



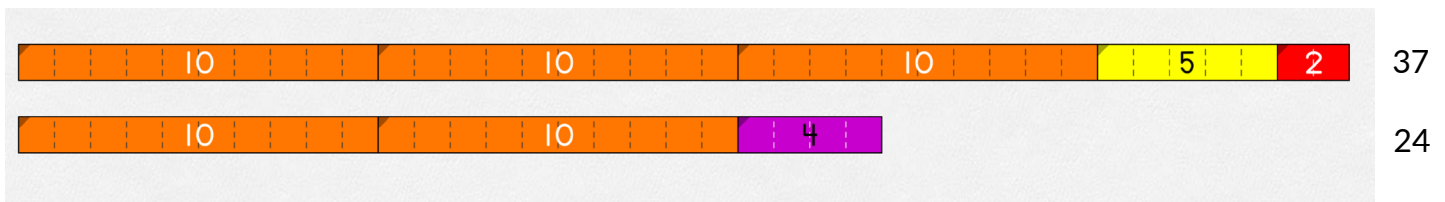
Comparing and Ordering Whole Numbers to 100

Mathematical Ideas

Comparing quantities or amounts in terms of more, fewer, or the same as helps with understanding the relationship between numbers.

Quantity is related to 'how many' rather than size, shape, or position.

Numbers can be compared by determining which one is greater than, less than, or equal to another number. For example,



37 is greater than 24
 $37 > 24$

24 is less than 37
 $24 < 37$

Sometimes it is useful to arrange numbers in ascending or descending order.

For example,

45, 55, 65, 75 is arranged in ascending order (least to greatest)

75, 65, 55, 45 is arranged in descending order (greatest to least)

Understanding place value can help with comparing and ordering numbers.

In our decimal number system the value of a digit depends on its place, or position, in the number.

Each place has a value of 10 times the place to its right.

For example in the number 72

- the digit 2 is in the ones place
- the digit 7 is in the tens place

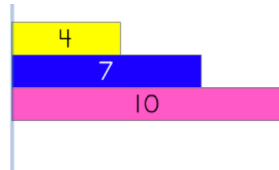


Comparing and Ordering Whole Numbers to 100

Helpful Information

Tips

- Learning tools are used to explore mathematical ideas and are a way for children to share their thinking. Encourage your child to take the time to use the learning tools for each activity.
- Organized concrete and visual representations allow your child to use their spatial sense to deepen their understanding of number and the relationships between numbers.



4 is less than 7 ($4 < 7$)
 10 is greater than 7 ($10 > 7$)

Mathematical Words/Symbols

Fewer – less than ($<$)

More – greater than ($>$)

Same as – equal to ($=$)

Digits – are the numerals 0 to 9 that form numbers. For example, the digits 2 and 7 can form the two-digit numbers 27 and 72.

Mathematical Statement – consists of numbers and symbols defining a relationship of equality or inequality. An example of equality is $3 + 5 = 2 + 6$. An example of inequality is $3 + 5 < 2 + 5$.

Place value – the value of any digit depending on its location in a number e.g., for the number 84 the place value of the 8 is 80.

Materials

Activity 1:

- Set Tool
- Number Cards

Activity 2:

- Colour Tiles
- Number Cards

Activity 3:

- Money
- Number Cards

Activity 4:

- Rekenrek
- Bead Cards

Activity 5:

- Whole Number Rods
- Number Cards

Activity 6:

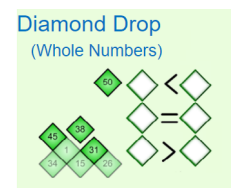
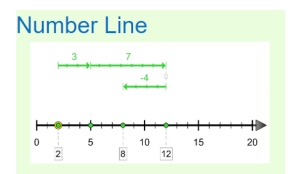
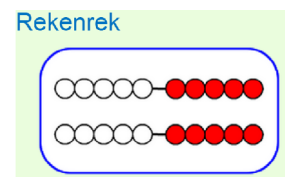
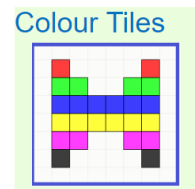
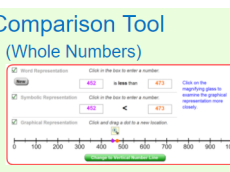
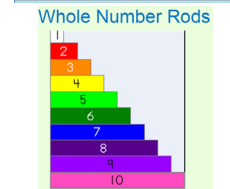
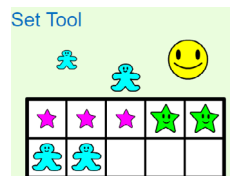
- Number Line
- 10-Frame Cards

Activity 7:

- Comparison Tool (Whole Numbers)

Activity 8:

- Diamond Drop (Whole Numbers) Game






Comparing and Ordering Whole Numbers to 100

Comparing Using the Set Tool

Activity 1

Set Up for the Activity:

- Open the Set learning tool.
 - » choose the Create mode (default)
 - » shrink the size of the objects using the down arrow 
- Shuffle four sets of number cards 0 to 9 and place face down in a pile.

