

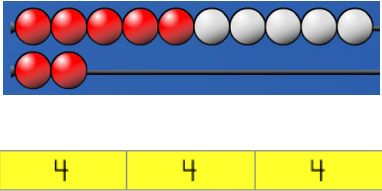


Representing Number to 100

Mathematical Ideas

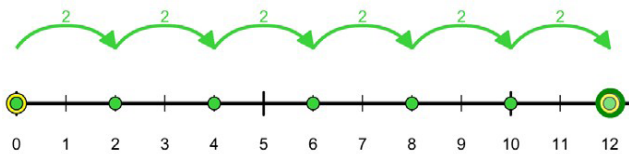
Representing whole numbers develops an understanding of number including its size and its relationship to other numbers.

Numbers can be represented in many ways. Each representation reveals different things about the number. For example:

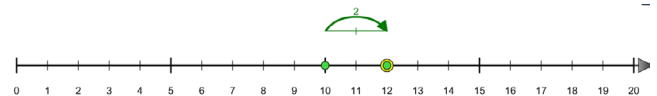
<p>12</p> <p>Numerically</p>	 <p>Pictorially or Concretely</p>	<p>Twelve</p> <p>In Words</p>
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Counting and mathematical operations may be strategies to represent numbers. For example, Representing 12 on a number line

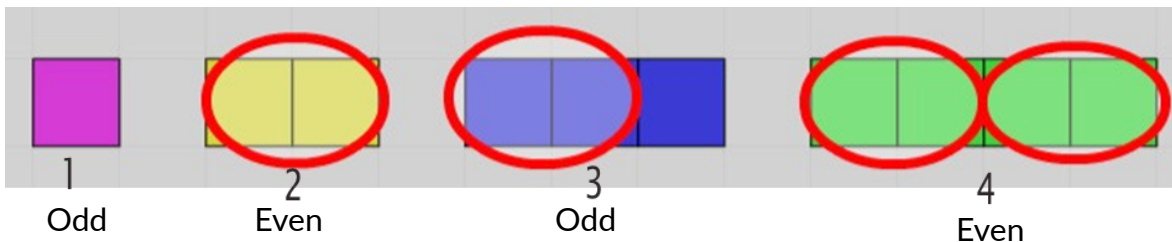
Skip counting by twos



Adding 2 onto 10



Whole numbers are either even or odd. All even numbers are divisible by 2.



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



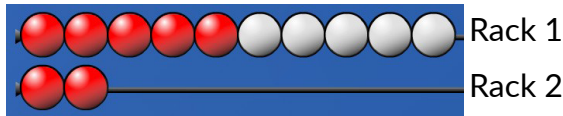
Representing Number to 100

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 can help with understanding numbers and the relationships between numbers.

For example,



from this visual you can see that the representation of 12 beads is the same as:

- 7 red and 5 white beads or,
- 10 beads on the first rack and 2 beads on the second rack or,
- 5 red beads, 5 white beads and 2 more red beads.

Mathematical Words/Symbols

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 operations – most common are addition, subtraction, multiplication, and division.

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.

Skip counting – usually means counting forward or backwards by numbers other than 1, such as by twos (2, 4, 6, 8).

Sum – the result of addition

Materials

Activity 1:

- Set Tool
- Number Cards

Activity 4:

- Rekenrek
- Bead Cards

Activity 2:

- Whole Number
- Number Cards

Activity 5:

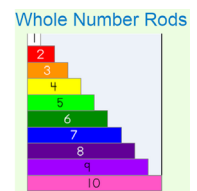
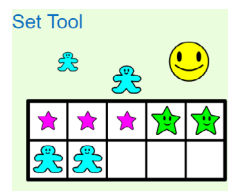
- Money
- Number Cards

Activity 3:

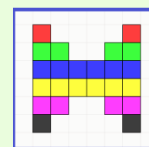
- Colour Tiles
- Number Cards

Activity 6:

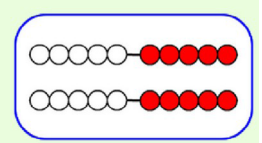
- Catch a Bouncing Ball - Representations (Whole Numbers) Game



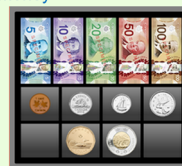
Colour Tiles



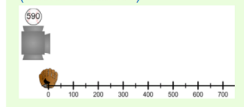
Rekenrek



Money



Catch a Bouncing Ball - Representations (Whole Numbers)






Representing Number to 100

Representing Numbers Using the Set Tool

Activity 1

Set Up for the Activity:

- Open the Set learning tool.
 - » use the create mode (default)
 - » use the down arrow  to increase the number of objects that can be placed on the workspace
- Shuffle two sets of number cards 5 to 9 and place face down in a pile. These will be the tens digits.
- Shuffle one set of number cards 0 to 9 and place face down in a pile. These will be the ones digits.

