

Lesson 1: Numbers to 1,000,000 Review (2 Days)

☐ Getting Started

During this unit, you're going to review our place value system and work with really big numbers. Along the way, you'll compare, order, and round big numbers from the millions place to the thousandths. You'll also learn about something called "power counting" that lets you count to really big numbers quickly.

To get started, watch the music video at the following web link to review how to read and write numbers to the millions place. Pay attention to how to say big numbers and where to place the commas when writing them.



Place Value Song: Numbers to the Millions

www.beyondthepage.com/link/8383/

Numbers to the millions place have 7 digits. In the number 6,435,781, the number 6 is in the millions place. What number is in the ten thousands place? What number is in the hundreds place?

You should have found that 3 is in the ten thousands place and 7 is in the hundreds place.

Now, play the game at the following web link to practice working with place value to the millions place.



Place Value (Up to Millions)

www.beyondthepage.com/link/8384/

Stuff You Need

- 3-hole drilled card stock (kit)
- colored pencils
- glue or glue stick
- Interactive Notebook
- scissors

Ideas to Think About

- How does place value work?
- How can you use place value to name, create, and compare numbers?

Things to Know

- A **factor** is a number that is multiplied by another number to get a product.
- A **multiple** is the product of a number and another number.
- A **prime number** is a number greater than 1 that has only 2 factors, the number itself and 1 (such as 2, 3, 11).
- A **composite number** is a number that has more than 2 factors (such as 4, 6, 12).
- The number 1 is neither prime nor composite.
- The only even prime number is 2. All other even numbers have 2 as a factor.
- Expanded form expresses a number by showing the value of each digit. In expanded form, 4,532 is $4,000 + 500 + 30 + 2$.
- Expanded notation, or super expanded form, expresses a number by showing each digit multiplied by its place value. In expanded notation, 4,532 is $(4 \times 1,000) + (5 \times 100) + (3 \times 10) + (2 \times 1)$.

Activities

☐ Activity 1: Working With Big Numbers

You will test your knowledge of place value by completing the "Big Numbers" sheet. When you are finished, read the numbers aloud to a parent.

☐ Activity 2: Big Numbers in Different Forms

You may remember that you can write numbers in different forms: number form, word form, expanded form, and expanded notation (also called super expanded form). For example, these all show the same number:

- 3,472,815
- three million four hundred seventy-two thousand eight hundred fifteen
- $3,000,000 + 400,000 + 70,000 + 2,000 + 800 + 10 + 5$
- $(3 \times 1,000,000) + (4 \times 100,000) + (7 \times 10,000) + (2 \times 1,000) + (8 \times 100) + (1 \times 10) + (5 \times 1)$

If there's a zero in a place, then you must consider that, too. For example:

- 2,045,176
- two million forty-five thousand one hundred seventy-six
- $2,000,000 + 40,000 + 5,000 + 100 + 70 + 6$

- $(2 \times 1,000,000) + (0 \times 100,000) + (4 \times 10,000) + (5 \times 1,000) + (1 \times 100) + (7 \times 10) + (6 \times 1)$

Notice that the zero is not included in the word form or expanded form but is included in expanded notation because that form shows each digit multiplied by its place value.

Use what you know about numbers in different forms to complete the "Big Numbers in Different Forms" sheet.

Day 2

☐ Activity 3: Big Number Search

Use the clues provided on the "Big Number Search" sheet to find the numbers hidden in the puzzle. The numbers may be found horizontally, vertically, or diagonally, but the digits must be in the correct order from the millions to the ones places.

☐ Activity 4: The Place Is Right!

Complete the "Place is Right!" sheet by using the clues to figure out the numbers. Read through all of the clues before you try to figure out the number as many of the clues are connected to other clues, and you may need to use multiple clues to narrow down a particular digit. You may want to use a scratch sheet of paper to keep track of your options.

Keep in mind that a **factor** is a number that is multiplied by another number to get a product while a **multiple** is the product of a number and another number. For example, 6 is a factor of 12 because it can be multiplied by another number (2) to get 12. Twelve is a multiple of 2 and 3 because 2 can be multiplied by 6 and 3 can be multiplied by 4 to get 12.

