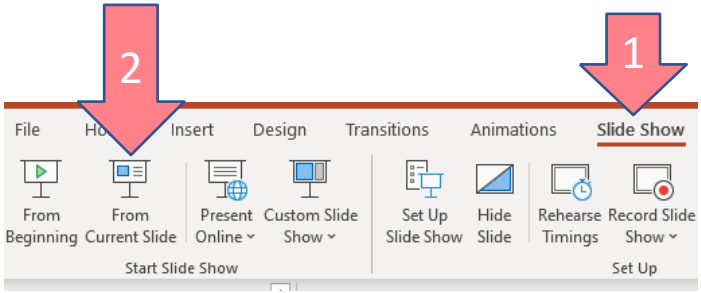
Kindergarten NUMBER SENSE Routines

Days 121-140

HOW TO RUN POWERPOINT IN SLIDE SHOW MODE:

Slides with animation features, must run in Slide Show mode of PowerPoint for the animations to work correctly.

1. Select <Slide Show> from the menu at the top
2. Select <From Current Slide>



HOW TO ANNOTATE STUDENT THINKING ON THE SLIDE:

- With the slide in Slide Show mode, right click on the slide
- Select <Pointer Options> then choose <Pen>

How to facilitate Number Strings

This routine includes a set of related math problems designed to teach strategies based on number relationships. To facilitate this routine,

1. Show the visual prompt. Ask the prompt question. Ask students to use the discreet signal system that has been established as a classroom Number Sense Routine norm – i.e., a thumbs up in front of their chests when they have an answer in mind.

2. When most students have signaled that they are ready, call on students to share their strategies. Decide if you are going to model the strategy shared. The goal is to find efficient ways to solve the problem accurately.

3. Advance the slide to progressively include additional problems within the number string.

4. If a number string's purpose is a certain strategy to be developed and that strategy is not emerging from students, then you may need to ask questions that encourage students to consider the strategy that is intended to be developed.

5. Throughout the routine, encourage students to actively listen to each other's ideas, ask their classmates clarifying questions, and connect their own strategies to the other strategies that have been offered. Be patient and persistent – these skills will take time to develop.

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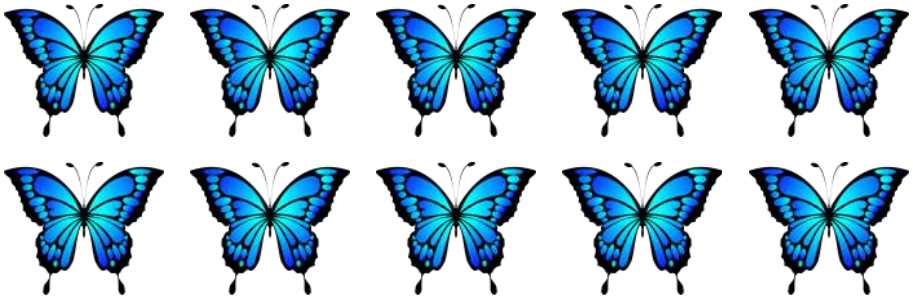
Day 121

FOCUS STRATEGY: Using the Five/Ten Structure
ASK: How many? How did you see it?
There are five variations on the image in today's routine. Advance the slide to see each one.
Allow students to share, compare, and evaluate strategies before advancing to the next slide within this routine.

E



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Number Strings

K.CC.B & K.OA.A.1

How to facilitate Quick Count

Quick Count is an instructional routine designed to build on students' natural ability to subitize (recognize the quantity of objects in sets of 1-5 without counting the objects one-by-one). This routine will help students become more aware and purposeful when subitizing and to apply subitizing skills when finding the total quantity of larger sets.

This routine follows a developmental progression with slight changes in the routine after several of the same type are presented.

Step-by-step directions are provided on each slide. Typically, a Number Sense Routine is one slide per day. A Quick Count routine is a single routine like all the other routines but contains more than one slide as part of that day's routine.

The Quick Count progression of skills is listed below:

- 5 subitizing routines
- 3 comparative quantities routines
- 6 composite subitizing routines that ask students to create an equation
- 6 teen number routines with a group of 10 ones and some additional ones

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Quick Count

Day 122

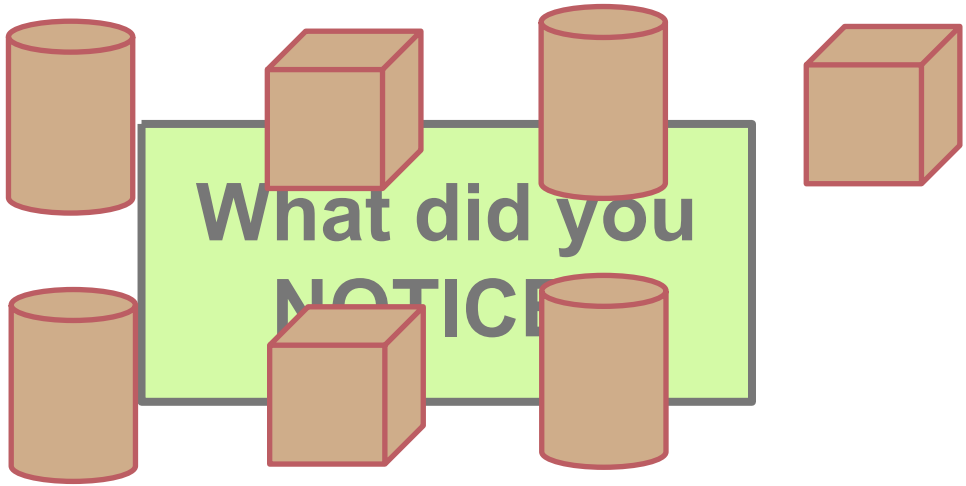
SAY: I am going to show you an image. The image will appear for only three seconds, so pay close attention and try to remember what you saw.

****CLICK ONCE to begin the automated reveal process.*

Allow several students to share their observations

Do not correct inaccurate observations – the image will be shown again.

After students share ideas, CLICK to continue.



