1.1 Number: Reading and writing five-digit numbers

In this lesson, students read, write, and represent five-digit numbers.

Step 1 Preparing the lesson

You will need:

- abacus (optional)
- non-permanent marker

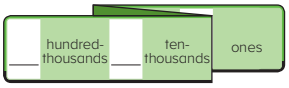
Each group of students will need:

- base-10 blocks (thousands, hundreds, tens, and ones)
- six-digit numeral expanders from *The Number Case*
- set of abacus cards from the five-digit mix-and-match cards from *The Number Case*
- non-permanent marker

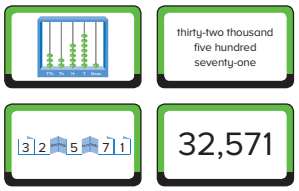
Each student will need:

- Student Journal 1.1
- 1 sticky note (or similar)

Six-digit expander



Five-digit mix-and-match cards



Step 2 Starting the lesson

Distribute the sticky notes. Ask the students to write a number from 0 to 9 on their sticky note. Organize students into groups of five. They then arrange their sticky notes to show the greatest and least five-digit number they can make. Have groups record their findings on the board, then discuss these as a class, confirming answers and discussing the value of the numbers (**SMP6**). If time allows, repeat the activity with students in different groups. (*Note:* If students can not form equal groups of five, provide the smaller group with additional sticky notes as required to make up the five digits.)

Step 3 Teaching the lesson

Write 45,971 on the board. Ask, *What can you tell me about this number? What does the digit 4 tell us? What do the remaining digits tell us? What are some other ways you could represent this number?* Encourage students to describe how classroom tools such as base-10 blocks, number lines, or picture cards could be used to represent the number (**SMP4** and **SMP5**). Have students share their interpretations. Write the number on the expander to support the discussion. Write 82,059 on the board and repeat the activity.

Provide each group with one abacus card as shown and one six-digit numeral expander. Ask each group to analyze the number shown on the abacus. They then write the numeral and number name to match. Move around the room to observe their thinking. If necessary, clarify the place value that each rod in the abacus represents (**SMP7**). Discuss the points below:

How can you tell what number is shown on the abacus?

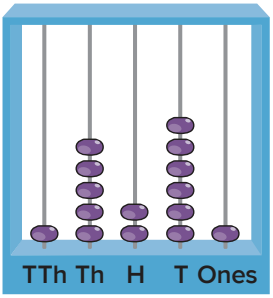
How could you show the same number on the numeral expander?

What numeral or number name could you write to match?

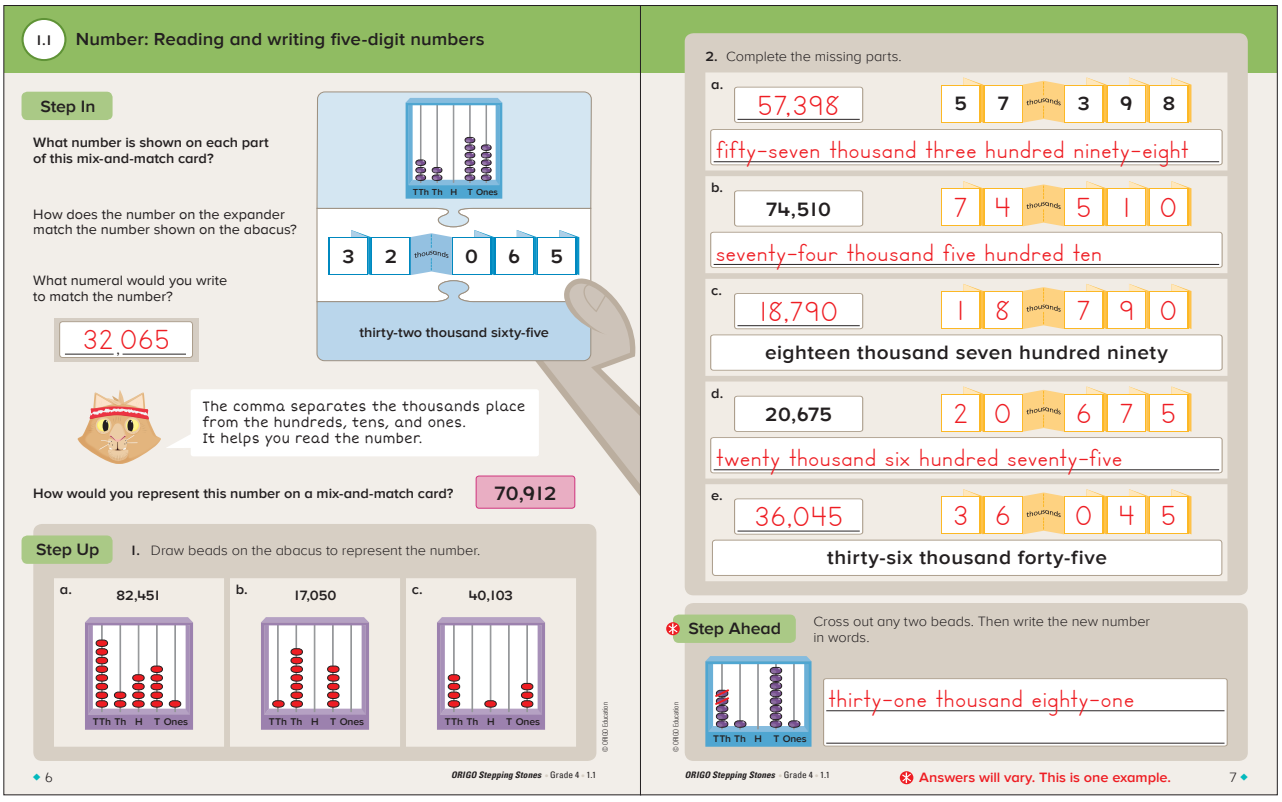
What number could you show by adding one more bead to the abacus?

ELL

Read the number word slowly and clearly to the students. Encourage them to read along with you a second time. Ask the students to explain what they are learning in their own words to check for understanding of the concept.



Student Journal 1.1, pp. 6–7



1.1 Number: Reading and writing five-digit numbers

Step In

What number is shown on each part of this mix-and-match card?

How does the number on the expander match the number shown on the abacus?

What numeral would you write to match the number?

32,065

TTh Th H T Ones

3 2 thousands 0 6 5

thirty-two thousand sixty-five

The comma separates the thousands place from the hundreds, tens, and ones. It helps you read the number.

