now is a great time to take a break and get students re-energized. See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 8)

Name: ANSWER KEY Date: _____

Exit Slip:
Expanded Form & Value of Digits

695, 724

1. Write this number in expanded form. **600,000 + 90,000 + 5,000 + 700 + 20 + 4**
2. The 2 stands for **2 -OR- two** hundreds.
3. The digit 6 is in the **hundred-thousands** place.
4. The value of the digit 9 is **90,000**.
5. The digit in the thousands place is **5**.
6. The digit 4 is in the **one's** place.
7. The digit 7 is in the **hundred's** place and its value is **700**.

Name: _____ Date: _____

Exit Slip:
Expanded Form & Value of Digits

695, 724

15. Write this number in expanded form.

16. The 2 stands for _____ hundreds.

17. The digit 6 is in the _____ place.

18. The value of the digit 9 is _____.

19. The digit in the thousands place is _____.

20. The digit 4 is in the _____ place.

Name: _____ Date: _____

Exit Slip:
Expanded Form & Value of Digits

695, 724

8. Write this number in expanded form.

9. The 2 stands for _____ hundreds.

10. The digit 6 is in the _____ place.

11. The value of the digit 9 is _____.

12. The digit in the thousands place is _____.

13. The digit 4 is in the _____ place.

Name _____ Date _____

Expanded Form

Example: $975,400 = 900,000 + 70,000 + 5,000 + 400$

1. **870,032**
2. **34,297**
3. **219,003**
4. **65,541**
5. **497,132**
6. **14,339**

Value of Digits

975,400

1. The digit 5 is in the _____ place.
2. The digit 9 is in the _____ place.
3. The digit 4 is in the _____ place.
4. The value of the digit 9 is _____.
5. The value of the digit 5 is _____.
6. The value of the digit 7 is _____.
7. The 4 stands for _____.
8. The 5 stands for _____.

465,207

1. The 2 stands for _____ hundreds.
2. The digit 6 is in the _____ place.
3. The value of the digit 4 is _____.
4. The digit in the thousands place is _____.
5. The digit 0 is in the _____ place.
6. The digit 7 is in the _____ place and its value is _____.

Make sure to “Break Up Your Day!”

These can be used in the middle of a lesson or at the end of your lesson. Here are a few engaging movement and brain break ideas to get your students moving and ready to refocus!



Break Up Your Day: Notation Kid!



- Challenge students to write as many expanded notation 5-digit numbers (to the ten thousands place) as possible in one minute. (example: $15,432 = 10,000 + 5,000 + 400 + 30 + 2$, etc.)
- Students trade papers with a shoulder buddy and the buddy counts the correct expanded notations.
- Whoever has the most correct expanded notations may share their facts with the class (if document camera is available) or they simply become the new Notation Kid!



Break Up Your Day: Math Outside



- Students take scratch paper/pencil and find inverse operations outside.
- Students draw and label objects that can be expanded. (examples: 24 trees = $20 + 4$, 118 students = $100 + 10 + 8$, etc.)



Break Up Your Day: Thumbs Up!



- Student is called on to state their favorite number from 1 to 20, use name cards or equity cards if available.
- 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!