Explore Reading and Writing Three-Digit Numbers

Learning Target

- Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

SMP 1, 2, 3, 4, 5, 6, 7, 8

You know how to read and write two-digit numbers. Use what you know to try to solve the problem below.

Jan buys 200 blue balloons, 70 white balloons, and 5 green balloons. How many balloons does Jan buy?

TRY IT

Math Toolkit

- base-ten blocks
- hundreds place-value charts
- 200 charts
- open number lines

DISCUSS IT

Ask your partner:
Do you agree with me? Why or why not?

Tell your partner:
I agree with you about . . . because . . .

CONNECT IT

1 LOOK BACK

How many balloons does Jan buy? .....

2 LOOK AHEAD

a. The digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 make up all numbers. The digit's place in a number tells its value. The same digit can have different values. Write the value of each 4 in this number.

Hundreds	Tens	Ones
4	4	4
↓	↓	↓
.....	.....	.....

b. The number can be written using only digits as .....

c. The number can be written in **expanded form**. Complete the expanded form.

444 = ... + 40 + ...

d. The number can be written as words. Complete.

four hundred .....

3 REFLECT

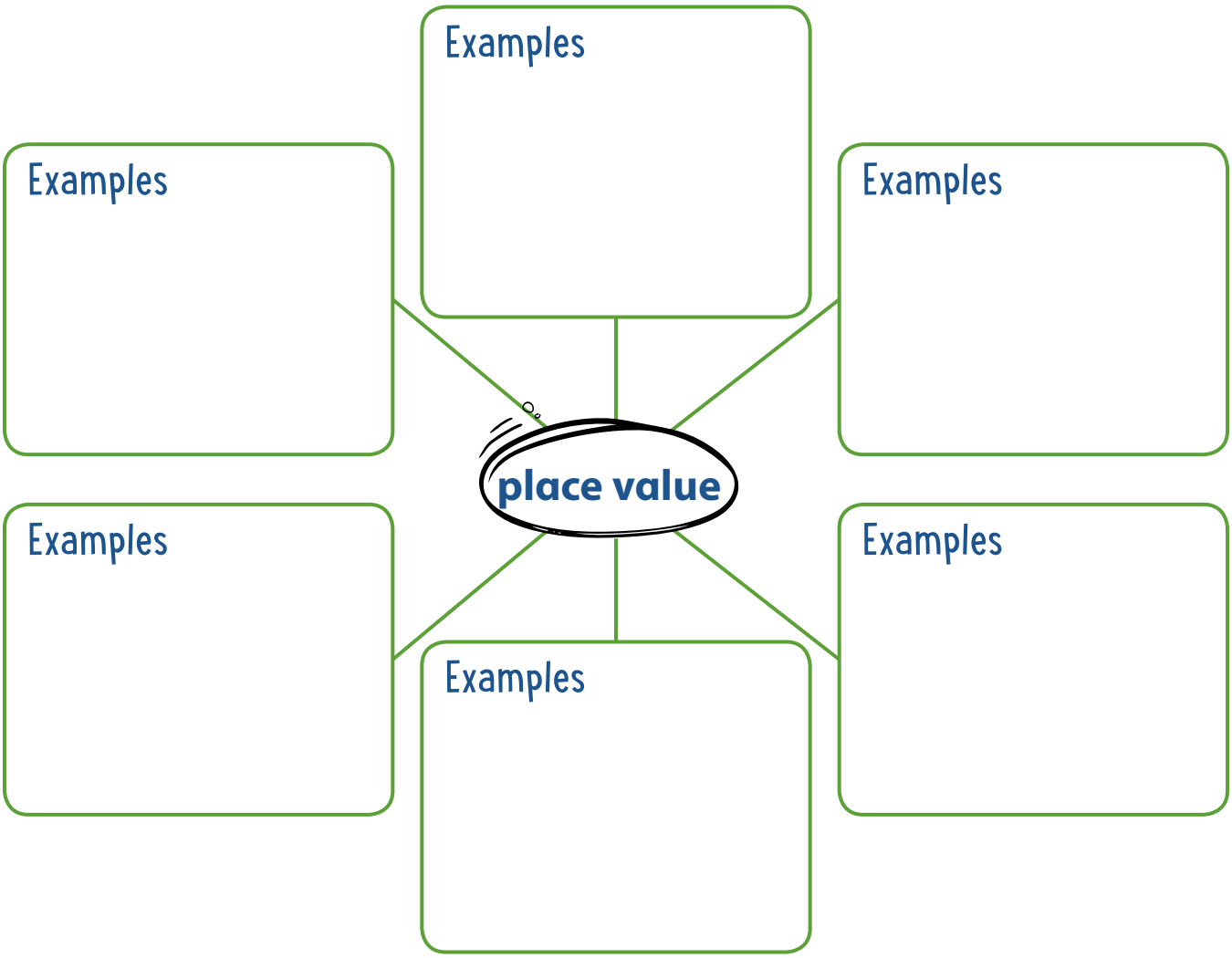
Gabe says the number in the place-value chart is 400404. Explain what Gabe's mistake is.

