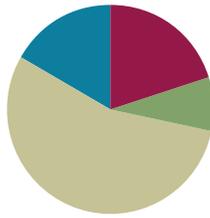


Lesson 10

Objective: Name numbers up to 100,000 by building understanding of the place value chart and placement of commas for naming base thousand units.

Suggested Learning Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(33 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (12 minutes)

- Group Counting **3.4D, 3.4E** (3 minutes)
- Tell Time on the Clock **2.9G** (3 minutes)
- Minute Counting **3.7C** (6 minutes)

Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by sevens and eights in this activity anticipates multiplication using those units in Module 3.

Direct students to count forward and backward using the following suggested sequence, occasionally changing the direction of the count.

- Sevens to 35, emphasizing the transition from 28 to 35
- Eights to 40, emphasizing the transition from 32 to 40

Tell Time on the Clock (3 minutes)

Materials: (T) Analog clock for demonstration, (S) Personal white board

Note: This activity reviews telling and writing time to the nearest 5 minutes.

- T: (Show an analog demonstration clock.) Start at 12 and count by 5 minutes on the clock.
(Move finger from 12 to 1, 2, 3, 4, etc., as students count.)
- S: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60.

T: I'll show a time on the clock. Write the time on your personal white board. (Show 3:05.)

S: (Write 3:05.)

T: (Show 2:35.)

S: (Write 2:35.)

Repeat the process, varying the hour and 5-minute interval so that students read and write a variety of times to the nearest 5 minutes.

Minute Counting (6 minutes)

Note: This activity reviews telling and writing time to the nearest 1 minute. Students also practice group counting strategies for multiplication in the context of time.

Use the process outlined for this activity in Lesson 1. Direct students to count by 5 minutes to the hour, the half hour, and the quarter hour. Repeat the process using the following suggested sequence.

- 6 minutes, counting to the half hour and hour
- 3 minutes, counting to a quarter past the hour and half hour
- 10 minutes, counting up to 1 hour
- 9 minutes, counting to 45 and emphasizing the transition from 36 to 45

Application Problem (5 minutes)

Christine has 12 math problems for homework. It takes her 5 minutes to complete each problem. How many minutes does it take Christine to complete all 12 problems?



$12 \times 5 \text{ minutes} = 60 \text{ minutes}$
It takes Christine 60 minutes to finish her homework.

Note: This problem reviews work from Grade 2 about math with minutes. Twelve is a new factor. If students are unsure about how to multiply 12 groups of 5, encourage them to solve by skip-counting. They can also use the distributive property, 10 fives + 2 fives or 6 fives + 6 fives.

Concept Development (33 minutes)

Materials: (T) Place value disks: Ones, tens, hundreds, thousands, ten thousands, hundred thousands; unlabeled hundred thousands place value chart (Lesson Template) (S) Personal white board, unlabeled hundred thousands place value chart (Template)

Note: Place value disks are used as models throughout the curriculum and can be represented in two different ways. A disk with a value labeled inside of it, such as in Problem 1, should be drawn or placed on a place value chart with no headings. The value of the disk in its appropriate column indicates the place value unit. A place value disk drawn as a dot should be used on place value charts with headings as in Problem 2. This type of representation is called the *chip model*. The chip model is a faster way to represent place value disks and is used as students move away from a concrete stage of learning.

Problem 1: Build the place value chart from ones to thousands.

T: (Display a place value chart. Place 1 unit in the ones place.)

T: How many units do I have?

S: 1.

T: What is the name of this unit?

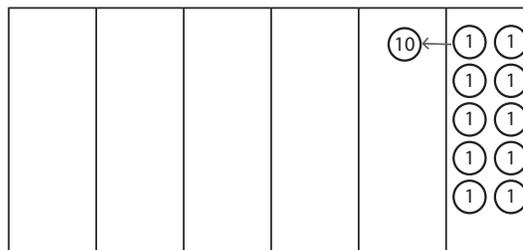
S: One.

T: Put 1 one on your place value chart and let's count up to 10 ones. Place a one on your chart for each count.

S: 1 one, 2 ones, 3 ones, 4 ones, ...10 ones.

