

# Place Value Games

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- Strand:** Number and Number Sense
- Topic:** Reading, writing, identifying and representing numbers in various ways
- Primary SOL:** 3.1 The student will
- a) Read, write, and identify the place and value of each digit in a six-digit whole number, with and without models

**Materials:**

- Place Value Game Cards-multiple copies on cardstock (attached)
- Two Hula Hoops

**Vocabulary:**

*place, value, place value, expanded form, written form, standard form, represents, representation*

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

Prior to playing the games students should be instructed on various ways to represent numbers to include: standard form, written form, expanded form, multiple representations of numbers such as  $2,345 = 2$  thousands, 3 hundreds, 4 tens and 5 ones **OR** 23 hundreds, 4 tens and 5 ones **OR** 2 thousands, 34 tens and 5 ones. Representations should also include base 10 blocks.

**Note: A set of cards has been included as a resource which can be used to play each of the following games.**

## Hula Hoop Race

1. Place Hula Hoops on the floor on one side of the room.
2. Each number has four representations. Take two representations of each number and place them scattered face down in one hoop. Place the other two representations in the other hoop.
3. Divide students into two teams lined up at the opposite end of the classroom from the Hula Hoops.
4. On your signal, the first student in each line races down to the Hula Hoops and finds a set of matching cards (two representations of one number). The students race back with the cards and place them on the floor near their line.
5. Quickly check to see if the card set is correctly matched. If it is, allow the next student in line to go. If it's not correct, quickly place the card set back in the Hula Hoop, as you signal the next student in that line to go.
6. Play continues until one team's Hula Hoop is empty, and the team has successfully matched all of representations for each number.

### Memory Game

1. Have students play with a partner or in a small group.
2. Shuffle all cards and place face down in a 5 x 8 array.
3. Students should take turns turning over 2 cards trying to match representations for each number.
4. Play continues until all matches are made.

### Go Fish

1. Students can play with a partner or in a small group (3 or 4).
2. Shuffle all cards and deal 5 to each player.
3. Students take turns asking the player to the right for a card that will match one in their hand. Example: a student has 23 hundreds, 4 tens and 5 ones will ask for a card that represents 2,345.
4. Play continues until all matches are made.

### War

1. Students play with a partner.
2. Shuffle and deal out all cards between the two players.
3. Each player places his stack of cards face down in front of him/her.
4. Each player turns up a card at the same time. The player with the card that has the greatest value takes both cards and adds them face down to his/her stack.
5. If players turn over cards with the same value it's WAR. Each player deals one card face down and one card face up. The player with the card with the greatest value takes all cards and adds them face down to his/her deck.
6. Play continues until one player wins all cards.

As a closing activity, write a three-digit number on the board. Each group will build a number that is *greater than*, *less than*, or *equal to* the number written on the board.

### Assessment

- **Questions**
  - Represent the number four thousand, six hundred seventy-eight, two different ways.

- What number is represented by 27 hundreds, 4 tens and 8 ones? Write it two more ways.
- **Journal/writing prompts**
  - Your teacher has given you some base 10 blocks. You have 2 large cubes, 3 flats, 15 rods and 6 small cubes. What number is represented by the base 10 blocks?
  - Jackson was absent from class today. Write a note to him explaining why 27 hundreds is the same as 2 thousands and 7 hundreds.
  - Represent the number 6,329 at least 4 different ways. Can you come up with another way?
  - Represent a number using (any) twelve base 10 blocks. Write the number in your journal and list the blocks used to make it. Represent a different number using 12 base 10 blocks. Write it in your journal and list the blocks used to make it. How is this number different from the first?
- **Other Assessments**
  - Circulate during the activity to observe students' strategies and rationales as they play the games. Note who is having difficulty with the various representations. Help them as needed.
  - Represent the number 324 using exactly eighteen base 10 blocks.

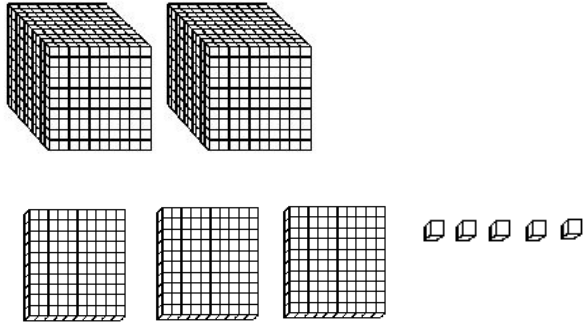
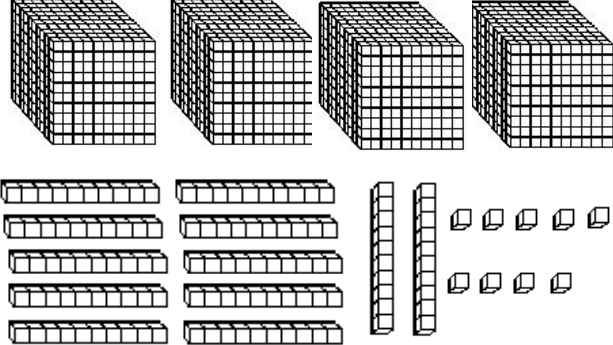
#### **Extensions and Connections (for all students)**

