1.1 Number: Reviewing six-digit numbers

In this lesson, students read, write, and represent six-digit numbers. An abacus is used to represent these numbers so place value is emphasized. By analyzing the value of each rod, students will see how our number system increases or decreases by powers of ten.

Step 1 Preparing the lesson

You will need:

- poster paper, counters and sticky tack

Each student will need:

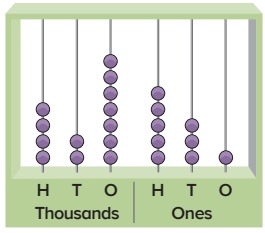
- Student Journal 1.1

Step 2 Starting the lesson

Have the students share examples of where they may have seen, heard, or used multi-digit numbers. Examples may include: populations, distances, attendance numbers, and so on. Encourage students to say their numbers and to question those that sound unrealistic.

Step 3 Teaching the lesson

On the poster paper, draw a simple abacus and place counters on it, as shown, and ask, *What number does the abacus show? How do you know?* Encourage students to identify the place value of each rod and the total value of the counters on each rod (**SMP4**). Ask each student to write the numeral (427,531) and number name (four hundred twenty-seven thousand five hundred thirty-one) of the number represented on the abacus. Repeat to show 608,253 and 417,012.



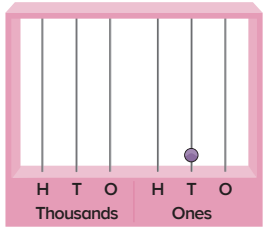
Adjust the abacus to show 340,520 and have the students identify the number that is represented. Invite a student to place an additional counter on any one of the rods. Ask, *What number does the abacus now show? How did (Isabelle) change our starting number?* Repeat with different students placing additional counters. At this stage avoid regrouping by ensuring no more than nine counters are on each rod.

Adjust the abacus as shown. Invite a volunteer to place an additional counter of a different color on one of the empty rods. Discuss the points below:

What number does the (green) counter show? (10.) *How can you tell? What number does (Dixon)'s counter show?*

How can we compare the number that is shown by the (green) counter with the number that is shown by (Dixon)'s counter? What comparisons can we make?

How many times greater is the value of the (green) counter than (Dixon)'s counter? How many times less is the value of (Dixon)'s counter than the (green) counter?



ELL

Depending on the language stage of students, instead of writing the number name have them read the number name alongside you slowly a few times. Encourage the students to explain what they are learning in their own words to check for understanding of the concept.

Developmental activity
Representing multi-digit numbers supports the major cluster, 5.NBT.A (Understand the place-value system).

Student Journal 1.1, pp. 6–7

1.1 Number: Reviewing six-digit numbers

Step In What number is represented on this abacus?

Draw one more bead on the ten thousands rod.

Write the new number. 385,243

Write the new number in words.

three hundred eighty-five thousand two hundred forty-three

Look at this abacus.
Draw a red bead on one of the rods to the left of the blue bead.

How can you describe the relationship between the red and blue beads?

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

a. 431,573 b. 703,258 c. 190,640

6 Answers will vary. This is one example. ORIGO Stepping Stones · Grade 5 · 1.1

2. Complete the missing parts.

a. 496,070 — four hundred ninety-six thousand seventy

b. 285,905 — two hundred eighty-five thousand nine hundred five

c. 603,745 — six hundred three thousand seven hundred forty-five

3. Write the numeral to match each number name.

a. Two hundred forty-six thousand one hundred fifty-two 246,152

b. One hundred seventy thousand one hundred seven 170,107

Step Ahead Color the ⬭ beside the group of numbers that represents 503,851.

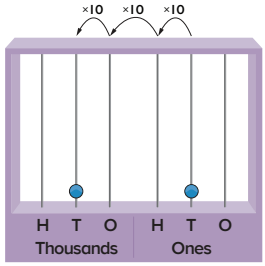
- ⬭ 5,000 + 300 + 80 + 50 + 1
- ⬭ 500,000 + 30,000 + 800 + 50 + 1
- ⬭ 500,000 + 3,000 + 800 + 50 + 1
- ⬭ 50,000 + 3,000 + 800 + 50 + 1

ORIGO Stepping Stones · Grade 5 · 1.1 7

Compare the value of the counters. Draw jumps above the abacus to show how the rods to the left increase by powers of ten and the rods to the right decrease by powers of ten (**SMP7**). Repeat for counters on other empty rods.

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.

Ten thousand is 10 × 10 × 10 (1,000) times as many as ten.

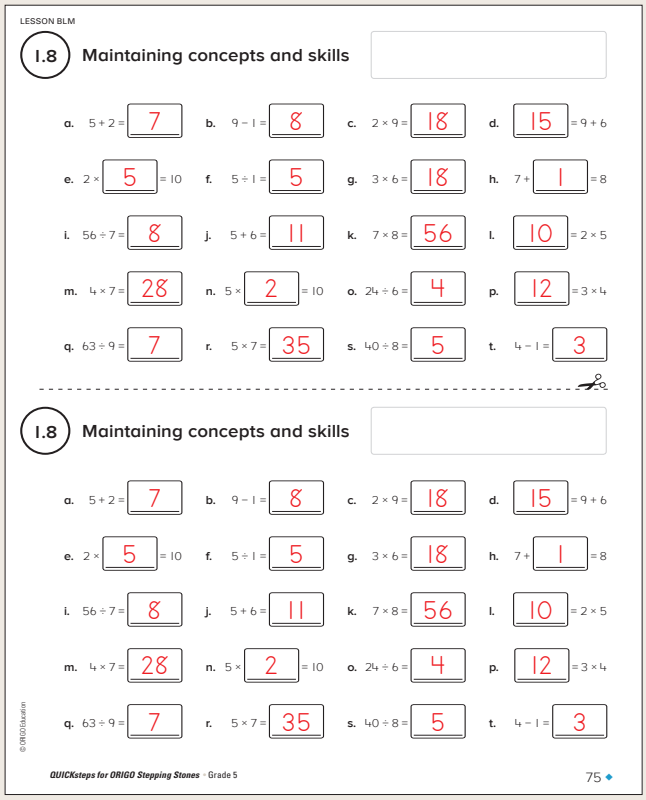


Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 1.1. Refer to the abacus in Question 2a and ask, *How could you represent this number with base-10 blocks?* Bring out that, while it would be difficult as it would require so many blocks, in theory the number could be shown with 496,070 ones blocks, or 49,607 tens blocks. Challenge the students to share some other ways to decompose the numbers.