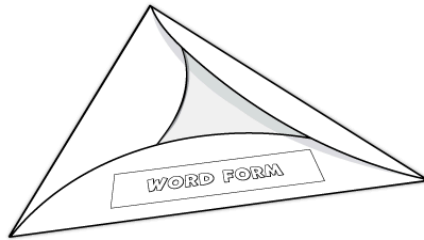
Remember, too, that a **prime number** is a number greater than 1 that has only 2 factors, the number itself and the number 1 (for example, 2, 3, 11). A **composite number** is a number that has more than 2 factors (for example, 4, 6, 12). The number 1 is neither prime nor composite. Is 15 prime or composite? What about 13? You should see that 15 is composite because 1 times 15 and 3 times 5 both equal 15 and 13 is prime because its only factors are 1 and 13.

When you've finished the "Place is Right!" sheet, ask a family member or a friend to try to figure out the number that your own clues describe.

☐ Activity 5: Big Numbers All Around!

Follow these steps to create a foldable to help you review different number formats:

1. Find the "Number Forms" page and cut out the circle and boxes along the dotted lines.
2. Fold the circle along the solid lines to cover the triangle. (Refer to the following image as needed.)
3. Glue each box with the form name to the top of the circle section that has the matching form underneath.
4. Use the forms on the circle to write the number form of the number inside the triangle. Use a red pencil to write commas in the correct places.
5. Add hyphens to the word form where they go using a blue pencil.
6. The addition signs are missing in the expanded form. Use a green pencil to write where they belong.
7. Use an orange pencil to draw the parentheses around each place value group in the expanded notation section.
8. Glue the template onto a piece of card stock, and place it in your Interactive Notebook as a helpful reference tool.



Next, use a reference book or, with your parent's permission, the Internet to find a fact that involves a big number. Some examples might be the population of New York City, the distance from the Earth to the moon, or the number of hours in a century. Write your number in the box at the top of the activity sheet "Big Numbers All Around!" Then follow the directions in the six activity boxes to analyze your number.

Wrapping Up

During this lesson, you reviewed how place value works up to the millions place. Next, you'll apply your understanding of place value to comparing and ordering big numbers.

Learning Gates

Take the [Learning Gates quiz](#) for this lesson.

Big Numbers



Instructions: Answer the questions about the number shown.

958,680

How many digits does this number have? _____

How do we say this number? _____

What digit is in the tens place? _____

What digit is in the thousands place? _____

What number is 10 more than this number? _____

What number is 100 less than this number? _____

What number is 100,000 more than this number? _____

3,562,027

How do we say this number? _____

What digit is in the hundreds place? _____

What digit is in the hundred thousands place? _____

What number is 10 less than this number? _____

What number is 1,000,000 more than this number? _____

What number is 100,000 less than this number? _____

Is the digit in the thousands place odd or even? _____

BIG NUMBERS in Different Forms

Number Form

2,054,575

Word Form _____**Expanded Form** _____**Expanded Notation** _____**Number Form****Word Form** three million seven hundred fifty-four thousand nine hundred thirty-six**Expanded Form** _____**Expanded Notation** _____**Number Form****Word Form** _____**Expanded Form** 7,000,000 + 400,000 + 20,000 + 3,000 + 70**Expanded Notation** _____**Number Form****Word Form** _____**Expanded Form** _____**Expanded Notation** $(9 \times 1,000,000) + (3 \times 100,000) + (5 \times 10,000) + (8 \times 1,000) + (0 \times 100) + (0 \times 10) + (8 \times 1)$

Big Number Search

Instructions: Use the clues to find the hidden numbers.

5	6	4	0	5	0	2	0	6	1	8	1	8	2	0	6	0
1	3	0	1	0	9	9	0	2	0	9	0	0	0	6	0	1
0	9	8	8	3	0	0	8	5	0	0	2	0	1	0	0	8
9	2	1	9	0	5	8	1	0	5	0	9	0	6	8	0	9
7	0	3	8	1	0	6	0	0	0	0	7	6	0	2	5	4
1	2	9	4	0	2	0	6	0	0	1	5	2	8	0	8	1
9	4	0	2	5	8	0	2	8	0	9	8	0	1	8	9	2
2	0	3	0	2	0	0	0	4	8	0	2	7	1	0	9	0
7	5	9	0	8	2	1	9	0	1	7	0	0	9	8	0	1
0	7	1	5	3	0	8	7	6	7	0	8	0	7	1	5	8
7	6	0	5	0	7	1	2	3	0	3	1	9	0	0	4	9
3	6	1	2	0	5	0	0	0	0	8	0	7	2	0	0	2
1	0	4	5	2	6	1	0	2	1	0	0	0	6	8	1	0
0	6	8	0	0	4	0	7	0	9	6	9	8	7	6	1	8
2	1	0	6	1	0	1	2	6	2	1	7	7	0	1	0	0
0	7	6	1	6	7	8	0	2	9	7	0	8	2	8	4	2