How would you represent this number on a mix-and-match card? 70,912

Step Up 1. Draw beads on the abacus to represent the number.

a. 82,451 b. 17,050 c. 40,103

TTh Th H T Ones

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2. Complete the missing parts.

a. 57,398 — 5 7 thousands 3 9 8 — fifty-seven thousand three hundred ninety-eight

b. 74,510 — 7 4 thousands 5 1 0 — seventy-four thousand five hundred ten

c. 18,790 — 1 8 thousands 7 9 0 — eighteen thousand seven hundred ninety

d. 20,675 — 2 0 thousands 6 7 5 — twenty thousand six hundred seventy-five

e. 36,045 — 3 6 thousands 0 4 5 — thirty-six thousand forty-five

Step Ahead Cross out any two beads. Then write the new number in words.

thirty-one thousand eighty-one

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ORIGO Stepping Stones · Grade 4 · 1.1 Answers will vary. This is one example. 7

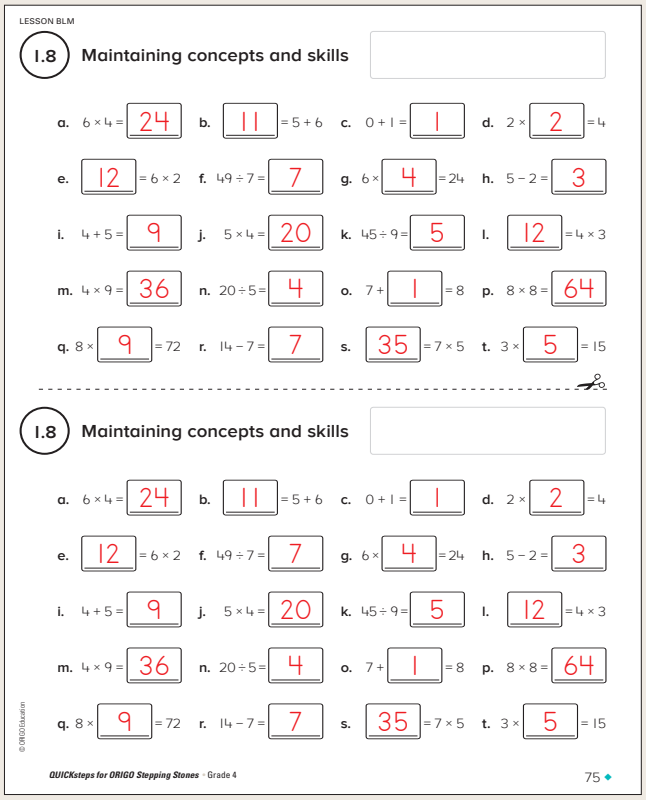
Work through the Step In discussion (Student Journal 1.1) with the whole class. Read the Step Up and Step Ahead instructions with the students. Make sure they know what to do, then have them work independently to complete the tasks.

Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 1.1. Have students exchange books with a partner to check and discuss their answers (**SMP6**). Refer to Step Ahead and have the students describe the steps that they followed to write the new number in words. Challenge the students to create a class list of 10 different numbers that they could write.

Maintaining concepts and skills

Make copies of Blackline Master 1.8. Cut the page in half and give each student one strip to complete. Alternatively, write the equations on the board and have the students copy and complete them, or just write the answers.



LESSON BLM

1.8 Maintaining concepts and skills

a. $6 \times 4 = \boxed{24}$ b. $\boxed{11} = 5 + 6$ c. $0 + 1 = \boxed{1}$ d. $2 \times \boxed{2} = 4$

e. $\boxed{12} = 6 \times 2$ f. $49 \div 7 = \boxed{7}$ g. $6 \times \boxed{4} = 24$ h. $5 - 2 = \boxed{3}$

i. $4 + 5 = \boxed{9}$ j. $5 \times 4 = \boxed{20}$ k. $45 \div 9 = \boxed{5}$ l. $\boxed{12} = 4 \times 3$

m. $4 \times 9 = \boxed{36}$ n. $20 \div 5 = \boxed{4}$ o. $7 + \boxed{1} = 8$ p. $8 \times 8 = \boxed{64}$

q. $8 \times \boxed{9} = 72$ r. $14 - 7 = \boxed{7}$ s. $\boxed{35} = 7 \times 5$ t. $3 \times \boxed{5} = 15$

1.8 Maintaining concepts and skills

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QUICKsteps for ORIGO Stepping Stones • Grade 4 75

Small group differentiation

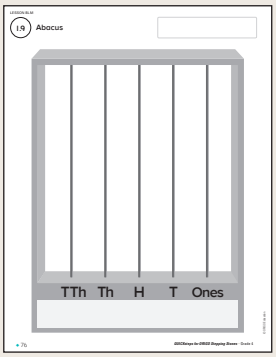
Extra help

Each pair of students will need:

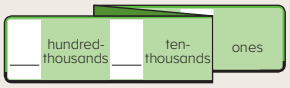
- 1 copy of Blackline Master 1.9
- counters
- six-digit numeral expander from *The Number Case*
- non-permanent marker

Organize students into pairs and distribute the resources. Ask one student to place counters on each rod of the abacus to compose a five-digit number. The second student then writes the number on the expander and reads the number. The first student asks questions such as, "How many thousands are in this number?" and "What would the number be if one more counter was added to this rod?" Roles are alternated and the activity repeated.

Blackline Master 1.9



Six-digit expander



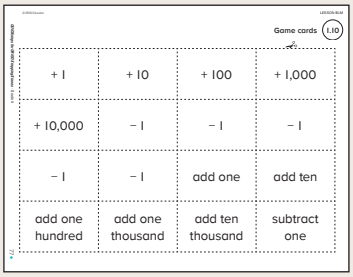
Extra practice

Each pair of students will need:

- 1 copy of Blackline Master 1.9
- 1 copy of Blackline Master 1.10
- paper
- counters

Organize students into pairs. Students mix the cards and place them facedown on the table. One student writes a five-digit numeral on their paper. The other student represents the number on the abacus and chooses a card from the pile. The first student then calculates the new number by placing more counters on the abacus. Both students write the new number in words. Roles are alternated and the activity repeated.

Blackline Master 1.10



1.2 Number: Building a picture of 100,000

In this lesson, students use an abacus to compose five-digit numbers. They then build a picture of 100,000.

Step 1 Preparing the lesson

You will need:

- abacus (optional)
- six-digit numeral expanders from *The Number Case*
- non-permanent marker

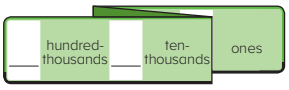
Each pair of students will need:

- Blackline Master 1.9
- counters

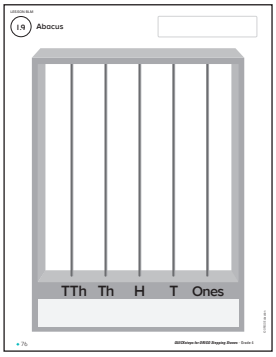
Each student will need:

- Student Journal 1.2

Six-digit expander



Blackline Master 1.9



Step 2 Starting the lesson

Organize students into pairs and distribute the resources. Ask each pair to use their counters to compose a five-digit number. Students can then share their number with the class. Ask questions such as, *What number is represented by the counters in the (thousands) place? What happens if you add one more counter to the (tens) place? How would you represent the same number if you had only ones blocks? How many ones blocks would you need?*

Step 3 Teaching the lesson

The pairs investigate the greatest number that they can show on their abacus. (99,999.) Bring out that 9 counters would need to be placed above each place value. Then ask, *How could we adjust our abacus to show 100,000? What would we need to do?* Guide the students to explain that another place-value rod would need to be added. For now, suggest that students use their ruler to draw the additional place-value rod. This rod should be drawn to the immediate left of the ten thousands rod. They write HTh below this rod to signify the hundred thousands place.

Contextualize 100,000 by encouraging students to share some real-world places where they might see/encounter 100,000 (for example, one hundred thousand blocks, people in stadiums, the population of a city, books in a library, sheets of paper **SMP2**).