.....

.....

Prepare for Reading and Writing Three-Digit Numbers

1 Think about what you know about three-digit numbers. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.



2 Bernadette writes this number as 200507. What is Bernadette's mistake?

Hundreds	Tens	Ones
2	5	7

3 Solve the problem. Show your work.

Pavel buys 300 green party hats, 90 purple party hats, and 7 red party hats. How many party hats does Pavel buy?

Solution

4 Check your answer. Show your work.

Develop Finding the Value of Three-Digit Numbers

Read and try to solve the problem below.

Amir plays a board game that uses play money. He wins 1 tens bill, 2 hundreds bills and 3 ones bills. What is the total value of the bills Amir wins?

TRY IT

Math Toolkit

- base-ten blocks
- play money bills
- hundreds place-value charts
- 200 charts
- open number lines

DISCUSS IT

Ask your partner: Can you explain that again?

Tell your partner: The strategy I used to find the answer was . . .

Explore different ways to understand finding the value of three-digit numbers.

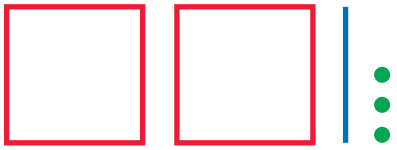
Amir plays a board game that uses play money. He wins 1 tens bill, 2 hundreds bills, and 3 ones bills. What is the total value of the bills Amir wins?

PICTURE IT

You can use play money to model the problem.

PICTURE IT

You can make a quick drawing to show hundreds, tens, and ones.



MODEL IT

You can show hundreds, tens, and ones in a chart.

Hundreds	Tens	Ones
2	1	3

CONNECT IT

Now you will use the problem from the previous page to help you find the value of three-digit numbers.

1. Look at the models on the previous page. How many hundreds, tens, and ones are there?

   _____ hundreds _____ ten _____ ones

2. What is the value of the hundreds bills? _____ dollars

   What is the value of the tens bill? _____ dollars

   What is the value of the ones bills? _____ dollars

3. Write an equation to find the total value of all the bills.

   _____ + _____ + _____ = _____ dollars

4. Amir wins 2 more tens bills. Tell how to write the new total value of Amir's play money.

5 REFLECT

Look back at your **Try It**, strategies by classmates, and **Picture Its** and **Model It**. Which models or strategies do you like best for finding the value of three-digit numbers? Explain.

APPLY IT

Use what you just learned to solve these problems.

6 What is another way to show each number? Draw lines to connect each number to its expanded form.

392	329	239
300 + 20 + 9	200 + 30 + 9	300 + 90 + 2

7 Tia is playing a ring toss game to win tokens. She wins 3 hundreds tokens, 4 tens tokens, and 7 ones tokens. What is another way to write the total value of the tokens Tia wins? Show your work.

Solution

8 When does the digit 8 mean eighty? When does the digit 8 mean eight hundred? When does the digit 8 mean just eight?

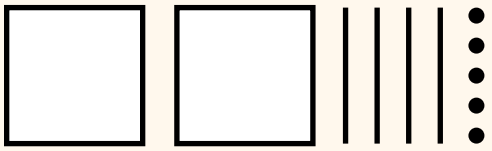
Practice Finding the Value of Three-Digit Numbers

Study the Example showing three-digit numbers in different ways. Then solve problems 1–6.

EXAMPLE

In a game, Jan pays money to the bank. She pays 2 hundreds bills, 4 tens bills, and 5 ones bills. What is the total value of the bills Jan pays?

Make a quick drawing.



Use a chart.