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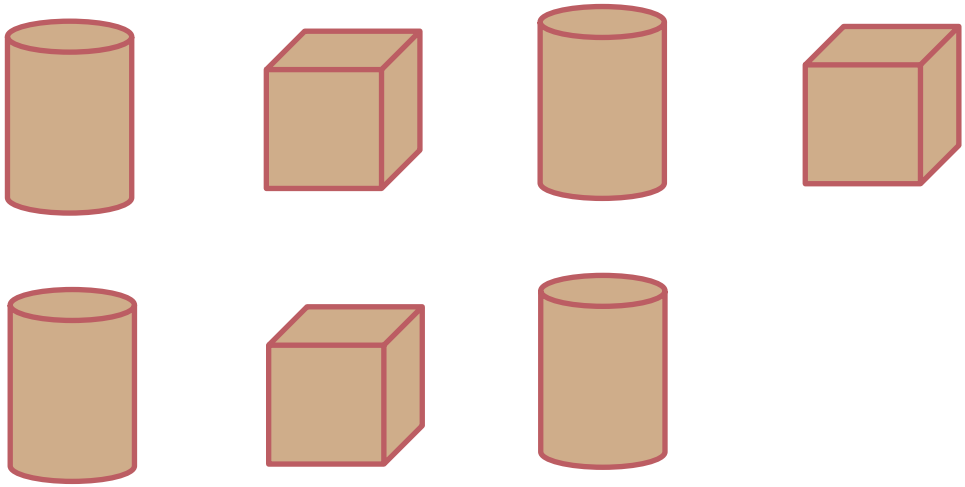
Quick Count

Day 122

SAY: Here is the same image. This time the image will not disappear.
ASK: How can we count the total number of objects?
CLICK for a slide of multiple images to annotate student thinking.



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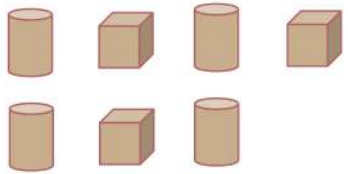
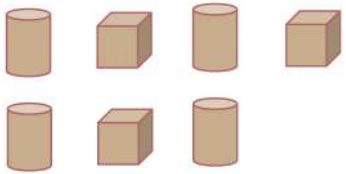
Quick Count

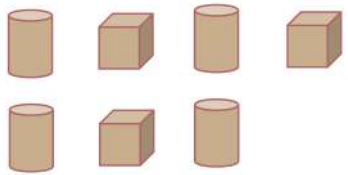
K.OA.A.1 & K.G.A.1

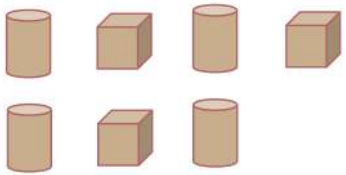
Day 122

Call on students to share ideas. Gesture and annotate on the slide to model student thinking.
You will annotate the ideas of up to four students. Encourage students to compare & evaluate each other's ideas.
Look for strategies that are efficient; that are effective shortcuts that mathematicians might use, too.









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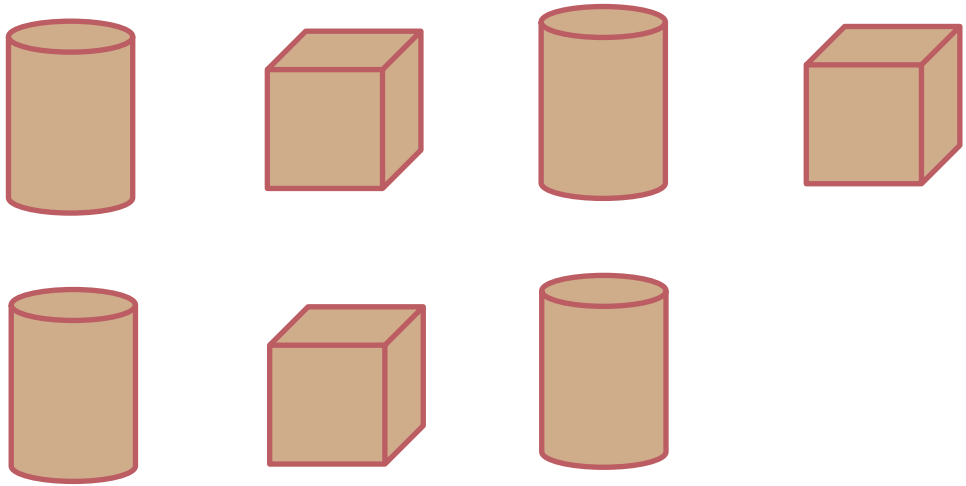
Quick Count

Day 122

ASK: Now that we have talked about how many of each shape, what equation can we use to show the total number of shapes?
[Allow several students to share their ideas – annotate their ideas in the white space]
[CLICK to reveal a possible equation. CLICK AGAIN to reveal another option]



$7 = 4 + 3$

$7 = 3 + 4$

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Quick Count

How to facilitate Splat!

This routine is designed to help students use strategies to count quantities efficiently, build addition and subtraction fluency within 10, and develop an understanding of the relationship between addition and subtraction facts.

To facilitate this routine,

1. Follow the prompts provided with each animation.

2. Students will be shown a set of dots. They will be asked how many dots are on the slide. Ask a few students, "How many dots do you see?"

3. Then ask students to explain how they counted the set of dots. As students explain their strategy (one-by-one counting, grouping, counting by 2s, etc.), annotate student thinking by writing on the slide or through simple gestures.

4. As the animation continues, a Splat! will cover some of the dots. Ask students to determine how may dots are hiding under the Splat! The student explanation of how they know is the most important part of this routine. Listen and celebrate the various efficient strategies that students share.

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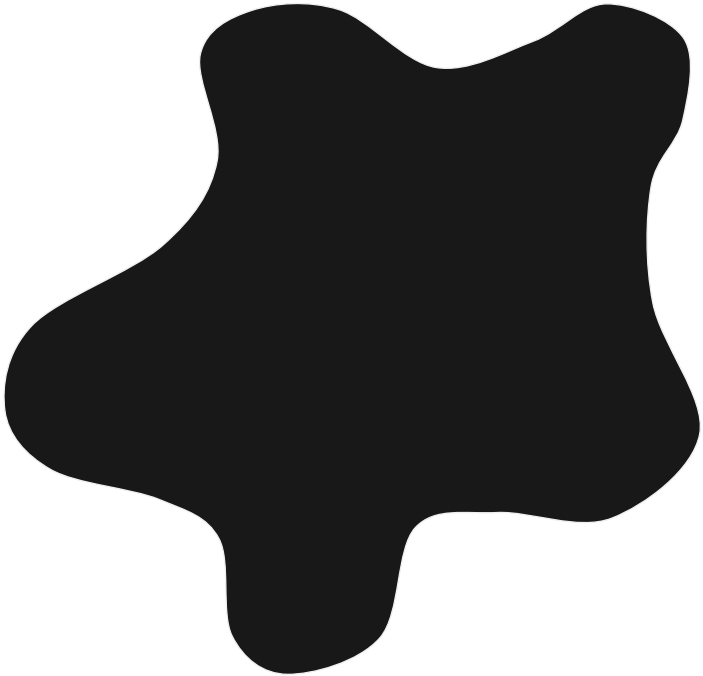
DIRECTIONS: Click to view animations. Read each prompt as you go through the routine.
Remember to use gestures to annotate student thinking. Allow multiple students to share ideas.

