Name _____

Place Value and Patterns

Florida's B.E.S.T.

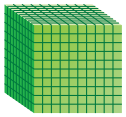
- **Number Sense & Operations** 4.NSO.1.1
- **Mathematical Thinking & Reasoning** MTR 2.1, MTR 3.1, MTR 4.1, MTR.5.1

I Can describe how the value of a digit in a whole number changes if the digit moves one place to the left or right.

Investigate

Materials ■ base-ten blocks

You can use base-ten blocks to understand the relationships among place-value positions. Use a large cube for 1,000, a flat for 100, a long for 10, and a small cube for 1.

Number	1,000	100	10	1
Model				
Description	large cube	flat	long	small cube

Complete the comparisons below to describe the relationship from one place-value position to the next place-value position.

A.

- Look at the long and compare it to the small cube.

  The long is _____ times as much as the small cube.

- Look at the flat and compare it to the long.

  The flat is _____ times as much as the long.

- Look at the large cube and compare it to the flat.

  The large cube is _____ times as much as the flat.

B.

- Look at the flat and compare it to the large cube.

  The flat is _____ of the large cube.

- Look at the long and compare it to the flat.

  The long is _____ of the flat.

- Look at the small cube and compare it to the long.

  The small cube is _____ of the long.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How many times as much is the flat compared to the small cube? The large cube to the small cube? Explain.

Make Connections

You can use your understanding of place-value patterns and a place-value chart to write numbers that are 10 times as much as or $\frac{1}{10}$ of any given number.

Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
			3	0	0
		?	300	?	

10 times as much as

$\frac{1}{10}$ of

_____ is 10 times as much as 300.

_____ is $\frac{1}{10}$ of 300.

Use the steps below to complete the table.

STEP 1 Write the given number in a place-value chart.

STEP 2 Use the place-value chart to write a number that is 10 times as much as the given number.

STEP 3 Use the place-value chart to write a number that is $\frac{1}{10}$ of the given number.

Number	10 times as much as	$\frac{1}{10}$ of
10		
70		
9,000		

Share and Show

Complete the sentence.

1. 500 is 10 times as much as _____.

2. 20,000 is $\frac{1}{10}$ of _____.

Use place-value patterns to complete the table.

Number	10 times as much as	$\frac{1}{10}$ of
3. 50		
4. 3,000		

Number	10 times as much as	$\frac{1}{10}$ of
5. 400		
6. 90		

Complete the sentence with 100 or 1,000.

7. 200 is _____ times as much as 2.

8. 700,000 is _____ times as much as 700.

9. 4,000 is _____ times as much as 4.

10. 600 is _____ times as much as 6.

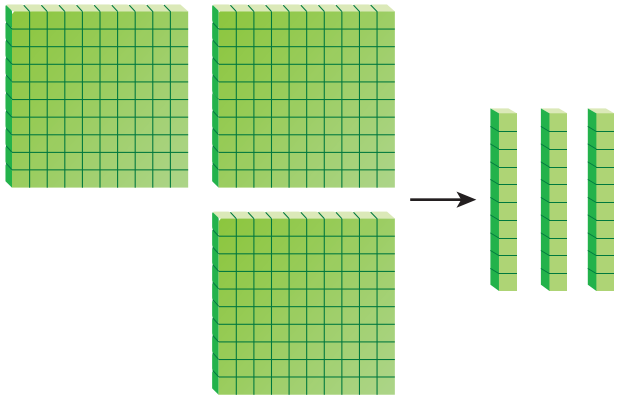
Name _____

On Your Own

11. MTR Mark and Robyn used base-ten blocks to show that 300 is 100 times as much as 3. Whose model makes sense? Whose model does not make sense? Explain your reasoning.

