## Discover! Math



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## Lesson 14

## Comparing Numbers With Symbols

## By the end of this lesson, you will be able to:

- compare numbers using greater-than and less-than signs
- order numbers from least to greatest


## Lesson Review

If you need to review place value to 100, please go to the lesson titled "Numbers 20-100."

## Academic Vocabulary

Read the following vocabulary words and their meanings.

- compare: to tell if a set has more or less than another set
- greatest number: largest number
- least number: smallest number


## Materials Needed

place value mat, place value blocks, pencil, paper, scissors, number line or hundreds chart (optional)

## TAKEA CLOSEREOOK

## Which Group Has More?

These kids are hiking at the Oregon Trail Nature Park. Are more kids girls or boys? Tell your instructor how you know.


Are there more girls or boys?

## EXPL $\mathbb{R}$ RE

You have arrived at your first pit stop on your voyage, the Oregon Trail Nature Park in Kansas. Over 150 years ago, immigrants passed through this very spot on their expedition to the West. While at the park, you read that popular animals are often seen, such as prairie chickens, quail, wild turkeys, white-tailed deer, and raccoons.

While walking on the nature trail, you stumble across some different eggs. How can you tell which bird has laid more eggs?

Place value is a useful tool that helps you understand how much is in a number. It can also help you compare numbers to understand which is bigger or smaller.

For example, think about the 13 prairie chicken eggs and the 35 quail eggs. You probably know right away which set has more eggs in it, but how do you know?

You probably used place value to compare these numbers, even if you did not realize it! How do you think place value helps you. compare numbers? Talk to your instructor about your thoughts.

## SHARPEN YOUR SKILLS

Sharpen Your Skills Go to the digital content for this lesson to practice the addition facts for 13 . You can practice with digital flashcards and take a quiz. If you do not have access to the digital content, you can use physical flashcards to practice the facts.



13 Prairie Chicken Eggs

## REAR

## Comparing with Place Value

Your second stop is in Guernsey, Wyoming. This is a beautiful spot right outside the Oregon Trail Ruts State Historic Site and has some of the best-preserved wagon marks anywhere. It was more than 150 years ago and the wagon wheel marks from traveling are still in the dirt.

You are curious to know how many miles the pioneers traveled each day by wagon and foot. Resources say that an average of 15 miles were traveled each day. If the weather was nice and the pioneers had no mishaps, they could travel up to 20 miles per day.

In Lesson 9, you learned that when you compare numbers, you tell if a set has more or less than another set. Place value can help you compare.
 Think back about the number of miles the pioneers could travel per day. They could travel between 15 and 20 miles per day. How do you know which of these numbers is greater?

Using your place value mat and place value blocks, look at the tens place of each number. 15 has a 1 in the tens place. 20 has a 2 in the tens place. Since 2 is larger than 1,20 is greater than 15.

Now, use place value to compare 15 and 17. Both have a 1 in the tens place. The tens are equal, so look at the ones place instead. 15 has five ones, and 17 has seven ones. Since 7 is larger than 5, 17 is greater than 15.

Explain how you can use place value to compare the numbers 45 and 71.
$\qquad$

## REAR

## Greater Than and Less Than

Before heading on the road again, you come across a road sign with two different symbols on it. The symbols are pictures and they help people know traffic laws, hazards, locations, directions, and where services are located. The symbols you see on the road sign help you understand if you are going the right way on the rest of your journey.

There are also many symbols used in math. Some symbols are for comparing numbers. The > symbol is called the greater-than symbol. It is used to make comparisons like $34>17$. < is the less-than symbol. It is used to make comparisons like $42<68$.

In some comparisons, the numbers are not greater or less than each other. Instead, they are the same or equal. You use an equal sign, $=$, for these comparisons.

The equal sign is not only for equations. It means that the numbers, or groups of numbers, on both sides of the sign are the same or equal to each other.

## TAKEA CLOSEREOOK

## Which Way?

To remember the difference between the > and < symbols, think about an alligator's mouth. A hungry alligator would want to eat the larger number. Listen as your instructor says two numbers. Use your arms to make an alligator mouth to show the correct symbol.