Clues:



five million six hundred
forty thousand five
hundred two



$50,000 + 300 + 1$



four million
sixty-three thousand
twenty



three hundred
thousand seven
hundred fourteen



$(7 \times 100,000) +$
 $(6 \times 10,000) + (0 \times 1,000)$
 $+ (2 \times 100) + (5 \times 10) +$
 (4×1)



eight million four
thousand seventy



$200,000 + 5,000 +$
 $500 + 5$



$(9 \times 100,000) +$
 $(9 \times 10,000) + (0 \times 1,000)$
 $+ (5 \times 100) + (4 \times 10) +$
 (0×1)



Instructions: Use the clues to figure out the numbers.

- * The number has 7 digits.
- * The digits in the thousands and the hundreds places are the same even prime number.
- * The digit in the hundred thousands place is a factor of both 25 and 40.
- * The digit in the millions place is a multiple of 4 and has the digits in the thousands place and the tens place as factors.
- * The digit in the tens place is a multiple of 2 and is 1 less than the digit in the hundred thousands place.
- * The digit in the ten thousands place is the remainder when you divide 59 by 8.
- * The digit in the ones place is odd and is neither prime nor composite.

The number is:

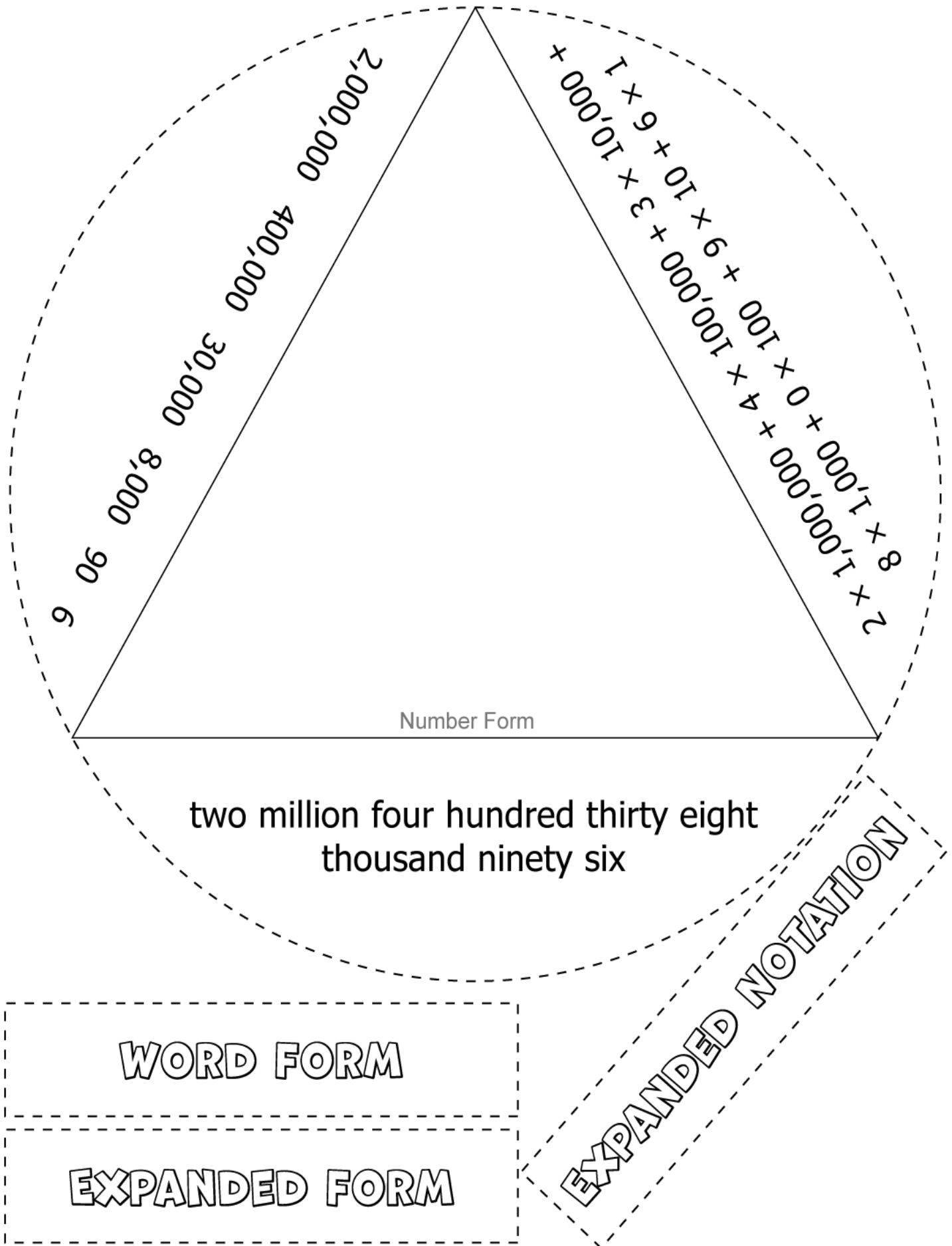
____, ____ ____ ____, ____ ____ ____

- * The number has 7 digits.
- * All of the digits are odd.
- * The digit in the ones place is composite.
- * The digits in the millions and the ten thousands places are the same.
- * When you multiply the digit in the ones place by the digit in the hundred thousands place, the product is 27.
- * The digit in the hundreds place is the remainder when you divide 43 by the digit in the ones place.
- * The product of the digits in the millions place and the thousands place is 5.
- * The digit in the ten thousands place is greater than the digit in the thousands place.
- * When you divide the digit in the ones place by the digit in the tens place, the quotient is 1.

The number is:

____, ____ ____ ____, ____ ____ ____

Now, write down a 7-digit number of your choosing, and come up with a set of clues to help someone else guess your number. Write your clues on the back of this sheet (but don't write the number there!). Make sure that you include all of the clues needed to figure out the number.



BIG Numbers All Around!

Instructions: Write the big number you found in the box below and then analyze your number by following the directions below.

YOUR NUMBER

1. What is the highest place value in your number? _____ What number is in the thousands place? _____

