Dear Teachers,

During the listening tour, the Eureka Math Team enjoyed the opportunity to witness our curriculum being implemented in St. Charles classrooms. We listened carefully to the feedback you provided about additional resources that could support implementation and are excited to deliver a pilot version of a new resource, Eureka Math Homework Guides, intended to help bridge the gap between the classroom and home.

Our writers have begun creating Homework Guides to provide families with insight of the understandings and skills gained during each math lesson. The guides are designed to deliver guidance for the problems on the homework pages (K-5)/problem sets (6-12). The problems and their worked out solutions included in each Homework Guide were chosen intentionally and closely align with at least one problem on the homework/problem set.

After examining your curriculum maps, we created ten Homework Guides for each grade level, K-10, and have done our best to create these documents for immediate use. In order for these to support student learning, please make them available for families at home. Students and their families can use the Homework Guides to receive helpful hints when homework becomes challenging.

In order for you to help us continue to improve our curriculum and accompanying resources, we welcome any and all feedback you and/or your students' families can provide. After receiving feedback, our goal is to create a Homework Guide for every lesson in the curriculum and make them available to the public.

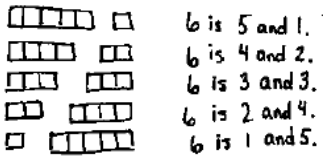
We are excited to provide you with this pilot set of Homework Guides and even more excited to improve this resource through your valued feedback.

Many Thanks,
The Eureka Math Team

GK-M4-Lesson 10: Model decompositions of 6-8 using linking cube sticks to see patterns.

Decomposition

Decomposition is another way to say "take apart." In this lesson, students use linking cubes to show how to take apart numbers to see a pattern (example at right).

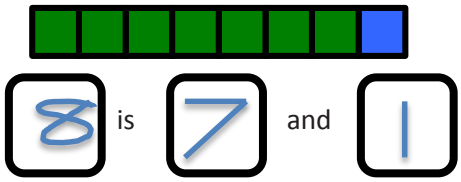


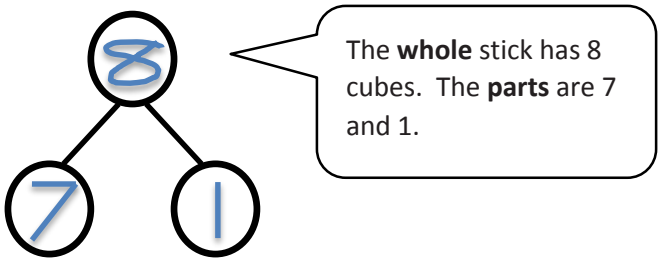
Number Bonds

Number Bonds are a model that shows how numbers can be taken apart. The bigger number is the **whole** or **total**, and the smaller numbers are the **parts**, except when there is a 0. For now, please use everyday words "is/and/make." Addition and subtraction will come later in this Module.

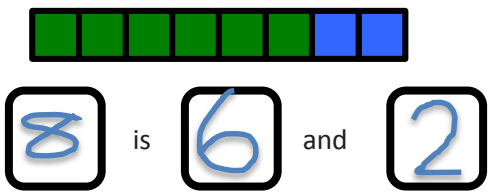
Number Bonds are shown in different positions, so that students can become flexible thinkers!

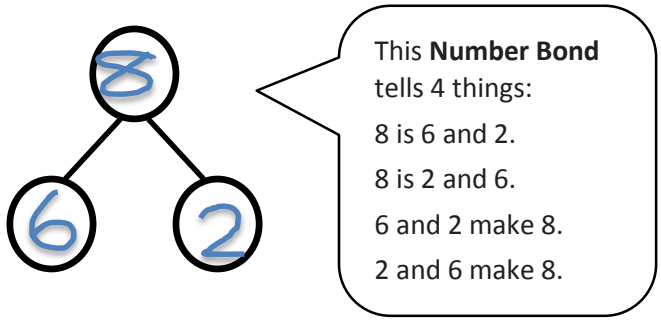
The squares below represent cubes. Color 7 cubes green and 1 blue. Fill in the number bond.



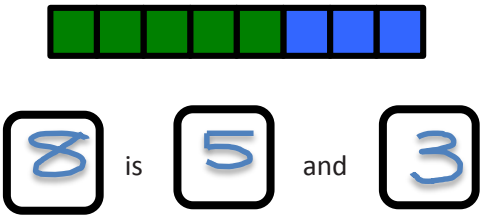


Color 6 cubes green and 2 blue. Fill in the number bond.