6

How many blue

What can we learn from this picture?



Splat!

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How to facilitate Same But Different

At the start of this routine, students are shown two images. They are asked to identify not only the attributes that are the SAME between the two objects, but also the attributes that are different. This routine helps build students' grayscale thinking where things do not have to be all one or the other, they can be both at the same time.

To facilitate this routine,

1. Ask your students to think about what is the same about the two objects AND what is different. If scaffolding is needed, you can ask them to first think about how the objects are the same. Discuss. Then ask how the objects are different. Discuss.

2. Ideally, students will state how they are same and different in one sentence: For example, when shown a hula hoop and dinner plate, the student may respond, "They are both round but one is a toy, and the other is a dish."

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Same But Different

Day 124

ASK: How are these two images the SAME but DIFFERENT?
FOCUS: Different representations of a number.

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Same But Different

K.CC.A.3

How to facilitate Math Talks

This routine is designed to elicit multiple strategies and provide opportunities for students to reason about numerical relationships and make mathematical connections.

To facilitate this routine,

1. Show the image. Pose the problem by reading the prompt given on the slide.
2. Ask students to use the discreet signal system that has been established as a classroom Number Sense Routine norm – i.e., a thumbs up in front of their chests when they have an answer in mind.
3. When most students have signaled that they are ready, call on students to share their strategies as you annotate the answers they provided.
4. It is important to remain neutral as students respond; avoid indicating whether the student is correct or incorrect at this point in the discussion.
5. Encourage students to actively listen to each other's ideas, ask their classmates clarifying questions, and connect their own strategies to the other strategies that have been offered. Be patient and persistent – these skills will take time to develop.

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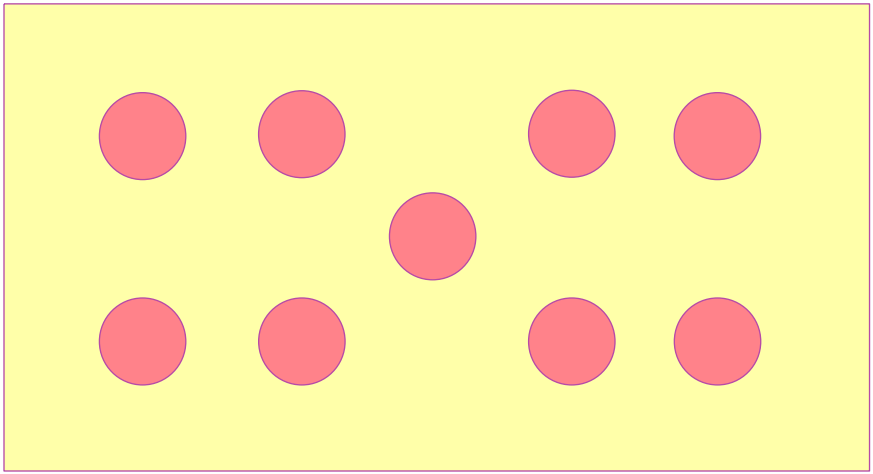
Day 125

FOCUS: Nine
ASK: How many dots?
ASK: How did you count them?
CLICK for additional frames to annotate student ideas



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Math Talks

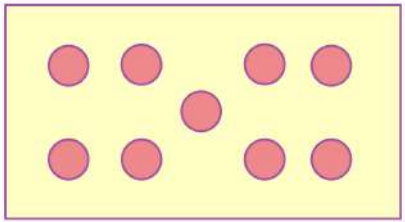
K.CC.B.4 & K.CC.B.5

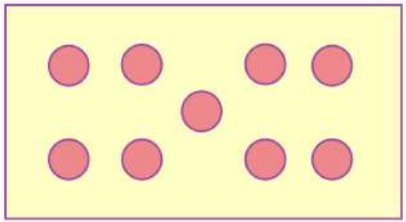
Day 125

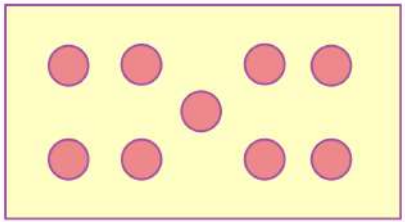
ANNOTATION: Record student thinking with the pen or with gestures. Include written equations if appropriate.
SOME OF THE POSSIBLE STRATEGIES:

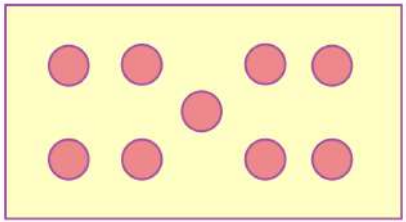
- Counting On – students may have seen four dots and counted on four, five, six, seven, eight, nine
- Count All – students may have counted the nine dots one-by-one
- Use the Five/Ten Structure – students may have grouped five and four and said five and four is nine
- Doubles Plus One – students may have seen four and four and one more to make a total on nine

ASK/DISCUSS: Were any of the strategies we talked about today similar?
ASK/DISCUSS: Which strategy do you think was most efficient for counting THESE dots? Why?









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Math Talks

How to facilitate Rapid Naming

This routine is designed as a building block to arithmetic fluency. Research indicates that a student's ability to "rapid name" correlates to the student's skill in both reading and mathematical fluency.

To facilitate this routine,

1. Tell students to focus very carefully on the images that will appear on the screen.

2. Say, "As the images appear, say the name of the image out loud. We will be calling out the name of each item together. Try to name the image right when it appears."