Hundreds	Tens	Ones
2	4	5

Write an equation.

200 + 40 + 5 = 245 dollars

Bob plays a board game that uses play money. He wins 3 hundreds bills, 7 tens bills, and 7 ones bills.

1. How many hundreds, tens, and ones are there?

   _____ hundreds _____ tens _____ ones

2. Write the total value of the bills using expanded form.

   _____ + _____ + _____ = _____

3. What is the total value of the bills Bob wins?

   _____ dollars

Vocabulary

expanded form a way a number is written to show the place value of each digit.

4 Ali plays a board game that uses play money. He wins 8 hundreds bills and 6 ones bills. What is the total value of the bills Ali wins? Fill in the chart and then write the answer. Show your work.

Hundreds	Tens	Ones

Solution

5 Audra has 533 comic books. Write or draw to show this number in a different way.

6 What is another way to show each number? Draw lines to connect each number to its expanded form.

784	800 + 70 + 4
874	700 + 80 + 4
748	700 + 40 + 8

Develop Writing Three-Digit Numbers

Read and try to solve the problem below.

Ryan has a collection of 284 shells. What is another way to write 284 using numbers? What is another way to write 284 using words?

TRY IT

Math Toolkit

- base-ten blocks
- hundreds place-value charts
- 200 charts
- open number lines

DISCUSS IT

Ask your partner: How did you get started?

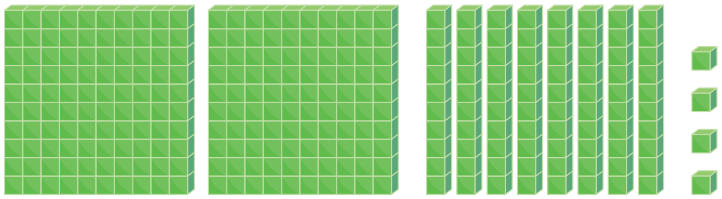
Tell your partner: A model I used was . . . It helped me . . .

Explore different ways to understand writing three-digit numbers.

Ryan has a collection of 284 shells. What is another way to write 284 using numbers? What is another way to write 284 using words?

PICTURE IT

You can use base-ten blocks to show hundreds, tens, and ones. Then write the number in expanded form and in words.



200 + 80 + 4

two hundred eighty four

MODEL IT

You can show hundreds, tens, and ones in a chart. Then write the values in numbers and words.

Hundreds	Tens	Ones
2	8	4

2 hundreds + 8 tens + 4 ones

two hundred + eighty + four

CONNECT IT

Now you will use the problem from the previous page to help you understand how to write three-digit numbers in different ways.

1 Write the number of Ryan's shells using only digits.

Ryan has _____ shells.

2 Look at **Picture It** on the previous page. Write 284 using words.

3 Look at **Model It**.

a. How many hundreds, tens, and ones are there?

_____ hundreds _____ tens _____ ones

b. Write the number in expanded form to show the total number of shells as an equation.

_____ + _____ + _____ = 284

4 REFLECT

Look back at your **Try It**, strategies by classmates, and **Picture It** and **Model It**. Which models or strategies do you like best for writing three-digit numbers? Explain.

APPLY IT

Use what you just learned to solve these problems.

5 There are 361 fish in the large tank at the aquarium. How do you write 361 in word form? Show your work.

Solution

6 Ella makes one hundred eighteen friendship bracelets. How would Ella write that number in expanded form? Show your work.

Solution

7 How do you write the number shown in the chart using words?

Hundreds	Tens	Ones
5	7	0

Ⓐ five seven zero

Ⓑ fifty-seven

Ⓒ five hundred seventeen

Ⓓ five hundred seventy

Practice Writing Three-Digit Numbers

Study the Example showing how to write a three-digit number in different ways. Then solve problems 1–6.

EXAMPLE

In a video game, Eduardo scores 753 points.

Write this number three different ways.

Using only digits: 753

Using expanded form: 700 + 50 + 3

Using words:

seven hundred + fifty + three =
seven hundred fifty-three

Use the chart below for problems 1–3.

Hundreds	Tens	Ones
3	2	2

1. Write the number using only digits. .....

2. Write the number in expanded form.

..... + ... + ...