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. 5 + 2 = 7 b. 9 − 1 = 8 c. 2 × 9 = 18 d. 15 = 9 + 6

e. 2 × 5 = 10 f. 5 ÷ 1 = 5 g. 3 × 6 = 18 h. 7 + 1 = 8

i. 56 ÷ 7 = 8 j. 5 + 6 = 11 k. 7 × 8 = 56 l. 10 = 2 × 5

m. 4 × 7 = 28 n. 5 × 2 = 10 o. 24 ÷ 6 = 4 p. 12 = 3 × 4

q. 63 ÷ 9 = 7 r. 5 × 7 = 35 s. 40 ÷ 8 = 5 t. 4 − 1 = 3

1.8 Maintaining concepts and skills

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QUICKsteps for ORIGO Stepping Stones • Grade 5 75

Enrichment

Math like the Egyptians

Each pair of students will need:

- internet access

Organize students into pairs to research the Ancient Egyptian number system. Then each student can use the hieroglyphs to write six- and seven-digit numbers. They exchange numbers with each other and write the equivalent value using our number system (Hindu-Arabic System).

Small group differentiation

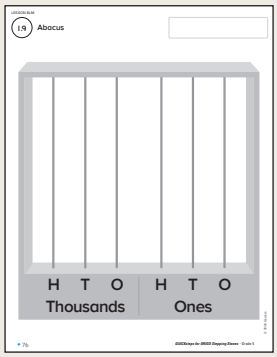
Extra help

Each group of students will need:

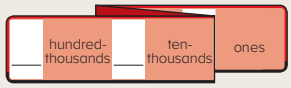
- 1 copy of Blackline Master 1.9
- 1 handful of counters
- six-digit numeral expander from *The Number Case*
- non-permanent marker

Organize students into groups and distribute the resources. Have one student arrange counters on the blackline master to represent a six-digit number. The other students then talk about the value shown by the counters on each rod and attempt to say the number aloud. A different student in each group then writes the matching number on the expander. Guide students to manipulate the expander to help read the number aloud, and then write the number in words. The counters and marker are then given to a new student in each group to repeat the activity as time allows.

Blackline Master 1.9



Six-digit expander



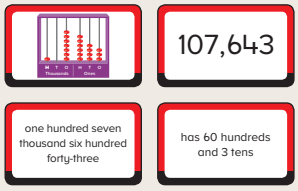
Extra practice

Each student will need:

- 1 six-digit mix-and-match card from *The Number Case*

Ensure that each student's card is facedown. On the count of three have the students turn over their card. They then walk silently around the room to find students with matching cards, that is, cards that show the same number in different ways and cards that describe aspects of the same number, such as a card showing 298,105 and a card reading "has 10 tens and 5 ones." There are four matching cards for each number. Repeat as time allows.

Six-digit mix-and-match cards

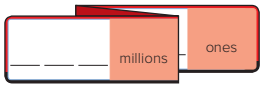


1.2 Number: Reading and writing seven-digit numbers

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

Step 1 Preparing the lesson

Millions, thousands, ones expander



You will need:

- base-10 blocks (one each of thousands, hundreds, tens, and ones)
- millions, thousands, and ones numeral expander from *The Number Case*
- non-permanent marker

Each student will need:

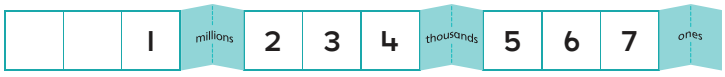
- Student Journal 1.2

Step 2 Starting the lesson

Review what the students know about one million. Build a picture of the magnitude of one million by asking, *How much is one million?* Invite students to share their experiences then ask, *How long would it take to count to one million?* Organize students into pairs to form their prediction. Suggest that they count by ones in some different number ranges before sharing their answer. Highlight that some number names (for example, seven hundred fifty-eight thousand two hundred nineteen) take much longer to say than others (for example, eight). To give students a sense of the physical magnitude of one million, display the base-10 blocks and discuss the absolute and relative size of each. For example, the ones block is 1 cm × 1 cm × 1 cm and 10 of them is equal to a tens block. Ten of the thousands blocks would be a meter long, 100 of them would cover 1 square meter, and a cube representing one million would be 1 m × 1 m × 1 m.

Step 3 Teaching the lesson

Write the number 1,234,567 on the expander as shown (**SMP4**). You can use paper clips to help fold back each place-value name.



Discuss the points below:

How do you say the number shown on the expander? (One million two hundred thirty-four thousand five hundred sixty-seven.)

What place values do you read together when you say the number? (The tens and ones in each period place.)

How do you write the number in words? (One million two hundred thirty-four thousand five hundred sixty-seven.)

What numeral could we write to match the number? (1,234,567.)

Invite individuals to read the number aloud. On the board, write ___ million ___ hundred ___ thousand ___ hundred ___. Point to the digits on the expander and read the number aloud as you write the words to complete the number name: one million two hundred thirty-four thousand five hundred sixty-seven.

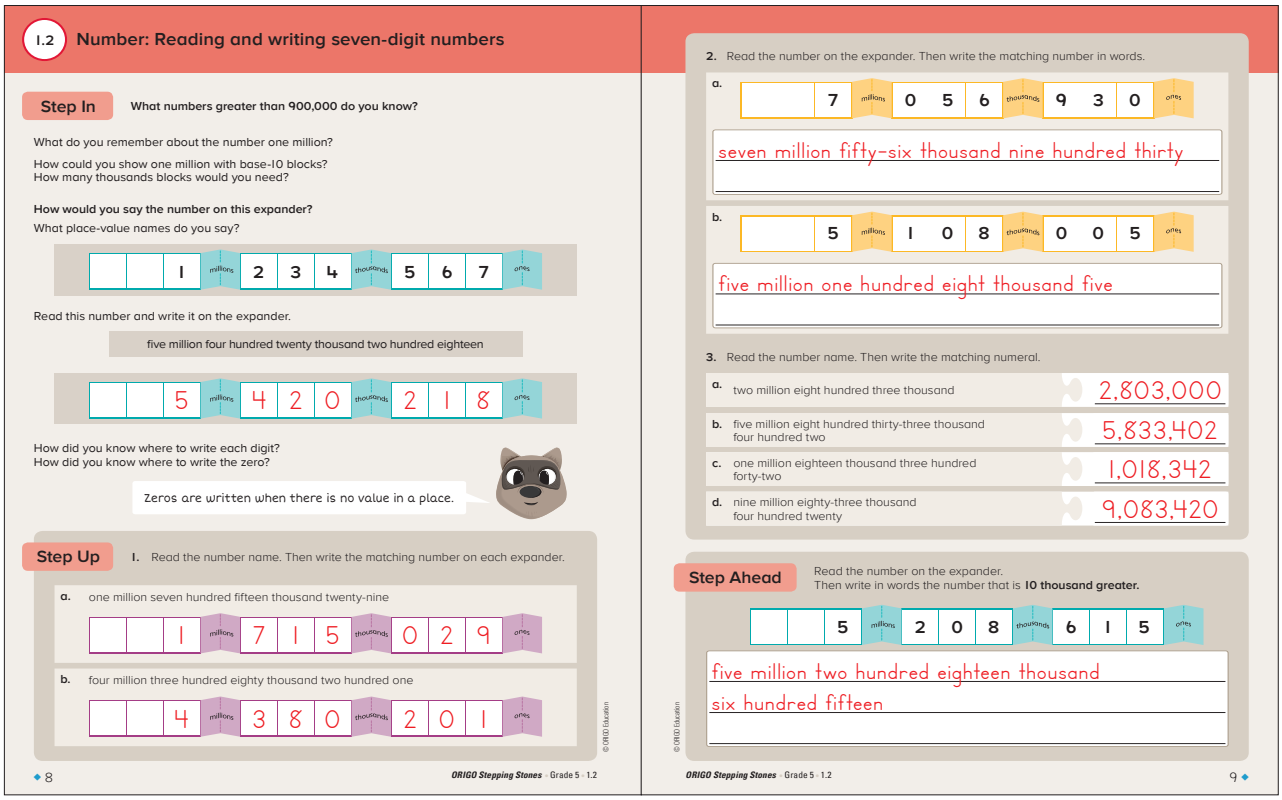
Repeat for some other seven-digit numbers.