On the board, write: 241,352, 513,452, and 632,135. Have the pairs compose each number on their abacus (**SMP4**). Move around the room, encouraging students to describe the value of the beads on each rod, for example, "There are 2 groups of 100,000," "There are 4 groups of 10,000," "There is 1 group of 1,000," and so on. If necessary, use the abacus to help the students read each number correctly (**SMP6**).

Work through the Step In discussion (Student Journal 1.2) with the whole class. Read the Step Up and Step Ahead instructions with the students. Make sure they know what to do, then have them work independently to complete the tasks.

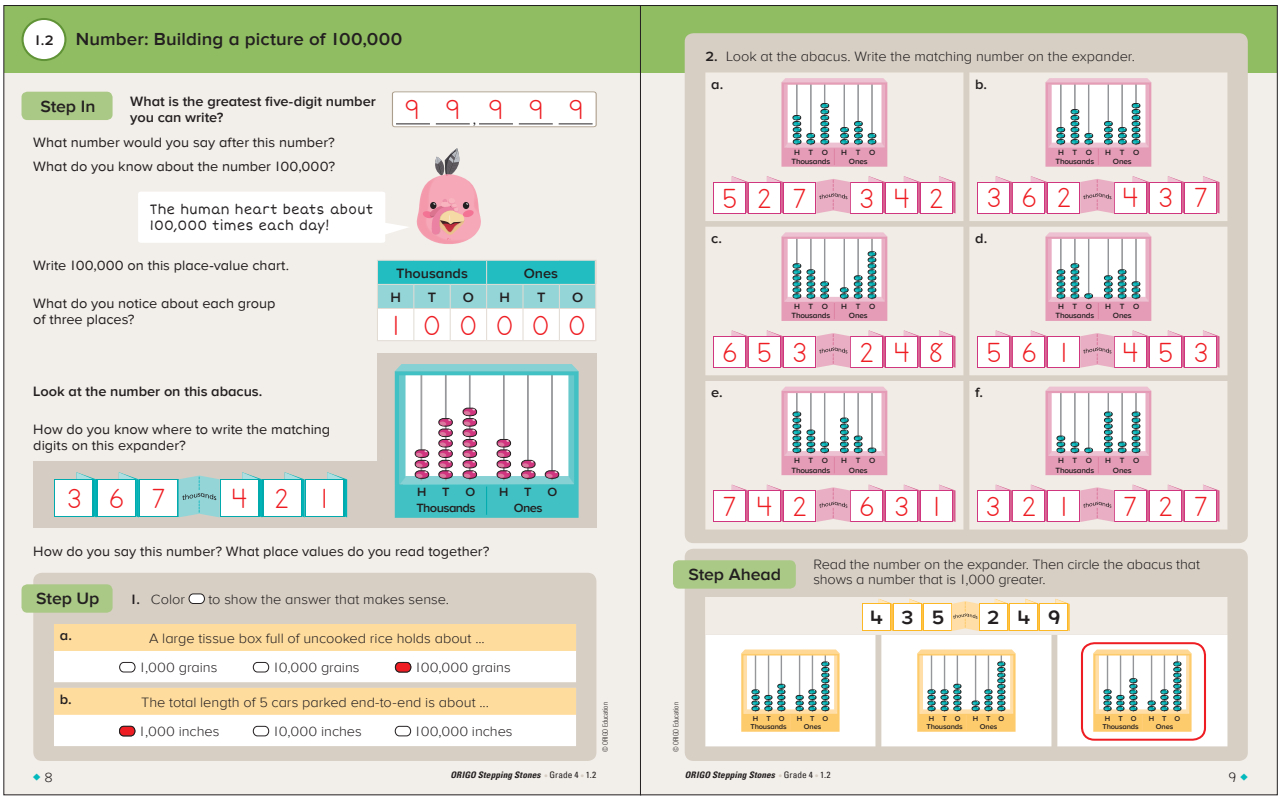
ELL

Allow the students to use hand gestures (such as thumbs down) when they're confused about the language they hear in the lesson. Students should also be given more time to process the question and formulate their answers.

4.NBT.A.1 Describe the multiplicative relationship in the place-value system
4.NBT.A.2 Represent six-digit numbers

Major cluster
Generalize place-value understanding for multi-digit whole numbers.

Student Journal 1.2, pp. 8–9



1.2 Number: Building a picture of 100,000

Step In What is the greatest five-digit number you can write? 9 9 9 9 9

What number would you say after this number?

What do you know about the number 100,000?

The human heart beats about 100,000 times each day!

Write 100,000 on this place-value chart.

Thousands			Ones		
H	T	O	H	T	O
1	0	0	0	0	0

What do you notice about each group of three places?

Look at the number on this abacus.

How do you know where to write the matching digits on this expander?

3 6 7 thousands 4 2 1

How do you say this number? What place values do you read together?

Step Up 1. Color ⬭ to show the answer that makes sense.

a. A large tissue box full of uncooked rice holds about ...
⬭ 1,000 grains ⬭ 10,000 grains ● 100,000 grains

b. The total length of 5 cars parked end-to-end is about ...
● 1,000 inches ⬭ 10,000 inches ⬭ 100,000 inches

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2. Look at the abacus. Write the matching number on the expander.

a. 5 2 7 thousands 3 4 2
b. 3 6 2 thousands 4 3 7
c. 6 5 3 thousands 2 4 8
d. 5 6 1 thousands 4 5 3
e. 7 4 2 thousands 6 3 1
f. 3 2 1 thousands 7 2 7

Step Ahead Read the number on the expander. Then circle the abacus that shows a number that is 1,000 greater.

4 3 5 thousands 2 4 9

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Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 1.2. When discussing Question 1, encourage discussion and reasoning (**SMP2**). (*Note:* It is difficult for many students to conceptualize numbers larger than 1,000. Allowing them opportunities to refer to real-world quantities will provide conceptual understanding of the rational number system.)

Maintaining concepts and skills

This lesson provides one page of written practice for mental computation strategies. It also provides ongoing practice that revisits content from any previous module and earlier in this module, and a prerequisite skill for Module 2.

Student Journal 1.2, pp. 10–11

1.2 Maintaining concepts and skills

Computation Practice

When Helen was on vacation, she found a room that had no floor or ceiling and no windows or doors. What type of room did she find?

★ Complete the equations. Find each answer in the grid below and cross out the letter above. Write the remaining letters at the bottom of the page.

64 − 32 = 32	12 + 13 = 25	62 − 31 = 31
42 + 43 = 85	48 − 24 = 24	21 + 22 = 43
46 − 23 = 23	41 + 42 = 83	45 − 23 = 22
22 + 22 = 44	27 − 14 = 13	14 + 15 = 29
82 − 41 = 41	22 + 23 = 45	65 − 32 = 33
32 + 31 = 63	84 − 42 = 42	24 − 24 = 0

B	A	T	H	G	A	M	E	S
23	30	42	24	45	31	14	41	63
C	U	P	S	H	O	W	E	R
83	64	32	84	46	85	25	0	34
B	E	D	B	R	O	O	M	S
22	29	33	44	13	18	66	28	43

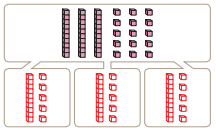
A MUSHROOM

Write the remaining letters in order from the ❄ to the bottom-right corner.