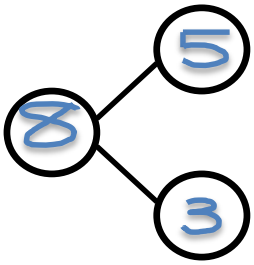




Color some cubes green and the rest blue. Fill in the number bond.



8 is 5 and 3



Sometimes the **whole** is on the side.

The lines show how I took apart 8.

I'm starting to see a pattern!

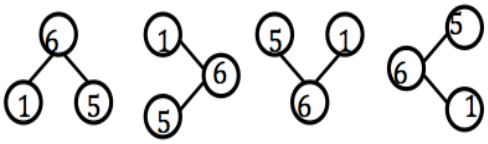
So, I'll color 5 cubes green and 3 cubes blue.

GK-M4-Lesson 11: Represent decompositions for 6-8 using horizontal and vertical Number Bonds.

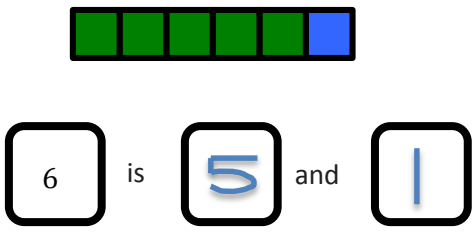
Number Bonds

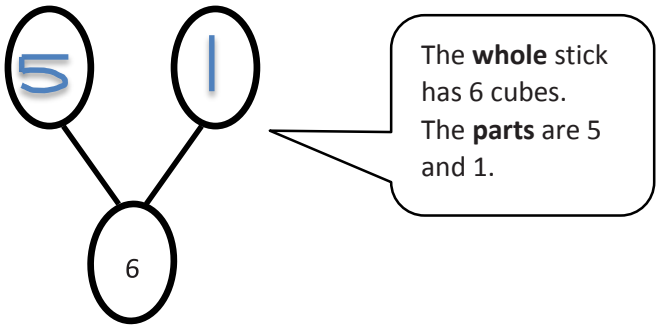
Number Bonds are a model that shows, how numbers can be taken apart. For now, please use everyday words "is/and/make." Addition and subtraction will come later in this Module.

Number Bonds are shown in different positions, so that students can become flexible thinkers! (See examples at right.)

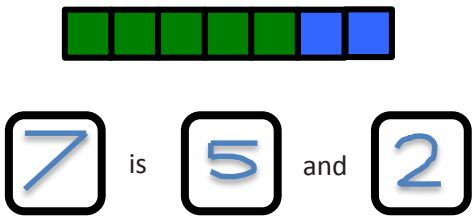


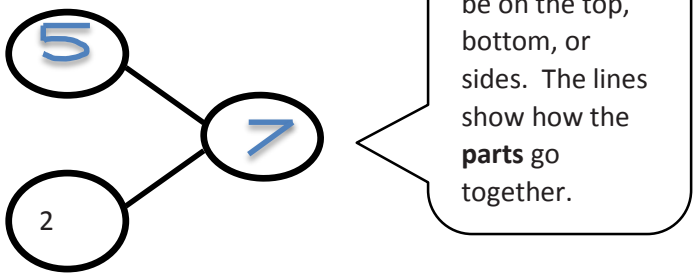
These squares represent cubes. Color 5 cubes green and 1 blue. Fill in the number bond.





Color 5 cubes green and 2 blue. Fill in the number bond.

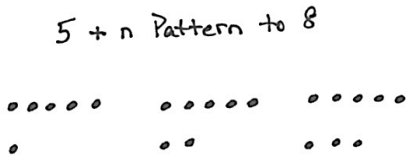




GK-M4-Lesson 12: Use the 5-groups to represent the 5 + n pattern to 8.

5-Groups

Finding a group of 5 in a number 6-10 makes it easier to break apart the number.



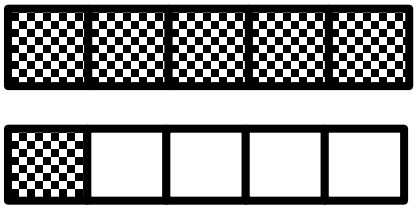
The 5 + n pattern means that 5 is one of the **parts**.