ELL

Invite the students to say the number seen on the expander to another student. Alternatively, the fluent English-speaking student reads the number first, then the student repeats the number. Read the place-value words slowly and clearly to the students. Invite the students to read the words alongside you a second and third time. Allow students to discuss the word *digit* before moving on with the activity. Allow the students to use hand gestures (such as thumbs down) when they are confused about the language they hear in the lesson.

Developmental activity
Representing multi-digit numbers supports the major cluster, 5.NBT.A (Understand the place-value system).

Student Journal 1.2, pp. 8–9



1.2 Number: Reading and writing seven-digit numbers

Step In What numbers greater than 900,000 do you know?

What do you remember about the number one million?

How could you show one million with base-10 blocks?
How many thousands blocks would you need?

How would you say the number on this expander?
What place-value names do you say?

		1	millions	2	3	4	thousands	5	6	7	ones

Read this number and write it on the expander.

five million four hundred twenty thousand two hundred eighteen

		5	millions	4	2	0	thousands	2	1	8	ones

How did you know where to write each digit?
How did you know where to write the zero?

Zeros are written when there is no value in a place.

Step Up 1. Read the number name. Then write the matching number on each expander.

a. one million seven hundred fifteen thousand twenty-nine

		1	millions	7	1	5	thousands	0	2	9	ones

b. four million three hundred eighty thousand two hundred one

		4	millions	3	8	0	thousands	2	0	1	ones

2. Read the number on the expander. Then write the matching number in words.

a.

				7	millions	0	5	6	thousands	9	3	0	ones

seven million fifty-six thousand nine hundred thirty

b.

		5	millions	1	0	8	thousands	0	0	5	ones

five million one hundred eight thousand five

3. Read the number name. Then write the matching numeral.

a. two million eight hundred three thousand — 2,803,000

b. five million eight hundred thirty-three thousand four hundred two — 5,833,402

c. one million eighteen thousand three hundred forty-two — 1,018,342

d. nine million eighty-three thousand four hundred twenty — 9,083,420

Step Ahead Read the number on the expander.
Then write in words the number that is **10 thousand greater.**

		5	millions	2	0	8	thousands	6	1	5	ones

five million two hundred eighteen thousand six hundred fifteen

Write the number name for 3,641,228 (three million six hundred forty-one thousand two hundred twenty-eight) and invite a volunteer to write the matching number on the expander. Ask, *How did you know where to write each digit?* Encourage the student to share their reasoning (**SMP3**). Repeat for the following:

7,862,975
5,216,419
6,045,700

Encourage the students to explain that zeros should be written on the expander in the missing place values because, for example, there were no hundred thousands in the number (**SMP6**). Repeat for 4,602,020 and then 1,003,003.

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.

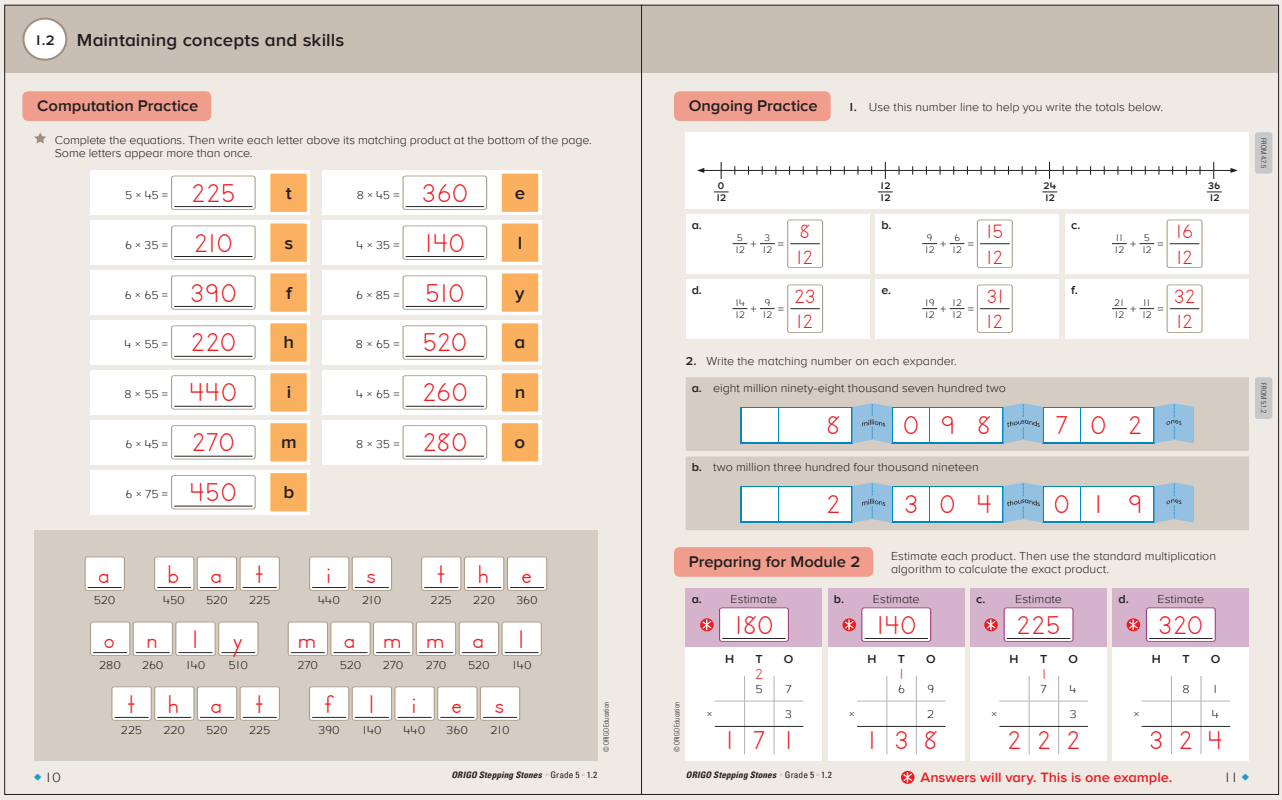
Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 1.2. Refer to Questions 2 and 3 and ask, *Where did you write zeros? How did you know that a zero is written in that place?* Encourage students to explain that zero should be written in the place values that they did not say. Discuss the consequences of not recording zero in these places.

