Lesson 2: Place Values & Rounding Rules

Objectives	Terms
• To be able to identify a digit's value given its place value. • To be able to read and write numbers using place values. • To be able to round numbers to specific place values. • To be able to approximate values using rounded numbers.	• Place Values • Numeral Translation • Expanded Form • Rounding • Estimating

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Think about this:

Scenario #1: You win the lottery and are presented with a giant check. How would you write the numerical representation of how much you won if the check was written out for the following amounts?
****Write the numbers in the space below each value.***

1. One million, five hundred thirty-five thousand, two hundred fifteen dollars and fifty cents.

2. One billion, two million, thirteen thousand, five hundred dollars.

3. Eight hundred thousand, nine hundred dollars and ninety-nine cents.

Scenario #2: You are looking at buying a used car and test drive several cars. You are worried about high mileage, so you check the exact for each car. How would say (write) the following mileages?
Write the numbers as a text expression in the space below each value. For example: 10: ten.

1. Car 1 mileage:

2. Car 2 mileage:

3. Car 3 mileage:

Discuss: How do you know where commas and zeros should go? What does the placement of a comma or a zero do for the value of the number? What do the zeros do in a number?

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Definitions

Place value: Where a _____ is in a number determines its _____.

For example: _____can be shown with the following place values:

Place	Thousands	Hundreds	Tens	Ones
Digit				
Place Value				

Practice: Use the table to write the digits and place values of a car with the mileage of _____

Place					
Digit					
Place Value					

Numeral Translation: Rewriting a text expression using numbers.

For example:

Text: Eight hundred thousand, nine hundred dollars and ninety-nine cents

Numbers: 800,900.99

Practice: Write the number for following in the space provided:

Practice 1: fifty-four thousand, nine hundred seventy

Practice 2: nine million, ten thousand, twenty-five

Scenario #3: You decide that you want to see the mileage when written as addition of each place value. What would each mileage look like if you wrote the mileages out as addition of the place values?
Write each value as addition in the space provided. For example: 10: ten.

1. Car 1 mileage: 14,608

2. Car 2 mileage: 126,001

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Definition

Expanded form: when a number is written out as a _____ of its _____.

For example: write _____ in expanded form:

Place	Ten thousands	Thousands	Hundreds	Tens	Ones
Digit					
Place Value					

Expanded form: _____ =

Think about: How can I use place value and expanded form to help me translate word problems approximate values?

Scenario #1: You are having some friends over for a cookout. If there are eight hotdogs in a pack and you have _____ people over, how many packs of hotdogs do you need to buy to guarantee that everyone, including yourself, gets at least one hotdog? Use the space below to show your work.

Scenario #2: You go out to eat with _____ of your friends, and the total bill, tip included, comes out to $176. How much do each of you owe if you round the bill to the tens place? Use the space below to show your work.

Definitions

Rounding: to _____ a value by looking at the digit to the _____ of the indicated place value. If that digit is _____ or greater, you round up (indicated digit increases by 1). If it is less than _____, you round down (keeping the value of the digit).

- Example: a car that has _____ miles can be rounded as follows:
  - To the hundreds place: _____
  - To the thousands place: _____
  - To the ten thousand place: _____

Estimate: to approximate a value by rounding.

- Example: You win the lottery two times. Once for $1,535,215.50 and the second time for $800,900.99. How much is your combined winning to the nearest hundred thousand?
  - $1,535,215.50 rounds to $_____
  - $800,900.99 rounds to $_____
  - Estimated combined winnings: _____

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Practice Problem

Carlos needs one hundred seventy-eight programs for the school play on Thursday. How many boxes of programs will he need, given that each box contains forty-seven programs?

- Write each number in numerical form:

  - One hundred seventy-eight:

  - Forty-seven:

- Give the place value of each digit for:

Place			
One hundred seventy-eight			
Forty-seven			

- Round each number to the given place value:

  - One hundred seventy-eight to the hundreds place:

  - Forty-seven to the tens place:

- Use your rounded values to give an estimate of how many boxes Carlos needs to order.

Estimated number of boxes needed:

- **Discuss**: How can you check if your answer makes sense?

Where will you see these concepts in upcoming material?	What are the calculator skills you needed?