3. Monitor students' ability to rapid name the images.

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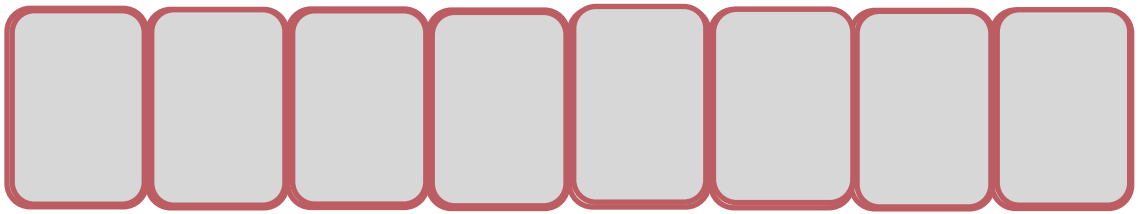
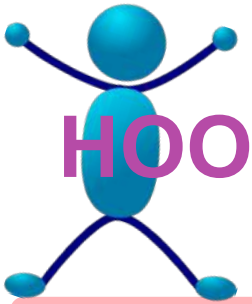
Day 126

SAY: Stay very focused to the board. The little doors will open to reveal a number representation. We're going to see if we can say each of the values before the next door opens. It's fast, so stay alert! Ready?
****CLICK ONCE to begin the automated reveal process.*





HOORAY!

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Rapid Naming

K.CC.A.1

How to facilitate Clue by Clue

During this routine, students are shown a group of objects. Then they are given clues about the object's attributes that helps them to narrow the possibilities down to just one possible object from the group.

To facilitate this routine,

1. Show the group of objects to your students.

2. Tell students that you are thinking of ONE of these objects and you will give them clues to help them discover which object you are secretly thinking about.

3. Reveal the first clue. Ask students to think about which objects could be your mystery object. Which objects cannot be the mystery object. Discuss.

4. Use the annotation tool to visually mark off objects that do not fit the clue. In Slide Show mode, right click to annotate on the slide. Select >Pointer Options>Pen. Cross off images as students determine it does not fit the clue. The answer is revealed after Clue 3 is shown.

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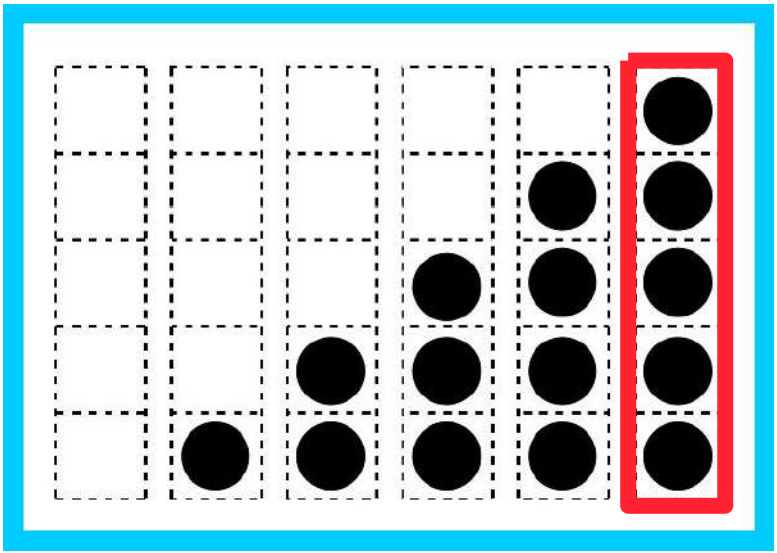
Clue by Clue

Day 127

ASK: Can you use the clues to guess which number I am describing?
FACILITATION NOTE: Use the annotation tool to mark off dot sets that do not fit the clue.



Clue 1
I am greater than 2

Clue 2
I am not a 4

Clue 3
I need zero more to make 5

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Clue by Clue

K.OA.A.5

How to facilitate More or Less

For this routine, students will determine which of the images shows "more" or "less" or if the two images show "equal" values.

To facilitate this routine,

1. Show the two images.
2. Ask the question shown on the slide.
3. Allow students to discuss their ideas with a partner first (this gives them time to gather their ideas and allows all students an opportunity to talk).
4. Ask a few students to share their ideas with the whole group.

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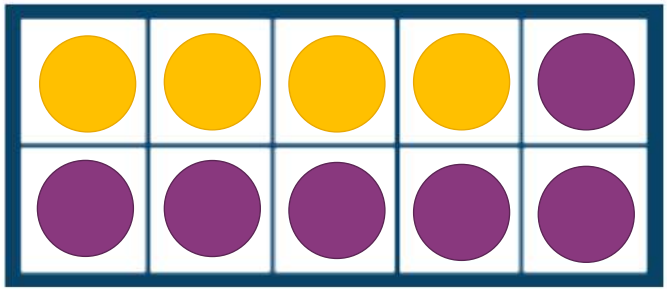
ASK: We have four counters. If we want ten counters, should we add more counters or take counters away?
ASK: How many counters do we need to add to make ten? How do you know?
****CLICK ONCE to begin the automated reveal process*
Count as the counters appear.
ASK: What equation could we use to represent this model?
[CLICK for equations that match the model to appear]
ASK: How do we know these equations match the model?



$4 + 6 = 10$

$10 = 4 + 6$

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More or Less

How to facilitate GeoChat

This routine is designed to build students understanding of various geometric concepts and the specialized vocabulary required to talk about geometric shapes.

To facilitate this routine,

1. Show the image on the slide
2. Ask the question shown on the slide.
3. Allow students to discuss their ideas with a partner first (this gives them time to gather their ideas and allows all students an opportunity to talk).
4. Ask a few students to share their ideas with the whole group.
   The focus of these number sense routines is for STUDENTS to do most of the talking as they make sense of the math. Encourage students to develop their mathematical vocabulary in a way that allows them to talk about their mathematical ideas with others.
5. Prompt students to also answer the question "How do you know?"