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

★ Complete the equations. Then write each letter above its matching product at the bottom of the page. Some letters appear more than once.

5 × 45 =	225	t	8 × 45 =	360	e
6 × 35 =	210	s	4 × 35 =	140	l
6 × 65 =	390	f	6 × 85 =	510	y
4 × 55 =	220	h	8 × 65 =	520	a
8 × 55 =	440	i	4 × 65 =	260	n
6 × 45 =	270	m	8 × 35 =	280	o
6 × 75 =	450	b			

a	b	a	t	i	s	t	h	e	
520	450	520	225	440	210	225	220	360	
o	n	l	y	m	a	m	m	a	l
280	260	140	510	270	520	270	270	520	140
t	h	a	t	f	l	i	e	s	
225	220	520	225	390	140	440	360	210	

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Ongoing Practice

1. Use this number line to help you write the totals below.

PRIM.4.N.5

a. $\frac{5}{12} + \frac{3}{12} = \frac{8}{12}$

b. $\frac{9}{12} + \frac{6}{12} = \frac{15}{12}$

c. $\frac{11}{12} + \frac{5}{12} = \frac{16}{12}$

d. $\frac{14}{12} + \frac{9}{12} = \frac{23}{12}$

e. $\frac{19}{12} + \frac{12}{12} = \frac{31}{12}$

f. $\frac{21}{12} + \frac{11}{12} = \frac{32}{12}$

2. Write the matching number on each expander.

PRIM.4.N.2

a. eight million ninety-eight thousand seven hundred two

		millions				thousands			ones
	8		0	9	8		7	0	2

b. two million three hundred four thousand nineteen

		millions				thousands			ones
	2		3	0	4		0	1	9

Preparing for Module 2

Estimate each product. Then use the standard multiplication algorithm to calculate the exact product.

a.	b.	c.	d.
Estimate	Estimate	Estimate	Estimate
⊛ 180	⊛ 140	⊛ 225	⊛ 320
H T O 2 5 7 × 3 1 7 1	H T O 1 6 9 × 2 1 3 8	H T O 1 7 4 × 3 2 2 2	H T O 8 1 × 4 3 2 4

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ORIGO Stepping Stones · Grade 5 · 1.2

⊛ Answers will vary. This is one example.

11

Small group differentiation

Extra help

Each group of students will need:

- collection of newspapers or reference books (for example, encyclopedias or atlases)
- internet access

Organize students into groups. Ask the students to use their resources to find three different examples where seven-digit numbers have been used. Have the groups change resources and repeat the activity, then compare the numbers found.

Extra practice

Organize students into pairs. Ask students to work in pairs. One student discreetly writes a seven-digit number then reads their number aloud. The other student writes the number on a sheet of paper. Students then compare their numbers to ensure that they match. Students alternate roles and repeat the activity. The student who has written the greater number of correct responses after five rounds wins the game.

Extra challenge

Organize students into pairs. Ask students to work in pairs. One student discreetly writes six or seven different digits on a sheet of paper. They then read out the digits like they are reading a phone number, for example, *four-seven-three-zero-five-two*. The other student tries to remember each digit, and when their partner has finished reading the digits, they say or write the numeral to match, for example, 473,052. Roles are then alternated and the activity repeats.

1.3 Number: Locating seven-digit numbers on a number line

In this lesson, students identify the position of seven-digit numbers on a number line. Some of the number lines are only partially marked, so students must consider the relative position of the given number in relation to other numbers.

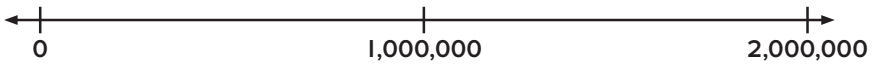
Step 1 Preparing the lesson

Each student will need:

- Student Journal 1.3

Step 2 Starting the lesson

Draw the number line as shown. Invite a volunteer to draw an arrow to indicate a number that is a little more than one million (**SMP3**).



Discuss the points below:

How did you decide where to draw the arrow?

What number is the arrow pointing to? How can you tell?

What numeral could you write to show the position of the arrow?

What part of the number line shows all numbers greater than 1,500,000?

What part of the number line shows all numbers less than 300,000?

Repeat the discussion for a number that is a little less than two million. During the discussion, students could divide the interval between one million and two million into ten equal parts to help them identify the value of the digit in the hundred thousands place.

Step 3 Teaching the lesson

Discuss the Step In discussion from Student Journal 1.3. Refer to the vertical number line and work through the questions and discussion with the whole class. Invite volunteers to describe how they could use the millions marked on the number line to identify the value for each month.

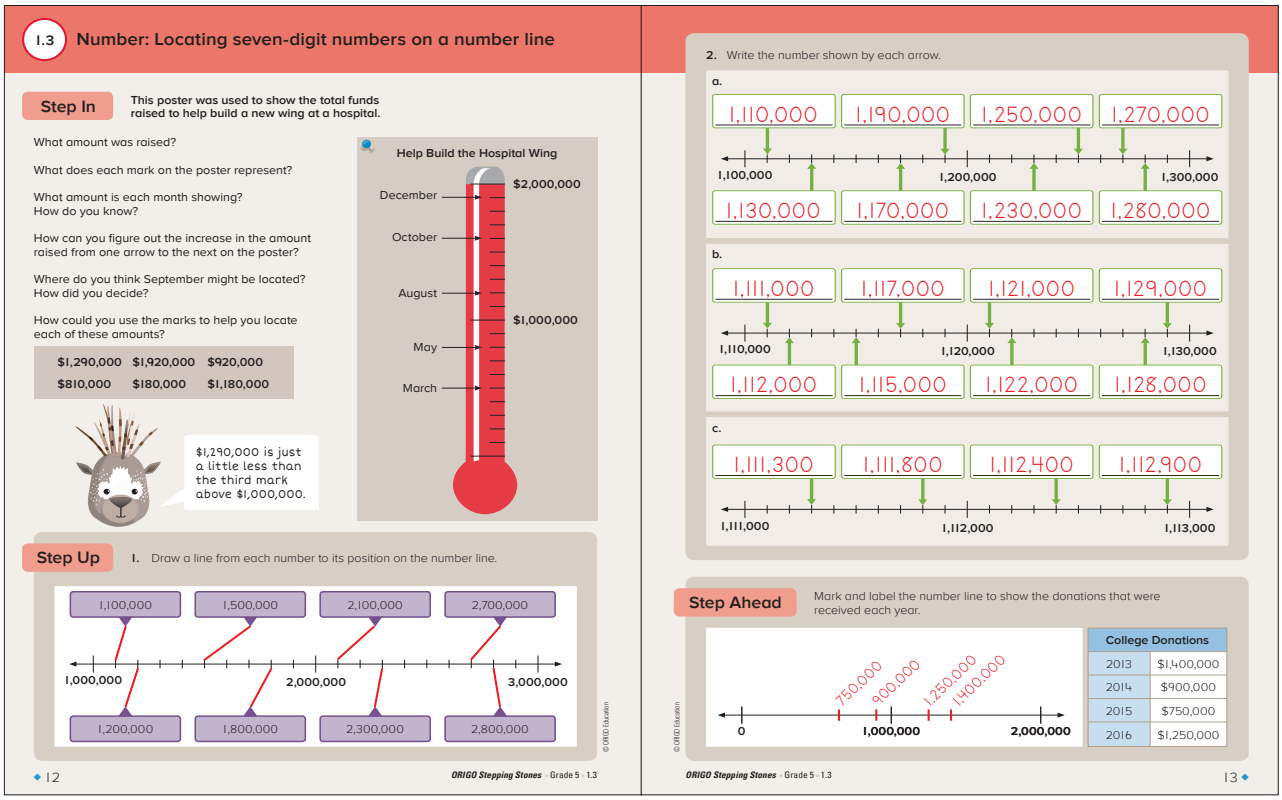
Refer to the extra amounts shown and ask individuals to locate each on the number line and explain how they used a known value to help. During the discussion, ask, *What marks can you add to the number line to help you? What will each mark represent?* Bring out the fact that the next set of marks, dividing each interval into ten equal parts, will represent ten thousands.