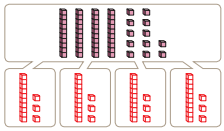
Ongoing Practice

1. In each picture, one tens block has been regrouped for 10 ones blocks. Draw blocks in the small parts to show each share. Then complete the equation.

a. 45 ÷ 3 = 15



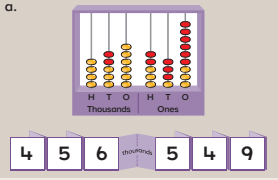
b. 52 ÷ 4 = 13



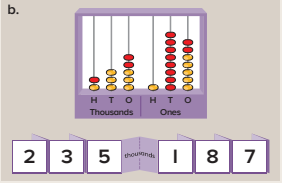
IRMA 3.2.2

2. Draw extra beads on the abacus to match the number on the expander.

a.



b.



IRMA 4.1.2

Preparing for Module 2

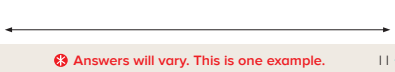
Estimate the total. Draw jumps on the number line to show how you formed your estimate.

a. 45 + 29

Estimate 75

b. 92 + 35

Estimate 125



Answers will vary. This is one example.

Small group differentiation

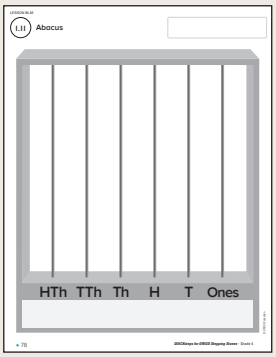
Extra help

Each pair of students will need:

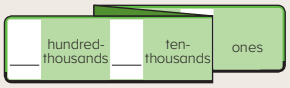
- 1 copy of Blackline Master 1.11
- counters
- six-digit numeral expander from *The Number Case*
- non-permanent marker

Organize students into pairs. Ask one student to place counters on each rod of the abacus to compose a six-digit number. The other student then writes the number on the expander, reading it aloud as they do so. Roles are alternated and the activity repeated. Have each student compose at least three different numbers.

Blackline Master 1.11



Six-digit expander



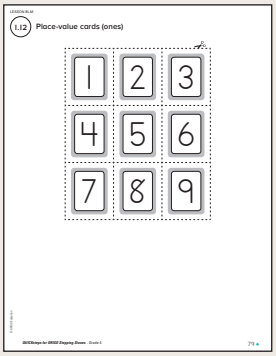
Extra practice

Each pair of students will need:

- 2 sets of single-digit cards from Blackline Master 1.12
- 1 cube labeled: HTh, TTh, Th, H, T, O
- 2 copies of Blackline Master 1.11
- approximately 70 counters

Organize students into pairs. Students mix the single-digit cards and place them facedown in a central pile. One student rolls the cube and selects the top card. They use their abacus and counters to create the number on the correct rod (for example, if they rolled Th and drew the card showing 1, they would place one counter on the thousands rod of their abacus). The card is retained, and the second student takes their turn. If a student rolls a place value they have already filled, they miss a turn. The student who has made the greater number when all the cards have been used wins the round. This can be repeated as time allows.

Blackline Master 1.12



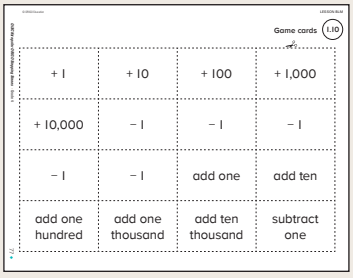
Extra challenge

Each pair of students will need:

- 2 sets of single-digit cards from Blackline Master 1.12
- 1 cube labeled: HTh, TTh, Th, H, T, O
- 2 copies of Blackline Master 1.11
- approximately 70 counters
- 1 set of cards from Blackline Master 1.10

Organize students into pairs to play the same game as Extra Practice, however, at the end of the game students each select a card from Blackline Master 1.10 (mixed and placed facedown) and conduct the addition or subtraction on their abacus. The student with the greater number wins one point. The first student to earn three points wins the game. For an additional challenge, students can calculate the difference between their two numbers, writing the equations to match.

Blackline Master 1.10



1.3 Number: Reading and writing six-digit numbers

In this lesson, students use an expander and place-value cards to help them write six-digit numbers in both words and numerals. This lesson focuses on the digits in the thousands place.

Step 1 Preparing the lesson

You will need:

- six-digit numeral expander from *The Number Case*
- 1 set of place-value cards from Blackline Masters 1.12–1.20 (*Note:* Retain the cards for use in the differentiation activities for this lesson and the next.)
- non-permanent marker

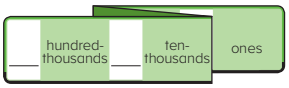
Each group of students will need:

- six-digit numeral expander from *The Number Case*
- non-permanent marker

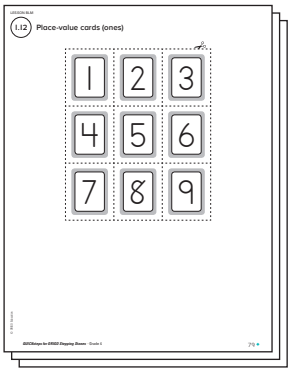
Each student will need:

- Student Journal 1.3

Six-digit expander



Blackline Masters 1.12–1.20



Step 2 Starting the lesson

Show the number 4,000 on the expander. Then ask a volunteer to write the number in words on the board. (Four thousand.) Repeat for 40,000, 45,000, then 54,000 written on the expander.

