



# Addition to 50

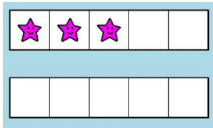
## Mathematical Ideas

Composing and decomposing numbers, and counting are fundamentals of addition and subtraction.

The following are properties of addition.

### 1. Identity

$$3 + 0 = 3$$



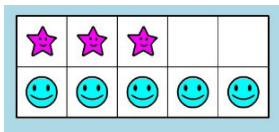
The sum is the number when zero is added to the number.

### 2. Commutative

$$3 + 5$$

=

$$5 + 3$$



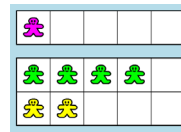
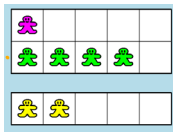
The sum is the same no matter the order of the numbers.

### 3. Associative

$$(1 + 4) + 2$$

=

$$1 + (4 + 2)$$



The sum is the same no matter the order in adding.

Strategies used for addition may change according to the numbers being added and what facts are known.

### Example 1: Counting On From the Greatest Number

$$2 + 34 = ?$$

34... 35, 36 the last number count is the sum

### Example 2: Compensating

$$38 + 7 = ?$$

$40 + 7 = 47$  two is added onto 38 to make it an easier number to work with

$47 - 2 = 45$  to maintain equivalency 2 must be subtracted off





### Example 3: Using a standard algorithm

The sum may be determined by adding each of the numbers by place value.

$$\begin{array}{r} ^126 \\ + 37 \\ \hline 63 \end{array}$$

- Adding the ones – 6 ones plus 7 ones is 13 ones which can be renamed as 1 ten and 3 ones
- Adding the tens – 1 ten plus 2 tens plus 3 tens is 6 tens

## Helpful Information

### Tips

- There are many strategies to do develop math facts.
- Learning tools can be used to develop and apply foundational skills and concepts.
  - » the way your child interacts with the tool can reveal your child's thinking
  - » they can be used for your children to communicate their thinking
  - » encourage your child to take the time to use the learning tools in each activity

### Mathematical Words/Symbols

*Addition Expression* - a mathematical phrase containing numbers and the addition symbol.  
(e.g.,  $3 + 2 + 5$ )

*Composing* - is when numbers are combined to create a larger number

*Decomposing* - is when a number is broken down into smaller numbers

*Sum or total* - the result of addition

+ plus or add

= equals or same as



# Addition to 50

## Materials

### Activity 1:

- Whole Number Rods
- Number Cards

Whole Number Rods



Set Tool



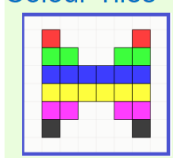
### Activity 2:

- Set Learning Tool

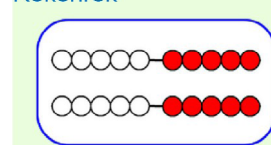
### Activity 3:

- Colour Tiles

Colour Tiles



Rekenrek



### Activity 4:

- Rekenrek

### Activity 5:

- Whole Number Rods

### Activity 6:

- Catch a Bouncing Ball Game – Whole Number Operations

Catch a Bouncing Ball - Operations (Whole Numbers)



x	1	2	3
1	1	2	3
2	2	4	6
3	3	6	9

### Activity 7:

- Number Chart
- Representation Cards



# Addition to 50

## Adding by Counting On Rods

## Activity 1

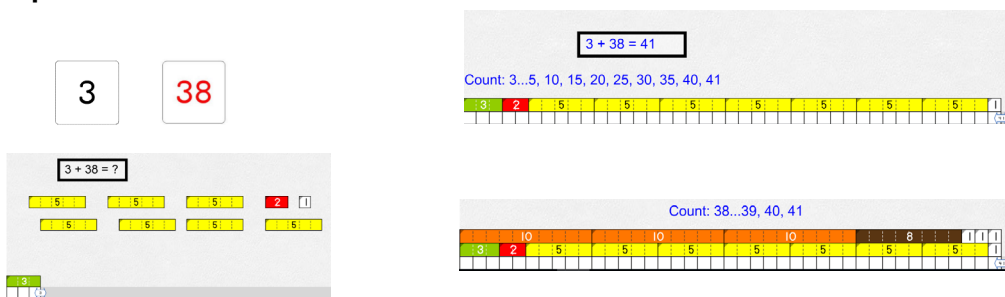
### Set Up for the Activity:

- Open the whole number rods learning tool
- Shuffle one set of red number cards 30 to 47 and place face down in a pile.
- Shuffle one set of black number cards 1 to 3 and place face down in a pile.

