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Mathematical Ideas

Composing and decomposing numbers, and counting and addition facts to 20 are fundamentals of subtraction.

The commutative property does not hold true for subtraction.
    For example, 5 - 3 has a different result than 3 - 5

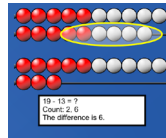The associative property does not hold true for subtraction.
    For example (7 - 2) - 5 has a different result than 7 - (2 - 5)

The following strategies may be used to support the initial development of fluency with subtraction facts:
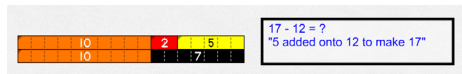
- take away the smaller number from the larger number and count what is left
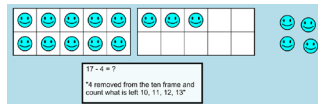
- compare the two numbers and count their difference

- added onto the smallest number to create the largest number

- count back from the largest number by the amount of the smaller number 19 – 3 = ?

- use a known subtraction fact

16 – 9 = ?

I know that 16 – 10 = 6 but I subtracted one too many so I need to add one back on so the difference is 7.

- Use a known addition fact

18 – 9 = ?

I know my doubles, 9 + 9 = 18, so 18 – 9 = 9.

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Helpful Information

Tips
- There are many strategies to 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

Composing – is when numbers are combined to create a larger number

Decomposing – is when a number is broken down into smaller numbers

Difference – the result of subtraction

Sum or total – the result of addition

+ plus or add
- minus or subtract
= equals or same as

Materials

Activity 1:
- Colour Tiles Learning Tool
- Number Cards

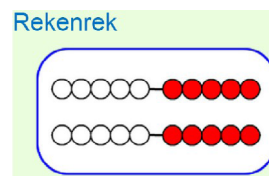**Activity 2:**
- Set Learning Tool
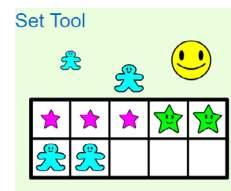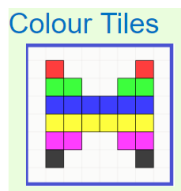- Number Cards

Activity 3:
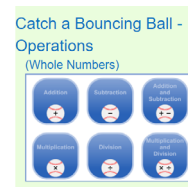- Rekenrek Learning Tool
- Number Cards

Activity 4:
- Number Chart
- Representation Cards

Activity 5:
- Catch a Bouncing Ball Game –Operations

Colour Tiles

Set Tool

Rekenrek

Catch a Bouncing Ball - Operations (Whole Numbers)

Learning Tools and Games can be accessed at mathies.ca

Take Away Colour Tiles

Activity 1

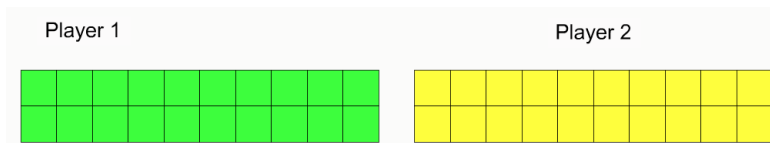**Set Up for the Game:**

Number of Players: 2

- Open the Colour Tiles learning tool.
  - » Using the annotation tool, create a chart with the headings in the example.
- Shuffle two sets of number cards 0 to 5 and place face down in a pile.

How to Play the Game:

1. Each player creates a set of 20 tiles.
   - » each player makes the set all one colour
   - » each player uses a different colour
2. Determine which player goes first.
3. Each player takes a turn to:
   - » confirm the number of tiles in the set at the start of the round
   - » picks a card from the pile
   - » takes away that number of tiles from the set
   - » determines the number of tiles left in the set
   - » records the information in the chart
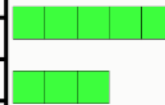4. The first player to have a set of zero tiles wins the game.

Note: if a player picks a number that is greater than the number of tiles in the set, the turn is missed.

Example:

0

Player 1

Player 2

Player 1

> Your child may determine the number of tiles left in the set by counting all the tiles.

Player 1

	# of tiles to start with in the set	# of tiles taken away	# of tiles left in the set	
Round 1	20	5	15	
Round 2	15	3	12	
Round 3	12	0	12	

Let's Talk About It

Look at the set of tiles that is still on the workspace. How many tiles need to be taken away to reach zero?

What cards could be drawn to reach zero?

What is the total number of tiles you took away from your set in the game? How do you know?

Comparing Numbers Using the Set Tool

Activity 2

Set Up for the Game:

Number of Players: 2

- Open the Set learning tool.
    - » Move four 10-frames onto the workspace.
- Create a score card as shown in the example.
- Shuffle a set of red cards 1 to 20 for player 1 and place face down in a pile.
- Shuffle a set of black cards 1 to 20 for player 2 and place face down in a pile.