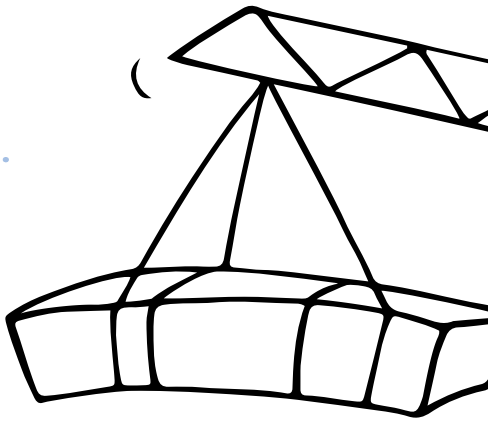
3. Write the number using words.

4 There are 225 building bricks in a box.

How would you write 225 in expanded form?

Fill in the chart and then write the answer.

Hundreds	Tens	Ones



Solution

5 Helen counts her crayons. She writes the number as 700 + 3.

Write the number using only digits.

Solution

Write the number using only words.

Solution

6 What are other ways to show each number?

Look at each number shown using only digits. Draw a line to the expanded form and to the words for each number.

500 + 60 + 1	**651**	six hundred fifteen
600 + 10 + 5	**615**	five hundred sixty-one
600 + 50 + 1	**561**	six hundred fifty-one

Refine Reading and Writing Three-Digit Numbers

Complete the Example below. Then solve problems 1–3.

EXAMPLE

Mrs. Cole writes this number on a check.

five hundred ninety-four

How do you write this number using only digits?

You can show the number in a chart.

Hundreds	Tens	Ones
5	9	4

five hundred ninety-four

Solution

APPLY IT

1 Pat writes these clues about a three-digit number.

- The hundreds digit is 1 more than 8.
- The tens digit has a value of 40.
- The number has 2 ones.

What is the number? Show your work.

How many digits are in the number?

Solution

2 Jim is playing a board game. This is his play money.

Write the total as the sum of hundreds, tens, and ones.

..... dollars + ... dollars + ... dollars

Write the total using only digits.

..... dollars

What is the value of each kind of bill in the problem?

3 Which is another way to write 700 + 6?

Ⓐ seventy-six

Ⓑ six hundred seven

Ⓒ seven hundred six

Ⓓ seven hundred sixty

Zoey chose Ⓐ as the answer. How did Zoey get her answer?

How many tens does the number have?

Practice Reading and Writing Three-Digit Numbers

1 Which number is the same as 800 + 30?

Ⓐ 803

Ⓑ 83

Ⓒ 830

Ⓓ 308

Can you use a chart to help you?

2 Bev writes clues about a three-digit number.

- The number has 5 hundreds.
- The tens digit is 1 less than 9.
- The ones digit is greater than the tens digit.

What is the number?

Ⓐ 589

Ⓑ 598

Ⓒ 959

Ⓓ 590

In a three-digit number, where is the tens digit?

3 Which are true about the number 720?

Ⓐ It equals 72 tens.

Ⓑ It is 700 + 2.

Ⓒ It has 7 hundreds and 2 tens.

Ⓓ It is 700 + 20.

Ⓔ It is seventy-two.

Ⓕ It is seven hundred twenty.

How many hundreds, tens, and ones are in 720?

4 Here are clues about a three-digit number.

- The hundreds digit has a value of 300.
- The tens digit is 1 less than 2.
- The ones digit is the same as the hundreds digit.

Write the number in words. Show your work.

Can you write an equation to help you?

Solution

5 What is another way to show 4 hundreds and 3 tens? Circle the correct answer.

Ⓐ 43

Ⓑ 400 + 3

Ⓒ 403

Ⓓ 400 + 30

Zack chose Ⓓ. How did Zack get his answer?

How can you show 3 tens?

Refine Reading and Writing Three-Digit Numbers

APPLY IT

Solve the problems.

1 Which are other ways to show 2 hundreds and 5 ones?

Ⓐ 200 + 5

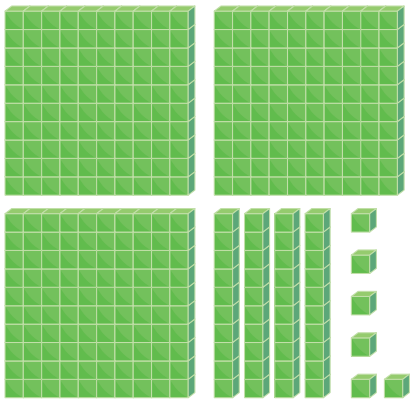
Ⓑ 25

Ⓒ 200 + 50

Ⓓ 205

Ⓔ 20 + 5

2 What does the model show? Fill in the chart and the blanks.



Hundreds	Tens	Ones

expanded form: ..... + ... + ...

digits only: .....