Is it true that $68<54$ ? Use place value to explain how you know.

## PRACT|CE

## Comparison Symbols

Fill in a number to make each comparison true.

1. $\qquad$ $>17$
2. $<5$
3. $\qquad$ $=16$
4. $\qquad$ $>20$

## PLAE

## Comparing Numbers

 Create your own card game to practice comparing numbers. Start by making a set of cards. Cut some pieces of paper into small rectangles. Write a different number between 10 and 100 on each card. Split the cards into two piles and place both piles facedown. Keep a pile and give a pile to your instructor. Flip over a card from each pile and compare them. Whose number is larger? How do you know?
## REAR

## Ordering Numbers

Pioneers on the Oregon Trail were moving for the same reasons as people move to places today. Your parents probably have moved for a better job, a house to accommodate your family, or even to be closer to family. Since the pioneers could only bring what would fit in their covered wagon, they had to think about what was the most important and what was the least important, taking only the items that were truly needed.

Also, when preparing meals, they needed to count what they had the greatest of and the food they had the least of. If they needed more of something, they could trade with other pioneers or be creative with what they had.

Look at the image. The least number is the smallest number. The 3 loaves of bread are the smallest amount, so they are first. The greatest number is the largest number. The potatoes have the greatest amount of 7, so they are arranged last.

If you look at a number chart or number line, you see that 4 is in between 3 and 7, so the bags of cornmeal go in the middle.


3 loaves of bread


4 bags of cornmeal


7 potatoes

## wRTE

What if they arranged the food from greatest to least? What would that order look like and what changed?
$\qquad$
$\qquad$
$\qquad$

## PRACTCEE

## Comparing and Ordering

Write the name of each symbol.

1. $>$ $\qquad$
2. $<$ $\qquad$
3. = $\qquad$

Write the following numbers from least to greatest.
4. 9, 5, 16, 13, 6, $\qquad$ , , , $\qquad$ ,
5. 20, 1, 7, 14, 12, $\qquad$ , , $\qquad$
Answer the following question.
6. Draw tens and ones to prove why each of these comparisons is true.

| $19>6$ | $42<65$ |
| :--- | :--- |
| $24=24$ | $32>23$ |
|  |  |

## REEVIEW

In this lesson, you learned:

- Place value can be used to compare numbers.
- > is the greater than symbol, and < is the less than symbol.
- Some comparisons use an equal sign (=).

Think About It
Do most comparisons have only one answer or more than one answer? Why?

## SKILLEMULDER

## Operations and Algebraic Thinking

Equations can be compared with symbols too. Solve both sides of the following equations. Then, fill in the missing >, <, or = sign.

1. $5+1$ $\qquad$ $3+3$
2. $10+0$ $\qquad$ $6+2$
3. $16+2$ $\qquad$ 10-10
4. $4+4$ $\qquad$ $6+6$

## Measurement and Data

Use the chart to finish each comparison statement.

| Our Favorite Snacks |  |
| :---: | :---: |
| Crackers | 8 |
| Pretzels | 5 |
| Grapes | 10 |
| Carrots | 6 |

1. More people like carrots than
2. Fewer people like crackers than $\qquad$ ...
3. More people like grapes than $\qquad$ ...
4. Fewer people like pretzels than $\qquad$ .

## show Youknouw

Read each comparison statement. Circle True or False.

1. True or False $46>17$
2. True or False $19>31$
3. True or False $62=26$
4. True or False $72>27$
5. True or False $19<14$

Complete each comparison. Use $>,<$, or $=$ to fill in the blanks.
6. 40 $\qquad$ 50
7. 54 $\qquad$ 52
8. 39 $\qquad$ 39
9. 10 $\qquad$ 100

Choose the correct answer.
10. Which numbers are shown from least to greatest?
A. $3,8,5,7,1$
B. $13,15,5,17,4$
C. $6,9,13,15,18$
D. $5,7,2,10,14$

Answer the following questions.
11. Put the numbers $14,4,16,20,1,3$, 10, 7 in order from least to greatest.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
12. Explain how you could use place value to compare the numbers 54 and 51.

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