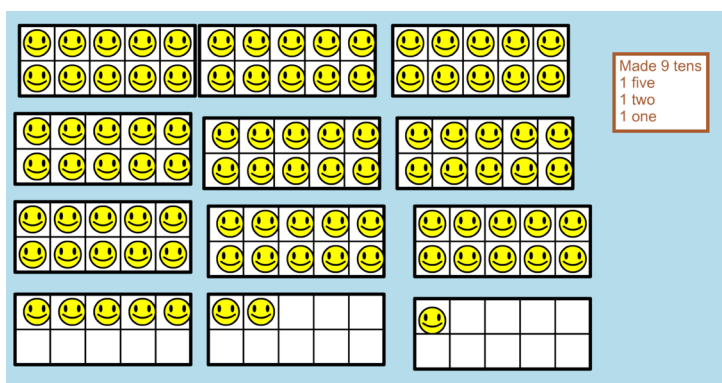
How to Do the Activity:

1. Have your child pick one card from each pile and create a 2-digit number.
2. Have your child predict the number of 10-frames that will be needed to represent this number and move these onto the workspace.
3. Have your child use the multiplier to move objects into the 10-frames.
 - » you can move objects into each 10-frame once
 - » objects can be removed from a 10-frame
4. Use the annotation tool to record the steps used to represent the number.
5. After the number has been represented have your child show how the objects could be reorganized to use the least number of 10-frames.
6. Repeat as desired.

Example:



Your child may focus on the tens digit when estimating the number of 10-frames needed.



Let's Talk About It

How did you predict how many 10-frames you would need?
What is another way to represent this number?



Representing Number to 100


Representing Numbers Using Whole Number Rods

Activity 2

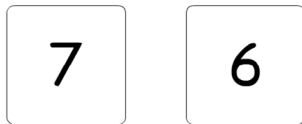
Set Up for the Activity:

- Open the Whole Number Rods learning tool.
- Shuffle two sets of number cards 5 to 9 and place face down in a pile. These will be the tens digits.
- Shuffle one set of number cards 0 to 9 and place face down in a pile. These will be the ones digits.

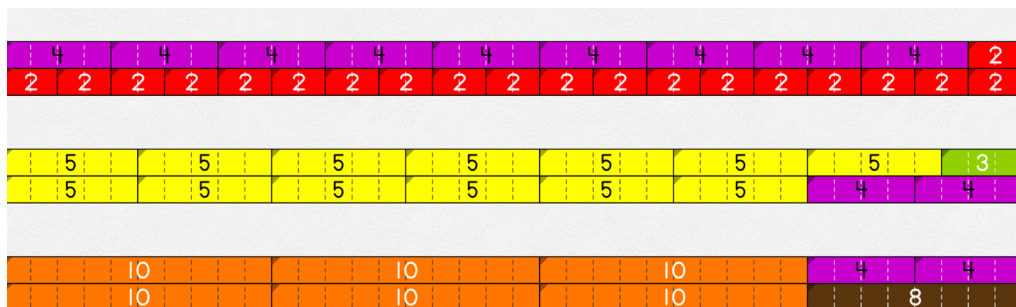
How to Do the Activity:

1. Have your child pick one card from each pile and create a 2-digit number.
2. Have your child represent this number using the Whole Number Rods.
3. Leave this representation on the workspace and then ask your child to show other ways that represent this number.
4. Clear the workspace using the recycle bin  and repeat the activity as desired.

Example:



Your child may decompose 76 as 60 and 16 and then represent those parts.



Let's Talk About It

- What strategies did you use to represent your numbers?
Which representation makes it easiest to see the number?
Which representation makes it more challenging to recognize what is represented?



Representing Number to 100

Representing Number Using Colour Tiles

Activity 3

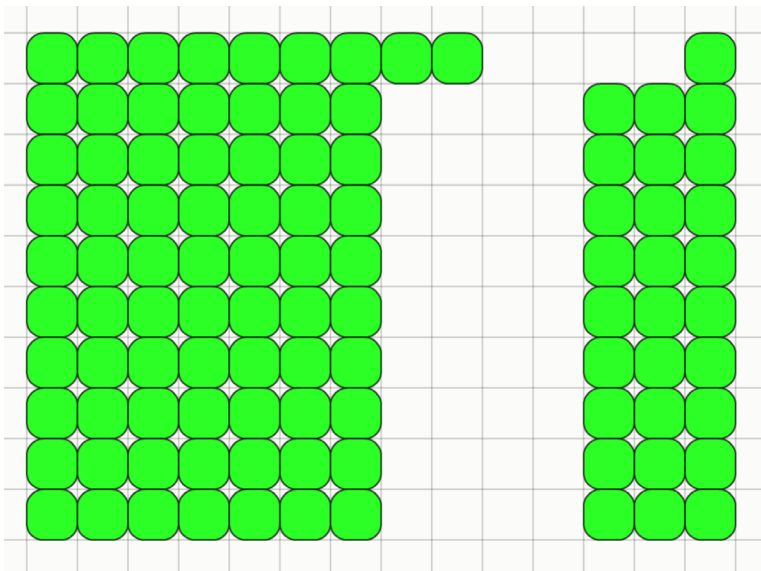
Set Up for the Activity:

- Open Colour Tiles learning tool.
- Shuffle two sets of number cards 5 to 9 and place face down in a pile. These will be the tens digits.
- Shuffle one set of number cards 0 to 9 and place face down in a pile. These will be the ones digits.