How to Play the Game:
1. Each player selects an object from the set tool.
2. For each round:
    - » each player picks one card and represents the number by placing the objects into the least number of 10-frames needed
    - » the players determine the difference between the two numbers
    - » the player who represented the greatest number earns points equal to the difference
        - ◊ record the points using tally marks
3. Play for five rounds. Player with the most amount of tally marks wins the game.
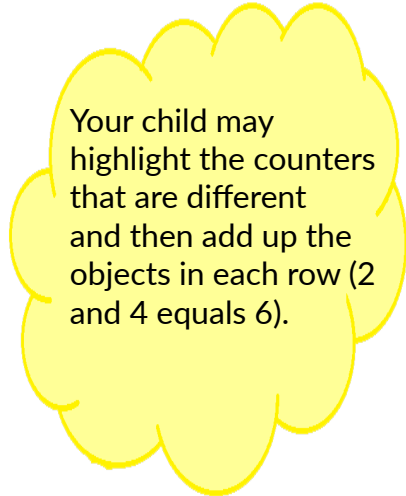
Example:

Round 1:

"8 and 14 has a difference of 6"
Player 2 earns 6 points.

Your child may highlight the counters that are different and then add up the objects in each row (2 and 4 equals 6).

Let's Talk About It

How did you determine the difference between the two numbers?
What is another way you could find the difference?

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Adding On to Determine the Difference Using a Rekenrek

Activity 3

Set Up for the Activity:
- Open the Rekenrek learning tool.
  - » show two racks of beads
- Shuffle a set of red number cards 0 to 10 and place face down in a pile.
- Shuffle a set of black number cards 11 to 20 and place face down in a pile.

How to Do the Activity:
1. Have your child pick a red number card and represent that number on the left side of the Rekenrek. Circle the beads using the annotation tool.
2. Have your child pick a black number card
3. Ask your child how many beads need to be added on to the red beads to have a total number of beads represented by the black number card.
4. Have your child count on beads until the number on the black card is represented on the rack.
5. Ask your child to determine the number of beads that was added on.
6. Repeat activity as desired.

Example:

6

6
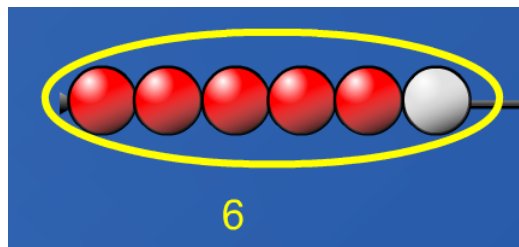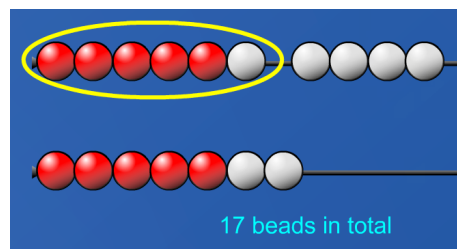
Your child may make ten and then add on 5 and 2 beads to make 17.

17

17 beads in total

"11 beads needed to be added on"

Let's Talk About It

How can knowing your addition facts help you to find the difference?
If your black card was one more, what would the difference be?
If your black card was one less, what would the difference be?

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Determining the Difference using the Number Chart

Set Up for the Activity:
- Open the Number Chart.
  - » Select 1 – 100
  - » Choose Hide All
- Shuffle a set of representation cards 1 to 20 and place face down in a pile. Choose a representation – Dice, Fingers, Random Dots, Beads, Tallies or Ten Frames.

How to Do the Activity:
1. Have your child pick two representation cards from the pile.
2. Ask your child what is the difference between the two numbers represented by the cards.
3. Confirm the difference with your child by:
   - » asking your child to flip over the tile on the Number Chart that is the numerical representation of the greatest number of the two representation cards
   - » asking your child to count back from this tile by the number represented on the second card

   Note: the difference should be the last card flipped.

Example:

Your child may count by ones to determine the difference.

"The difference between 19 and 12 is 7."

Let's Talk About It

Do you always need to start with the greatest number to find the difference?
What is the other subtraction fact that uses these three numbers?

Catch a Bouncing Ball

Set Up for the Game:

- Open the Catch a Bouncing Ball – Operations game.
  - » Select subtraction
  - » Choose numbers to 20

How to Play the Game:

1. A subtraction expression will appear on the baseball.
2. Move the baseball glove to the location on the number line that represents the difference of the expression.
3. If the location is correct a new expression will appear. If the location is incorrect try to find the correct difference 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:
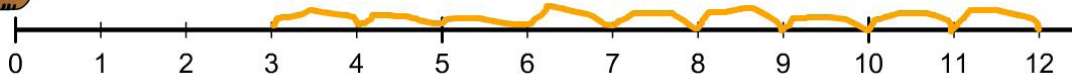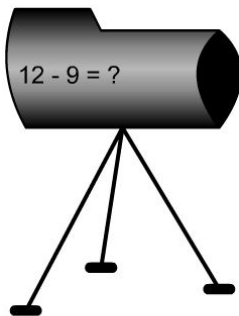
Your child may count back 9 from 12 on the number line to get 3.

12 - 9 = ?

0   1   2   3   4   5   6   7   8   9   10   11   12

Let's Talk About It

How did you know where to put the glove?
What is another way you could figure out the answer?