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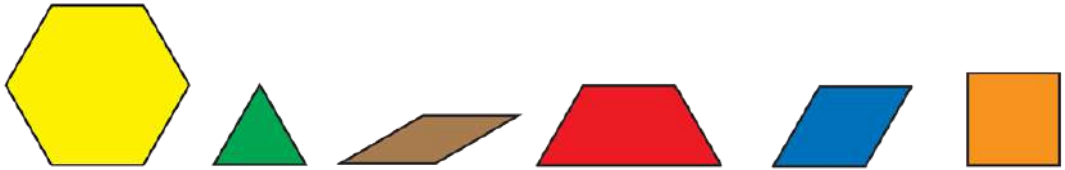
GeoChat

SAY: This hexagon was made using **six** of the same blocks.
ASK: Which six blocks were needed to make this hexagon?
FOCUS: The focus is primarily the use of geometric vocabulary. Allow students to discuss and play with the geometric ideas. Do not rush the ideas or become impatient with the process. The power is in the discussion, not the specific solution.



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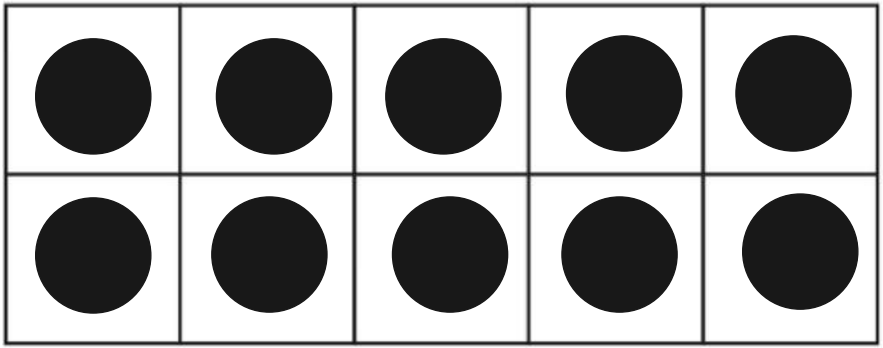
GeoChat

FOCUS STRATEGY: Use the Five/Ten Structure
ASK: How many? How do you know?
There are five variations on the image in today's routine. Advance the slide to see each one.
Allow students to share, compare, and evaluate strategies before advancing to the next slide within this routine.

E



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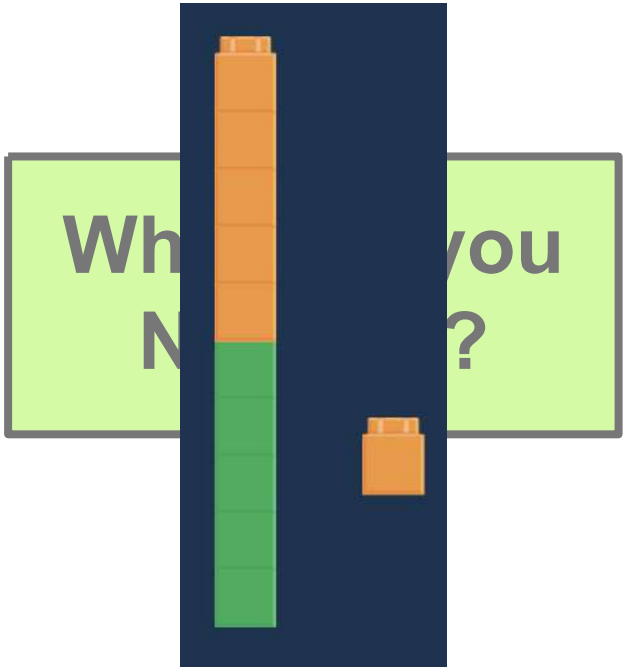
Number Strings

Day 131

SAY: I am going to show you an image. The image will appear for only two seconds, so pay close attention – I want you to remember what you saw. During our discussion, I will ask you how many you saw. You'll need to find a way to count quickly, like a mathematician, because the image is going to disappear.

****CLICK ONCE to begin the automated reveal process.*

Then allow students to share what they noticed – do not correct inaccurate observations – the image will be shown again.



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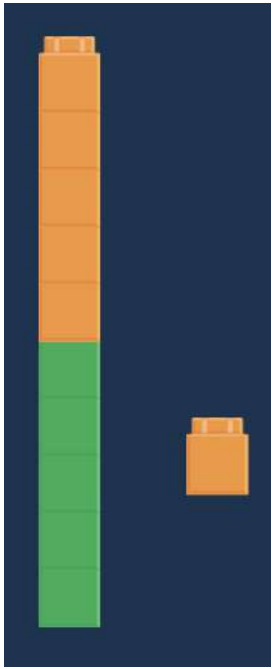
Quick Count

K.NBT.A.1

SAY: Here is the image again. Think about how a mathematician might use a shortcut to count these.
I will ask a few of you to share your ideas in just a minute.
[CLICK to see page for annotating multiple students' ideas]



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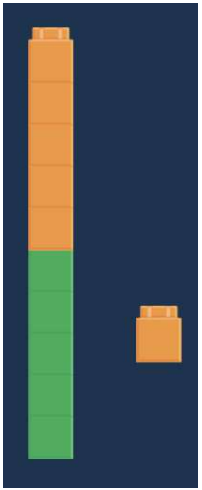
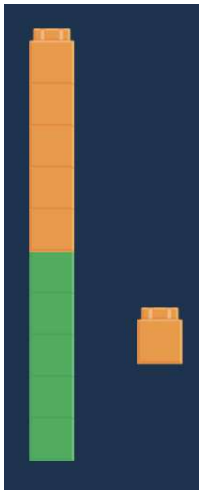
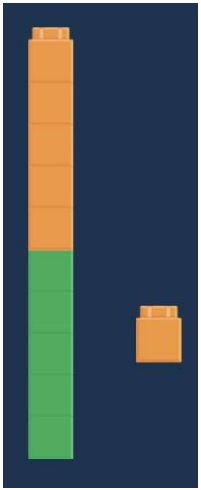
Quick Count

Day 131

Call on students to share ideas. Gesture and annotate on the slide to model student thinking.
You will annotate the ideas of up to three students. Encourage students to compare & evaluate each other's ideas.
Look for strategies that are efficient; that are effective shortcuts that mathematicians might use.
[CLICK] Connect and summarize. Have students name the enduring understandings that will be useful with other problems, too (for example, counting the connected cubes as 10, then count on for 11).







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What can we learn?