Step 3 Teaching the lesson

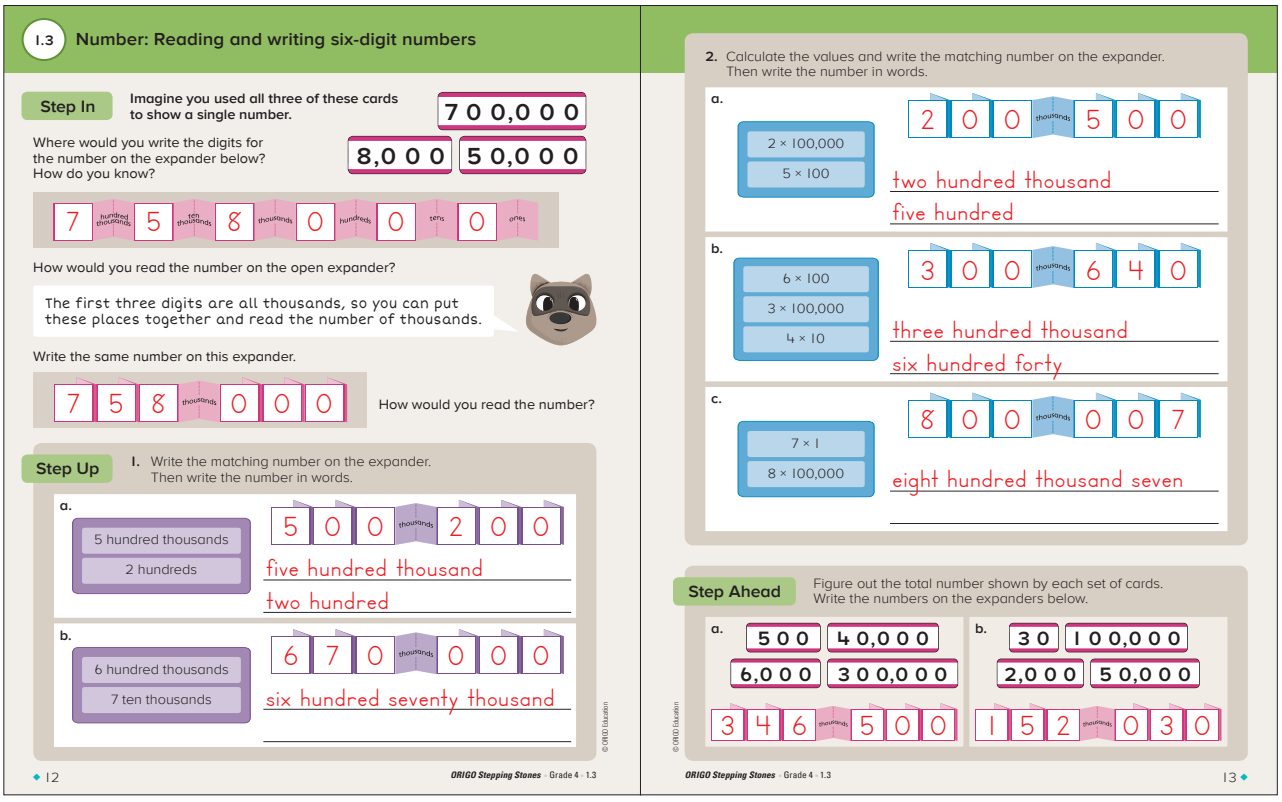
Call on a student to say a number of one thousands, such as "four one thousands," then write the number on the board (4,000). Call on another student to say a number of ten thousands, such as "two ten thousands" then write the number on the board (20,000). Display the expander and challenge the students to show the value of each number. Ask questions such as, *How do you show the number 20,000 on the expander? How do you show the number 4,000? What number name do you say when you read the numbers together? What parts of the number name do you say together?* Encourage students to explain their thinking and invite a volunteer to write the digits as shown in the example below (**SMP7**). Invite a volunteer to say the number and explain how they know (**SMP1**).

Call on three students to say and write a number of one thousands, then ten thousands, then hundred thousands on the board. Display an open expander and repeat the questions above, having a student write the number on the expander then invite the students to read the number with the expander open. Then say, *Since the first three digits are all thousands, we put these places together and read the number of thousands.* Close the expander so only the word thousands is showing and have the students read what they see. Repeat the activity for other sets of three numbers that different students suggest.

ELL

Encourage the students to share their ideas, and explain what they are learning in their own words to check for understanding. Pair the students with a fluent English-speaking group.

Student Journal 1.3, pp. 12–13



1.3 Number: Reading and writing six-digit numbers

Step In Imagine you used all three of these cards to show a single number.

700,000 | 8,000 | 50,000

Where would you write the digits for the number on the expander below? How do you know?

7 5 8 0 0 0

How would you read the number on the open expander?

The first three digits are all thousands, so you can put these places together and read the number of thousands.

Write the same number on this expander.

7 5 8 0 0 0

How would you read the number?

Step Up 1. Write the matching number on the expander. Then write the number in words.

a. 5 hundred thousands; 2 hundreds — 500,200 — five hundred thousand two hundred

b. 6 hundred thousands; 7 ten thousands — 670,000 — six hundred seventy thousand

2. Calculate the values and write the matching number on the expander. Then write the number in words.

a. 2 × 100,000; 5 × 100 — 200,500 — two hundred thousand five hundred

b. 6 × 100; 3 × 100,000; 4 × 10 — 300,640 — three hundred thousand six hundred forty

c. 7 × 1; 8 × 100,000 — 800,007 — eight hundred thousand seven

Step Ahead Figure out the total number shown by each set of cards. Write the numbers on the expanders below.

a. 500; 40,000; 6,000; 300,000 — 346,500

b. 30; 100,000; 2,000; 50,000 — 152,030

Organize the students into small groups and distribute the resources. Hand out the place-value cards so each group is given one hundred thousands card and at least two other cards of a different place value, for example, 300,000, 4,000, and 500. The groups then record the matching number on the expander (**SMP7**). Repeat the activity by exchanging the place-value cards among the groups. Collect the cards afterward, as they will be used in upcoming lessons and activities.

Work through the Step In discussion (Student Journal 1.3) with the whole class. Read the Step Up and Step Ahead instructions with the students. Make sure they know what to do, then have them work independently to complete the tasks.

Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 1.3. Refer to Step Ahead and then discuss the points below:

How did you decide which digits should be written on the expanders?

How did you know where to write each digit?

How does the number of groups show on the place-value cards?
(**SMP1** and **SMP7**)

Applications

If time allows, have the students complete this Investigation and/or Problem solving activity.

Investigation: Working with six-digit numbers

Write the investigation question on the board. Invite students to brainstorm ways that they can answer the question. Ask, *Do you need to actually say all the numbers to figure out an approximate time? How long do you think it takes to say the numbers from 1 to 10? How long do you think it would take to say ten three-digit numbers (ten four-digit numbers, ten five-digit numbers, ten six-digit numbers)?* Organize the students into groups of four to form a response to the investigation question. Afterward, invite groups to present their findings and explain their methods.

Investigation question

About how long would it take to say all the numbers from 1 to 1 million?

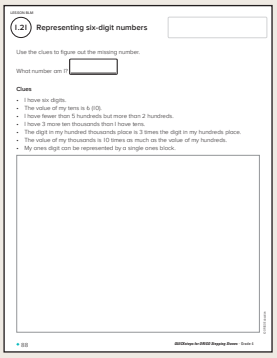
Problem solving: Representing six-digit numbers

Each student will need:

- 1 copy of Blackline Master 1.21

Distribute the blackline master. Read the problem with the students and make sure they understand what they have to do. They then work independently to find the mystery number (993,361). Afterward, have the students share their solutions and strategies. Encourage them to describe how they used the clues.

Blackline Master 1.21


1.21 Representing six-digit numbers

Use the clues to figure out the missing number.

What number am I?

Clues

- I have six digits.
- The value of my tens is 6 (10).
- I have fewer than 5 hundreds but more than 2 hundreds.
- I have 3 more ten thousands than I have tens.
- The digit in my hundred thousands place is 3 times the digit in my hundreds place.
- The value of my thousands is 10 times as much as the value of my hundreds.
- My ones digit can be represented by a single ones block.

Enrichment

Roll the number

Each pair of students will need:

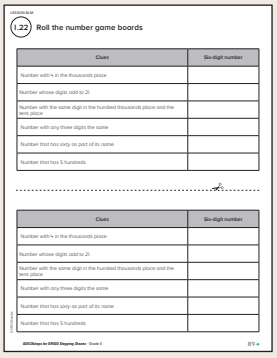
- 6 standard number cubes

Each student will need:

- 1 copy of Blackline Master 1.22

Organize the students into pairs and distribute the resources. Read the game board with the students to ensure their understanding. They then take turns to roll the cubes and use the resulting numbers to create a six-digit number that matches one of the clues on their game board. If they cannot make a match, they miss a turn. Play continues until one student records a number to match all the clues.

