

Name _____

Model Place Value Relationships

Essential Question How can you describe the value of a digit?



Number and Operations in Base Ten—4.NBT.A.1



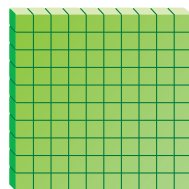
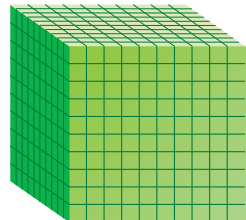
MATHEMATICAL PRACTICES
MP4, MP6, MP7

Unlock the Problem

Activity Build numbers through 10,000.

Materials ■ base-ten blocks



1	10	100	1,000	10,000
				?
cube	long	flat	cube	_____
1	10 ones	_____ tens	_____ hundreds	_____ thousands

A small cube represents 1.

_____ small cubes make a long. The long represents _____.

_____ longs make a flat. The flat represents _____.

_____ flats make a large cube. The large cube represents _____.

- Describe the pattern in the shapes of the models. What will be the shape of the model for 10,000?



MATHEMATICAL PRACTICES 5

Model What other type of base-ten block could you use to model 100,000?

- Describe the pattern you see in the sizes of the models. How will the size of the model for 100,000 compare to the size of the model for 10,000?

Value of a Digit The value of a digit depends on its place-value position in the number. A place-value chart can help you understand the value of each digit in a number. The value of each place is 10 times the value of the place to the right.

Write 894,613 in the chart. Find the value of the digit 9.

MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
			8 hundred thousands	<u>9 ten thousands</u>	4 thousands	6 hundreds	1 ten	3 ones
			800,000	<u>90,000</u>	4,000	600	10	3

The value of the digit 9 is 9 ten thousands, or _____.

Compare the values of the underlined digits.

2,304 16,35

STEP 1 Find the value of 3 in 2,304.

Show 2,304 in a place-value chart.

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones

Think: The value of the digit 3 is _____.

STEP 2 Find the value of 3 in 16,135.

Show 16,135 in a place-value chart.

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones

Think: The value of the digit 3 is _____.

Each hundred is 10 times as many as 10, so 3 hundreds is ten times as many as 3 tens.

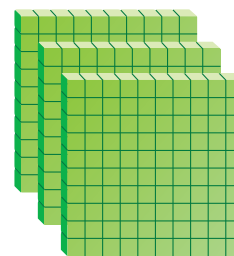
So, the value of 3 in 2,304 is _____ times the value of 3 in 16,135.



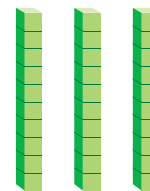
MATHEMATICAL PRACTICES 6

Describe how you can compare the values of the digits without drawing a model.

Model the value of the digit 3.

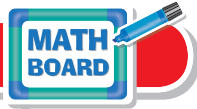


Model the value of the digit 3.



Name _____

Share and Show



1. Complete the table below.

Number	1,000,000	100,000	10,000	1,000	100	10	1
Model	?	?	?				
Shape				cube	flat	long	cube
Group				10 hundreds	10 tens	10 ones	1 one

Find the value of the underlined digit.

2. 703,890

3. 63,540

4. 182,034

5. 345,890

Compare the values of the underlined digits.

6. 2,000 and 200

The value of 2 in _____ is _____
times the value of 2 in _____.

7. 40 and 400

The value of 4 in _____ is _____
times the value of 4 in _____.

On Your Own

Find the value of the underlined digit.

8. 230,001

9. 803,040

10. 46,842

11. 980,650

12. Greg has collected 4,385 pennies and Hannah has collected 3,899 pennies. How many times as great as the value of 3 in 4,385 is the value of 3 in 3,899?

13. Shawn wants to model the number 13,450 using base-ten blocks. How many large cubes, flats, and longs does he need to model the number?

Problem Solving • Applications



Use the table for 14.

14. **GO DEEPER** What is the value of the digit 7 in the population of Memphis? What is the value of the digit 1 in the population of Denver? How many times as great as the value of the digit 1 in the population of Cleveland is this value?

15. **THINK SMARTER** How many models of 100 do you need to model 3,200? Explain.

16. **MATHEMATICAL PRACTICE 6** Sid wrote 541,309 on his paper. Using numbers and words, **explain** how the number would change if he exchanged the digits in the hundred thousands and tens places.

17. **THINK SMARTER** For numbers 17a–17e, select True or False for each statement.

17a. The value of 7 in 375,081 is 7,000. True False

17b. The value of 6 in 269,480 is 600,000. True False

17c. The value of 5 in 427,593 is 500. True False

17d. The value of 1 in 375,081 is 10. True False

17e. The value of 4 in 943,268 is 40,000. True False



City Populations

City	Population*
Cleveland	431,369
Denver	610,345
Memphis	676,640

*2009 U. S. Census Bureau Estimation



WRITE *Math* • Show Your Work

Name _____

Model Place Value Relationships



COMMON CORE STANDARD—4.NBT.A.1
Generalize place value understanding for multi-digit whole numbers.

Find the value of the underlined digit.

1. 6,035

2. 43,782

3. 506,087

4. 49,254

5. 136,422

6. 673,512

7. 814,295

8. 736,144

Compare the values of the underlined digits.

9. 6,300 and 530

The value of 3 in _____ is _____ times
the value of 3 in _____.

10. 2,783 and 7,283

The value of 2 in _____ is _____ times
the value of 2 in _____.

Problem Solving



Use the table for 11–12.

11. What is the value of the digit 9 in the attendance at the Redskins vs. Titans game?

12. The attendance at which game has a 7 in the ten thousands place?

Football Game Attendance	
Game	Attendance
Redskins vs. Titans	69,143
Ravens vs. Panthers	73,021
Patriots vs. Colts	68,756

13. **WRITE** *Math* How does a digit in the ten thousands place compare to a digit in the thousands place?

Lesson Check (4.NBT.A.1)

1. During one season, a total of 453,193 people attended a baseball team's games. What is the value of the digit 5 in the number of people?

2. Hal forgot the number of people at the basketball game. He does remember that the number had four digits and a 3 in the tens place. Write a number that Hal could be thinking of.

Spiral Review (Reviews 3.NBT.A.3, 3.NF.A.1, 3.MD.A.1, 3.G.A.1)

3. Hot dog buns come in packages of 8. For the school picnic, Mr. Spencer bought 30 packages of hot dog buns. How many hot dog buns did he buy?

4. There are 8 students on the minibus. Five of the students are boys. What fraction of the students are boys?

5. The clock below shows the time when Amber leaves home for school. At what time does Amber leave home?



6. Jeremy drew a polygon with four right angles and four sides with the same length.

What kind of polygon did Jeremy draw?