3 A bear at the zoo weighs 360 pounds. Which are true about this number?

Ⓐ It is 300 + 6.

Ⓑ It is three hundred sixty.

Ⓒ It is 300 + 60.

Ⓓ It has 3 hundreds and 6 tens.

Ⓔ It is three hundred sixteen.

4 Write each number in expanded form.

275: .....

527: .....

5 Look at problem 4. Why do the 2, 5, and 7 have a different value in each number? Explain.

6 MATH JOURNAL

Here are clues about a three-digit number.

- The number has seven hundreds.
- The tens digit has a value of 30.
- The ones digit is less than any other digit in the number.

What could the number be? Explain.

SELF CHECK Go back to the Unit 3 Opener and see what you can check off.

Explore Comparing Three-Digit Numbers

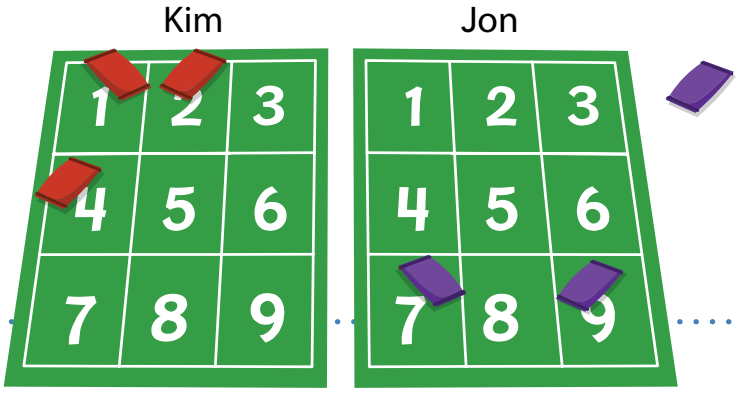
Learning Target

- Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

SMP 1, 2, 3, 4, 5, 6, 7

You have learned how to compare two-digit numbers. Use what you know to try to solve the problem below.

Kim and Jon toss beanbags at a target. Who can make the greater number using the digits their beanbags land on?



TRY IT

Math Toolkit

- base-ten blocks
- hundreds place-value charts
- blank number lines
- hundred charts

DISCUSS IT

Ask your partner:
How did you get started?

Tell your partner:
I started by . . .

CONNECT IT

1 LOOK BACK

Who can make the greater number? .....

2 LOOK AHEAD

Start with the greatest place value when you compare numbers.

A place-value chart can help you compare numbers.

Hundreds	Tens	Ones
0	8	9
1	5	2

a. Compare the hundreds to complete this sentence.

..... hundred is greater than ..... hundreds.

You can use $=$, $<$ **(less than symbol)**, and $>$ **(greater than symbol)** to compare numbers.

The symbol points toward the lesser number. It opens toward the greater number.

b. Write 152 and 89 in the correct spaces below.

..... < .... > .....

3 REFLECT

Is a three-digit number always greater than a two-digit number? Explain.

.....

.....

Prepare for Comparing Three-Digit Numbers

1 Think about what you know about comparing numbers. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.

Symbol	In My Own Words	Example
<		
>		
=		

2 Compare 14 and 18 using the > symbol. Then compare 14 and 18 using the < symbol.

3 Solve the problem. Show your work.

Victor rolls three number cubes. Sabra rolls two number cubes. Who can make the greater number using the digits they roll?

Solution

4 Check your answer. Show your work.

Develop Ways to Compare Three-Digit Numbers

Read and try to solve the problem below.

There is a contest at the school fair. Students guess how many jelly beans are in a jar. Bart guesses 352 and Diego guesses 328. Which number is less?

TRY IT

Math Toolkit

- base-ten blocks
- hundreds place-value charts
- blank number lines
- hundred charts

DISCUSS IT

Ask your partner:
Why did you choose that strategy?

Tell your partner:
A model I used was . . . It helped me . . .