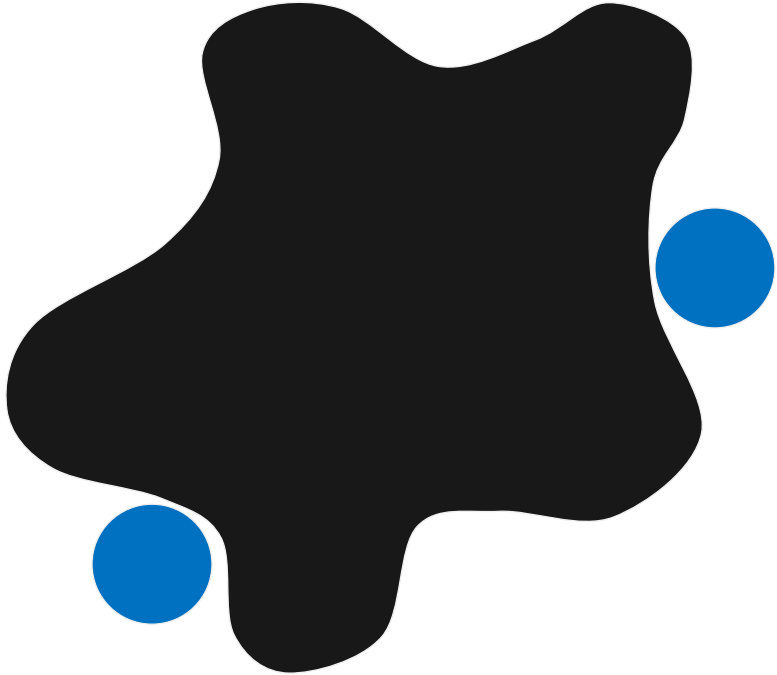
K.NBT.A.1

DIRECTIONS: Click to view animations. Read each prompt as you go through the routine.
Remember to use gestures to annotate student thinking. Allow multiple students to share ideas.

10

How many blue

What can we learn from this picture?



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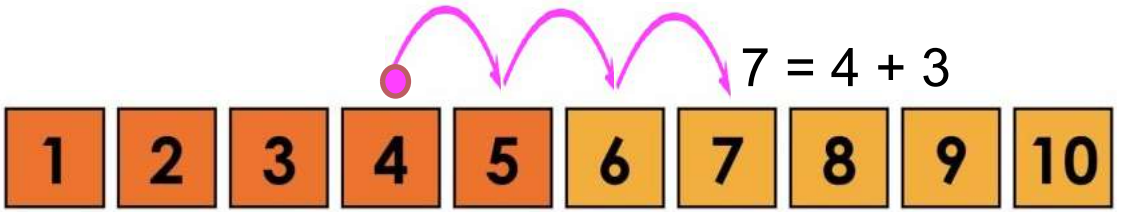
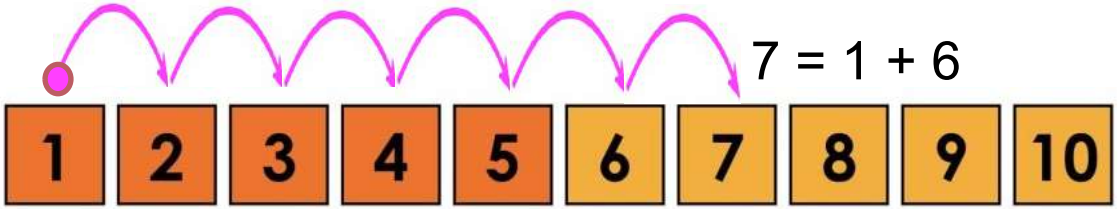
Splat!

ASK: How are these two images the SAME but DIFFERENT?
FOCUS: The focus is on the idea that numbers can be decomposed in more than one way.





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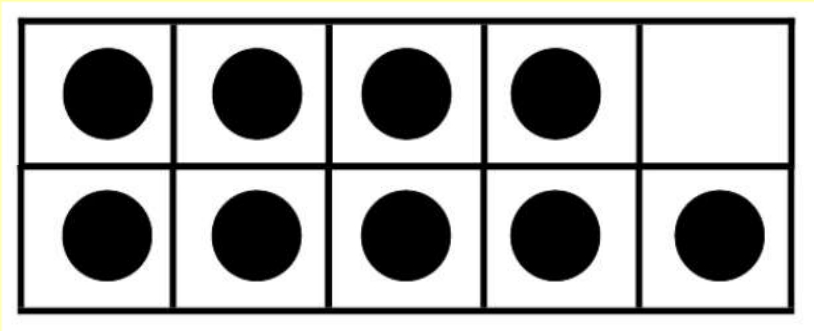
Same But Different

Day 134

FOCUS: Nine
ASK: How many dots?
ASK: How did you count them?
CLICK for additional frames to annotate student ideas



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Math Talks

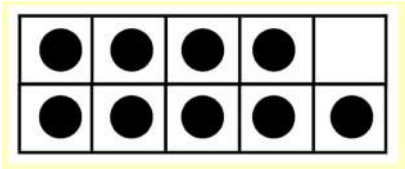
K.CC.B.4 & K.CC.B.5

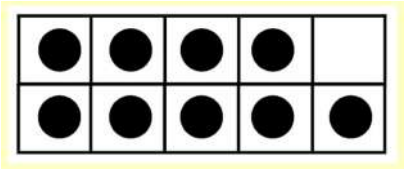
Day 134

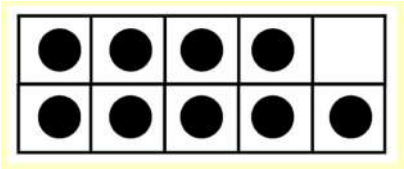
ANNOTATION: Record student thinking with the pen or with gestures. Include written equations if appropriate.
SOME OF THE POSSIBLE STRATEGIES:

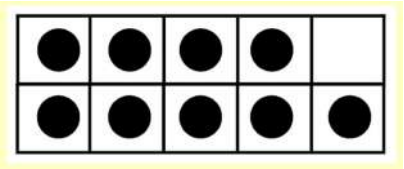
- Counting On – students may have seen four dots and counted on four, five, six, seven, eight, nine
- Count All – students may have counted the nine dots one-by-one
- Use the Five/Ten Structure – students may have noticed one dot missing and said that one less than ten is nine
- Doubles Plus One – students may have seen four and four plus one more

ASK/DISCUSS: Were any of the strategies we talked about today similar?
ASK/DISCUSS: Which strategy do you think was most efficient for counting THESE dots? Why?