Read the Step Up and Step Ahead instructions with the students. Make sure they know what to do and then have them work independently to complete the tasks.

ELL

During the Step In discussion, invite the students to describe their thoughts in detail to the class. Encourage the students to discuss whether they agree or disagree with another student.

Student Journal 1.3, pp. 12–13



1.3 Number: Locating seven-digit numbers on a number line

Step In This poster was used to show the total funds raised to help build a new wing at a hospital.

What amount was raised?

What does each mark on the poster represent?

What amount is each month showing? How do you know?

How can you figure out the increase in the amount raised from one arrow to the next on the poster?

Where do you think September might be located? How did you decide?

How could you use the marks to help you locate each of these amounts?

$1,290,000	$1,920,000	$920,000
$810,000	$180,000	$1,180,000

$1,290,000 is just a little less than the third mark above $1,000,000.

Help Build the Hospital Wing

December $2,000,000
October
August
$1,000,000
May
March

Step Up 1. Draw a line from each number to its position on the number line.

1,100,000 1,500,000 2,100,000 2,700,000
1,000,000 2,000,000 3,000,000
1,200,000 1,800,000 2,300,000 2,800,000

2. Write the number shown by each arrow.

a.
1,110,000 1,190,000 1,250,000 1,270,000
1,100,000 1,200,000 1,300,000
1,130,000 1,170,000 1,230,000 1,280,000

b.
1,111,000 1,117,000 1,121,000 1,129,000
1,110,000 1,120,000 1,130,000
1,112,000 1,115,000 1,122,000 1,128,000

c.
1,111,300 1,111,800 1,112,400 1,112,900
1,111,000 1,112,000 1,113,000

Step Ahead Mark and label the number line to show the donations that were received each year.

750,000 900,000 1,250,000 1,400,000
0 1,000,000 2,000,000

College Donations	
2013	$1,400,000
2014	$900,000
2015	$750,000
2016	$1,250,000

Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 1.3. Encourage the students to explain how they identified the values of the marks between the numbers on each number line. Then ask, *What is the difference between the first two numbers you wrote on each number line? How do you know?* Encourage the students to use the length of the intervals. Bring out the fact that because the intervals are different for each number line, they must look closely at the values that are given before interpreting the number lines (**SMP6**).

Applications

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

Investigation: Working with seven-digit numbers

Write the investigation question, as shown, on the board. Ask questions such as, *Will the numbers you choose change the outcome?* (Yes. For example, it is quicker to write numbers that use the digit 1 than the digit 8.) *If you could only use numbers that follow each other in the counting sequence, would that change the outcome?* Remind the students that the numbers they write must be legible.

Organize the students into groups of four and allow time for them to work together to form a response to the investigation question. Afterward, invite groups to present their findings and explain their methods. Discuss any variation between outcomes.

Investigation question

How long does it take to write 100 seven-digit numbers?

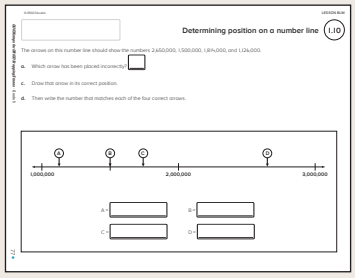
Problem solving: Determining relative position on a number line

Each student will need:

- 1 copy of Blackline Master 1.10

Distribute a copy of the blackline master to each student. Read the problem with the students to ensure understanding. If necessary, have the students partition the number line into more sections. Allow time for them to find the solution (1,814,000 is placed too far left). Then organize the students into pairs to share and explain the strategy they used to identify the correct position of the number.

Blackline Master 1.10


Determining position on a number line 1.10

Small group differentiation

Extra help

Each pair of students will need:

- 2 wide strips of paper (approximately 3 in × 20 in)

Organize students into pairs. Have them draw a number line from 0 to 1,000,000. At this stage, they need only mark and label the numbers 0 and 1,000,000. Then have them skip count by 100,000 to mark and label these increments on the line. Repeat the activity on the second strip of paper with students starting at 1,000,000 and skip counting by 100,000 until they reach 2,000,000.

Extra practice

Each pair of students will need:

- 2 wide strips of paper (approximately 3 in × 20 in)

Organize students into pairs. Have the students draw a number line from 0 to 2,000,000. At this stage, they only need to mark and label the numbers 0, 1,000,000, and 2,000,000. Then ask one student to discreetly write a multiple of 100,000 that is less than 2,000,000 (for example, 1,400,000). That student then marks the position of their number on the number line. The other student then interprets the number line and writes the number represented. Students compare the numbers they wrote. Students then change roles and repeat the activity.

Extra challenge

Each pair of students will need:

- 2 wide strips of paper (approximately 3 in × 20 in)

Organize students into pairs. Have the students draw a number line from 3,400,000 to 3,600,000. Then ask one student to discreetly write a multiple of 10,000 that can be shown on the line (for example, 3,450,000). That student then marks the position of their number on the number line. The other student then writes the number represented. Students then compare the numbers they wrote. They then change roles and repeat the activity.

