

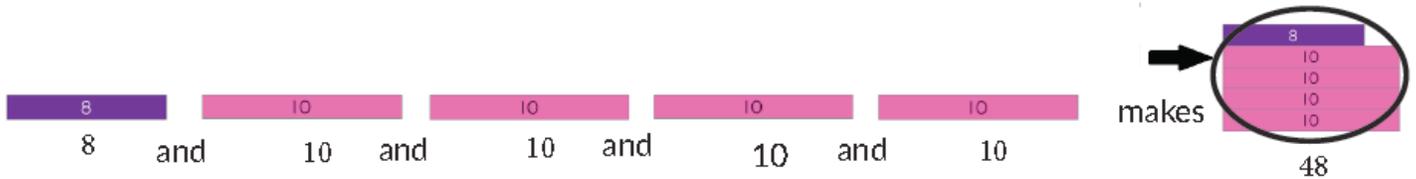


# Composing and Decomposing Whole Numbers to 100

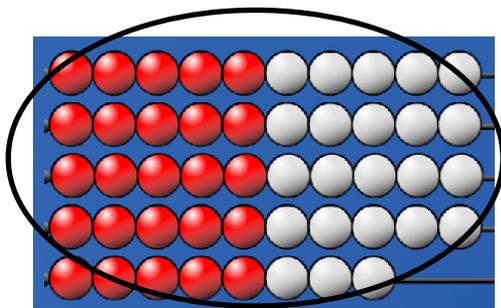
## Mathematical Ideas

The ability to compose and decompose numbers is foundational to understanding numbers and their relationships.

Composing is when numbers are combined to create a larger number.  
For example,

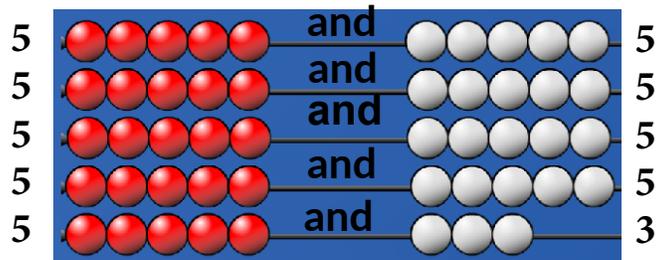


Decomposing is when a number is broken down into smaller numbers. A number can be decomposed in multiple ways. For example:



48 beads

can be decomposed as



Understanding numbers relative to place value is important when working with our decimal system.  
For example,

48 can be thought of as 4 tens and 8 ones.



# Composing and Decomposing Whole Numbers to 100

## Helpful Information

### Tips

- Encourage your child to take the time to use the learning tools.
- Organized concrete and visual representations can help with understanding numbers and the relationships between numbers.

For example,



From this visual, you can spatially see that when one number increased, the other number is decreased.

### Mathematical Words/Symbols

*Attribute* – a characteristic of an object (e.g., colour, size, thickness, or number of sides).

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

*Place value* – the value of a digit that appears in a number. The value depends on the position or place in which the digit appears in the number. For example, in the number 54, the digit 5 is in the tens place and represents 50.

### Materials

#### Activity 1:

- Whole Number Rods
- Two sets of red number cards 2-9
- One set of black number cards 0-9

#### Activity 2:

- Money
- Two sets of red number cards 2-9
- One set of black number cards 0-9

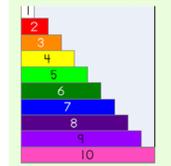
#### Activity 3:

- Number line learning tool

#### Activity 4:

- Colour Tiles
- Number Cards 2-9

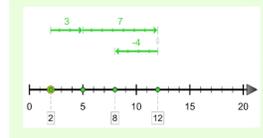
Whole Number Rods



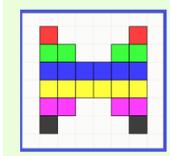
Money



Number Line



Colour Tiles





# Composing and Decomposing Whole Numbers to 100

## How Am I Composed?

## Activity 1

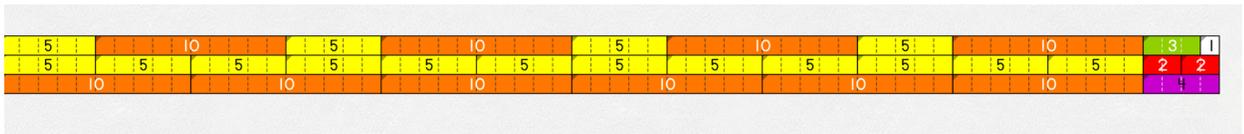
### Set Up for the Activity:

- Open the Whole Number Rods learning tool.
- Shuffle two sets of red number cards 2 to 9 and place them face down in a pile.
- Shuffle one set of black number cards 0 to 9 and place them face down in a pile.

### How to Do the Activity:

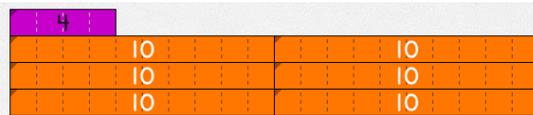
1. Have your child pick a card from each of the piles. The red card represents the tens digit of a number. The black card represents the ones digit of a number.
2. Ask your child to compose the number created in step 1 using the Whole Number Rods in three different ways.
3. Ask your child to compose the number created in step 1 using the least number of different rods.
4. Ask your child to compose the number created in step 1 using the greatest number of different types of rods.
5. Repeat activity as desired.

### Example:



64 shown three ways

Your child may use friendly numbers such as 5 and 10 to compose the number and then look for other ways.