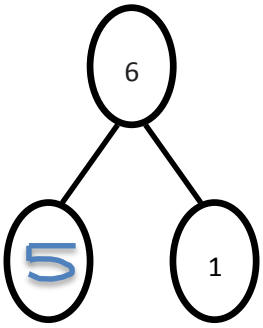
6 is 5 and 1. 7 is 5 and 2. 8 is 5 and 3.

Recognizing **5-groups** makes counting faster and easier. Students see **5-groups** in many classroom tools, and even on their own hands!

Fill in the number bond to match the squares.

I see 6 as 5 on the top and 1 on the bottom.





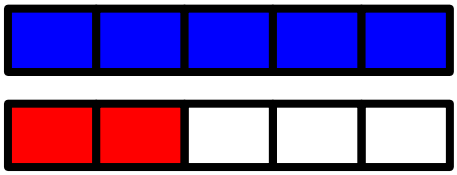
6 is 5 and 1 more

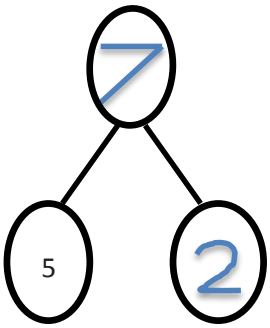
Color 5 squares blue in the first row.

Color 2 squares red in the second row.

A faster way to count **5-groups** is: fiiiiive…6, 7!

If I need to, I can count all the squares I colored though.





7 is 5 and 2 more

GK-M4-Lesson 13: Represent decomposition and composition addition stories to 6 with drawings and equations with no unknown.

No unknown

Students are not asked to solve anything, but rather, focus on understanding what each number represents.

Decomposition and Composition

Decomposition is another way to say "take apart." Composition means "put together." **Number bonds** and **addition sentences** are used to show both.

Note that "take apart" is different than "take away" which will come later in the Module.

Two Types of Addition Sentences

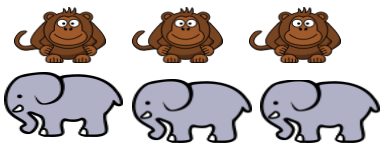
The addition sentence, **6 = 3 + 3**, starts with the **whole** amount to show that the story started with a group of things, and then was separated into two smaller **parts**. There are 6 animals. 3 are cats and 3 are dogs. Neither of the parts were taken away, so it is written as addition.

To show that 2 **parts** are put together to make a **whole**, students write **3 + 3 = 6**. As in, 3 cats and 3 dogs make 6 animals.

There 3 are monkeys and 3 elephants. All 6 animals are going into the circus tent. Fill in the number sentence and the number bond.

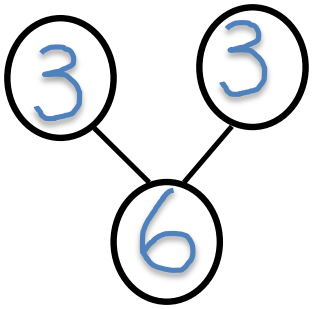
This story starts with the **parts**, and ends with the **whole**.

I'll write my number sentences that way, too!



3 3 6

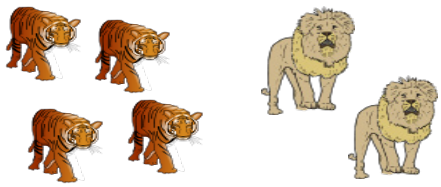
3 3 6



There are 6 animals. 4 are tigers, and 2 are lions. Fill in the number sentences and the number bond.

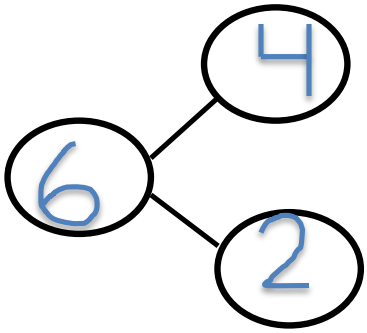
This story is different. It starts with the **whole**, and ends with the **parts**.

I'll write my number sentences that way, too!



6 is 4 and 2

6 = 4 + 2



The equal sign is another way to write "is the same as."

The plus sign is just like saying "and" in math.