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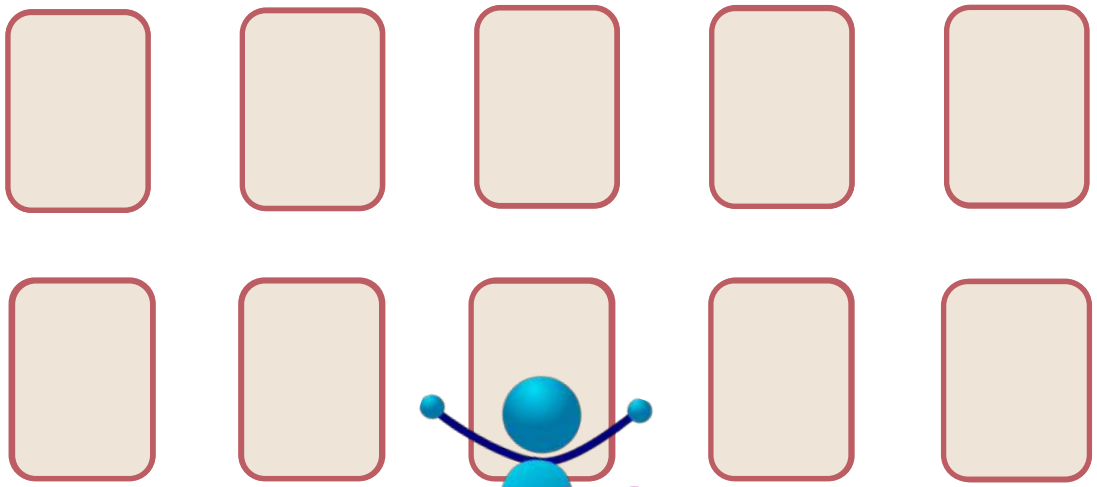
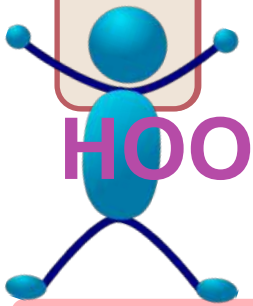
Math Talks

Day 135

SAY: Stay very focused to the board. The little doors will open to reveal a number representation. We're going to see if we can say each of the values before the next door opens. It's fast, so stay alert! Ready?
****CLICK ONCE to begin the automated reveal process.*





HOORAY!

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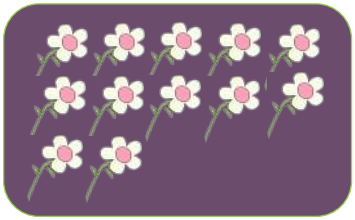
Rapid Naming

ASK: Can you use the clues to guess which group of flowers I am?
FACILITATION NOTE: Use the annotation tool to mark off flower sets that do not fit the clue.



Clue 1
I have more than 9 flowers

Clue 2
I have more flowers than bees

Clue 3
When I match the bees to the flowers there will be one extra flower

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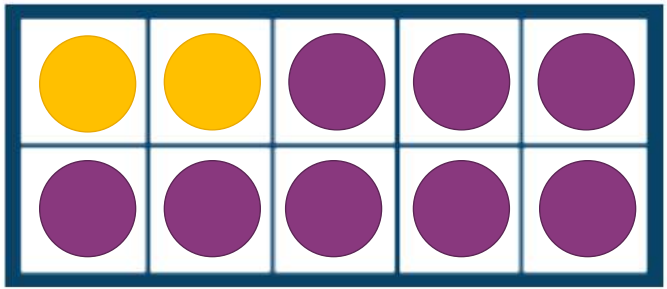
Clue by Clue

ASK: We have two counters. If we want ten counters, should we add more counters or take counters away?
ASK: How many counters do we need to add to make ten? How do you know?
****CLICK ONCE to begin the automated reveal process.*
As counters are added on to the 10-frame, count them.
ASK: What equation could we use to represent this model?
[Listen to student ideas then CLICK for matching equations to appear]
ASK: What does the number 2 represent? What does the number 8 represent? What does the number 10 represent?
ASK: Which way of counting on would be more efficient (faster) – add on 8 to 2 or add on 2 to 8? Explain your reasoning.



$2 + 8 = 10$

$8 + 2 = 10$

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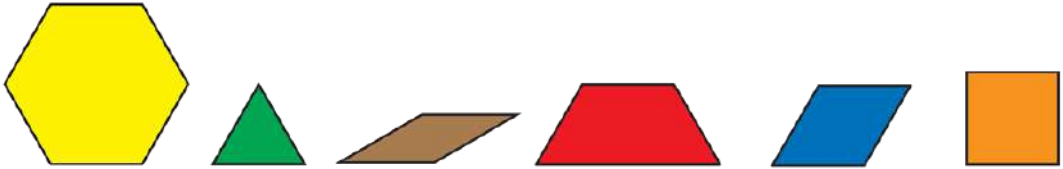
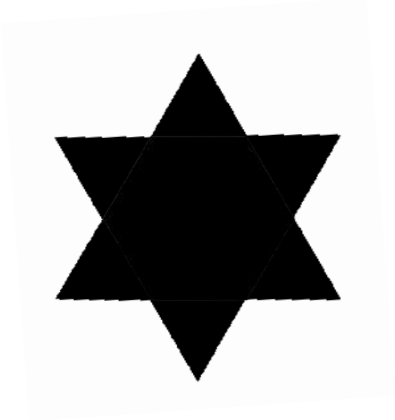
More or Less

SAY: This shape was made using the hexagon block and the triangle block.
ASK: How many hexagons and how many triangles were used to make this shape?
FOCUS: The focus is primarily the use of geometric vocabulary. Allow students to discuss and play with the geometric ideas. Do not rush the ideas or become impatient with the process. The power is in the discussion, not the specific solution.