### How to Do the Activity:

1. Have your child pick one black number card and one red number card.
2. Have your child write an addition expression for the two numbers.
3. Ask your child to place one whole number rod that matches the black number card just above the unit train at the bottom of the workspace.
  - » slide the unit train arrow to match the end of the rod
4. Ask your child to represent the red number card using any combination of 1, 2, and 5 whole number rods.
  - » slide the unit train arrow to match the end of the rod
5. Have your child place and count on these whole number rods one at a time at the end of the rod from step 3 forming a train.
  - » ask your child to count on from the starting number as the rods are being placed
  - » slide the unit train arrow to match the end of the full train to confirm that the length matches the count
6. Leave these rods on the workspace.
7. Have your child read the red card again and make this number using the fewest number of rods.
  - » place the rods above the previous train
  - » slide the unit train arrow to match the end of the rods to confirm the train's length
8. Have your child read the number on the black card again and represent this number using 1-rods.
  - » slide the unit train arrow to match the end of the full train to confirm that the length matches the count
10. Ask your child to tell you the sum of the red and black cards.
11. Have your child compare the two ways they added the numbers together.
12. Repeat activity as desired.

### Example:



Your child may, add on the 2-rod to make 5, and then continue to count on by fives and then one.

### Let's Talk About It

Did you get the same sum no matter which order you added the numbers? Why or why not? Will this happen every time?

Which was easier, counting on from the larger number or the smaller number? Why?



# Addition to 50

## Sums Less than Fifty Using the Set Tool

## Activity 2

### Set Up for the Activity:

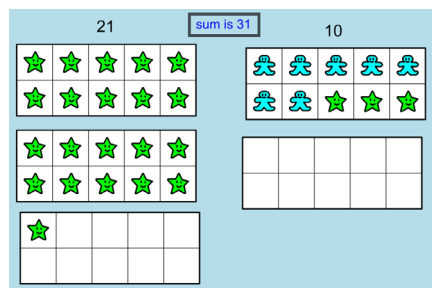
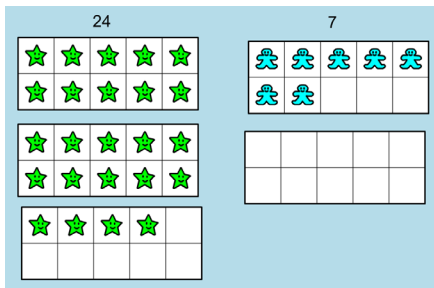
- Open the Set learning tool.
  - » ensure it is in the Create mode
  - » place five 10-frames on the workspace

### How to Do the Activity:

1. Ask your child to pick two 2-digit numbers that when added together have a sum that is less than 50.
  - » have your child tell you the numbers and their sum
  - » accept any two numbers even if the sum is greater than 50
2. Have your child verify the sum by completing the following steps:
  - » represent the first number; filling in 10-frames using the same object
  - » represent the second number; filling in 10-frames using a different object
  - » determine the combined number of objects (sum)
3. Have your child compare this sum to 50.
4. Have your child compare this sum with the stated sum in step 1.
5. Repeat the activity having your child select 2-digit numbers that do not end with 5 or 10.

### Example:

“I think that 24 plus 7 is 32.”



“24 plus 7 is 31”

“It is 19 less than 50.”

“I was 1 off of what the sum is.”

Your child may decompose one number to make a ten.

### Let's Talk About It

How did you pick your numbers?

What was your strategy for determining the sum?

How many would you have to add on (or take away) to make 50?



# Addition to 50

## Sums Less than Fifty Using Tiles

### Activity 3

#### Set Up for the Activity:

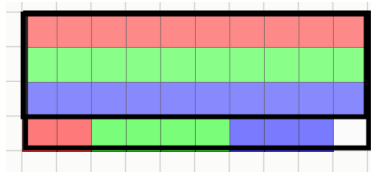
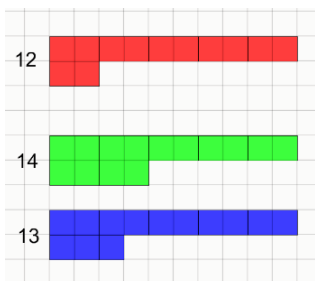
- Open the Colour Tiles learning tool.

