

Fact Strategies

All strategies must be used with models. Strategies should move from concrete to pictorial to abstract.

Counting On and Counting Back

Description	Example
<ul style="list-style-type: none"> Use when adding 1 or 2 to a given number Use when subtracting 1 or 2 from a given number 	<ul style="list-style-type: none"> 6 and 1 more $\rightarrow 6 + 1$ 6 and 2 more $\rightarrow 6 + 2$ 6 and 1 less $\rightarrow 6 - 1$ 6 and 2 less $\rightarrow 6 - 2$

Counting On - Order/Commutative Property

Description	Example
<ul style="list-style-type: none"> Use larger addend to begin counting on Understand addition is commutative 	$6 + 3 \rightarrow 6 \underline{7} \underline{8} \underline{9}$ is $3 + 6 \rightarrow 3 \underline{4} \underline{5} \underline{6} \underline{7} \underline{8} \underline{9}$

Zero Facts - Adding 0

Description	Example
<ul style="list-style-type: none"> Additive Identity Property of Zero Getting "NO" More 	$4 + 0$ $5 + 0$ $0 + 4$ $0 + 5$

Combinations of 10

Description	Example
<ul style="list-style-type: none"> Number combinations that create a 10 	$0 + 10$ $10 + 0$ $1 + 9$ $9 + 1$ $2 + 8$ $8 + 2$ $3 + 7$ $7 + 3$ $4 + 6$ $6 + 4$ $5 + 5$

Making Ten

Mackenna has 10 crayons. Some are red and some are blue. How many of each could she have? How many red? How many blue?

I can use ten frames to show the combinations of 10.

Four ten frames showing combinations of 10 crayons:

- 9 red crayons, 1 blue crayon: $9 + 1 = 10$
- 8 red crayons, 2 blue crayons: $8 + 2 = 10$
- 7 red crayons, 3 blue crayons: $7 + 3 = 10$
- 6 red crayons, 4 blue crayons: $6 + 4 = 10$

Five more ten frames showing combinations of 10 crayons:

- 5 red crayons, 5 blue crayons: $5 + 5 = 10$
- 4 red crayons, 6 blue crayons: $4 + 6 = 10$
- 3 red crayons, 7 blue crayons: $3 + 7 = 10$
- 2 red crayons, 8 blue crayons: $2 + 8 = 10$
- 1 red crayon, 9 blue crayons: $1 + 9 = 10$

Subtract Within Ten

Haley bought 9 cookies from the store. She ate 2 of them. How many cookies did she have left?

Three methods to solve $9 - 2 = 7$:

- Whole-Part Model:** A circle labeled "9 whole" is divided into two parts: "7 part" and "2 part".
- Number Line:** A number line from 0 to 10. A red arrow starts at 9 and points left to 7, labeled "-2".
- Base Ten Blocks:** A ten frame with 9 blue blocks and 2 crossed-out blocks, labeled "= 7 left".

The equation $9 - 2 = 7$ is shown in a central box.

Grade K Models and Strategies

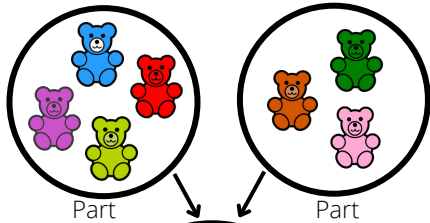
This brochure highlights some of the models and strategies used to develop computational fluency through a deep understanding of place value, number sense, and properties of operations.

By learning multiple strategies, students think flexibly, make connections, and choose the most effective and efficient strategy for problem solving.



Part-Part-Whole

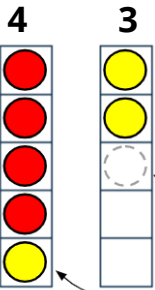
4 bears and 3 bears



Whole

4 and 3 more is 7

$$4 + 3 = 7$$



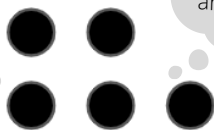
$$4 + 3 = 5 + 2$$

I can also model my thinking with a 5 frame. I notice that $4 + 3$ is the same as $5 + 2$.