Using the least number of rods



Using the greatest number of different rods

### Let's Talk About It

How does knowing the numbers that compose to ten help you with composing other numbers?

What strategy did you use to create the train with the greatest number of different?



# Composing and Decomposing Whole Numbers to 100

## Ways to Compose a Number Using Money

## Activity 2

### Set Up for the Activity:

- Open the Money learning tool .
  - » Customize the money tray to only show 1 cent coins, nickels, dimes, and quarters.
- Shuffle three sets of number cards 1 to 9 and place them face down in a pile.

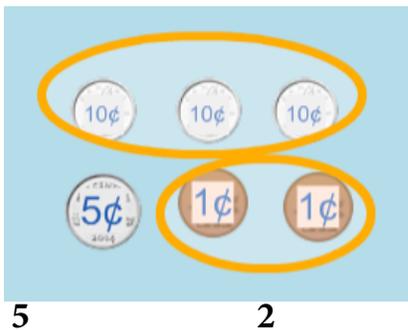
### How to Do the Activity:

1. Have your child pick two cards from the pile. The first card drawn represents the tens digit of a number. The second card represents the ones digit of a number.
2. Have your child compose the number created in step 1 using money in three different ways. Ask your child to tell you the numbers that compose the number.
3. Repeat activity as desired.

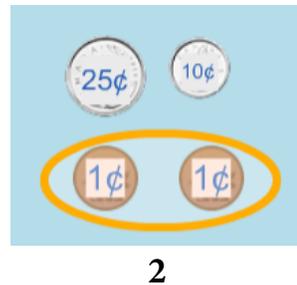
### Example:



30



25



10



Your child may use friendly numbers of 5 and 10 and then count up from that to compose the number.

### Let's Talk About It

What patterns do you see with the numbers used to compose the number you picked?



# Composing and Decomposing Whole Numbers to 100

## Composing 100 Using a Number Line

## Activity 3

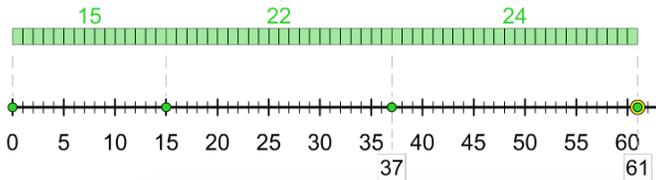
### Set Up for the Activity:

- Open the Number Line learning tool.
  - » Select 0-100
  - » Select the  and select number ribbon .
  - » Turn on the guidelines using the  icon.
  - » Put a starting point (dot) on one number on the number line. This is the target number.

### How to Do the Activity:

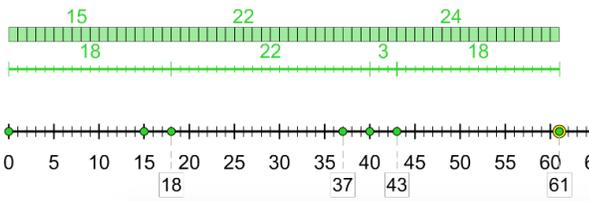
1. Ask your child to use a specific number of ribbons to make the target number (for example, make 61 with 3 ribbons).
2. Your child can use the vertical lines to see how each ribbon is connected to the number line.
3. Turn off the vertical lines and ask your child to make the same number again using a different number of ribbons.
4. Have your child compare the two ways of making the target number.
5. Change the target number and vary the number of ribbons to be used to create the number.
6. You may also wish to turn off the numbers above the ribbons using  so your child determines the value of the ribbons through counting rather than the numerals.
7. Repeat using other number line formats (e.g., hops or magnitude bars). What format does your child like best? Why?

### Example:



61 using three ribbons.

61 can be made with 15 and 22 and 24.



61 using 4 ribbons.

61 can be made with 18 and 22 and 3 and 18.

Your child may toggle the vertical lines on and off to more clearly see the different ways to make the target number.

### Let's Talk About It

What patterns do you see?

How can I make the number another way using the same number of ribbons?

How can I make the number another way using a different number of ribbons?



# Composing and Decomposing Whole Numbers to 100

## Composing and Decomposing to 50 Using Colour Tiles

### Activity 4

#### Set Up for the Activity:

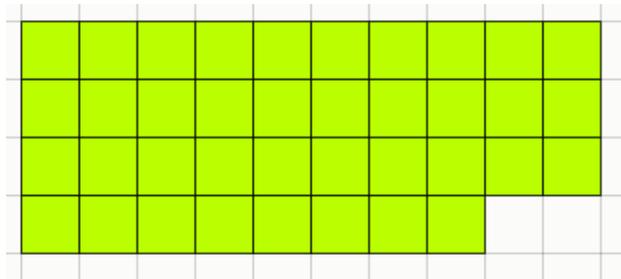
- Open the Colour learning tool.
  - » Select Few.
- Shuffle one set of number cards 2 to 4 and place face down.

#### How to Do the Activity:

1. Pick a number from 20 to 100. This is the target number.
2. Have your child move this number of tiles, using just one colour, into the workspace using the multipliers  $\times 2$ ,  $\times 5$ ,  $\times 10$ , and  $\times 1$ .
3. Pick a card.
4. Have your child change the number colours of tiles used to match the number on the card.
  - » To change the colour; select the tile(s) and the palette icon .
5. Ask your child to describe how the original number has been decomposed. Record these numbers using the annotation tool.
6. Repeat as desired.

#### Example:

Target Number = 38



**4** different colours



Your child may have created 38 by using  $\times 10$  four times and removing 2 tiles.

#### Let's Talk About It

What is another way to compose the target number?  
What is another way to decompose the target number?