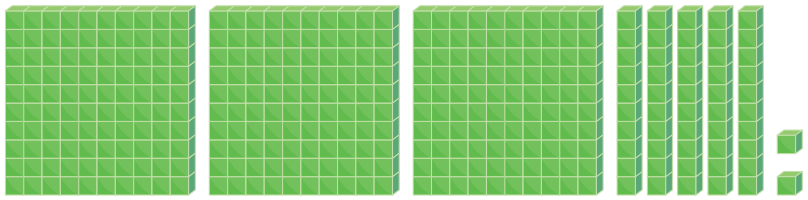
Explore different ways to understand comparing three-digit numbers.

There is a contest at the school fair. Students guess how many jelly beans are in a jar. Bart guesses 352 and Diego guesses 328. Which number is less?

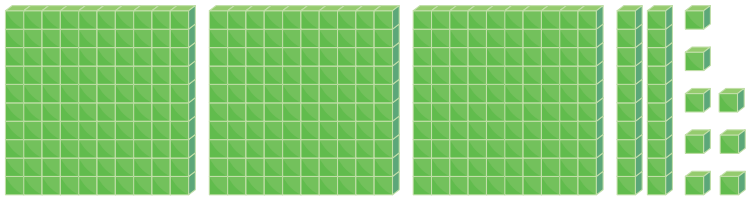
PICTURE IT

You can model the numbers with base-ten blocks.

352



328



MODEL IT

You can write the numbers as hundreds, tens, and ones.

352 = 3 hundreds + 5 tens + 2 ones

328 = 3 hundreds + 2 tens + 8 ones

CONNECT IT

Now you will use the problem from the previous page to help you understand how to compare three-digit numbers.

1. Look at **Picture It** and **Model It** on the previous page. Can you use the numbers in the hundreds place to decide which number is greater? Why or why not?

2. Now compare the tens. Which number has more tens?

3. Complete the comparison of 352 and 328.

   ..... < .....

4. Bart says 2 < 8, so 352 < 328. Is Bart correct? Explain.

5 REFLECT

Look back at your **Try It**, strategies by classmates, and **Picture It** and **Model It**. Which models or strategies do you like best for comparing three-digit numbers? Explain.

APPLY IT

Use what you just learned to solve these problems.

6 Compare 761 and 716 using $<$ or $>$. Explain why your comparison is true.

7 Write two ways to compare 487 and 478.

8 Luz is building a city out of plastic blocks. She uses 238 blocks for the school and 283 blocks for the fire station. She compares the two values: $238 > 283$. Explain the mistake Luz makes and write a correct comparison using $<$ or $>$.

Practice Comparing Three-Digit Numbers

Study the Example showing how to compare three-digit numbers. Then solve problems 1–8.

EXAMPLE

Compare 217 and 234.

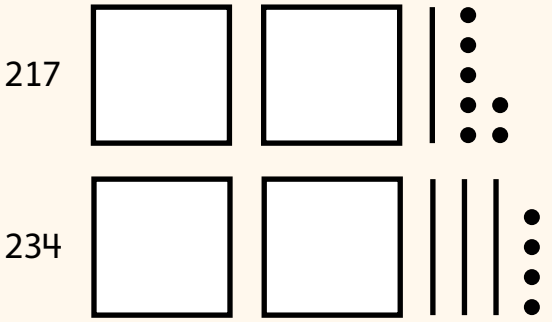
217 = 2 hundreds + 1 ten + 7 ones

234 = 2 hundreds + 3 tens + 4 ones

The hundreds are the same.
Compare the tens.

1 ten is less than 3 tens.

217 < 234



Cam has 482 marbles. Joe has 439 marbles.

1. How many hundreds, tens, and ones are in each number?

   482 = ... hundreds ..... tens ..... ones

   439 = ... hundreds ..... tens ..... ones

2. The hundreds are the same. Compare the tens.

   ..... tens is greater than ..... tens.

3. Complete the comparison. ..... > .....

4. Use the same numbers as problem 3. Write a different comparison.

Vince and Rina guess how many paper clips are in a box. Vince guesses 195, and Rina guesses 172.

5 How many hundreds, tens, and ones are in each number?

195 = ... hundred ..... tens ..... ones

172 = ... hundred ..... tens ..... ones

6 Complete the comparison.

..... < .....

Mel has 938 stamps in her stamp collection. Yuri has 926 stamps in his stamp collection.

7 Complete two different comparisons of 938 and 926.

..... < ..... and ..... > .....