T: We have 10 ones. What other larger unit can we make?

S: 1 ten.



Repeat this sequence counting and bundling 10 tens to make 1 hundred and 10 hundreds to make 1 thousand. Then introduce the new place value units by counting 10 thousands and bundling to make 1 **ten thousand** and counting 10 ten thousands to make 1 **hundred thousand**.

Problem 2: Represent numbers to 100,000 on the place value chart using the chip model.

T: Work with your partner to label the ones through thousands places on your place value chart.

S: (Label chart.)

T: Let's work together to label the two new units we explored. When we bundled 10 thousands, what unit did we make?

S: A ten thousand.

T: Yes. Let's label the ten thousands place.

S: (Label chart.)

- T: We bundled 10 ten-thousands to create the next larger unit. Remind me of the name of this unit
- S: 1 hundred thousand.
- T: Let's label the hundred thousands place on the place value chart.
- S: (Label chart.)
- T: What patterns do you notice in the names of the units on the place value chart?
- S: I see tens and hundreds twice. → We only have ones in the chart once.
- T: We can also think of the thousands place as being the "one-thousands place" (Add the word "one" to the thousands place.) What pattern do you notice now?
- S: There are ones, tens, and hundreds on both sides of the comma. → It's ones, tens, hundreds; then one thousands, ten thousands, and hundred thousands.
- T: When we write numbers in standard form, we use the comma to help organize the number. We separate the digits into groups of three.
- T: Because we have labeled our place value chart, we will draw dots to represent our numbers. Draw dots to show 243.
- S: (Draw dots.)
- T: Work with your partner to show 1,243 with dots and read the number in word form to your partner.
- S: One thousand, two hundred forty-three. → twelve hundred, forty-three.
- T: Write the number in standard form at the bottom of your place value chart.
- S: (Write number.)
- T: What is the value of the digit 2 in this number?
- S: 200.
- T: How many hundreds in the whole number?
- S: 12 hundreds.
- T: Where do you see 12 hundreds on your place value chart?
- S: There are 10 hundreds bundled together to make 1 thousand and 2 more hundreds in the hundreds place.
- T: Draw another thousand on your chart. Work with your partner to write this number in standard form and then read the number to your partner in word form.
- S: (Write 2,243.) Two thousand, two hundred forty-three.
- T: Draw three dots in your ten thousands place. Write this number at the bottom of your chart and compare it with your partner.
- S: (Write 32,243.)
- T: Notice that the comma separates the units into groups of three. We read the three digits and then name the unit. To read this number, we say "thirty-two thousand (gesture in the air for the comma) two hundred forty-three". Read this number to your partner and show the comma with your hand.
- S: (Read the number and gesture.)

hundred thousands	ten thousands	thousands	hundreds	tens	ones
		●	●●	●●●●	●●●
		1,	2	4	3

Problem 3: Writing and saying numbers in standard form.

- T: (Write 95146.) Write this number at the bottom of your place value chart. Place a comma to separate the digits into groups of 3.
- S: (Write 95,146.)
- T: Draw dots to represent this number on the place value chart. Then read the number to your partner.
- S: (Draw and say the number.)
- T: Let's say this number together. Use your hand to show where the comma belongs.
- S: Ninety-five thousand (gesture) one hundred forty-six.

Repeat the sequence with 100,000; 67,043; 80,003.

Problem 4: Add to make 10 of a unit and bundling up to 1 hundred thousand.

- T: What would happen if we combined 6 hundreds and 7 hundreds? With your partner, draw place value disks to solve. Bundle in order to express your answer using the largest unit possible.
- S: 6 hundreds plus 7 hundreds equals 13 hundreds. → We can bundle 10 hundreds to make 1 thousand. We would have 3 dots still in the hundreds place. → It would equal 1 thousand, 3 hundred.

<i>hundred thousands</i>	<i>ten thousands</i>	<i>thousands</i>	<i>hundreds</i>	<i>tens</i>	<i>ones</i>

- T: What would happen if we combined 2 thousands and 11 hundreds? How is this problem alike and different from the problem we just solved?
- S: We still have to bundle some hundreds to make 1 thousand. → We have 2 different units this time. → We already have more than 10 of one unit, so we know we will have to bundle.
- T: Work with your partner to solve 2 thousands + 11 hundreds. Write the sum in standard form at the bottom of your place value chart.
- S: (Write 3,100.)