#### How to Do the Activity:

1. Ask your child to pick three numbers when added together has a sum between 30 and 40.
  - » have your child tell you the numbers and their sum
  - » accept any three numbers even if the sum is not in the range
2. Ask your child to represent the three numbers using three different colours of tiles.
  - » one colour for each number
3. Have your child verify the sum by completing the following steps:
  - » have your child use the annotation tool to draw a rectangle that has a length of 10 and an area of 40 square units
  - » have your child place the tiles representing the three numbers into the 40 square unit rectangle to confirm that the sum is less than 40
    - \* if there are more tiles than 40, ask your child to adjust one of the three numbers picked so that the sum is less than 40
  - » have your child draw a second rectangle with a length of 10 that has an area of 30 square units
  - » have your child move this rectangle onto the other rectangle to confirm that the sum of the three numbers is greater than 30
    - \* if there are less than 30 tiles, ask your child to adjust the three numbers picked so that the sum is greater than 30 and less than 40
4. Ask your child to compare the total number of tiles and the sum your child shared in step 3.
5. Ask your child to compare the sum of the three numbers to 40.
6. Ask your child to compare the sum of the three numbers to 30.
7. Repeat the activity as desired.

#### Example:

"I think that 12 plus 14 plus 13 is 39."



Your child may decompose the numbers into tens and ones in order to arrange the tiles in the rectangle.

"There are 39 tiles which is the same as the sum I thought that it would be."

"The sum is 1 less than 40... and the sum is 9 more than 30."

#### Let's Talk About It

How did you pick your numbers?

What strategy did you use to determine the sum of those three numbers?

Is your sum closer to 30 or 40?

How many tiles need to be added or taken away to make 40?

What strategy did you use to compare your sum with 30?



# Addition to 50

## Even or Odd Sums Less than Fifty Using the Rekenrek

### Activity 4

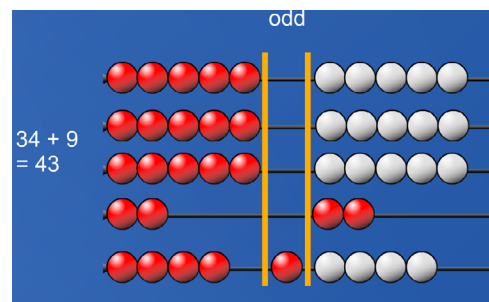
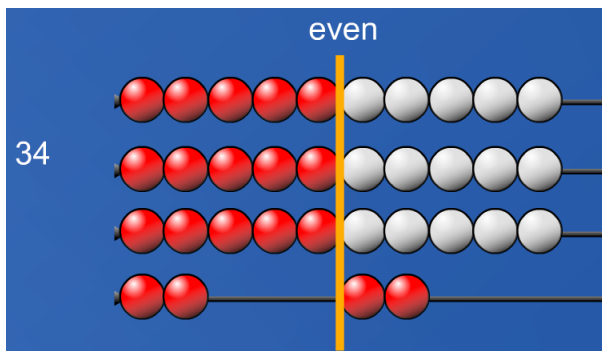
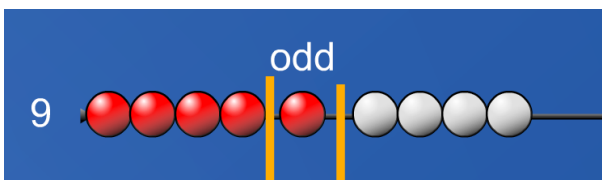
#### Set Up for the Game:

- Open the Rekenrek Learning Tool
  - » show five racks with the beads on the right hand side
- Set up a chart with the headings as shown in the example

#### How to Play the Game:

1. Have your child pick a number less than 10 and represent it on the Rekenrek.
2. Ask your child to determine whether it is even (by forming two equal groups) or odd.
3. Record the number and state if it is even or odd in the chart.
4. Have your child pick a number between 25 and 39 and ask if the number is even or odd.
5. Have your child represent this number on the Rekenrek and verify whether it is even or odd.
  - » add to the chart
6. Have your child determine the sum of the two numbers from step 1 and step 4.
7. Ask your child to determine if the sum is even or odd.
8. Record the sum and state if it is even or odd in the chart.
9. Repeat the activity several times and then have your child look for patterns in the chart.