How to Do the Activity:

1. Have your child pick one card from each pile and create a 2-digit number.
2. Use the x100 multiplier to create a 10 x 10 array of colour tiles.
3. Remove tiles from the array to represent the 2-digit number.
4. Repeat as desired.

Example:



Your child may remove 30 and then move two back in the array.

Let's Talk About It

What strategies did you use to represent the number?
How is your number related to 100?



Representing Number to 100

Representing Using the Rekenrek

Activity 4

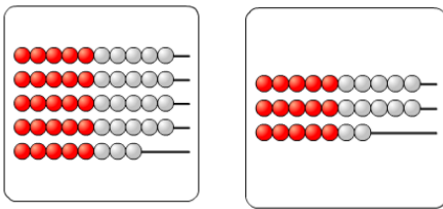
Set Up for the Activity:

- Open the Rekenrek learning tool.
 - » add racks until there are 10 racks on the workspace
- Shuffle one set of bead cards (20 to 50) and place face down in a pile.

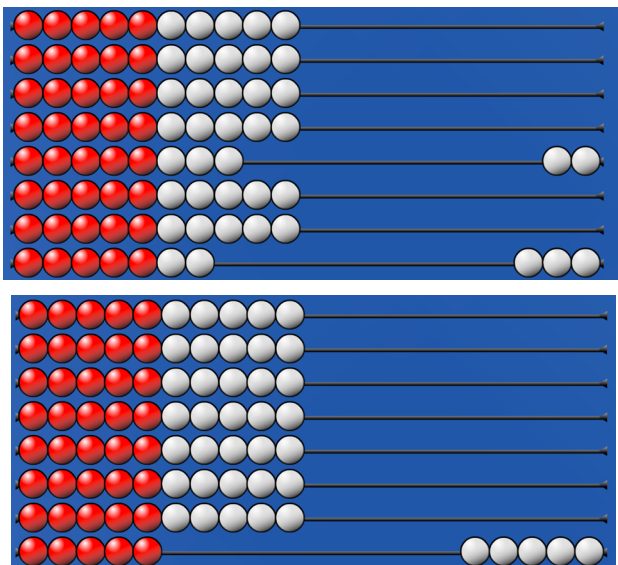
How to Do the Activity:

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 replicate 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. Repeat as desired.

Example:



Number represented is 75.



Your child may have counted tens and then counted the ones to determine the represented value.

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?
How could you use a strategy from reorganizing the Rekenrek tool to find out what was represented on the cards?



Representing Number to 100

Representing Numbers Using Money

Activity 5

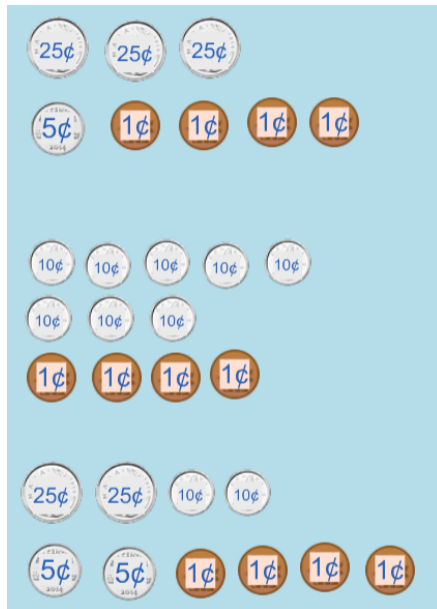
Set Up for the Activity:

- Open Money learning tool.
 - » Customize to only show the 1 cent, nickel, dime, and quarter.
- Shuffle one set of number cards 5 to 9 and place them face down in a pile. This card represents the tens digit.
- Shuffle one set of number cards 0 to 9 and place them face down in a second pile. This card represents the ones digit.

How to Do the Activity:

1. Have your child pick one card from each pile and create a 2-digit number.
2. Represent this number using the coins in more than one way.

Example:



Your child may think of the number in terms of 10s, 5s, and 1s.

Let's Talk About It

Have you represented the number as many ways as possible? How do you know?
If your number is 6 more, what will you need to do to your representation?



Representing Number to 100

Catch a Bouncing Ball

Activity 6

Set Up for the Game:

Number of Players: 1

- Open the Catch a Bouncing Ball – Representations (Whole Numbers) game.
 - » Select 0 to 100.

How to Play the Game:

1. The numeral will be shown on the ball.
2. Move the glove to the location on the number line that matches the numeral.
 - » a variety of scales will be used throughout the game
3. Ten representations will be given in each game.
4. Review the game at the end to see the correct placements of the representations.

Example:

Your child may identify that 75 is between 60 and 80 and then determines the scale is in intervals of 5.



Let's Talk About It

- What strategies did you use to place your numbers?
Which scales on the number line are easiest to work with?
What type of number line do you find easier to work with, the horizontal or vertical? Why?