

# Place Value Mat Activities

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- Strand:** Number and Number Sense
- Topic:** Read, write, and identify the place and value of each digit in a number
- Primary SOL:** **2.NS.2 The student will demonstrate an understanding of the ten-to-one relationships of the base 10 number system to represent, compare, and order whole numbers up to 999.**
- Write the three-digit whole number represented by a given model (e.g., concrete objects, pictures of base 10 blocks).
  - Read, write, and represent three-digit numbers in standard form, expanded form, and word form, using concrete or pictorial representations.
  - Apply patterns within the base 10 system to determine and communicate, orally and in written form, the place (ones, tens, hundreds) and value of each digit in a three-digit whole number (e.g., in 352, the 5 represents 5 tens and its value is 50).
  - Investigate and explain the ten-to-one relationships among ones, tens, and hundreds, using models.
  - Compose and decompose whole numbers up to 200 by making connections between a variety of models (e.g., base 10 blocks, place value cards, presented orally, in expanded or standard form) and counting strategies (e.g., 156 can be 1 hundred, 5 tens, 6 ones; 1 hundred, 4 tens, 16 ones; 15 tens, 6 ones).

**Materials:**

- Base-10 blocks
- Number or dot cubes
- Place-value Mat (attached)
- Clear plastic sleeves
- Dry erase markers

**Vocabulary:**

*place, value, place value, equal, greater than, greatest, least, less than, round, estimate, estimation, add, subtract, sum, difference*

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

*Select the attached Place Value Mat that best suits your lesson. Prepare Place Value Mat activity by putting mats in clear plastic sleeves.*

1. Demonstrate the partner activity with the whole group first. Each student needs their own Place Value Mat in a clear plastic sleeve and a dry erase marker.
2. Roll a die, pull a number tile or digit card, and have students record the number called anywhere on their mat.

3. Call enough numbers to fill all place values.
4. Have students read their number to a partner. Have them then compare numbers to see who made the greater number. Who made the number with the least value?
5. Have students write their number in expanded form.
6. Circulate throughout the class to ensure that students understand comparisons as well as reading and writing their numbers in various forms.

Partner activity:

1. Each partner takes turns rolling a die and writing the number in one of the places on the place value chart. Continue until all place value spaces are filled.
2. When all place values are filled students should read their number aloud to their partner.
3. Write the number in expanded form in the workspace below.  
Example:  $40 + 3 = 43$
4. Have students model their number using base ten blocks. Have students draw their numbers using base ten drawings.
5. Have students use the workspace to:
  - Compare their number with a partner's number. Which is greater? Which is less?
  - Write their number in expanded form.
  - Represent their number in two other ways.
  - Round their number to the nearest ten.
  - Determine which number has more tens and which number has more ones.
  - Determine the sum of the two numbers.
  - Determine the difference between the two numbers.
  - Estimate the sum. Estimate the difference.
  - In small groups have students compare and order their numbers from least to greatest or greatest to least. Who has the greatest number? Who has the greatest hundreds? The greatest tens?

### Assessment

- **Questions**
  - When comparing three-digit numbers to determine which number is greater, which place value should be considered first? Why?
  - What are two ways to represent your number?
  - How can a number line be helpful when comparing numbers?
- **Journal/writing prompts**
  - Write an explanation to a friend about how to determine which of the following numbers is the greatest and which is the least.  
 $456$        $546$        $654$        $564$
  - Write the following number on your Place Value Mat.  
 $348$ 
    - Represent the number two different ways.

- Write the expanded form of the number.
- **Other Assessments**
  - Circulate during the activity to observe students' strategies and rationales for creating the models of the three-digit numbers and comparisons. Note who is having difficulty identifying the values, making the models of them, and/or comparing numbers. Give help, as needed.
  - Use one of the sheets as an exit ticket. Have students generate a 3-digit number and represent it two ways.

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



- Have students put the number 846 on the mat. Have them represent the number in two different ways. Have them add ten to their number. What is the new number? Add one hundred to the number. What is the new number? Subtract ten and then one hundred. What are the new numbers?
- Have students do the same activity with 2-digit numbers and round to the nearest ten. Have them find the sum of their number and their partner's number and find the difference between them. They should also estimate the sum and difference.

**Strategies for Differentiation**

- Students that struggle may benefit from starting with the place value chart that has base 10 blocks. Start with the 2-digit and build up to the 3-digit.
- Use a deck of cards instead of number cubes. Remove the 10 and face cards first. Shuffle and place face down. Students can take turns drawing from the top of the deck and writing the number on their mat. Play the game having students work to create numbers with the greatest value or least value. Talk about strategies for placing numbers.
- Students may need to build numbers using base 10 blocks as they work through the steps of rounding, comparing, and adding/subtracting.

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

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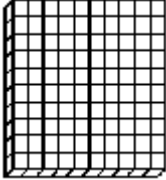


<p><b>TENS</b></p> 	<p><b>ONES</b></p> 
<p><b>WORKSPACE</b></p>	

**TENS**

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