**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

Scaffold reading numbers into the ten thousands with questioning such as:

T: (Display 76,130.) What's the value of the 6?

S: 6 thousand.

T: How many thousands are there altogether?

S: 76 thousands.

T: What's the value of the 1?

S: 100.

T: How many tens are there?

S: 3 tens.

T: So, what's the value of the 3?

S: 30.

T: How many ones are there in the ones place?

S: 0 ones.

T: Read the whole number.

S: Seventy six thousand, one hundred thirty.

Continue with similar numbers until students are able to read them fluently. Alternate the student recording, modeling, and reading the numbers.

Continue renaming problems, showing regrouping as necessary.

- 5 thousands + 13 hundreds
- 3 ten thousands + 11 thousands
- Extension: 9 thousands + 11 hundreds

hundred thousands	ten thousands	thousands	hundreds	tens	ones
		●●●	●●●●●		
		3,	1	0	0

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Name numbers up to 100,000 by building understanding of the place value chart and placement of commas for naming base thousand units.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What new place value units did we explore today?

Name Jessa Date _____

1. Rewrite the numbers including commas where appropriate:
 a. 4321 4,321 b. 54321 54,321 c. 100000 100,000

2. Label the missing units on the place value chart. Write the number in standard form.
 a.

hundred thousands	ten thousands	thousands	hundreds	tens	ones
	●●●●	●●●●		●●●●	●●

Standard form: 58,072

b.

hundred thousands	ten thousands	thousands	hundreds	tens	ones
	●●		●●●●	●●●	●●●●

Standard form: 20,934

3. Write the numbers in standard form.
 a. 6 ten thousands 5 hundreds 2 thousands 7 tens 3 ones = 62,573
 b. 3 thousands 8 ten thousands 2 hundreds 9 tens 6 ones = 83,296

- What patterns did we notice in the names of the place value units?
- In Problem 1, how did you know where to place a comma within a number?
- Read aloud the numbers in Problem 1 with your partner. What role does the comma have as you read the numbers?
- In Problem 3, what patterns did you notice? How is the last row different from the others?
- How did 5(a) help you to solve 5(b)? How is 5(c) different from 5(a) and 5(b)?
- How are the place values that are next to each other on the place value chart related?

4. Solve each expression. Record your answer in unit form and in standard form.

Expression	Unit Form	Standard Form
4 tens + 6 tens	<u> </u> <u> </u> tens = <u> </u> <u> </u> hundreds	100
2 hundreds + 8 hundreds	<u> </u> <u> </u> hundreds = <u> </u> <u> </u> thousands	1,000
5 thousands + 5 thousands	<u> </u> <u> </u> thousands = <u> </u> <u> </u> ten thousands	10,000
1 ten thousand + 9 ten thousands	<u> </u> <u> </u> ten thousands = <u> </u> <u> </u> hundred thousands	100,000
70 thousands + 30 thousands	<u> </u> <u> </u> <u> </u> thousands = <u> </u> <u> </u> <u> </u> hundred thousands	100,000

5. Represent each addend with place value disks in the place value chart. Show the bundling of smaller units to make larger units. Write the sum in standard form.

a. 3 thousands + 11 hundreds =

hundred thousands	ten thousands	thousands	hundreds	tens	ones
		●●●●	●●●●●●●●		

b. 3 ten thousands + 11 thousands =

hundred thousands	ten thousands	thousands	hundreds	tens	ones
	●●●●●●	●●●●●●●●			

c. 9 ten thousands + 10 thousands =

hundred thousands	ten thousands	thousands	hundreds	tens	ones
	●●●●●●●●	●●●●●●●●			

6. Mrs. Golden's class wants to trade 60 thousands disks for some ten thousands disks with Mr. Stone's class. How many ten thousands disks are equal to 60 thousands disks?
 ↳ ten thousands disks are equal to 60 thousands disks. So, Mrs. Golden's class will get 6 ten thousands disks.

