Rounding Match

Strand: Number and Number Sense

Topic: Rounding whole numbers to the given place value

Primary SOL: 4.1 The student will
   c) Round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.

Related SOL: 4.1a

Materials:
- Rounding Match Cards set A and set B (attached)
- Blank number lines (optional)
- Large paper
- 10 sided number cube

Vocabulary:
 place value, rounding, closest to, nearest, thousand, ten thousand, hundred thousand

Student/Teacher Actions: What should students be doing? What should teachers be doing?

1. Write the number 436,908 on the board. Have students spend a couple of minutes sharing what they notice about this number. If students are unable to discuss or share information about the number, below are some questions that could guide the conversation.
    o How would you read this number?
    o What is the value of the digit in the thousands place?
    o Which digit is in the hundred thousand place?

2. Next, ask the students if the number 436,908 is closest to 400,000 or 500,000. Have the students justify their answer. Encourage the students to focus on place value and not just the digits. Have the students create a number line starting at 400,000 and ending at 500,000 similar to the one shown below.

3. Ask the students to identify which number is in the middle and how this number could be beneficial in determining whether or not the number 436,908 is closest to 400,000 or 500,000.
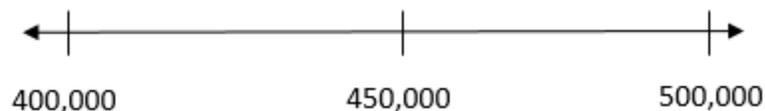
Once all of the students have created the number line and have determined the number in the middle. Ask the students if they can identify where on the number line the number 436,908 would be located. Students should notice that the number 436,908 is less than 450,000. Once the students have successfully labeled their number line. Ask the students to identify which hundred thousand the number is closest to. Since the number 436,908 is less than 450,000 it rounds to 400,000. When rounding to a specific place value, students should determine which multiples of that identified place value the number is between in order to determine which multiple it is closer to.
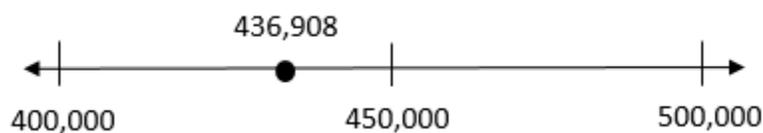
4. Ask the students if they can create another number line to represent the number 436,908 looking at specific place values and identifying between which multiples it is between. Some number lines could include rounding to the nearest ten-thousand or hundred thousand. Examples of these models are shown below.

5. Once students have rounded the number 436,908 to different place values, give the students another number expressed through millions. For example, give the students the number 2,783,925 and have the class round this number. Either assign the place value you want the students to round to or allow the students to choose if they want to round the number to the nearest thousand, ten thousand, or hundred thousand. Have the students create a number line to determine the closest multiple of thousands, ten-thousand, or hundred-thousand. Have students share their number line with the class and discuss why this number rounds to this particular number.

6. Next give the students' numbers expressed through millions and have the students round to a specific place value. It is important for students to understand that you can round numbers to any specific place value and that is not always to the greatest place value. Continue to use the number line to model which multiple the number is closer to. Below are some examples:
   o What is 7,345,808 rounded to the nearest hundred-thousand?
   o What is 415,808 rounded to the nearest thousand?
   o What is 1,598,903 rounded to the nearest ten-thousand?

7. Have the students complete the "Rounding Match" activity. Two sets of rounding match cards are available for the students to complete. Students can either play this game

individually or with a partner. The cards have been designed so that you can copy them on different colors of paper to distinguish between the numbers you are rounding and the answers.   Once the students have created two different piles. One pile will have all of the numbers you are rounding to with a specific place value underlined and the other pile will have the rounded answers.   Students together or individually will match the two cards together. Students can glue their answers on a sheet of paper to turn in.

8. Once the students have completed the "Rounding Match" activity have the students share different strategies used to round the given numbers. Select a few numbers from the activity to model on a number line to demonstrate which multiple it is closer to.

Assessment

- **Questions**
    - o Round the number 3,845,903 to the nearest thousand. Can you identify another number that would also round to this thousand when rounding to the nearest thousand?
    - o Identify three 7-digit numbers that would round to 8,600,000 when rounded to the nearest hundred thousand.

- **Journal/writing prompts**
    - o Kevin says that 457,097 rounds to 457,000 and Sarah says that the number rounds to 500,000. Who is correct? Explain your answer.
    - o Look at the number shown below.

        <p style="text-align:center">2,45__,879</p>

        Which digit should be placed in the thousands place so that the number would round to 2,450,000? Could there be more than one answer? Explain your answer.

- **Other Assessments**
    - o Create a number line to model 378,808 rounded to the nearest ten thousand.
    - o Can you create a number that when rounded to the nearest ten thousand and rounded to the nearest hundred thousand the rounded answer is the same?