#### Example:



Number less than 10	9 (odd)			
Number between 25 and 39	34 (even)			
Sum of the two numbers	43 (odd)			

Your child may add on the smaller amount of beads onto the greater amount.

#### Let's Talk About It

What strategies did you use to determine your sum?

What patterns do you see between numbers being even or odd and their sum?



## Addition to 50

### Using Compensation to Add Numbers using Rods

### Activity 5

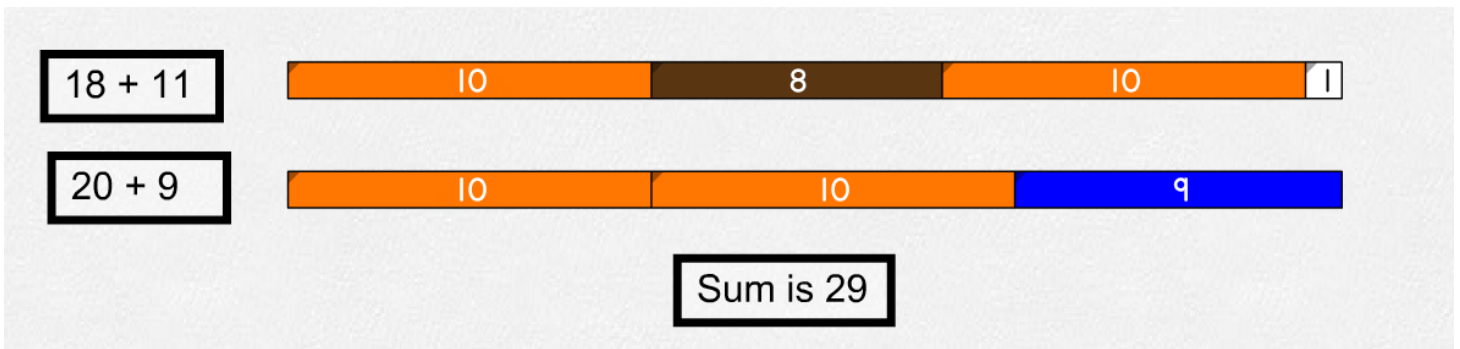
#### Set Up for the Game:

- Open the Whole Number Rods Learning Tool

#### How to Play the Game:

1. Ask your child to pick two 2-digit numbers such that:
  - » one number has a ones digit that is 7, 8, or 9 and,
  - » the sum of the two numbers is less than or equal to 50.
2. Have your child tell you the numbers and write an addition expression.
  - » accept any two numbers even if the sum is greater than 50
3. Ask your child to round the number with a 7, 8, or 9 in the ones digit to the closest ten.
4. Ask your child to write an addition expression that is equivalent to the first expression and uses the rounded number.
5. Have your child verify that the two expressions are equivalent by representing each expression using the whole number rods.
6. Have your child determine the sum.

#### Example:



Your child may notice that when the one number was increased the other number needed to be decreased by the same amount in order for the expressions to be equal.

#### Let's Talk About It

Why are the two expressions equivalent?

How did you determine the sum?

Which expression makes it easier to determine the sum?





# Addition to 50

## Catch a Bouncing Ball – Operations

## Activity 6

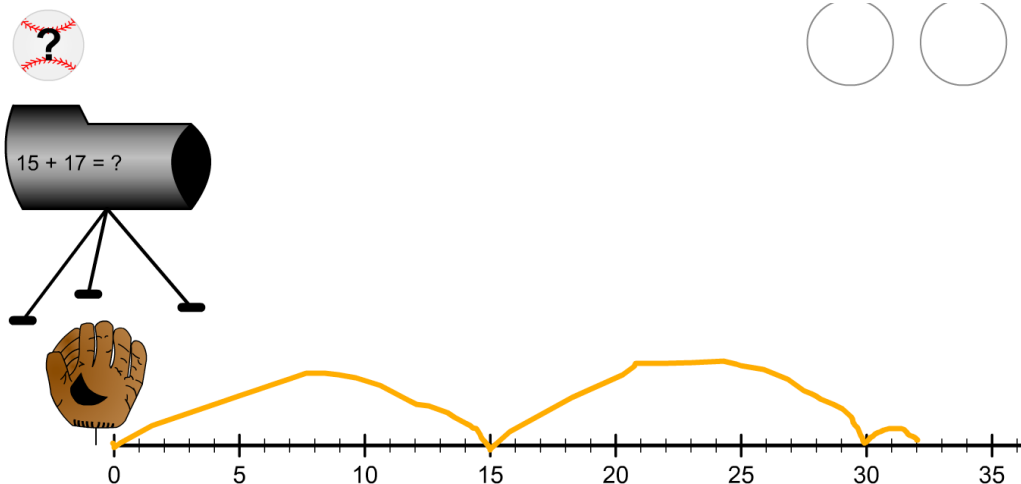
### Set Up for the Game:

- Open the Catch a Bouncing Ball – Operations game
  - » Choose Addition
  - » Choose Sums to 50
  - » Select Play

### How to Play the Game:

1. An addition expression will appear on the baseball.
2. Move the baseball glove to the location on the number line that represents the sum of the expression.
3. If the location is correct a new expression will appear. If the location is incorrect try to find the correct sum and move the glove to the new location.
4. The game is played until ten balls have been caught.
5. Review any mismatches at the end of the game.

### Example:



Your child may determine the sum of 15 and 17 by doubling 15 and then add 2.

### Let's Talk About It

- How did you find the sum of the numbers?
- What is another way you can determine the sum?



# Addition to 50

## Uncovering Sums on the Number Chart

## Activity 7

### Set Up for the Game:

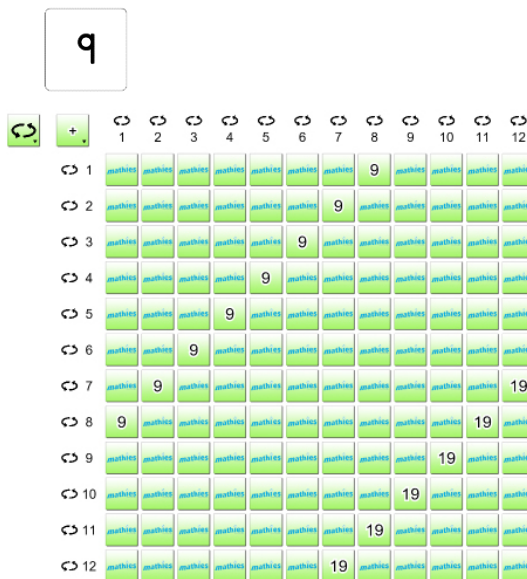
- Open the Number Chart Learning tool
  - » Select Addition (+)
  - » Select Hide All
- Shuffle a set of number cards 0 to 9 and place face down in a pile

### How to Play the Game:

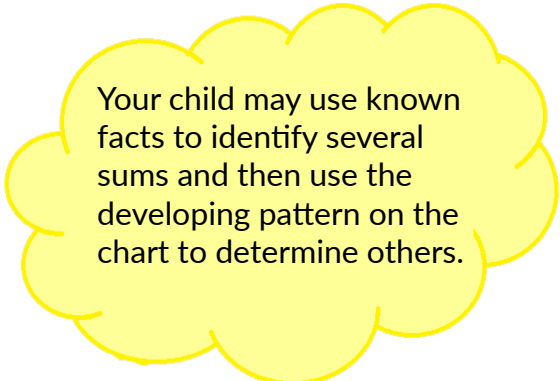
1. Share that the object of the game is to flip over all the sums in the Number Chart that has the digit in the sum that matches the card. One point is awarded for every correct sum. One point is lost for every incorrect sum.
2. Decide who goes first.
3. Players take turns:
  - » Picking one card from the pile
  - » Flipping over all the sums in the Number Chart that have a digit in the sum that matches the card.
  - » Determining the score for the round and record.
  - » Hiding all the cards for the next turn.
4. Play until the pile of cards is finished. The player with the most points wins.
5. Repeat activity as desired.

### Example:

Player 1:



Player 1 scores 14 points this round.



Your child may use known facts to identify several sums and then use the developing pattern on the chart to determine others.

### Let's Talk About It

How do you know you found all the sums with this digit?  
What patterns do you see? Why?