Blackline Master 1.22


1.22 Roll the number game boards

Clues	Six-digit number
Number with 4 in the thousands place	
Number whose digits add to 21	
Number with the same digit in the hundred thousands place and the tens place	
Number with any three digits the same	
Number that has sixty as part of its name	
Number that has 5 hundreds	

Clues	Six-digit number
Number with 4 in the thousands place	
Number whose digits add to 21	
Number with the same digit in the hundred thousands place and the tens place	
Number with any three digits the same	
Number that has sixty as part of its name	
Number that has 5 hundreds	

Small group differentiation

Extra help

You will need:

- 1 copy of Blackline Masters 1.15–1.20

Sort the cards according to place value and mix them. Then place them facedown in three separate piles. Each student selects one card from each pile and creates a six-digit number. Have them read the number aloud, then write it in words. Repeat as time allows.

Extra practice

You will need:

- 1 copy of Blackline Masters 1.12–1.20

Each group of students will need:

- six-digit numeral expander from *The Number Case*
- non-permanent marker
- 1 copy of Blackline Master 1.11
- counters

Organize students into small groups. Sort the cards according to place value and mix them. Then place them facedown in separate piles. Organize students into groups. One student from each group collects one card from each pile. Each group forms a six-digit number using their cards. Have the groups represent their number on the expander, on the abacus, and in words. The cards are then returned and the activity is repeated.

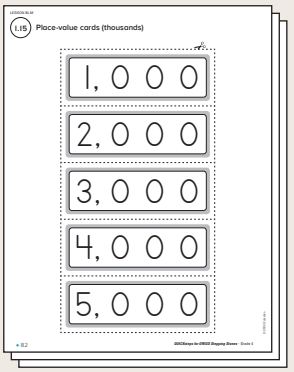
Extra challenge

Each group of students will need:

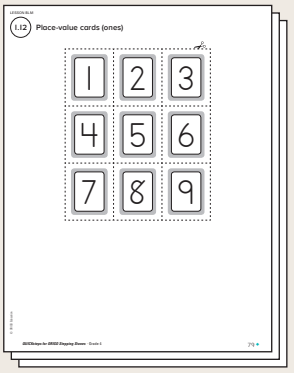
- magazines or catalogs
- paper
- glue
- scissors

Organize students into groups. Have students find six-digit numbers in the magazines or catalogs. If necessary, have them combine one- to five-digit numbers to create a six-digit number. Students then paste their numbers on their paper and write the number in words underneath, saying it aloud as they do so. Students are to find as many numbers as they can as time allows. Students can then order their numbers by numbering them from least to greatest. These can be displayed in the classroom.

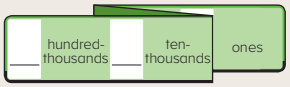
Blackline Masters 1.15–1.20



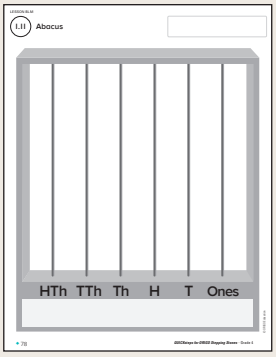
Blackline Masters 1.12–1.20



Six-digit expander



Blackline Master 1.11



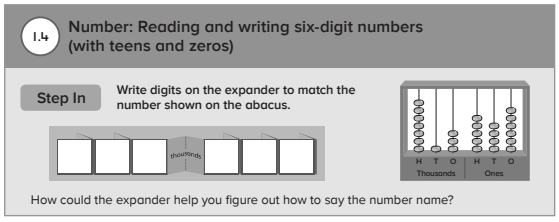
Module 1

Core Focus

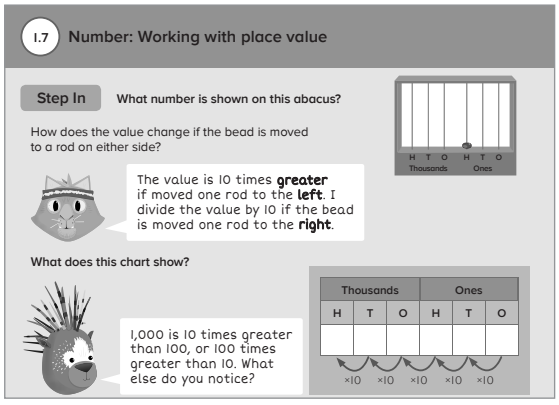
- Number: Reading and writing six-digit numbers and working with place value
- Multiplication: Extending the twos, fours, eights, and tens facts and exploring patterns

Number

- Number sense strategies from previous grades now extend to six-digit numbers. Students learn to read, write, draw, compare, and order these numbers using familiar and new models.
- Six-digit numbers are read in groups of three digits (starting from the left). Use of the **numeral expander** in all these lessons help students make sense of reading and ordering these numbers. The **abacus** also helps students visualize place value.



In this lesson, students use a numeral expander to read and write six-digit numbers. An abacus is used to represent these numbers.



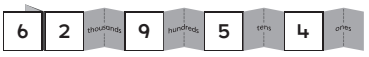
In this lesson, students consider the role of place value to write six-digit numbers. They use an abacus model and place-value chart to assist in creating new numbers.

Ideas for Home

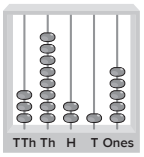
- Find six-digit numbers like city populations, or make up your own, and ask your child to read them out loud.
- Compare six-digit numbers and ask your child to explain why one number is greater or less than another.

Glossary

- **Numeral expanders** show how the position of each digit in a number represents a designated place value.



- An **abacus** is a calculation tool that excels at demonstrating place value. For example, this model shows how *3 ten-thousands* is the same as *3 × 10,000*, and so on.



Helpful videos

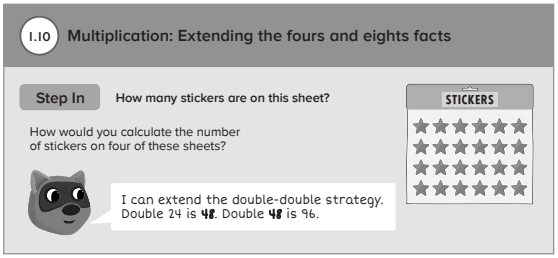
View these short one-minute videos to see these ideas in action.

www.bit.ly/O1_9
www.bit.ly/O1_33

Module 1

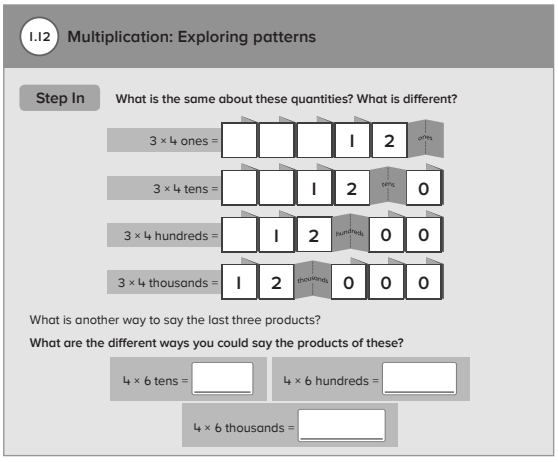
Multiplication

- Students extend multiplication strategies that were explained in earlier grade levels to multiply one- and two-digit numbers, including the **double-double strategy** and the **double-double-double strategy**.



In this lesson, students extend strategies to multiply one- and two-digit numbers.

- Students explore patterns involving place value in multiplication. The numeral expander provides a place-value model that discourages inaccurate explanations like *I add zeros when I multiply by multiples of 10*.