2. Write your number in **WORD FORM**. _____

3. What is 10,000 more than your number? _____

4. Write your number in **EXPANDED FORM**. _____

5. Write your number in **EXPANDED NOTATION**. _____

6. Write your number. Circle all the prime numbers.

My number is:
(CIRCLE ONE)

ODD EVEN

Lesson 1: Numbers to 1,000,000 Review (2 Days)

Getting Started

? Ideas to Think About

- How does place value work?
- How can you use place value to name, create, and compare numbers?



Things to Know

- A **factor** is a number that is multiplied by another number to get a product.
- A **multiple** is the product of a number and another number.
- A **prime number** is a number greater than 1 that has only 2 factors, the number itself and 1 (such as 2, 3, 11).
- A **composite number** is a number that has more than 2 factors (such as 4, 6, 12).
- The number 1 is neither prime nor composite.
- The only even prime number is 2. All other even numbers have 2 as a factor.
- Expanded form expresses a number by showing the value of each digit. In expanded form, 4,532 is $4,000 + 500 + 30 + 2$.
- Expanded notation, or super expanded form, expresses a number by showing each digit multiplied by its place value. In expanded notation, 4,532 is $(4 \times 1,000) + (5 \times 100) + (3 \times 10) + (2 \times 1)$.

⦿ Skills

- Read and write numbers from 1,000,000 to thousandths using base-10 numerals, number names, and expanded form

Introducing the Lesson

During this unit, your child will review what he already knows about place value in our number system and will extend his understanding to include decimals to the thousandths. He will compare, order, and round numbers from the millions to the thousandths and will write these numbers in multiple forms. He will also learn about powers of ten and exponents and will explore Roman numerals.

Explain to your child that this first lesson focuses on reading and writing numbers to the millions place. If you think that he would benefit from a comprehensive review of place value and the base-10 number system, allow him to watch the video at the following web link.



Place Value

www.beyondthepage.com/link/8385/

MATERIALS NOTE: The Interactive Notebook is a large a 3-ring binder with pockets inside the front and back cover. Foldables, flip books, and other Interactive Notebook projects can be stored in the pockets or

mounted onto card stock paper. The full pages of card stock have been predrilled so the projects can be easily stored in the notebook.