How to Do the Activity:

1. Have your child pick two cards and create the greatest 2-digit number.
2. Represent this number using ten-frames and the multiplier feature in the Set tool.
3. Have your child explain the mathematical steps used to create the number and record these steps using the annotation tool.
 - » leave this number representation on the workspace
4. Have your child pick two cards and create the smallest 2-digit number.
5. Represent this number using ten-frames and the multiplier feature in the Set tool.
6. Compare the two numbers represented.

Example:

three 10s + 2 = 32

$7 \times 10 + 8 = 78$

78 is greater than 32.

Your child may create tens and then ones.

Let's Talk About It

If you reverse the digits would the same set of two cards still be greatest? Show an example where they are still the same and where they are not the same.

How do the 10-frames help you know which number is greater?

How can we change the objects so both representations are of the same number?



Comparing and Ordering Whole Numbers to 100

Comparing Using Colour Tiles

Activity 2

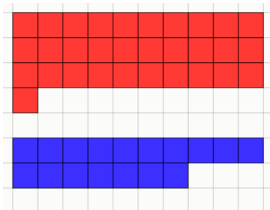
Set Up for the Game:

- Open the Colour Tiles learning tool.
 - » use the annotation tool to draw a score chart on one side of the workspace.
- Shuffle three sets of number cards 0 to 9 and place face down in a pile.

How to Play the Game:

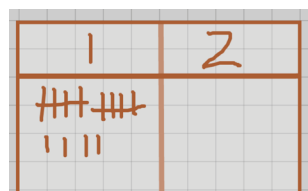
1. Player 1 picks two cards. The first card is the tens digit and the second card is the ones digit.
 - » If the first card is zero, the number only has one digit.
2. Player 1 represents this quantity using the colour tiles.
 - » organize the tiles in rows of ten
3. Player 2 picks two cards. The first card is the tens digit and the second card is the ones digit.
 - » If the first card is zero, the number only has one digit.
4. Player 2 represents this quantity using the colour tiles.
 - » organize the tiles in rows of ten
5. The players decide which quantity is greater.
6. The player with the least number of tiles highlights those tiles and slides them on top of the other player's tiles.
7. The players count the uncovered tiles. The player who had the greatest number of tiles wins one point for each uncovered tile.
8. The total points won are recorded on the scorecard using tallies.
9. Remove the game tiles before the next round.
10. Repeat steps 1 to 9 four times.
11. Count the tally marks on the scorecards. The person with the greatest number of tally marks wins the game.

Example:

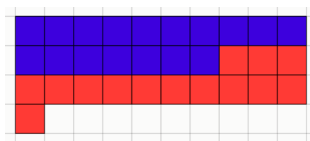


Player 1: 3 1

Player 1 has the greatest number of tiles. Player 2's tiles are moved onto Player 1's tiles.



Player 1 earns 14 points.



Player 2: 1 7

Your child may count the tens and then the ones to determine the number of points.

Let's Talk About It

How do you know who has more tiles?

What strategy did you use to count the number of points?



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Money Game

Activity 3

Set Up for the Game:

Number of Players: 2

- Open the Money learning tool.
 - » customize to show only dimes and 1 cent
 - » use the annotation tool to create a score card (bank) as shown in the example
- Shuffle two sets of number cards 1 to 9 and place face down in a pile.

How to Play the Game:

1. Player 1 picks two cards. The first card is the quantity of dime coins to be moved onto Player 1's workspace. The second card is the quantity of 1 cent coins to be moved onto Player 1's workspace.
2. Player 2 picks two cards. The first card is the quantity of dime coins to be moved onto Player 2's workspace. The second card is the quantity of 1 cent coins to be moved onto Player 2's workspace.
3. Each player determines the money value of the coins. The player with the greatest money value moves all the coins into that player's bank account.
4. Play three rounds.
5. The players count the number of coins in their bank accounts. Count one point for each dime. Count two points for each 1 cent.
6. The player with the greatest number of points wins the game.