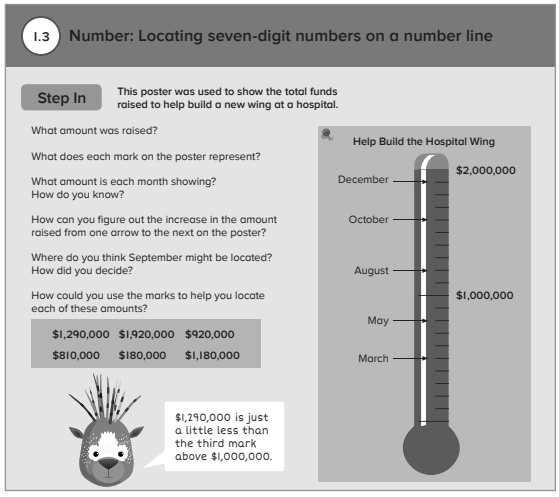
Module 1

Core Focus

- Number: Working with seven-, eight- and nine-digit numbers
- Algebra: Investigating resolution order with one and two operations and working with expressions (with and without parentheses)

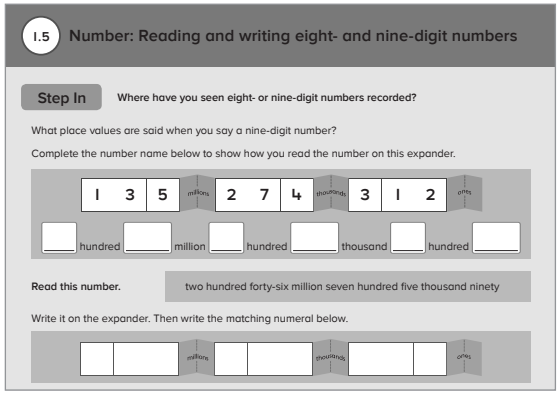
Number

- Students review reading, writing, and representing six-digit numbers with the use of an abacus and other tools and models.
- Later, students extend the skills and strategies they have used for six-digit numbers to read and write seven-digit numbers, and use relative position to locate seven-digit numbers on number lines.



In this lesson, students use relative position to locate seven-digit numbers on number lines.

- Students then progress to reading and writing eight- and nine-digit numbers with the help of **numeral expanders**.



In this lesson, students read and write eight- and nine-digit numbers.

Ideas for Home

- Look up nation populations or areas and find some that are seven, eight, or nine digits long. Ask your child which numbers are greater or less. For further practice, create a number line and place the populations or areas on it for comparison.

Glossary

- **Numeral expanders** are introduced in the earliest school years to help teach place value. By visually understanding place value, students recognize the patterns of multiples of ten in our base-ten number system. In turn, this may help students avoid feeling intimidated when solving problems involving numbers with seven or more digits.

Helpful video

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

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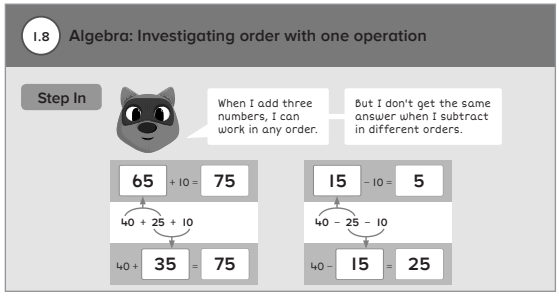
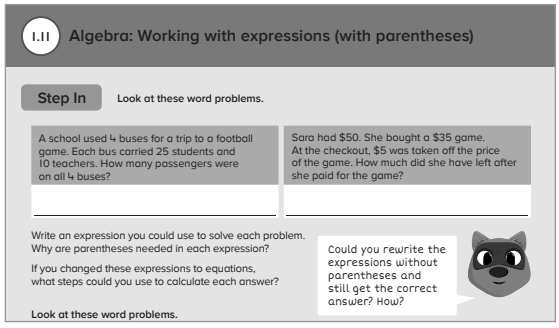
Module 1

Algebra

- Students learn that the order of numbers will not affect the answer in addition or multiplication equations, but will affect the answer in subtraction and division.



- Because of these differences, there is an established **order of operations** to follow when solving problems that have more than one kind of operation, like 7 + 8 × 2 − 1. In some cases, parentheses are used to clarify the order in which operations should be completed. The previous example might be rendered like this: 7 + (8 × 2) − 1, or (7 + 8) × 2 − 1. These two **expressions** give different results, 22 and 29, respectively.



In this lesson, students learn about the need for parentheses to indicate the order in which the operation(s) is/are to be completed.

- Students practice the order of operations with real-world situations such as, "We bought five sandwiches for $3 each, and one bag of chips that cost $2. How much did we spend in all?"

Ideas for Home

- Remove the picture cards and aces from a deck of cards. Give your child three of the remaining number cards and ask them to write an expression with any combination of operations that is as close to 25 as possible (over or under). For example, the numbers 3, 5, and 7 might give 3 × 5 + 7 = 22.
- Create different stories with your child that can be represented with an expression. An expression to match the story, "I read for 25 minutes three times this week, then I read for 40 minutes one day" is 3 × 25 + 40.

Glossary

- If there are two or more types of operation in an expression, follow the **order of operations** from left to right:
  1. perform any operation inside parentheses
  2. multiply or divide pairs of numbers
  3. add or subtract pairs of numbers.
- An **expression** is a combination of numbers and operations (+, −, ×, ÷) that do not show a relationship (=, <, or >), e.g. 5 × 8, or 40 + 6 ÷ 2.

1.1 Pre-test

1. Color the ⬭ beside the expression that matches the steps you would use to calculate the answer to the problem.

a.	Mom had $20. She bought 4 tickets that cost $4 each. How much money does she have left?	⬭ $20 - 4 + 4$ ⬭ $20 - 4 \times 4$ ⬭ $4 \times 4 - 20$
b.	Arianna had $15. She spent $5 then earned $10 more for chores. How much money does she have?	⬭ $15 - 5 + 10$ ⬭ $15 - 10 + 5$ ⬭ $5 + 10 - 15$
c.	Ryan, Janice, and Max split $42. Max then gave $2 to his little sister. How much money does he have left?	⬭ $42 \div 2 - 3$ ⬭ $42 \div 3 - 2$ ⬭ $42 \div 2 + 3$
d.	10 sandwiches are each cut into 4 pieces and then shared equally among 8 children. How many pieces did each child get?	⬭ $10 \times 4 \div 8$ ⬭ $10 \times 8 \div 4$ ⬭ $10 + 4 \div 8$
e.	Layla has 22 coins and Victor has 5 times as many as Layla. Victor gives 10 coins to a friend. How many does he have left?	⬭ $22 + 10 - 5$ ⬭ $22 + 5 - 10$ ⬭ $22 \times 5 - 10$

2. Write an equation to represent each problem. Use a letter to represent the unknown value.

a. Dad buys 5 hotdogs for $3 each. How much change will he receive from $50?

_____

b. My sister saved $20 each week for 8 weeks. She then bought 5 skirts that each cost $15. How much money does she have left?

_____

c. Mr. Smith bought 5 tickets for $7.20 each. How much change will he receive from $50?

_____

d. Cody buys 5 packets of stickers. There are 10 red and 5 blue stickers in each pack. How many stickers did he buy in total?

_____

e. A farmer planted 3 rows of broccoli seedlings. He used 25 plants in each row. He has 15 carrots seedlings to plant. How many seedlings will he plant in total?