The numeral expander shows that 3 × 4 tens equal 12 tens, which is the same as 120, etc. Accurate place-value language supports deep understanding of multiplying and dividing by magnitudes of ten.

Ideas for Home

- Practice the doubles strategy with household items. Four pairs of shoes is double double the total number of shoes, or double double 6 would describe the total number of eggs in two full cartons.

Glossary

- The **doubles strategy** is a method of mental multiplication. If a number is multiplied by a power of two, the calculation can be performed by repeatedly doubling the numbers. For example, 4 × 8 = 32 is the same as 4 × 2 × 2 × 2, or *double double double* 4.

1.1 Pre-test

1. For each number, write 10, 100, or 1,000 to make a true statement.

a. Look at the number 616.

The 6 in the hundreds place is _____ times greater than the 6 in the ones place.

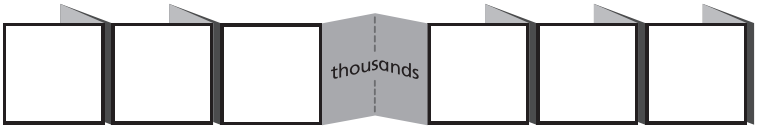
b. Look at the number 445.

The 4 in the hundreds place is _____ times greater than the 4 in the tens place.

2. Write the matching number on the expander.

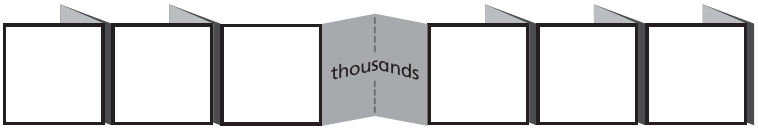
a.

4 hundred thousands
6 ten thousands
2 hundreds



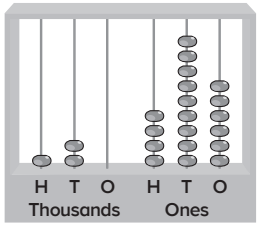
b.

3 thousands
9 ones
6 hundred thousands



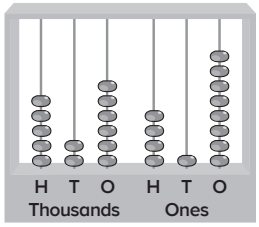
3. Look at the abacus. Write the matching numeral.

a.



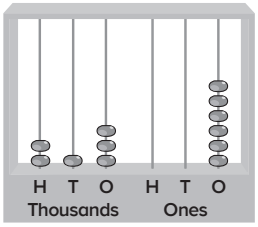
_____

b.



_____

c.



_____

4. Write the matching number name.

a. 426,068 _____

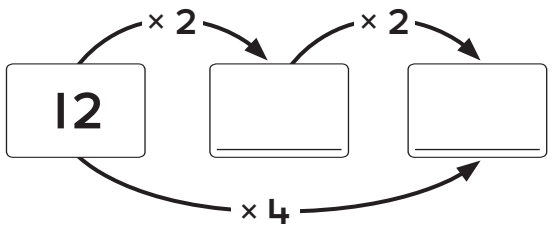
b. 105,900 _____

c. 712,000 _____

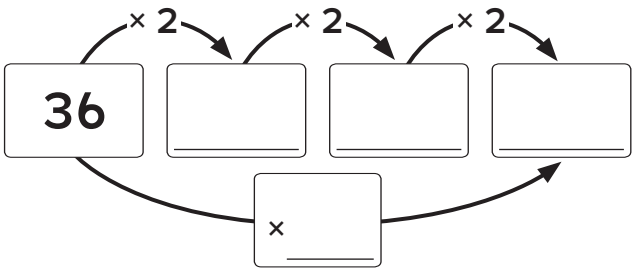
1.2 Pre-test

5. Complete each diagram.

a.



b.



6. Use a doubling strategy to complete each equation.

a. 2 × 43 = ____

b. 4 × 36 = ____

c. 8 × 52 = ____

7. Use a pattern to help you complete these equations.

4 × 2 = 8

4 × 20 = ____

4 × 200 = ____

4 × 2,000 = ____

8. Circle the cards that have a product of 2,800. Use patterns to help you.

350 × 6	**350 × 8**	**3 × 800**	**700 × 4**	**5 × 800**

1.3 Pre-test interview 1

Preparation

- Write the following six-digit numbers on a sheet of paper:

753,836 687,522 572,683 780,540 401,077 420,805

Steps

- Show the student the numbers and ask them to read each number aloud.
- Draw a ✔ beside the learning the student has successfully demonstrated.

PRE-TEST INTERVIEW

1

- ☐ Correctly read six-digit numbers with no internal zeros.
- ☐ Correctly read six-digit numbers with internal zeros.

PRE-TEST INTERVIEW

1

- ☐ Correctly read six-digit numbers with no internal zeros.
- ☐ Correctly read six-digit numbers with internal zeros.

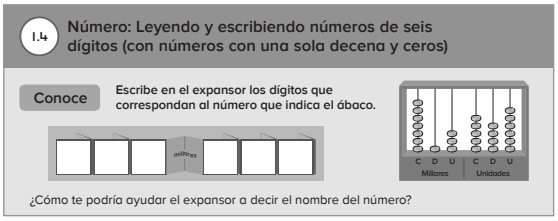
Módulo 1

Enfoque básico

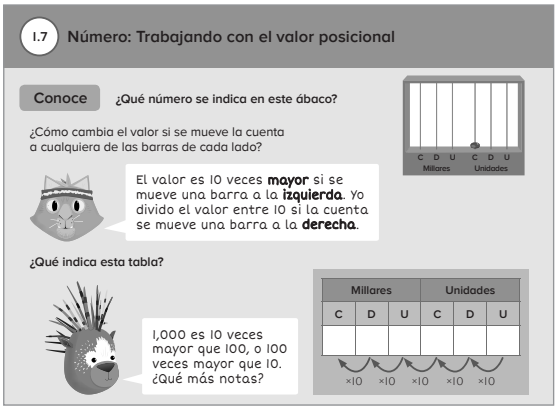
- Número: Leyendo y escribiendo números de seis dígitos y trabajando con valor posicional
- Multiplicación: Ampliando operaciones básicas del dos, cuatro, ocho y diez y explorando patrones

Número

- Las estrategias de sentido numérico desarrolladas en años anteriores se amplían hasta números de seis dígitos. Los estudiantes aprenden a leer, escribir, dibujar, comparar y ordenar estos números utilizando modelos conocidos y nuevos.
- Los números de seis dígitos se leen en grupos de tres dígitos (iniciando desde la izquierda). El uso del **expansor numeral** en todas estas lecciones ayuda a los estudiantes a entender la lectura y el orden de estos números. El **ábaco** también ayuda a los estudiantes a visualizar el valor posicional.



En esta lección, los estudiantes usan un expansor numeral para leer y escribir números de seis dígitos. Se utiliza un ábaco para representar estos números.



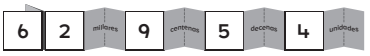
En esta lección, los estudiantes consideran el rol del valor posicional para escribir números de seis dígitos. Ellos utilizan un modelo de ábaco y una tabla de valor posicional como ayuda para crear números nuevos.