Example:

Round 1

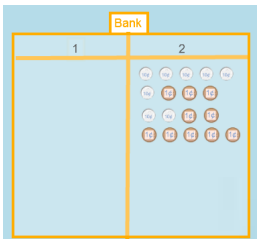


Player 1

Player 2

Player 1: 27¢

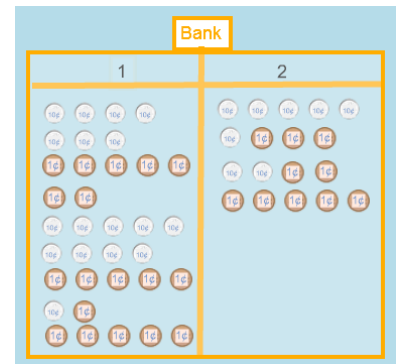
Player 2: 63¢



Player 2 puts the coins from Round 1 in the bank.

Your child may count by twos first and then count on by ones to determine the number of points.

After Round 3



Player 1: counts 20 1 cent coins by 2s for 40 points and then counts on by ones for 17 dimes with a total count of 57 points
 Player 2: counts 10 1 cent coins by 2s for 20 points and then counts on by ones for 8 dimes with a total count of 28 points
 Player 1 wins the game.

Let's Talk About It

- What strategy did you use to decide who had the most money?
 What strategy did you use to decide who had the most points?
 Why is it possible to win if you have fewer coins?



Comparing and Ordering Whole Numbers to 100

Comparing Beads

Activity 4

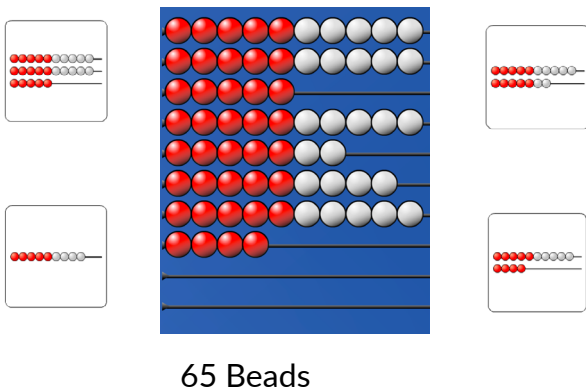
Set Up for the Activity:

- Open the Rekenrek learning tool.
 - » add racks until there are 10 racks on the workspace
- Shuffle one set of bead cards (0 to 25) and place face down in a pile.

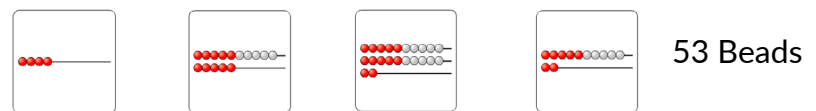
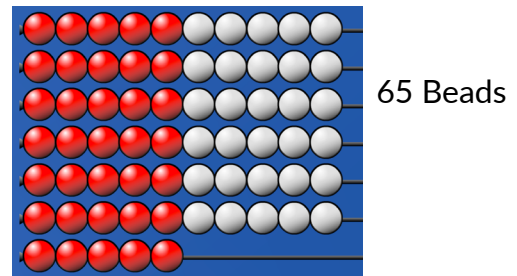
How to Do the Activity:

1. Ask your child to pick 4 bead cards from the pile and determine the number of beads altogether.
2. Have your child transfer the information from the cards to the Rekenrek tool.
3. Reorganize the beads so that they are on the fewest racks possible and have your child verify the number represented.
4. Pick four additional bead cards from the pile and determine the number of beads altogether.
5. Have your child decide which quantity is greater.
6. Repeat as desired alternating determining which number is greater or which number is less.

Example:



Number represented using the fewest number of racks



Your child may use the benchmarks of 5 and 10 to help count to determine the value of the bead cards

There are more beads on the Rekenrek tool than on the representation cards.

Let's Talk About It

- What strategies did you use to determine the number represented by the cards?
 What strategies did you use to reorganize the beads on the Rekenrek tool?
 What strategies did you use to determine which representation was greater or least?