Activities

Activity 1: Working With Big Numbers

During this activity, your child will answer questions about two big numbers. Be ready to check his understanding of place value and adding multiples of 10 in big numbers once he completes the assigned sheet.

Allow your child to read aloud the two numbers from the "Big Numbers" sheet. Make sure that he can read them correctly and has accurately answered the questions.

If needed, write 3,813,456 on a sheet of paper, and ask him to read it aloud. ("three million eight hundred thirteen thousand four hundred fifty-six") Then, pose the following types of questions:

- What digit is in the ten thousands place? (1)
- What is the value of the digit 4 in this number? (400)
- What is 1,000 more than this number? (3,814,456)

Answer Key:

- 958,680
 - How many digits does this number have? (6)
 - How do we say this number? (nine hundred fifty-eight thousand six hundred eighty)
 - What digit is in the tens place? (8)
 - What digit is in the thousands place? (8)
 - What number is 10 more than this number? (958,690)
 - What number is 100 less than this number? (958,580)
 - What number is 100,000 more than this number? (1,058,680)
- 3,562,027
 - How do we say this number? (three million five hundred sixty-two thousand, twenty-seven)
 - What digit is in the hundreds place? (0)
 - What digit is in the hundred thousands place? (5)
 - What number is 10 less than this number? (3,562,017)
 - What number is 1,000,000 more than this number? (4,562,027)
 - What number is 100,000 less than this number? (3,462,027)
 - Is the digit in the thousands place odd or even? (even)

Activity 2: Big Numbers in Different Forms

Your child will review and practice writing numbers in number form, word form, expanded form, and expanded notation.

"Big Numbers in Different Forms" Answer Key

Number Form 2,054,575	Word Form two million fifty-four thousand five hundred seventy-five
	Expanded Form $2,000,000 + 50,000 + 4,000 + 500 + 70 + 5$
	Expanded Notation $(2 \times 1,000,000) + (0 \times 100,000) + (5 \times 10,000) + (4 \times 1,000) + (5 \times 100) + (7 \times 10) + (5 \times 1)$
Number Form 3,754,936	Word Form three million seven hundred fifty-four thousand nine hundred thirty-six
	Expanded Form $3,000,000 + 700,000 + 50,000 + 4,000 + 900 + 30 + 6$
	Expanded Notation $(3 \times 1,000,000) + (7 \times 100,000) + (5 \times 10,000) + (4 \times 1,000) + (9 \times 100) + (3 \times 10) + (6 \times 1)$
Number Form 7,423,070	Word Form seven million four hundred twenty-three thousand seventy
	Expanded Form $7,000,000 + 400,000 + 20,000 + 3,000 + 70$
	Expanded Notation $(7 \times 1,000,000) + (4 \times 100,000) + (2 \times 10,000) + (3 \times 1,000) + (0 \times 100) + (7 \times 10) + (0 \times 1)$
Number Form 9,358,008	Word Form nine million three hundred fifty-eight thousand eight
	Expanded Form $9,000,000 + 300,000 + 50,000 + 8,000 + 8$
	Expanded Notation $(9 \times 1,000,000) + (3 \times 100,000) + (5 \times 10,000) + (8 \times 1,000) + (0 \times 100) + (0 \times 10) + (8 \times 1)$

Day 2**Activity 3: Big Number Search**

This activity provides additional practice with recognizing numbers written in different forms.

"Big Number Search" Answer Key

5	6	4	0	5	0	2	0	6	1	8	1	8	2	0	6	0
1	3	0	1	0	9	9	0	2	0	9	0	0	0	6	0	1
0	9	8	8	3	0	0	8	5	0	0	2	0	1	0	0	8
9	2	1	9	0	5	8	1	0	5	0	9	0	6	8	0	9
7	0	3	8	1	0	6	0	0	0	7	6	0	2	5	4	
1	2	9	4	0	2	0	6	0	0	1	5	2	8	0	8	1
9	4	0	2	5	8	0	2	8	0	9	8	0	1	8	9	2
2	0	3	0	2	0	0	0	4	8	0	2	7	1	0	9	0
7	5	9	0	8	2	1	9	0	1	7	0	0	9	8	0	1
0	7	1	5	3	0	8	7	6	7	0	8	0	7	1	5	8
7	6	0	5	0	7	1	2	3	0	3	1	9	0	0	4	9
3	6	1	2	0	5	0	0	0	0	8	0	7	2	0	0	2
1	0	4	5	2	6	1	0	2	1	0	0	0	6	8	1	0
0	6	8	0	0	4	0	7	0	9	6	9	8	7	6	1	8
2	1	0	6	1	0	1	2	6	2	1	7	7	0	1	0	0
0	7	6	1	6	7	8	0	2	9	7	0	8	2	8	4	2

Activity 4: The Place Is Right!