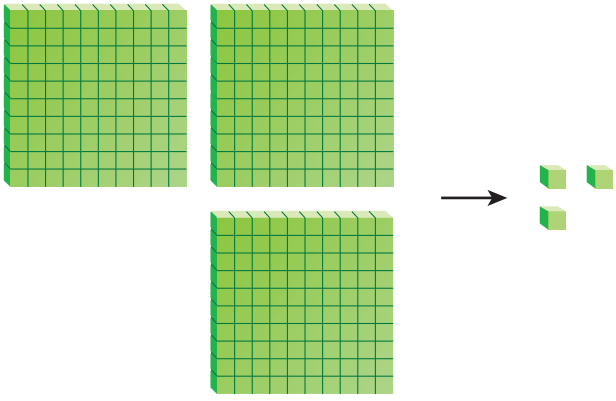
MATH on the Spot

Mark's Work



300 is 100 times as much as 30

Robyn's Work



300 is 100 times as much as 3

12. Explain how you would help Mark understand why he should have used small cubes instead of longs.

Fill in the bubble completely to show your answer.

13. Isabella has 500 pennies in a jar. Brenda has 10 times as many pennies as Isabella does. How many pennies does Brenda have?

Ⓐ 50,000

Ⓑ 5

Ⓒ 5,000

Ⓓ 50

14. Which statement is true?

Ⓐ 8,000 is 10 times as much as 80.

Ⓑ 80 is $\frac{1}{10}$ of 8.

Ⓒ 800 is 10 times as much as 80.

Ⓓ 8 is $\frac{1}{10}$ of 800.

15. Eames has a collection of comic books. He currently has 1,000 comic books. His friend Zhongli has $\frac{1}{10}$ the number of comic books that Eames does. Jose has $\frac{1}{10}$ the number of comic books that Zhongli has. How many comic books does Jose have?

Ⓐ 1,000

Ⓑ 100

Ⓒ 10,000

Ⓓ 10

16. Sam has 1,300 dimes. Anya has $\frac{1}{10}$ the number of dimes that Sam does. How many dimes does Anya have?

Ⓐ 13,000

Ⓑ 13

Ⓒ 130

Ⓓ 3

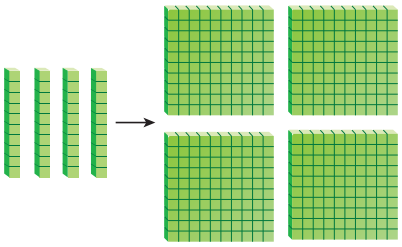
Name _____

Place Value and Patterns

Go Online
Interactive Examples

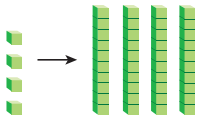
1. Emma and Jamie used base-ten blocks to show that 40 is one-tenth of 400. Whose model makes sense? Whose model does not make sense? Explain your reasoning.

Emma's Work



40 is $\frac{1}{10}$ of 400

Jamie's Work



4 is $\frac{1}{10}$ of 400

Problem Solving Real World

2. Dhara had 3 dollars. She went to the bank and exchanged the 3 dollars for 30 dimes.

Describe the relationship between the value of a dollar and the value of a dime.

Lesson Check

Fill in the bubble completely to show your answer.

3. Which statement is true?

- (A) 500 is 10 times as much as 50.
- (B) 500 is $\frac{1}{10}$ as much as 50.
- (C) 50,000 is 1,000 times as much as 5.
- (D) 5 is $\frac{1}{10}$ as much as 500.

4. 7,000 is ten times as much as what number?

- (A) 70
- (B) 7
- (C) 70,000
- (D) 700

5. Which statement is true?

- (A) 90 is $\frac{1}{10}$ of 100.
- (B) 900 is 100 times as much as 9.
- (C) 9,000 is 1,000 times as much as 90.
- (D) 9 is $\frac{1}{10}$ of 900.

6. 720 is $\frac{1}{10}$ of what number?

- (A) 7,200
- (B) 72
- (C) 7
- (D) 72,000

Spiral Review

What is the value of the underlined digit in each number?

7. 2,9<u>7</u>4 _____

8. <u>5</u>,246 _____

9. 7,01<u>3</u> _____

10. 9,<u>8</u>70 _____

Write the number in word form.

11. 5,471

_____

12. 9,036

_____