Comparing and Ordering Whole Numbers to 100

Ordering Using Whole Number Rods

Activity 5

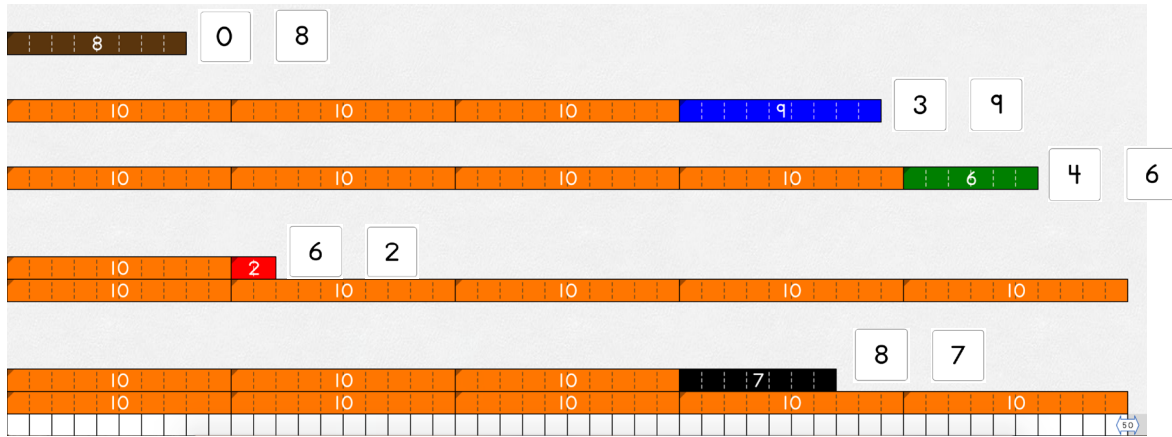
Set Up for the Activity:

- Open the Whole Number Rods learning tool.
 - » be sure the rod labels are turned on (the default)
- Shuffle one set of number cards 0 to 9 and place face down in a pile.

How to Do the Activity:

1. Have your child pick two cards from the pile and create a 2-digit number.
2. Represent this quantity using the Whole Number Rods.
3. Repeat step 1 and 2 until there are 5 numbers represented on the workspace.
4. Have your child order the numbers from least to greatest or greatest to least.

Example:



Ordered from greatest to least from bottom

Your child may use 50 as a benchmark for comparing.

Let's Talk About It

What strategies did you use to represent your numbers?
What strategies did you use to order your numbers?



Comparing and Ordering Whole Numbers to 100

Comparing Using a Number Line

Activity 6

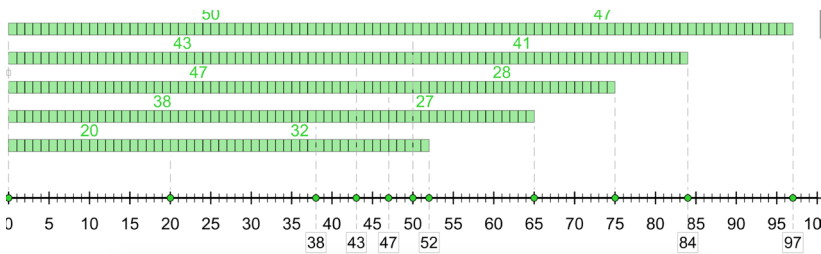
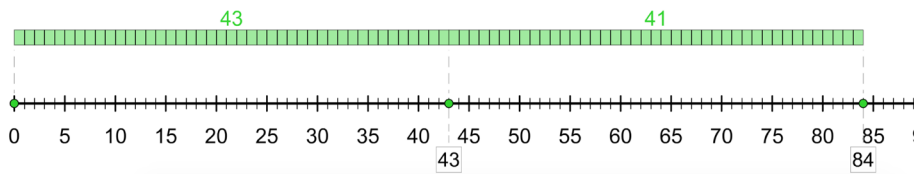
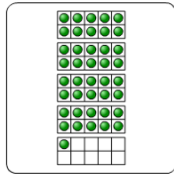
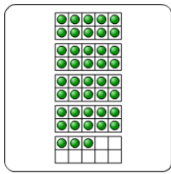
Set Up for the Activity:

- Open the Number line learning tool.
 - » select 0 to 100
 - » select the number ribbon format
 - » select drop dashes
- Shuffle one set of 10-frame cards 20 to 50 and place face down in a pile.

How to Do the Activity:

1. Ask your child to pick 2 cards from the pile and determine the number that is represented by the 2 cards altogether.
2. Have your child verify this number on the number line by:
 - » representing the first card using the number ribbon starting at zero; and
 - » representing the second card by further extending the number ribbon.
3. Repeat steps 1 and 2 until there are five ribbons on the workspace.
4. Ask your child to reorder the ribbons so they are ordered greatest to least or least to greatest.
5. Repeat the task as desired.