During this activity, your child will use clues to figure out two big numbers — 8,532,241 and 5,351,799. Many of the clues are connected to one another, so as needed, remind your child to read the clues carefully.

To be successful with this activity, your child will review these facts about numbers:

- A factor is a number that is multiplied by another number to get a product (for example, 6 is a factor of 12).
- A multiple is the product of a number and another number (for example, 6 is a multiple of 2 and 3).
- A prime number is a number greater than 1 that has only 2 factors, the number itself and 1 (for example, 2, 3, 11).
- A composite number is a number that has more than 2 factors (for example, 4, 6, 12).

When your child finishes the "Place is Right!" sheet, allow him to share the clues he wrote on the back of the sheet so that someone else can try to figure out the number he has described.

Activity 5: Big Numbers All Around!

Your child will first create a foldable for his Interactive Notebook to remind him about the different forms that can be used to show a number. After cutting out and folding the circle, he should paste the correct form name to each outside flap, and then write the number form of the number on the the side of the triangle under the flap. He will finalize his foldable by adding hyphens, plus signs, or parentheses to the number forms in which they belong. Make sure the number forms are accurate and have commas in the correct places.

- Word Form: 2,438,096 — two million four hundred thirty-eight thousand ninety-six (the word form should have hyphens for "thirty-eight" and "ninety-six" and no commas)
- Expanded Form: 2,438,096 — $2,000,000 + 400,000 + 30,000 + 8,000 + 90 + 6$ (your child should add the plus signs; note that expanded form does not include 0 values, so your child should not represent the 0 in the hundreds place because no valued number is included in that place)
- Expanded Notation: 2,438,096 — $(2 \times 1,000,000) + (4 \times 100,000) + (3 \times 10,000) + (8 \times 1,000) + (0 \times 100) + (9 \times 10) + (6 \times 1)$ (your child should insert the parentheses)

Next, your child will find a fact involving a big number. Some examples might be the population of New York City, the distance from the Earth to the moon, or the number of hours in a century. He will write that number at the top of the "Big Numbers All Around!" activity page and then analyze the number. Answers will vary depending on the number selected.

Answer Key:

1. What is the highest place value in your number? What number is in the thousands place? (For the sample number 1,234,567, the highest place value is millions, and the 4 is in the thousands place.)
2. Write your number in word form. (Make sure the word form does not contain commas but does contain hyphens for any number between 21-99 that does not end in 0; the word form for the sample number 1,234,567 is one million two hundred thirty-four thousand five hundred sixty-seven)
3. What is 10,000 more than your number? (For the sample number 1,234,567, it would be 1,244,567.)

4. Write your number in expanded form. (For the sample number 1,234,567, expanded form would be $1,000,000 + 200,000 + 30,000 + 4,000 + 500 + 60 + 7$.)
5. Write your number in expanded notation. (For the sample number 1,234,567, expanded notation would be $(1 \times 1,000,000) + (2 \times 100,000) + (3 \times 10,000) + (4 \times 1,000) + (5 \times 100) + (6 \times 10) + (7 \times 1)$. Note that if his number contains a 0, it should be included in the expanded notation form.)
6. Write your number. Circle all of the prime numbers. (He should circle 2s, 3s, 5s, and 7s and then indicate if the number is even or odd.)

Wrapping Up

Questions to Discuss

- Ask your child to write the following number as you read it aloud: 6,301,431 (six million three hundred one thousand four hundred thirty-one). Be sure that he places the commas in the correct places. Then, pose the following questions:
- What values does the digit 3 have in this number? (three hundred thousand, thirty)
- What values does the digit 1 have in this number? (one thousand, one)
- What is the value of 6? (six million)

Things to Review

Review forms for writing numbers: number form, word form, expanded form, expanded notation/super expanded form

Review the ones to the millions places

Review the terms *prime*, *composite*, *multiple*, *factor*