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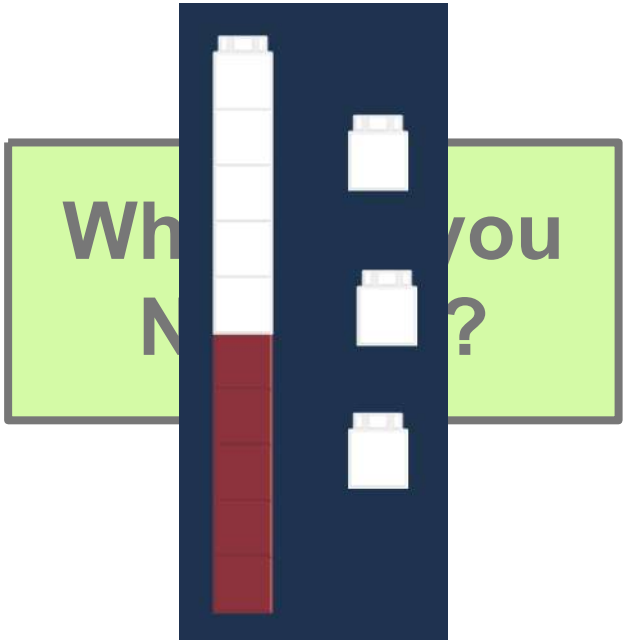
GeoChat

Day 139

SAY: I am going to show you an image. The image will appear for only two seconds, so pay close attention – I want you to remember what you saw. During our discussion, I will ask you how many you saw. You'll need to find a way to count quickly, like a mathematician, because the image is going to disappear.

****CLICK ONCE to begin the automated reveal process.*

Then allow students to share what they noticed – do not correct inaccurate observations – the image will be shown again.



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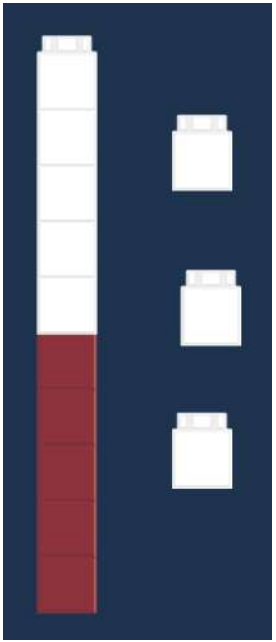
Quick Count

K.NBT.A.1

SAY: Here is the image again. Think about how a mathematician might use a shortcut to count these.
I will ask a few of you to share your ideas in just a minute.
[CLICK to see page for annotating multiple students' ideas]



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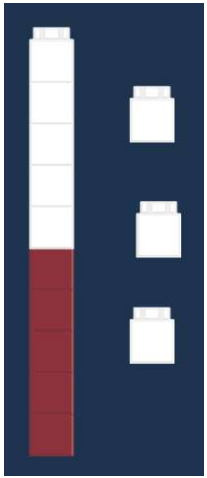
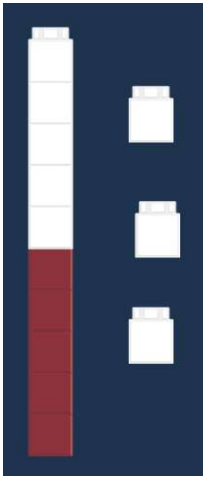
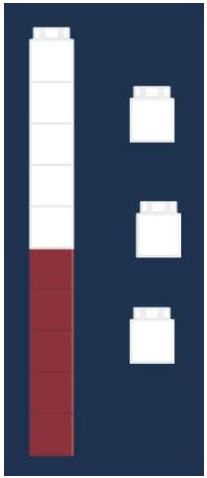
Quick Count

Day 139

Call on students to share ideas. Gesture and annotate on the slide to model student thinking.
You will annotate the ideas of up to three students. Encourage students to compare & evaluate each other's ideas.
Look for strategies that are efficient; that are effective shortcuts that mathematicians might use.
[CLICK] Connect and summarize. Have students name the enduring understandings that will be useful with other problems, too (for example, counting the connected cubes as 10, then count on for 11, 12, 13).







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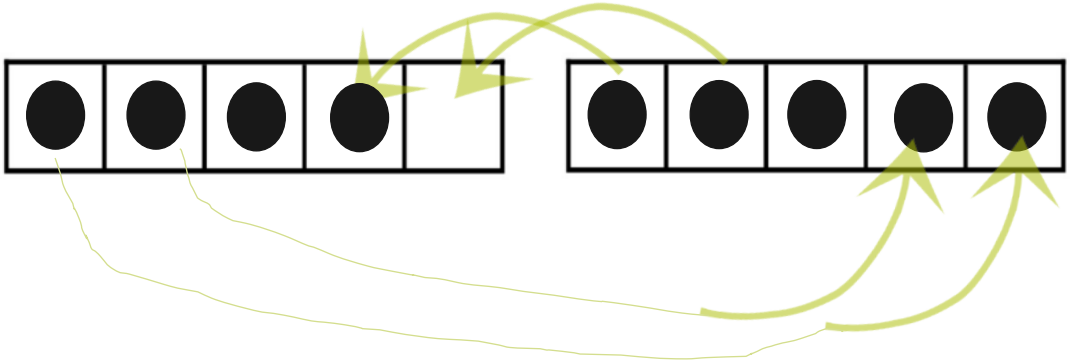
What can we learn?

K.NBT.A.1

Day 140

FOCUS STRATEGY: Compensation
There are five images with today's routine. Advance the slide to see each one.
Allow students to share strategies before advancing to the next slide within this routine.
ASK: There are two benches at the soccer game. How many players are sitting on the bench? How do you know?



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Number Strings

K.OA.A.3

Many THANKS!

180 Days of Number Sense Routines for Kindergarten

created by the Elementary Mathematics Team of **Calvert County Public Schools**, Maryland

Want to know more? Reach out to our team

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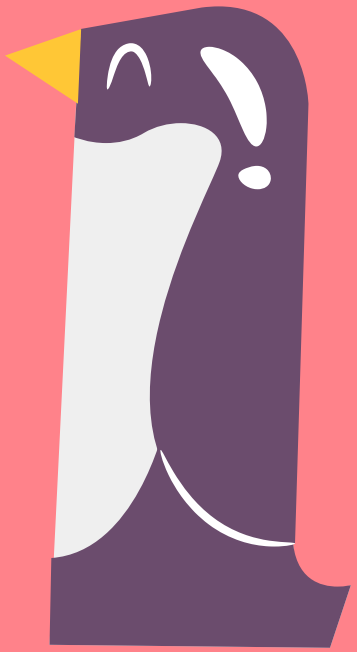

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September 2021

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