## Use What You Know

## You have already learned how to compare numbers up to 999. Take a look at this problem that compares numbers in the thousands.

Students in Mrs. Allen's math class are divided into teams. Each team collects points by doing projects and playing math games.

Team A has 1,347 points. Team B has 1,295 points.
Which team has more points?

|  | Thousands | Hundreds | Tens | Ones |
| :---: | :---: | :---: | :---: | :---: |
| Team A |  |  |  |  |
| Team B |  |  |  |  |

a. Write the numbers in the place-value chart.
b. Look at the digits in the hundreds, tens, and ones places. How could you compare 347 and 295 to decide which is more?
$\qquad$
$\qquad$
$\qquad$
c. If you add 1,000 to 347 and to 295, you get 1,347 and 1,295. Explain how you can tell that $1,347>1,295$.
$\qquad$
$\qquad$
$\qquad$
$\qquad$

## Find Out More

In the problem about the teams, you compared 2 four-digit numbers to find out which team had more points. You can also compare numbers to make a decision, such as which size package to buy.

- Sometimes the numbers you are comparing have the same number of digits.

Compare place by place, starting with the greatest place-value position, until you can tell which number is greater.


Compare 1,250 and 1,500 . Both numbers have 1 thousand, so compare hundreds. One number has 5 hundreds and the other has 2 hundreds.
Since 5 hundreds $>2$ hundreds, 1,500 $>1,250$.

- Sometimes the numbers you are comparing don't have the same number of digits.

$$
\$ 1,402
$$

Compare 985 and 1,402. You don't need to compare digits because you are comparing a number in the hundreds to a number in the thousands. Even the least number in the thousands $(1,000)$ is greater than the greatest number in the hundreds (999).
So, $\$ 1,402>\$ 985$.

## Reflect

1 Explain how to find which number is less, 2,400 or 2,300.

Read the problem below. Then explore different ways to compare multi-digit numbers.

There were 23,643 fans at a football game last week and 23,987 fans at the football game this week. Which game had fewer fans?

## Model lt You can use a place-value chart to compare multi-digit numbers.

| Ten Thousands | Thousands | Hundreds | Tens | Ones |
| :---: | :---: | :---: | :---: | :---: |
| 2 | 3 | 6 | 4 | 3 |
| 2 | 3 | 9 | 8 | 7 |

When the numbers are in a place-value chart, it is easy to look down the columns and compare the digits. Start at the greatest place value.

The ten-thousands digits are the same. The thousands digits are the same.
The hundreds digits are different. So, compare the digits in the hundreds place.
6 hundreds $<9$ hundreds

Model lt You can break down numbers by place value to compare multi-digit numbers.

$$
\begin{aligned}
& 23,643=20,000+3,000+600+40+3 \\
& 23,987=20,000+3,000+900+80+7
\end{aligned}
$$

Compare the numbers place by place. The ten thousands and thousands are the same. The hundreds are different.

$$
600<900
$$

## Connect lt Now you will solve the problem from the previous page using what you know about place value to compare the numbers.

2 Write the numbers 23,643 and 23,987 so they line up by place value. Explain how to line them up.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
3 In what place-value position do you begin comparing the two numbers?
$\qquad$
$\qquad$

4 What is the first place in which the numbers are different?
5 Explain how to compare the numbers. Then write the comparison using $>$ or $<$. Tell which game had fewer fans.
$\qquad$
$\qquad$
$\qquad$

## Try It Use what you just learned to solve these problems.

6 There are two baby macaw parrots at a zoo. Zeke has a mass of 1,582 grams, and Tao has a mass of 819 grams. Which bird has a greater mass? Use $>,<$, or $=$ to write a comparison.

7 Write the symbol that makes the statement true.


## Practice Comparing Whole Numbers

## Study the example below. Then solve problems 8-10.

## Example

Millennium Force and Formula Rossa are two famous roller coasters. Millennium Force is 6,595 feet long and Formula Rossa is 6,562 feet long. Which roller coaster is shorter? Use $>,<$, or $=$ to write a comparison.

Look at how you could show your work using a place-value chart.

| Thousands | Hundreds | Tens | Ones |
| :---: | :---: | :---: | :---: |
| 6 | 5 | 9 | 5 |
| 6 | 5 | 6 | 2 |

## Solution $6,595>6,562$ or $6,562<6,595$; Formula Rossa

is shorter.

8 A tile factory shipped 342,085 ceramic tiles in 2010. In 2011, they shipped 342,805 tiles. In which year did the tile factory ship more tiles? Use $>,<$, or $=$ to write a comparison.

## Show your work.

The student used a place-value chart to compare the digits in the two numbers.

## Pair/Share

How else could you solve this problem?

What is the first place in which the digits are different?

## Pair/Share

How did you and your partner decide where to start comparing?

9 Val's Video Games sold 11,806 new games and 10,899 used games from May to July. Did Val's Video Games sell more new games or more used games? Use $>,<$, or $=$ to write a comparison.

## Show your work.

Solution $\qquad$
$\qquad$

10 Kara has twenty-four thousand, five hundred sixty stickers in her album. Raul has $20,000+4,000+500+60$ stickers in his collection.

Which statement correctly compares Kara's and Raul's stickers? Who has more stickers? Circle the letter of the correct answer.

A 2,456 $<24,560$; Raul has more stickers.
B $24,560>24,506$; Kara has more stickers.
C $24,560<24,650$; Raul has more stickers.
D $24,560=24,560$; They each have the same number.
Anna chose $\mathbf{A}$ as the correct answer. How did she get that answer?
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

## Practice Comparing Whole Numbers

## Solve the problems.

1 Dalton has 1,168 marbles, Juan has 1,079 marbles, Gilbert has 967 marbles, and Lydia has 199 marbles. Who has the greatest number of marbles?

A Dalton
B Juan
C Gilbert
D Lydia

2 A company made 189,909 stuffed animals in 2009. In 2010, the company made 198,909 stuffed animals. Which statement correctly compares the numbers of stuffed animals that were made?

A 189,909>198,909
B $198,909<189,909$
C $189,909<198,909$
D $198,909=189,909$

3 Mr. Hunter wrote the following comparison on the board:


Use the digits in the tiles below to come up with a number that makes the comparison true. Fill in the boxes in the comparison using each digit below only once.

| 2 | 3 | 5 | 6 | 9 |
| :--- | :--- | :--- | :--- | :--- |

4 Selena organized her music files into four online albums. Album A has one thousand eleven songs, Album B has $1000+100+10$ songs, Album C has 1,101 songs, and Album D has eleven hundred songs.

Write the number of songs in the four albums in the place-value chart.

|  | Thousands | Hundreds | Tens | Ones |
| :--- | :--- | :--- | :--- | :--- |
| Album A |  |  |  |  |
| Album B |  |  |  |  |
| Album C |  |  |  |  |
| Album D |  |  |  |  |

Which album has the most songs?

5 North Elementary School collected 4,128 cans of soup during a food drive. South Elementary School collected 4,210 cans. Which school collected more cans?
Use $>,<$, or $=$ to write a comparison.
Show your work.

6 One airplane is flying at an altitude of 31,710 feet. A second airplane is flying at 31,820 feet. Use symbols and words to write comparison statements for these numbers.

Show your work.