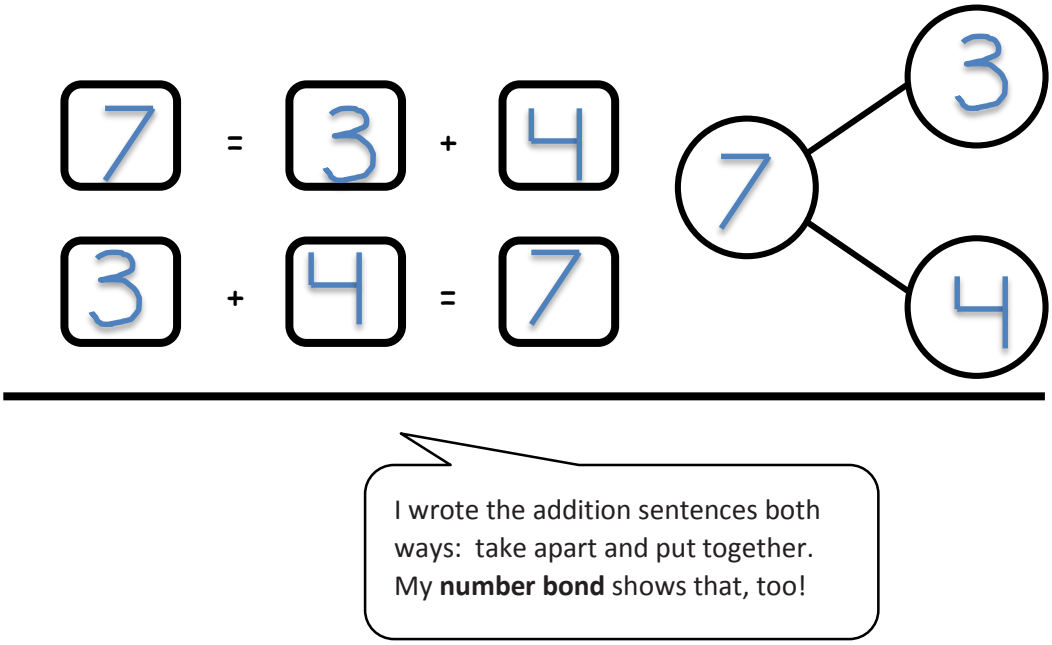
I know what all of the numbers in the story are. I just have to figure out where they go!

GK-M4-Lesson 14: Represent decomposition and composition addition stories to 7 with drawings and equations with no unknown.

No unknown

All of the numbers are given in the story, so there isn't a "How Many?" question. Students have to figure out how the numbers fit into the **equations** and **number bonds**.

There are 7 bears. 3 bears have bowties. 4 bears have hearts. Fill in the number sentences and the number bond.



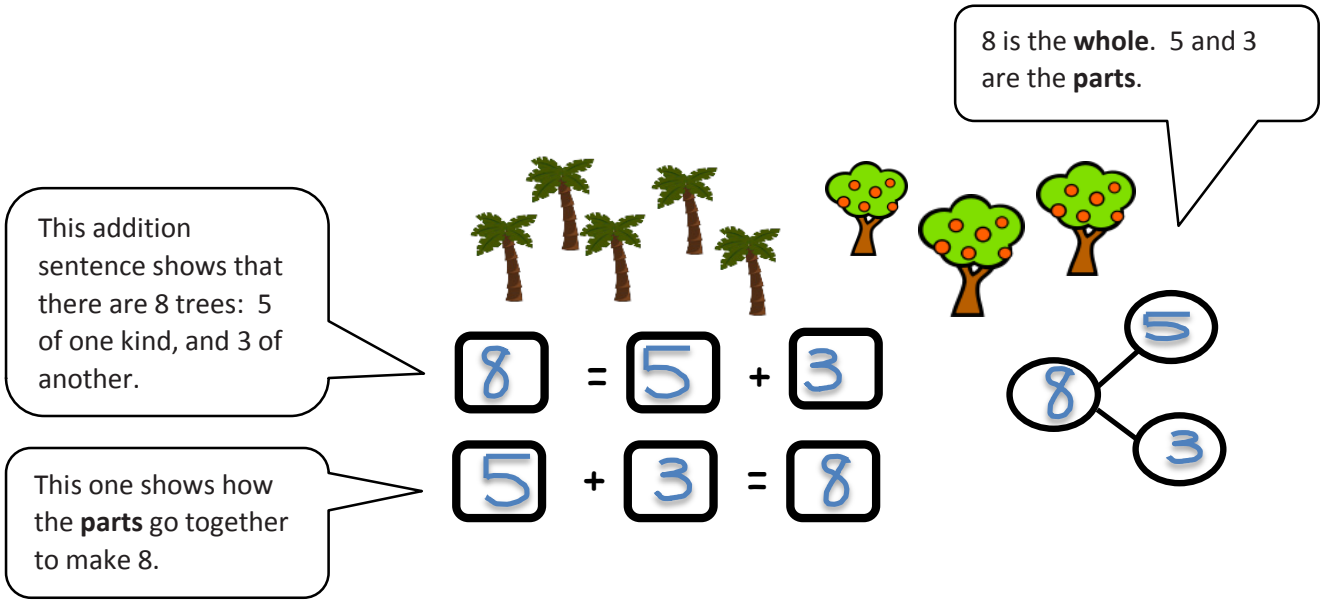
GK-M4-Lesson 15: Represent decomposition and composition addition stories to 8 with drawings and equations with no unknown.

