Grade 4

# Understanding the Place Value System
Check out the "Parent Quick Smarts" video for this unit by using this link:  https://goo.gl/5rfFVD

| Overarching Student Learning Goals<br>In this unit, your child will work to build an understanding of the following: | Resources/Tasks to support your child at home. |
| --- | --- |
| **Identify the value of the digits in whole numbers.**<br>When we identify the value of the digits in whole numbers (to 1 million), we know the location or position of the digit will determine the digit's value.  A place value chart can be used to determine the value of the digit.<br><br>*For example: The digit 6 has a value of 6 thousands or 6,000.*<br><br>| millions | hundred thousands | ten thousands | thousands | hundreds | tens | ones |<br>|---|---|---|---|---|---|---|<br>| | 4 | 5 | 6 | 3 | 9 | 8 | | • Using a deck of cards or rolling a dice, have your child create a 6 digit number.  Have them determine and record the value of each digit.  "The 4 is worth 400,000 because it's located in the hundred thousands place."<br><br>• Khan Academy Lesson:  Finding Place Value https://goo.gl/XP6u75 |
| **Write numbers in standard form, word form, and expanded form.**<br>Students compare and represent numbers, to 1 million, using the different forms shown below.  They should be able to determine each form when given one of the other forms.<br><br>*Expanded Form:*<br>*400,000 + 50,000 + 6,000 + 300 + 90 + 8*<br><br>*Standard Form:*<br>*456,398*<br><br>*Word Form:*<br>*Four hundred fifty-six thousand, three hundred ninety-eight* | • Spin a 6 digit number with a spinner or dice.  Have your child represent the number in standard, expanded and word form.  Then modify to give them a number in expanded form and have them determine the standard and word form, etc.<br><br>• Khan Academy Lesson:  Writing a Number in Expanded Form https://goo.gl/mqrced |
| **Recognize and justify that each digit in a number represents a value ten times greater than the digit to its right.**<br>Understand that the place value directly to the left of current place is 10 times greater.  Or that the place directly to the right of the current place is 10 times less, also known as $\frac{1}{10}$ the value.     *50,000 is 10 times the value of 5,000.*<br><br>*For example: The 5 in the ten thousands place is 10 times greater than the 5 in the thousands place.  The 5 in the thousands place has a value of 5,000.  So 5,000 x 10 = 50,000.*<br><br>| millions | hundred thousands | ten thousands | thousands | hundreds | tens | ones |<br>|---|---|---|---|---|---|---|<br>| | 6 | 5 | 5 | 5 | 7 | 2 |<br><br>*5 hundreds or 500 is $\frac{1}{10}$ the value of 5 thousands or 5,000.* | • Using a deck of cards, create a 6 digit number or using numbers in the newspaper, etc. have your child compare the place values using the language:  "The 6 in the hundreds place is $\frac{1}{10}$ the value of the 6 in the thousands place.  This can also be done by looking for numbers with the same digits to compare the place values<br><br>• Khan Academy:  Comparing Place Values https://goo.gl/D8rtq9 |

For more information on the learning goals and your child's progress, please contact your child's teacher.

**Compare two whole numbers.**
Compare two whole numbers, to 1 million, using place value. Start by placing the numbers vertically on top of each other, lining them up by the place values. Then begin comparing from the greatest place to the least place.

| millions | hundred thousands | ten thousands | thousands | hundreds | tens | ones |
|---|---|---|---|---|---|---|
|  | 6 | 5 | 4 , | 6 | 3 | 9 |
|  | 6 | 5 | 8 , | 6 | 2 | 7 |

***Starting from the hundred thousands, the greatest place that has different digits is the thousands. 4 thousands is less than 8 thousands. Therefore 658,627 is greater.***

Then represent the comparison with the symbols <, >, or =.

*654,639 < 658,627*

- Using a deck of cards (Ace represents 1), play *Place Value War.* Having 2 players, each player chooses 6 cards and creates a 6 digit number. Using place value, work together to determine which number has a greater value. Record the comparison with the symbols <, >, or =. Player with the greatest number wins that round. Continue playing for multiple rounds.

- Khan Academy: Comparing Multi-Digit Whole Numbers https://goo.gl/CP3zpe

- Khan Academy: Comparing Multi-Digit Whole Numbers Word Problems https://goo.gl/ScptSr

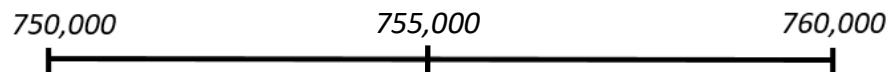**Round whole numbers to any place.**
Use place value understanding to round any number to 1,000,000 at any place. A number line is a great tool to use to round numbers.

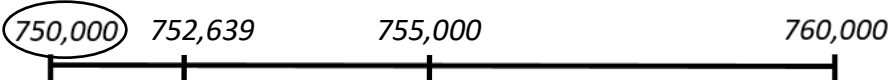**Sample Task: *Round 752,639 to the nearest ten thousands place.***

*First, determine the range for the given number.*

750,000                                              760,000

*Next, determine what the middle number is for the given range.*

750,000                    755,000                    760,000

*Last, determine the location of the given number and which range number it is closest to, this is what it will be rounded to.* **It is rounded to 750,000.**

(750,000)  752,639            755,000            760,000

- Roll, spin or create a 6 digit number with a deck of cards. Choose a place to have your child round to and encourage them to draw a number line to prove how they rounded the original number. It's also helpful to break down the steps to creating a number line to round, as shown in the example on this document.

- Khan Academy: Rounding Whole Numbers to Nearest Ten https://goo.gl/stN46j

- Khan Academy: Rounding Whole Number to Nearest Hundred https://goo.gl/d6sdj5

- Khan Academy: Rounding Whole Numbers to Nearest Thousand https://goo.gl/ThJoX3

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