_____

1.2 Pre-test

3. Write **true** or **false** beside each statement.

a. **3,254 × 105 + 12** is 12 greater than **1,256 × 105.**	_____
b. **(1,835 + 24) × 15** is 15 times as much as **1,835 + 24.**	_____
c. **1,806 × 12** is half of **1,806 × 12 × 2.**	_____
d. **1,324 × 6** is 5 times as much as **1,324 × 6 ÷ 5.**	_____
e. **2,156 + 42** is one-eighth of **2,156 + 42 ÷ 8.**	_____

4. Color the ⬭ beside the correct answer.

a. one thousand **shows the same number as**	**b.** one million **shows the same number as**
⬭ 100 tens	⬭ 100 ten thousands
⬭ 100 ones	⬭ 10,000 tens
⬭ 1,000 tens	⬭ 1,000 hundreds
⬭ 100 hundreds	⬭ 100,000 ones

5. Read each number. Then choose the statement that is true.

a. **4,217,217**	**b.** **8,013,568**
⬭ The 2 in the hundred thousand place is 10 times as many as the 2 in the hundred place.	⬭ The 8 in the ones place is one-thousandth of the 8 in the millions place.
⬭ The 2 in the hundred thousand place is 100 times as many as the 2 in the hundred place.	⬭ The 8 in the ones place is one ten-thousandth of the 8 in the millions place.
⬭ The 2 in the hundred thousand place is 1,000 times as many as the 2 in the hundred place.	⬭ The 8 in the ones place is one-millionth of the 8 in the millions place.

c. **6,403,063**

⬭ The 3 in the thousands place is 10 times as many as the 3 in the ones place.

⬭ The 3 in the thousands place is 100 times as many as the 3 in the ones place.

⬭ The 3 in the thousands place is 1,000 times as many as the 3 in the ones place.

1.3 Pre-test interview 1

Preparation

- Write the following equations on a sheet of paper:

35 − 7 + 8 = _____ **6 + 4 × 8 =** _____

Steps

- Say, *A tiler used four orange tiles and three black tiles to make a pattern. They repeated the pattern five times. How many tiles were used?* Have the student write an equation to match. Afterward, ask, *How would someone know what to do if they saw your equation?*
- If successful, repeat with the following story, *I bought a pencil for $2 and a notepad for $5. I used a $20 bill to pay for them. How much change did I get?*
- Show the student the equations written on the sheet of paper and have them solve them.
- If successful, ask, *How did you know the order in which to do the operations?*
- Draw a ✔ beside the learning the student has successfully demonstrated.

PRE-TEST INTERVIEW

1

☐ Wrote equations to match the stories.

☐ Explanation adequately described the order of operations.

PRE-TEST INTERVIEW

1

☐ Wrote equations to match the stories.

☐ Explanation adequately described the order of operations.

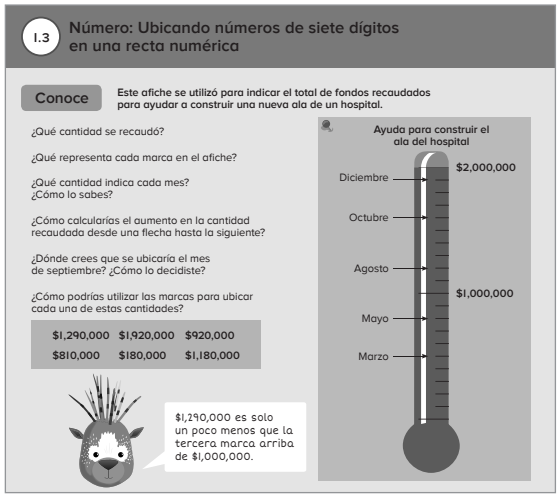
Módulo 1

Enfoque básico

- Número: Trabajando con números de siete, ocho y nueve dígitos
- Álgebra: Investigando el orden de resolución con una y dos operaciones y trabajando con expresiones (con y sin paréntesis)

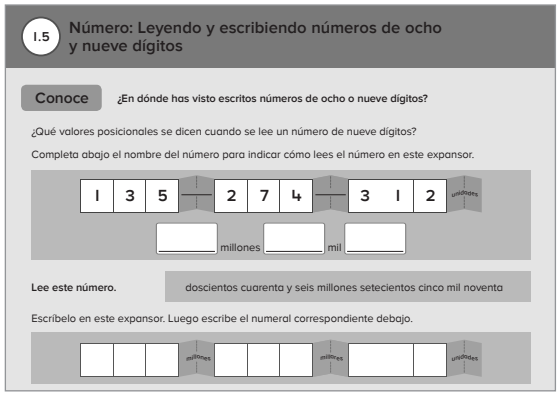
Número

- Los estudiantes revisan leer, escribir y representar números de seis dígitos con el uso de un ábaco y otras herramientas y modelos.
- Luego, los estudiantes amplían las habilidades y estrategias que han utilizado con números de seis dígitos para leer y escribir números de siete dígitos y utilizar posición relativa para localizar números de siete dígitos en rectas numéricas.



En esta lección, los estudiantes utilizan la posición relativa para localizar números de siete dígitos en rectas numéricas.

- Luego los estudiantes leen y escriben números de ocho y nueve dígitos con la ayuda de **expansores numerales**.



En esta lección, los estudiantes leen y escriben números de ocho y nueve dígitos.

Ideas para el hogar

- Busque poblaciones o áreas de países y encuentre algunas que tengan siete, ocho o nueve dígitos. Pregúntele a su niño cuáles números son mayores o menores. Para más práctica, cree una recta numérica y coloque las poblaciones o áreas en ella para comparar.

Glosario

- Los **expansores numerales** se introducen en años anteriores como ayuda para enseñar valor posicional. Al comprender visualmente el valor posicional los estudiantes reconocen los patrones de múltiplos de diez en nuestro sistema numérico de base diez. Esto puede ayudar a los estudiantes a evitar sentirse intimidados cuando resuelven problemas que involucran números con siete o más dígitos.

Videos útiles

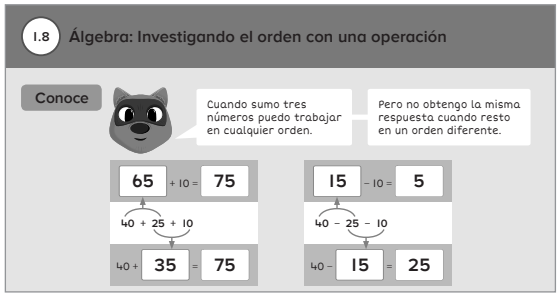
Vea estos videos cortos para observar estas ideas en acción.

www.bit.lyO1_33

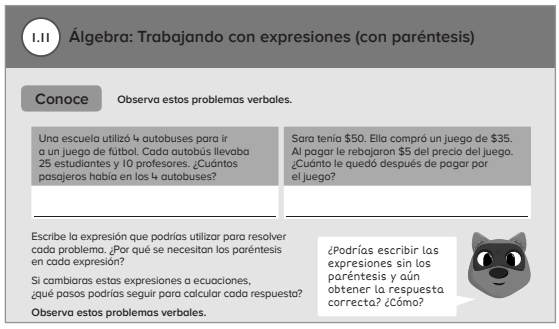
Módulo 1

Álgebra

- Los estudiantes aprenden que el orden de los números no afectará la respuesta en ecuaciones de suma o multiplicación, pero afectará la respuesta en la resta y la división.