No unknown

All of the numbers are given in the story, so there isn't a "How Many?" question. Students have to figure out how the numbers fit into the **equations** and **number bonds**.

In this lesson, students put together or take apart 6, 7, or 8 in addition stories.

There are 8 trees. 5 are palm trees, and 3 are apple trees. Fill in the number sentences and the number bond.



GK-M4-Lesson 16: Solve *add to with result unknown* word problems to 8 with equations. Box the unknown.

Add to with result unknown

In **add to** problems, there is action involved. One group is present at first, and another group joins. The **result** is how many altogether. Since the result is unknown in these problems, students will count all of them to find the **result.**

There are 3 penguins on the ice. 4 more penguins are coming. How many penguins are there?

To find the mystery number, I can count all of the penguins: 1, 2, 3, 4, 5, 6, 7. There are 7 penguins in all!

The mystery box is for the number we don't know.

I can trace the mystery box.

$3 + 4 = \square$ 7

Some students may be ready to count on, instead of counting all. In this problem, counting on would sound like this: "thrrreeee…4, 5, 6, 7." This skill is not expected or required until First Grade. For now, allow your child to touch and count as necessary.

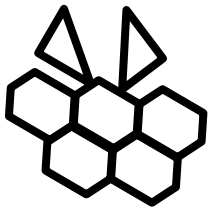
GK-M4-Lesson 17: Solve *put together with total unknown* word problems to 8 using objects and drawings.

Put together with total unknown

In **put together** problems, there is no action. Two groups are present, students count all to find the **total** amount.

For example: 5 red flowers and 3 yellow flowers are in a vase. How many flowers are there? The flowers have not been added to the vase, they were there from the start. The two types of flowers, red and yellow, are **put together** for a **total** of 8.

There are 5 hexagons and 2 triangles. How many shapes are there?



7 = 5 + 2

5 + 2 = 7

I can add the hexagons and the triangles.

The **total** number of shapes is 7.

7 is the same as 5 and 2.

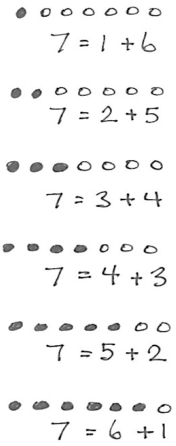
GK-M4-Lesson 18: Solve *both addends unknown* word problems to 8 to find addition patterns in number pairs.

Both addends unknown

Addends are the numbers that are added in an addition sentence. Students know these as number pairs, or partners.

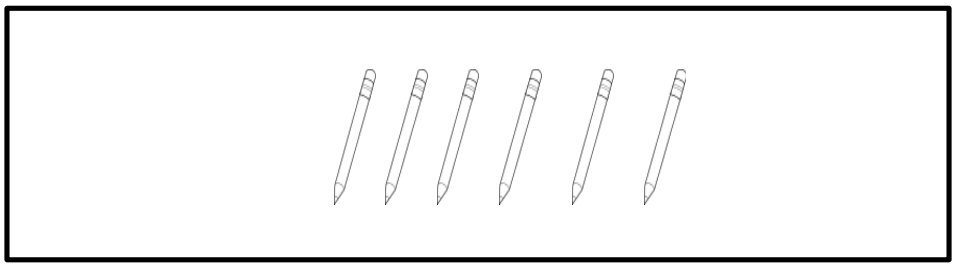
In **both addends unknown** problems, the word "some" is used instead of a number. 7 flowers are in the vase, *some* are red and *some* are blue. So, there can be many correct answers: 6 red, 1 blue; 5 red, 2 blue; 3 red, 4 blue, and so on.