Example:



numbers ordered greatest to least starting from the top:

Your child may order and reorder the ribbons as they are placed on the number line tool.

Let's Talk About It

What strategies did you use to determine the quantities represented by the 10-frames?
 What strategies did you use to order the numbers?



Comparing and Ordering Whole Numbers to 100

Comparison Tool (Whole Numbers)

Activity 7

Set Up for the Activity:

- Open the Comparison Tool (Whole Numbers).
 - » have Word, Symbolic and Graphical Representations all selected
 - » choose to work with the horizontal number line

How to Do the Activity:

1. Place two different numbers between 51 and 100 into the Word Representation boxes.
2. Together with your child, read aloud the Word Representation.
3. Ask your child to describe how these numbers are shown on the number line.
4. Have your child drag one of the points on the number line to another location and describe what happened to the Word Representation and the Symbolic Representation.
5. Repeat step 4 a few times.
6. Select New **New** and repeat steps 2 to 5.
7. Place two different numbers less than 100 into the Word Representation boxes. Put the larger number in the box to the right of the inequality. The symbol representation at this point should be 'smaller number < larger number.' Point this out to your child.
8. Using the same two numbers from step 7, switch the numbers putting the smaller number on the right and the larger number on the left.
 - » ask your child to describe how the inequality changed
 - » ask your child to explain what happened to the points on the number line
9. Change to a vertical number line. Have your child describe how the points are shown on the vertical number line representing this inequality.
10. Ask your child choose to work with the horizontal or the vertical number line.
11. Hide the Symbolic and Graphical Representations. Select the NEW button.
12. Ask your child to describe what is hidden.
13. Have your child select representations to check.
14. Repeat steps 10 to 13 as desired.

Example:

Word Representation *Click in the box to enter a number.*
New is less than
 Symbolic Representation *Click in the box to enter a number.*
 <
 Graphical Representation *Click and drag a dot to a new location.*
0 10 20 30 40 50 60 70 80 90 100
Change to Vertical Number Line

Your child may notice that when the smallest and largest numbers are rearranged the inequality words and sign change.

Let's Talk About It

- Why does moving a point on the number line change the numbers in the boxes?
Which number on a horizontal number line is the greater number - the one on the right or the one on the left? Why?
Which number on a vertical number line is the greater number? Why?



Comparing and Ordering Whole Numbers to 100

Diamond Drop - Whole Numbers

Activity 8

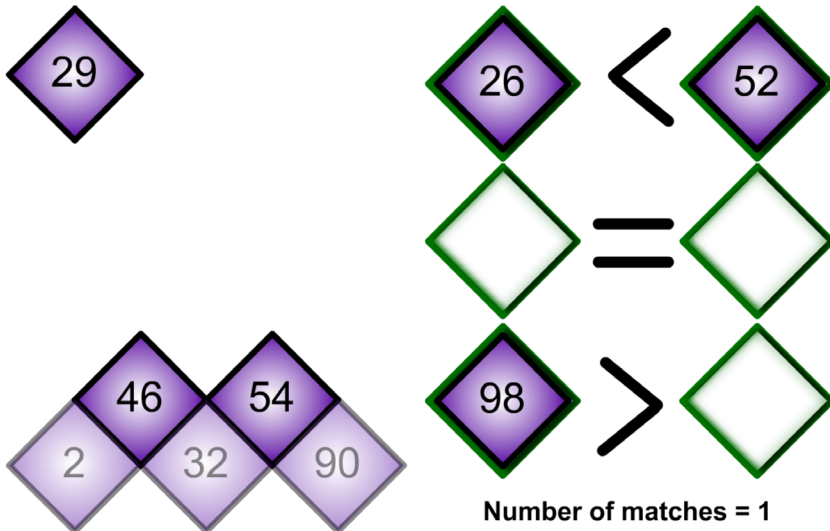
Set Up for the Game:

- Open the Diamond Drop - Whole Numbers.
 - » choose 0 to 100

How to Play the Game:

1. Numbers will drop down in diamond shapes.
2. Drag the numbers (diamonds) to make as many true mathematical statements as possible (less than, equal to, greater than).
3. Game is played until no more diamonds can drop or as desired.
4. Review any mismatches at the end of the game.

Example:



Your child may focus on one type of equation (e.g., $>$) and try placing all the numbers using that comparison only.

Let's Talk About It

Which expressions were easiest to create?

When might you move a diamond from one statement to another?