8 Explain why your comparisons in problem 7 are true.

Develop More Ways to Compare Three-Digit Numbers

Read and try to solve the problem below.

These two paintings are in the school art contest. Which painting has more votes?

Painting A: 467 votes

Painting B: 463 votes

TRY IT

Math Toolkit

- base-ten blocks
- hundreds place-value charts
- blank number lines
- hundred charts

DISCUSS IT

Ask your partner:
Do you agree with me? Why or why not?

Tell your partner:
I do not understand how . . .

Explore more ways to understand comparing three-digit numbers.

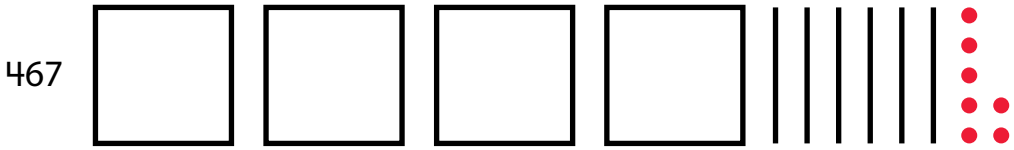
These two paintings are in the school art contest. Which painting has more votes?

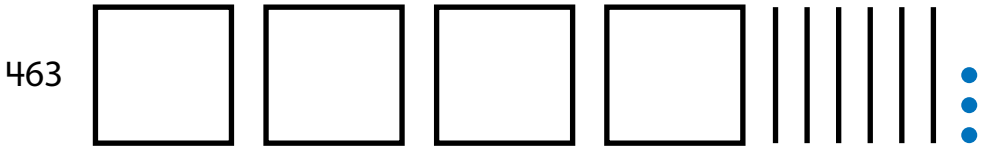
Painting A: 467 votes

Painting B: 463 votes

PICTURE IT

You can show the numbers in a quick drawing.





MODEL IT

You can model the numbers in a chart.

Hundreds	Tens	Ones
4	6	7
4	6	3

CONNECT IT

Now you will use the problem from the previous page to help you understand more ways to compare three-digit numbers.

1. Which place do you need to look at to compare the numbers of votes? Why?

2. Complete two different comparisons of 467 and 463.

..... > .... < .....

3. Why can 467 and 463 be compared two ways?

4. Which painting has more votes? How do you know?

5 REFLECT

Look back at your **Try It**, strategies by classmates, and **Picture It** and **Model It**. Which models or strategies do you like best for comparing three-digit numbers in different ways? Explain.

.....

.....

APPLY IT

Use what you just learned to solve these problems.

6 Write > or < to compare each pair of numbers.

a. 264 ◯ 462 **b.** 372 ◯ 379 **c.** 954 ◯ 950

d. 876 ◯ 867 **e.** 718 ◯ 788 **f.** 653 ◯ 553

7 Write two different ways to compare 772 and 774 using < and >. Show your work.

Solution

8 Hope and Sara are collecting pennies. Hope has 189 pennies. Sara has 186 pennies. Which comparisons are correct?

Ⓐ 189 < 186

Ⓑ 186 < 189

Ⓒ 189 > 186

Ⓓ 186 > 189

Ⓔ 186 = 189

Practice Comparing Three-Digit Numbers

Study the Example showing how to compare three-digit numbers. Then solve problems 1–8.

EXAMPLE

Compare 528 and 523.

The hundreds are the same.
The tens are the same.
Compare the ones.

8 ones is greater than 3 ones.

528 > 523 and 523 < 528

Hundreds	Tens	Ones
5	2	8
5	2	3

Ned and Vera are playing a game. Ned has 142 points, and Vera has 147 points.

1 Write the numbers in the chart.

Hundreds	Tens	Ones

2 Complete the comparison of 142 and 147.

..... > .....

3 Which place did you have to look at to compare 142 and 147? Why?

4 Complete two different comparisons of 824 and 829.

..... > ..... and ..... < .....

5 Complete two different comparisons of 353 and 351.

..... > ..... and ..... < .....

6 Complete two different comparisons of 675 and 629.

..... > ..... and ..... < .....