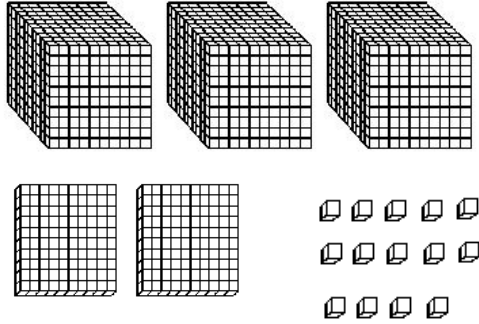
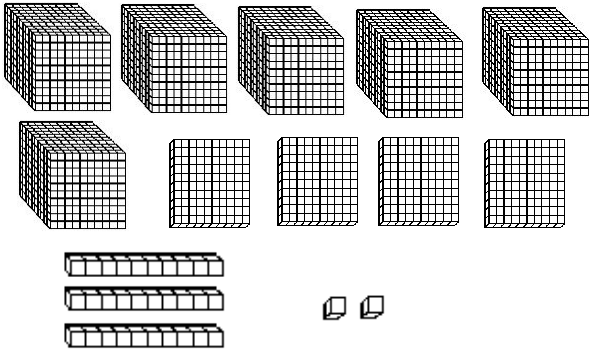
- Bradley used exactly 26 base 10 blocks to represent the number 2,465. Which base 10 blocks could he have used?
- If there were a base 10 block to represent the number 10,000 what might it look like? How many thousands would be used to represent it? How many hundreds? How many tens?
- Use the Sample Number Cards (attached) to play the Hula Hoop game or Memory Game.

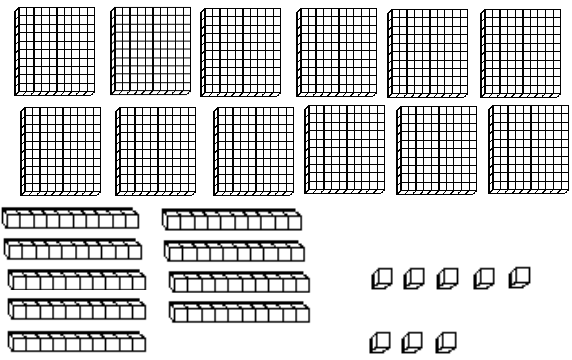
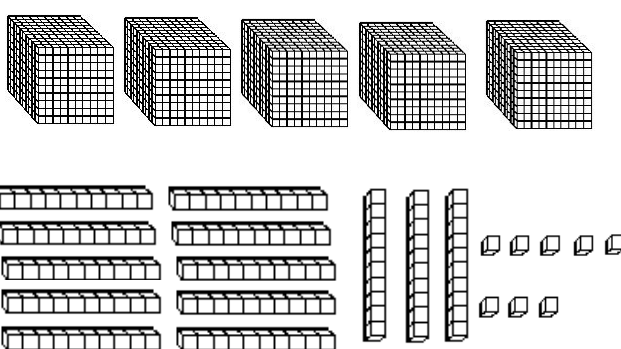
#### **Strategies for Differentiation**

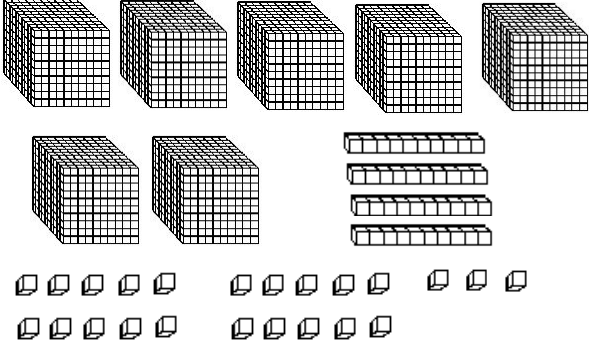
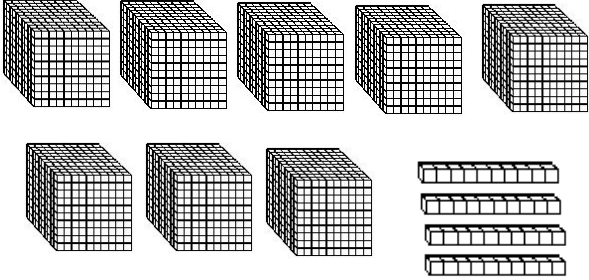
- Students struggling with four-digit numbers may need to begin by building two-digit numbers with base 10 blocks in multiple ways. Once mastered move to three-digit numbers and then four-digit.
- Use a place value mat to place base 10 blocks when building numbers.