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name _____

Date _____

1. Rewrite the numbers including commas where appropriate:

a. 4321 _____ b. 54321 _____ c. 100000 _____

2. Label the missing units on the place value chart. Write the number in standard form.

a.

		thousands		tens	ones
	● ● ● ● ●	● ● ● ● ● ● ● ●		● ● ● ● ● ● ●	● ●

Standard form: _____

b.

hundred thousands	ten thousands	thousands	hundreds		ones
	● ●		● ● ● ● ● ● ● ● ●	● ● ●	● ● ● ●

Standard form: _____

3. Write the numbers in standard form.

a. 6 ten thousands 5 hundreds 2 thousands 7 tens 3 ones = _____

b. 3 thousands 8 ten thousands 2 hundreds 9 tens 6 ones = _____

4. Solve each expression. Record your answer in unit form and in standard form.

Expression	Unit Form	Standard Form
4 tens + 6 tens	___ tens = ___ hundreds	
2 hundreds + 8 hundreds	___ hundreds = ___ thousands	
5 thousands + 5 thousands	___ thousands = ___ ten thousands	
1 ten thousand + 9 ten thousands	___ ten thousands = ___ hundred thousands	
70 thousands + 30 thousands	___ thousands = 1 _____	

5. Represent each addend with place value disks in the place value chart. Show the bundling of smaller units to make larger units. Write the sum in standard form.

a. 3 thousands + 11 hundreds = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

b. 3 ten thousands + 11 thousands = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

c. 9 ten thousands + 10 thousands = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

6. Mrs. Golden's class wants to trade 60 thousands disks for some ten thousands disks with Mr. Stone's class. How many ten thousands disks are equal to 60 thousands disks?

Name _____

Date _____

1. Label the missing place value units. Then, write the number in standard form.

			hundreds	tens	ones
	●	● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ●	

Standard form: _____

2. Write the numbers in standard form. Be sure to place commas where appropriate.

a. 5 thousands 1 hundred 6 tens 8 ones = _____

b. 3 thousands 4 ten thousands 7 hundreds 2 ones 1 ten = _____

3. Represent each addend with place value disks in the place value chart. Show the bundling of smaller units to make larger units. Write the sum in standard form.

2 ten thousands + 11 thousands = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

Name _____

Date _____

1. Rewrite the numbers including commas where appropriate:

a. 7852 _____

b. 97852 _____

c. 10000 _____

2. Label the missing units on the place value chart. Write the number in standard form.

a.

hundred thousands		thousands		tens	ones
	• • • •	• • • • • • • • •	• • • • •		• • • • • • • •

Standard form: _____

b.

hundred thousands	ten thousands			tens	ones
	• • • • • •	• •		• • •	•

Standard form: _____

3. Write the numbers in standard form.

a. 8 ten thousands 6 hundreds 9 thousands 4 tens 7 ones = _____

b. 4 ten thousands 5 thousands 9 tens 6 ones 2 hundreds = _____

4. Solve each expression. Record your answer in unit form and in standard form.

Expression	Unit Form	Standard Form
1 ten + 9 tens	___ tens = ___ hundreds	
7 hundreds + 3 hundreds	___ hundreds = ___ thousands	
8 thousands + 2 thousands	___ thousands = ___ ten thousands	
6 ten thousands + 4 ten thousands	___ ten thousands = ___ hundred thousands	
50 thousands + 50 thousands	___ thousands = 1 _____	

5. Represent each addend with place value disks in the place value chart. Show the bundling of smaller units to make larger units. Write the sum in standard form.

a. 4 thousands + 12 hundreds = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

b. 4 ten thousands + 12 thousands = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

c. 9 thousands + 10 hundreds = _____

hundred thousands	ten thousands	thousands	hundreds	tens	ones

6. Jayden has 50 thousands disks. He wants to trade them for some ten thousands disks. How many ten thousands disks are equal to 50 thousands disks?

unlabeled hundred thousands place value chart



Lesson 10: Name numbers up to 100,000 by building understanding of the place value chart and placement of commas for naming base thousand units.