Ideas para el hogar

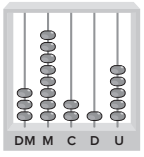
- Busque números de seis dígitos, como poblaciones de ciudades, o invente las propias, y pida a su niño que los lea en voz alta.
- Compare números de seis dígitos y pida a su niño que explique por qué un número es mayor o menor que otro.

Glosario

- Los **expansores numerales** indican cómo la posición de cada dígito en un número representa un valor posicional designado.



- Un **ábaco** es una herramienta de cálculo que se destaca en la demostración de valor posicional. Por ejemplo: este modelo indica cómo 3 centenas de millares es lo mismo que 3 x 10,000 y así sucesivamente.



Videos útiles

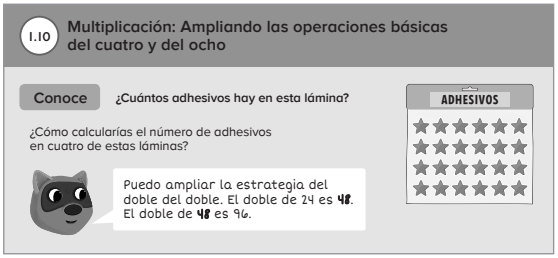
Vea estos videos cortos para observar estas ideas en acción.

www.bit.ly/O1_33
www.bit.ly/O1_9

Módulo 1

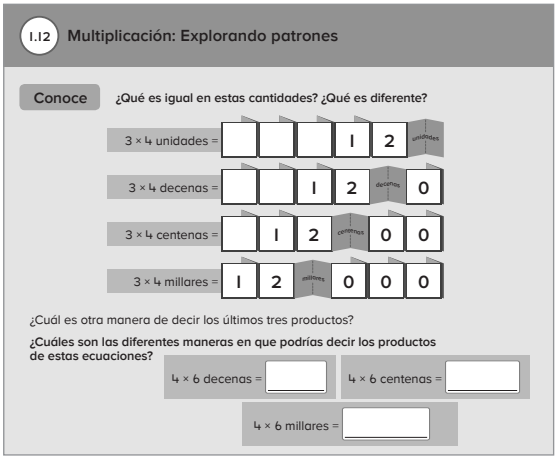
Multiplicación

- Los estudiantes amplían las estrategias de multiplicación que se explicaron en años anteriores para multiplicar números de uno y dos dígitos, incluyendo la **estrategia del doble del doble** y la **estrategia del doble del doble del doble**.



En esta lección, los estudiantes amplían estrategias para multiplicar números de uno y dos dígitos.

- Los estudiantes exploran patrones que involucran el valor posicional en la multiplicación. El expansor numeral proporciona un modelo de valor posicional que no permite explicaciones inexactas como: *sumo ceros cuando multiplico por múltiplos de 10*.



El expansor numeral indica que 3 x 4 decenas es igual a 12 decenas, que es lo mismo que 120, etc. El lenguaje preciso para el valor posicional apoya la comprensión profunda de la multiplicación y división por magnitudes de diez.

Ideas para el hogar

- Practiquen la estrategia de dobles con objetos de la casa. Cuatro pares de zapatos son el doble del doble del número total de zapatos, o el doble del doble de 6 describirían el número total de huevos en dos cartones llenos.

Glosario

- La **estrategia de dobles** es un método de cálculo mental para la multiplicación. Si un número se multiplica por una potencia de dos, el cálculo se puede hacer al duplicar los números repetidamente. Por ejemplo: 4 x 8 = 32 es lo mismo que 4 x 2 x 2 x 2 o el *doble del doble del doble* de 4.

1.1 Prueba de diagnóstico

1. Para cada número escribe 10, 100, o 1,000 para hacer una declaración verdadera.

a. Observa el número 616.

El 6 en la posición de las centenas es _____ veces mayor que el 6 en la posición de las unidades.

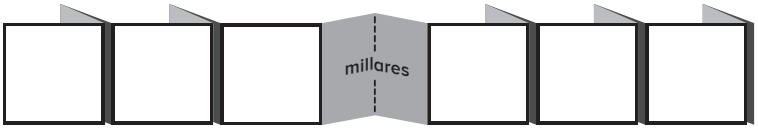
b. Observa el número 445.

El 4 en la posición de las centenas es _____ veces mayor que el 4 en la posición de las decenas.

2. Escribe el número que corresponde en el expansor.

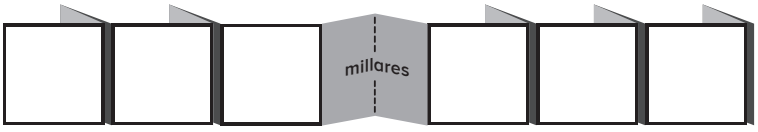
a.

4 centenas de millar
6 decenas de millar
2 centenas



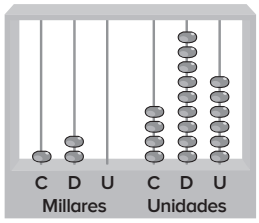
b.

3 millares
9 unidades
6 centenas de millar



3. Observa el ábaco. Escribe el numeral correspondiente.

a.



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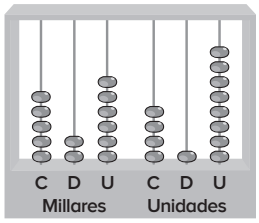
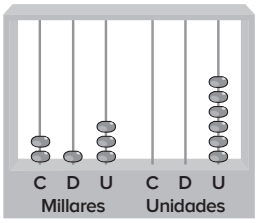
b.



_____

c.



_____

4. Escribe el nombre del número correspondiente.

a. 426,068 _____

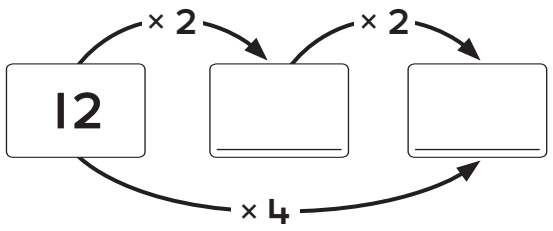
b. 105,900 _____

c. 712,000 _____

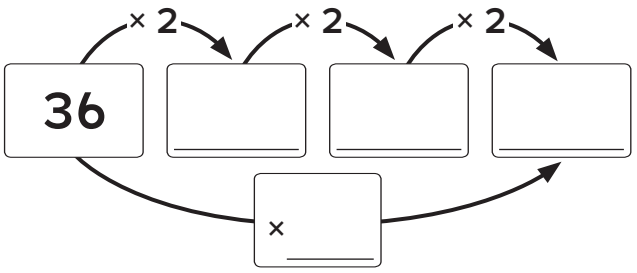
1.2 Prueba de diagnóstico

5. Completa cada diagrama.

a.



b.



6. Utiliza una estrategia de dobles para completar cada ecuación.

a. $2 \times 43 =$ _____

b. $4 \times 36 =$ _____

c. $8 \times 52 =$ _____

7. Utiliza un patrón como ayuda para completar estas ecuaciones.

$4 \times 2 = 8$

$4 \times 20 =$ _____

$4 \times 200 =$ _____

$4 \times 2{,}000 =$ _____

8. Encierra las tarjetas que tienen un producto de 2,800. Utiliza patrones como ayuda.

350 × 6	**350 × 8**	**3 × 800**	**700 × 4**	**5 × 800**