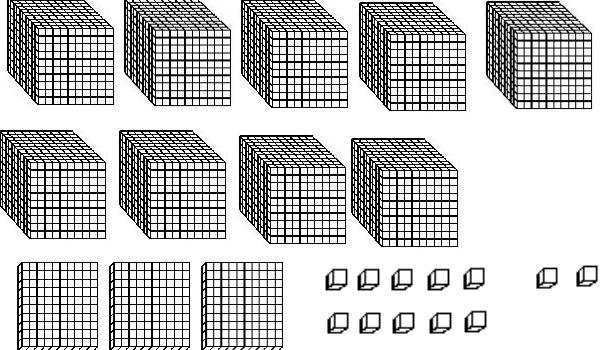
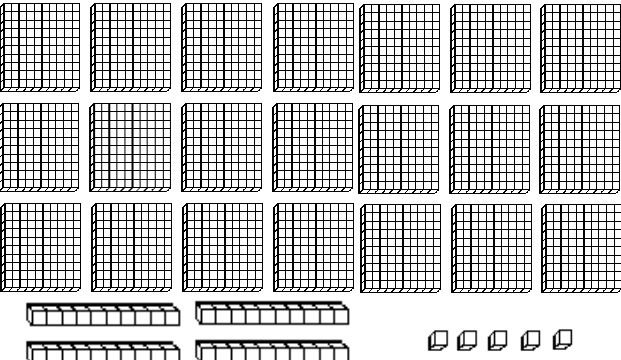
**Note: The following pages are intended for classroom use for students as a visual aid to learning.**

<p style="text-align: center;"><b>2,305</b></p>	<p style="text-align: center;"><b>two thousand, three hundred five</b></p>
	<p style="text-align: center;"><b>2,000 + 300 + 5</b></p>
<p style="text-align: center;"><b>4,129</b></p>	<p style="text-align: center;"><b>four thousand, one hundred twenty-nine</b></p>
	<p style="text-align: center;"><b>4,000 + 100 + 20 + 9</b></p>

<h1 style="text-align: center;">3,214</h1>	<p style="text-align: center;"><b>three thousand, two hundred fourteen</b></p>
	<p style="text-align: center;"><b><math>3000 + 200 + 10 + 4</math></b></p>
<h1 style="text-align: center;">6,432</h1>	<p style="text-align: center;"><b>six thousand, four hundred thirty-two</b></p>
	<p style="text-align: center;"><b><math>6,000 + 400 + 30 + 2</math></b></p>

<h1 style="text-align: center;">1,298</h1>	<p style="text-align: center;"><b>one thousand, two hundred ninety-eight</b></p>
	<p style="text-align: center;"><b>1,000 + 200 + 90 + 8</b></p>
<h1 style="text-align: center;">5,138</h1>	<p style="text-align: center;"><b>five thousand, one hundred thirty-eight</b></p>
	<p style="text-align: center;"><b>5,000 + 100 + 30 + 8</b></p>

<p><b>7,423</b></p>	<p><b>seven thousand, four hundred twenty-three</b></p>
	<p><b><math>7,000 + 400 + 20 + 3</math></b></p>
<p><b>8,040</b></p>	<p><b>eight thousand, forty</b></p>
	<p><b><math>8,000 + 40</math></b></p>

<h1 style="text-align: center;">9,312</h1>	<p style="text-align: center;"><b>nine thousand, three hundred twelve</b></p>
	<p style="text-align: center;"><b>9,000 + 300 + 10 + 2</b></p>
<h1 style="text-align: center;">2,145</h1>	<p style="text-align: center;"><b>two thousand, one hundred forty-five</b></p>
	<p style="text-align: center;"><b>2,000 + 100 + 30 + 5</b></p>



## Sample Number Cards

<b>135</b>	<b>one hundred thirty-five</b>
<b>204</b>	<b>two hundred four</b>
<b>35</b>	<b>thirty-five</b>
<b>44,651</b>	<b>forty-four thousand, six hundred fifty-one</b>
<b>12,044</b>	<b>twelve thousand, forty- four</b>
<b>990</b>	<b>nine hundred ninety</b>
<b>635,002</b>	<b>six hundred thirty-five thousand, two</b>
<b>18,405</b>	<b>eighteen thousand, four hundred five</b>

<b>62,091</b>	<b>sixty-two thousand, ninety-one</b>
<b>125,430</b>	<b>one hundred twenty-five thousand, four hundred thirty</b>
<b>97,003</b>	<b>ninety-seven thousand, three</b>
<b>304,016</b>	<b>three hundred four thousand, sixteen</b>
<b>17,812</b>	<b>seventeen thousand, eight hundred twelve</b>
<b>224,460</b>	<b>two hundred twenty-four thousand, four hundred sixty</b>
<b>88,090</b>	<b>eighty-eight thousand, ninety</b>
<b>123,456</b>	<b>one hundred twenty-three thousand, four hundred fifty-six</b>