7 Write >, <, or = to compare each pair of numbers.

a. 465 ◯ 467

b. 392 ◯ 392

c. 885 ◯ 882

d. 214 ◯ 312

e. 691 ◯ 691

f. 484 ◯ 394

8 Han plays three games. Which game has the greatest score? Which game has the least score? Tell how you know.

Game 1: 328
Game 2: 289
Game 3: 325

Refine Comparing Three-Digit Numbers

Complete the Example below. Then solve problems 1–3.

EXAMPLE

Yen packs 250 oranges in a box. Gia packs 25 bags of oranges with 10 oranges in each bag. Who packs more oranges?

Look at how you can find the number of oranges Gia packs.

25 bags with 10 in each bag = 25 tens
25 tens = 250
250 oranges in a box = 250

Solution

APPLY IT

1 Write the number of hundreds and tens for each score in the table. Circle the names of the two players with the greatest scores.

Player	Score	Hundreds	Tens
Eden	92		
Sarita	233		
Paul	213		
Chen	236		

Remember to look at the hundreds place first.

2 Bella rides her bike 122 miles. Ariel rides her bike 126 miles. Who rides fewer miles? Show your work.

Are you looking for the lesser or greater number?

Solution

3 Jill and Iman each write a three-digit number.

Jill's number: 305

Iman's number: 3 hundreds 5 tens

What number is the same as 3 hundreds 5 tens?

Which correctly compares Jill's and Iman's numbers?

Ⓐ $305 < 305$

Ⓑ $305 > 350$

Ⓒ $350 > 305$

Ⓓ $350 < 305$

Dan chose Ⓑ as the answer. How did Dan get his answer?

Practice Comparing Three-Digit Numbers

1 In one week, Glen reads for 317 minutes. Fran reads for 372 minutes. Who reads for more minutes? Tell how you know. Show your work.

Are you looking for the lesser or greater number?

Solution

2 Choose *True* or *False* to tell if the comparison is correct.

Which place value should you compare first?

	True	False
$131 < 119$	Ⓐ	Ⓑ
$605 = 650$	Ⓒ	Ⓓ
$454 > 451$	Ⓔ	Ⓕ
$709 < 722$	Ⓖ	Ⓗ

3 Marcy has 237 stickers. Then she gives some stickers away. How many stickers could Marcy have now?

Does Marcy have more than or fewer than 237 stickers now?

Ⓐ 239

Ⓑ 198

Ⓒ 229

Ⓓ 323

Ⓔ 237

Ⓕ 207

4 Which comparison is true?

Ⓐ 420 < 4 hundreds 3 ones

Ⓑ 370 > 407

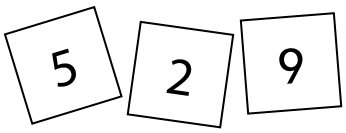
Ⓒ 6 hundreds 4 tens < 640

Ⓓ 919 < 991

Deb chose Ⓐ. How did Deb get her answer?

You can rewrite the numbers that are shown as tens and ones.

5 Use the digits 5, 2, and 9 to make the least three-digit number that you can. Explain how you find your answer.



I think I will choose the digit for the hundreds place first.

6 Use the digits from problem 5 to make the greatest three-digit number that you can. Write your number below.

Which is the greatest digit?

Refine Comparing Three-Digit Numbers

APPLY IT

Solve the problems.

1 Which comparisons are true?

Ⓐ 431 > 427

Ⓑ 540 < 5 hundreds 4 ones

Ⓒ 727 < 772

Ⓓ 9 hundreds 6 tens < 906

Ⓔ 538 > 540

2 Phil has 248 trading cards. Sean has more trading cards than Phil. How many cards could Sean have?

Ⓐ 239

Ⓑ 228

Ⓒ 260

Ⓓ 252

Ⓔ 246

3 Choose *True* or *False* to tell if the comparison is correct.

	True	False
551 > 539	Ⓐ	Ⓑ
924 < 889	Ⓒ	Ⓓ
707 = 707	Ⓔ	Ⓕ
422 < 425	Ⓖ	Ⓗ

4 Use the numbers below to make true comparisons. Use each number only once.

380	308	390

..... > 386 38 tens = ... < 384

5 Josh uses the digits below to make the least number he can. He writes 184. Is this the least number Josh can make? Explain.

4	1	8

6 MATH JOURNAL

Write two different three-digit numbers. Then write two different comparisons of your numbers, using < and >. Explain how you know your comparisons are correct.

☑ SELF CHECK Go back to the Unit 3 Opener and see what you can check off.