- Debido a estas diferencias existe un **orden de las operaciones** establecido que se sigue al resolver problemas que tienen más de un tipo de operaciones, como 7 + 8 × 2 − 1. En algunos casos se utilizan paréntesis para clarificar el orden en el cual las operaciones deberían completarse. El ejemplo anterior debe ser resuelto de esta manera: 7 + (8 × 2) − 1, o (7 + 8) × 2 − 1. Estas dos **expresiones** dan resultados diferentes, 22 y 29, respectivamente.



En esta lección, los estudiantes aprenden acerca de la necesidad de usar paréntesis para indicar el orden en el cual se deben completar la(s) operación(es).

- Los estudiantes practican el orden de las operaciones con situaciones cotidianas como “compramos cinco emparedados por $3 cada uno y una bolsa de papas que costó $2. ¿Cuánto gastamos en total?”

Ideas para el hogar

- Tome una baraja de cartas y quite las que tienen una imagen y los ases. Dé a su niño tres de las cartas que quedan y pídale que escriba una expresión que incluya cualquier combinación de operaciones que sea lo más cercana posible a 25 (más o menos). Por ejemplo: los números 3, 5 y 7 podrían formar 3 × 5 + 7 = 22.
- Cree diferentes historias con su niño que puedan ser representadas con una expresión. Una expresión que corresponda a esta historia “Leí durante 25 minutos tres veces esta semana, luego leí durante 40 minutos un día” es 3 × 25 + 40.

Glosario

- Si hay más de un tipo de operaciones en una expresión, siga el **orden de las operaciones** de izquierda a derecha:
  1. resuelva las operaciones entre paréntesis.
  2. multiplique o divida pares de números.
  3. sume o reste pares de números.
- Una **expresión** es una combinación de números y operaciones (+, −, ×, ÷) que no indican una relación (=, <, o >), por ej.: 5 × 8 o 40 + 6 ÷ 2.

1.1 Prueba de diagnóstico

1. Colorea el ⬭ junto a la expresión que corresponde a los pasos que seguirías para calcular la respuesta a la pregunta.

a.	Mamá tenía $20. Compró 4 boletos que cuestan $4 cada uno. ¿Cuánto dinero le queda?	⬭ 20 − 4 + 4 ⬭ 20 − 4 × 4	⬭ 4 × 4 − 20
b.	Arianna tenía $15. Ella gasta $5 y luego gana $10 más por quehaceres. ¿Cuánto dinero tiene?	⬭ 15 − 5 + 10 ⬭ 15 − 10 + 5	⬭ 5 + 10 − 15
c.	Ryan, Janice y Max se reparten $42. Max luego le da $2 a su hermana menor. ¿Cuánto dinero le queda?	⬭ 42 ÷ 2 − 3 ⬭ 42 ÷ 3 − 2	⬭ 42 ÷ 2 + 3
d.	10 emparedados se cortan en 4 trozos cada uno y luego se reparten equitativamente entre 8 niños. ¿Cuántos trozos de emparedado recibe cada niño?	⬭ 10 × 4 ÷ 8 ⬭ 10 × 8 ÷ 4	⬭ 10 + 4 ÷ 8
e.	Layla tiene 22 monedas y Victor tiene 5 veces más monedas que Layla. Victor le da 10 monedas a un amigo. ¿Cuántas monedas le quedan?	⬭ 22 + 10 − 5 ⬭ 22 + 5 − 10	⬭ 22 × 5 − 10

2. Escribe una ecuación para representar cada problema. Utiliza una letra para representar el valor desconocido.

a. Papá compra 5 perros calientes por $3 cada uno. ¿Cuánto vuelto recibe de $50?

_____

b. Mi hermana ahorró $20 cada semana por 8 semanas. Ella luego compra 5 faldas, cada una cuesta $15. ¿Cuánto dinero le queda?

_____

c. El Sr. Smith compró 5 boletos por $7.20 cada uno. ¿Cuánto vuelto recibirá de $50?

_____

d. Cody compra 5 paquetes de adhesivos. Hay 10 adhesivos rojos y 5 adhesivos azules en cada paquete. ¿Cuántos adhesivos compró en total?

_____

e. Un granjero plantó 3 filas de plántulas de brócoli. Él utilizó 25 plántulas en cada fila. Él tiene 15 plántulas de zanahorias que plantar. ¿Cuántas plántulas plantará en total?

_____

1.2 Prueba de diagnóstico

3. Escribe **verdadero** o **falso** junto a cada declaración.

a.	**3,254 × 105 + 12** es 12 mayor que **1,256 × 105.**	_____
b.	**(1,835 + 24) × 15** es 15 veces lo mismo que **1,835 + 24.**	_____
c.	**1,806 × 12** es la mitad de **1,806 × 12 × 2.**	_____
d.	**1,324 × 6** es 5 veces lo mismo que **1,324 × 6 ÷ 5.**	_____
e.	**2,156 + 42** es un octavo de **2,156 + 42 ÷ 8.**	_____

4. Colorea el ⬭ junto a la respuesta correcta.

a. mil **indica el mismo número que**	**b.** un millón **indica el mismo número que**
⬭ 100 decenas	⬭ 100 decenas de millar
⬭ 100 unidades	⬭ 10,000 decenas
⬭ 1,000 decenas	⬭ 1,000 centenas
⬭ 100 centenas	⬭ 100,000 unidades

5. Lee cada número. Luego elige la declaración verdadera.

a. 4,217,217	**b. 8,013,568**
⬭ El 2 en la posición de las centenas de millar es 10 veces lo mismo que el 2 en la posición de las centenas.	⬭ El 8 en la posición de las unidades es una milésima del 8 en la posición de los millones.
⬭ El 2 en la posición de las centenas de millar es 100 veces lo mismo que el 2 en la posición de las centenas.	⬭ El 8 en la posición de las unidades es una diezmilésima del 8 en la posición de los millones
⬭ El 2 en la posición de las centenas de millar es 1,000 veces lo mismo que el 2 en la posición de las centenas.	⬭ El 8 en la posición de las unidades es una millonésima del 8 en la posición de los millones.

c. 6,403,063

⬭ El 3 en la posición de los millares es 10 veces lo mismo que el 3 en la posición de las unidades.

⬭ El 3 en la posición de los millares es 100 veces lo mismo que el 3 en la posición de las unidades.

⬭ El 3 en la posición de los millares es 1,000 veces lo mismo que el 3 en la posición de las unidades.