Extensions and Connections (for all students)

- Have the students play a rounding game. First have the students identify the place value in which they want to round to. Students could round to the nearest thousand, ten-thousand, or hundred thousand. Next have the students create a 7-digit number by rolling a ten-sided number cube. Once the students have the identified the place value they are rounding to and created the 7-digit number, have the students create a number line. If the number rounds to the lesser place value multiple then player 1 gets a points. If the number rounds to the greater place value multiple then player 2 gets a point. An example of a student game is shown below. The students decided to round to the nearest thousand and created a 7-digit number of 3,809,525. When rounding to the nearest thousand the number 3,809,525 is between 3,809,000 and 3,810,000.   Since the number is 3,809,500 or greater it rounds to 3,810,000 and player 2 would get a point. Once a winner of that round is determined, partners continue to create numbers

and round to a given place value. The winner of the game is the player that gets the most points.

Player 2

Round to the nearest: <u>Thousand</u>   Number created: <u>3,809,525</u>

3,809,000   3,809,500   3,810,000

Player 1   Player 2
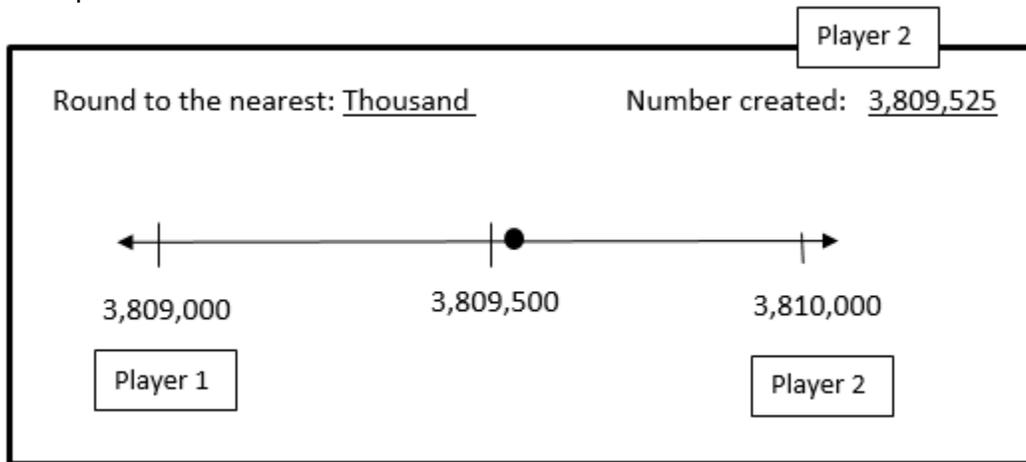
Strategies for Differentiation
- Give the students numbers lines that are labeled for the students to use throughout the lesson.
- Allow the students to use a place value chart to identify the correct place value when rounding.

Note: The following pages are intended for classroom use for students as a visual aid to learning

Rounding Match Cards - Set A

80<u>4</u>,234	6<u>9</u>0,923
<u>4</u>83,102	5,0<u>9</u>7,432
5<u>3</u>6,780	2,3<u>4</u>5,011
5,1<u>3</u>2,630	2,8<u>2</u>2,716
23,<u>7</u>61	23,<u>7</u>43
<u>8</u>,042	2,9<u>0</u>5,854
<u>1</u>3,097	<u>4</u>3,674
23<u>6</u>,282	2,<u>5</u>60,954
2,30<u>9</u>,902	5,1<u>3</u>8,039
5<u>3</u>2,999	2,<u>3</u>29,902

800,000	690,000
500,000	5,100,000
540,000	2,350,000
5,130,000	2,820,000
23,800	23,700
8,000	2,910,000
10,000	40,000
236,000	2,600,000
2,310,000	5,140,000
530,000	2,300,00

Rounding Match Cards - Set B

8,<u>4</u>16	<u>7</u>40,678
5,<u>6</u>38,321	2,3<u>8</u>7,105
5<u>4</u>,682	2,8<u>6</u>2,641
1,<u>7</u>54,231	36<u>7</u>,098
<u>1</u>5,387	1<u>3</u>3,947
<u>7</u>52,893	<u>9</u>,971
75<u>6</u>,910	1,<u>7</u>38,903
6,01<u>2</u>,509	24<u>5</u>,342
2,<u>4</u>73,361	<u>9</u>,302
23<u>4</u>,093	36<u>9</u>,998

8,400	700,000
5,600,000	2,390,000
50,000	2,860,000
1,800,000	367,000
20,000	130,000
800,000	10,000
760,000	1,700,000
6,013,000	245,000
2,500,000	9,000
230,000	370,000