Conceptual Subitizing

How many dots do you see?
How many ways do you see them?

I see 4 on the left and 1 on the right.
 $4 + 1 = 5$

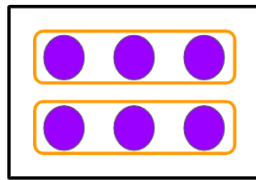


I see 2 on top and 3 on bottom.
 $5 = 2 + 3$

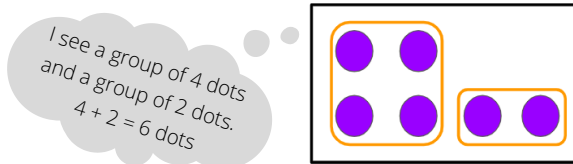
I see 2 on the left, 2 in the middle, and 1 on the right.
 $2 + 2 + 1 = 5$

Number Talks

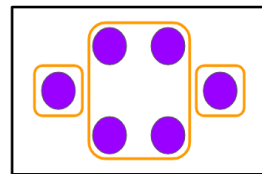
How many dots do you see in each box?
How do you see them?



I see 6 dots.
I see 3 on top and 3 on the bottom. That makes a double 3.
 $3 + 3 = 6$ dots



I see a group of 4 dots and a group of 2 dots.
 $4 + 2 = 6$ dots



I see a group of 4 dots and then 1 dot and another dot.
 $4 + 1 + 1 = 6$ dots

Tools for Problem Solving Fingers

Matthew has 6 balloons. Four are yellow and the rest are red. How many balloons are red?



4 yellow balloons



2 red balloons

My fingers are a tool I always have with me.

make 6 balloons

Linking Cubes

I can use linking cubes to solve this problem.



4 cubes

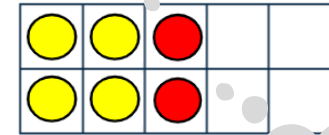
plus 2 more cubes = 6 cubes

If I start with 4 yellow cubes, I can count up 2 more cubes to make 6.

Ten Frames

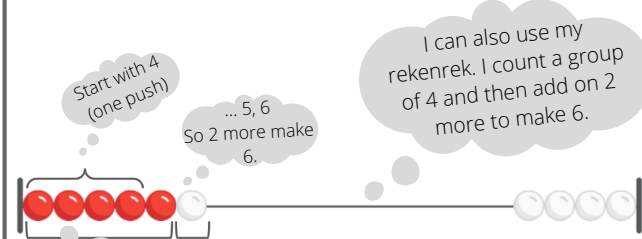
Matthew has 6 balloons. Four are yellow and the rest are red. How many balloons are red?

If I use my ten-frame as a tool, I can see sets of 2.



I know that 4 is a double set of 2. I need another set of 2 to make 6.
 $4 + 2 = 6$

Rekenreks



Start with 4 (one push)

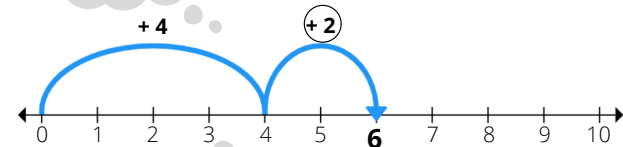
... 5, 6
So 2 more make 6.

I can also use my rekenrek. I count a group of 4 and then add on 2 more to make 6.

I notice that I also have a group of 5 and 1 so I know that
 $4 + 2 = 5 + 1$

Number Line

I can also use a number line to count up to 6.



+4

+2

I start at 0 and jump to 4 because I know there are 4 yellow balloons. Then I can jump 2 more to reach 6. This tells me that 2 of Matthew's balloons are red.