Since only the **total,** or **whole** is known, the addition sentence often starts with the total (see examples at right.)



Devin has 6 Spiderman pencils. He put some in his desk and the rest in his pencil box. Write a number sentence to show how many pencils Devin might have in his desk and pencil box.

It doesn't say how many he put in each place, but I know the **whole** is 6.



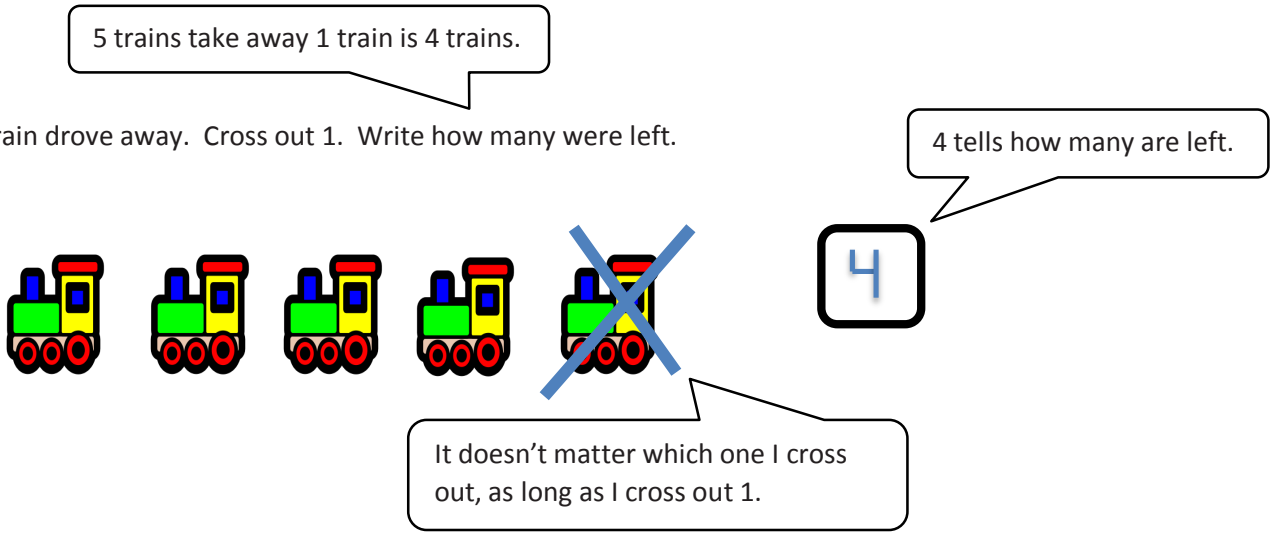
6 = 5 + 1

I chose 5 + 1, but I could have written 1 + 5, 4 + 2, 2 + 4, or 3 + 3…so many partners to 6!

GK-M4-Lesson 19: Use objects and drawings to find *how many are left.*

How many are left

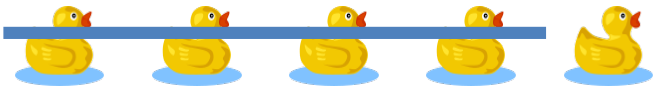
Taking away by crossing out, and telling **how many are left**, prepares students to work with subtraction. For now, please hold off on using the word "minus." It will come later in this module.



Two ways to cross out

One at a time

All at once



Some students may not be ready to cross out all at once. Please allow your child to cross off one a time, as necessary.

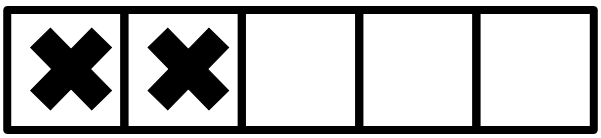
GK-M4-Lesson 20: Solve *take from with result unknown* expressions and equations using the minus sign with no unknown.

Take from with result unknown

These types of problems involve action, taking a **part** from the **whole**. To find the **result,** students count how many are left in the other **part**.

Students now use the words "take away" and "minus" to read subtraction **expressions** (5 – 4) and **equations** (5 – 4 = 1).

In many problems, there is **no unknown**, which helps students understand how the numbers match the picture.



There were 5 squares in the **whole** stick.

I count 3 left. That's the other **part**!

5 - 2 = 3

Minus 2 is another way to say "take away 2."

I see that 2 are crossed out, that's one **part.**