



# **180 Days of Number Sense Routines**

## **Grade 1**

### **Days 81-100**



---

## 180 Days of Number Sense Routines

**WHY IS DEVELOPING NUMBER SENSE IMPORTANT?** Number Sense is the foundational building block for all strands of mathematics. Students who struggle in mathematics do not lack mathematical ability, but rather, they simply do not have a strong number sense on which to build their knowledge. Just as we are not born knowing how to read, we are not born with Number Sense. It must be developed and nurtured over time through a progression of understandings about numbers and their relationships to one another. With time and focused practice, students come to understand that numbers are meaningful, and outcomes are sensible and expected. Number Sense development encourages students to think flexibly and promotes confidence with numbers.

**WHAT IS A NUMBER SENSE ROUTINE?** A routine is an activity or event that occurs on a regular basis over time. Routines provide a framework for our day to support both the teacher and students. Routines help to build community and create a safe learning environment for students. Routines build a sense of belonging, ownership, and predictability which make the classroom a place to take risks. We learn through risk-taking; we take risks when we feel safe; we feel safe in a supportive learning environment; we create supportive learning environments through routines. Just as we have established routines for bus dismissal and fire drills, we must also establish routines that build mathematical thinking and discourse.





---

## 180 Days of Number Sense Routines

**HOW WILL THESE NUMBER SENSE ROUTINES BENEFIT ME AND MY STUDENTS?** What teachers do and how they do it is critically important and has a profound impact on the quality of the educational experience of our students. Effective pedagogy, the art and science of teaching, is a key element in the learning process. The Number Sense are models of effective pedagogy and ensure that the critical Number Sense instruction we provide is equitable to all our students regardless of geography, teacher experience, or student circumstance. As we prepare our students to be mathematically proficient in their lives beyond the classroom walls, these Number Sense routines will help to lay the critical foundation for all future mathematical endeavors.

### **WHAT ARE THE CCPS IMPLEMENTATION EXPECTATIONS?**

Number sense routines have been developed for all 180 instructional days in grades 1-5. These routines are to be used every day, including early dismissal, late arrival, and field trip days. Because the routines do not require a specific order, it is permissible to trade routines among days to best match the time available. Number Sense must be built over time. With consistency, we can build students' number sense creating a strong mathematical foundation. If students or the teacher is struggling with a routine, it is expected that the teacher collaborate with colleagues to build capacity in that routine – do not just choose to skip the routine. If additional help is needed, the teacher should seek the assistance of their content specialist or mathematics supervisor.



# 180 Days of Number Sense Routines

## 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>



---

# 180 Days of Number Sense Routines

## Acknowledgements

We are grateful to those who have inspired this project – and there have been many. These slide decks were designed for Grades 1–5 with custom-built daily routines for each grade level. The nine routines blend original creations, adaptations, and borrowed OER materials. We have made our work available in Open Educational Resources so that others may benefit as we have. Our deepest gratitude and respect to all those who helped move our work forward, and a special thank you goes to the following whose own work had such a tremendous impact on our 180 Days of Number Sense Routines:

- *Decide & Defend* and *Quick Count* routines were adapted from templates created by Grace Kelemanik and Amy Lucenta at <http://FosteringMathPractices.com>
- *Estimation Clipboard*, *Esti-Mysteries*, and *Splat!* templates created by [www.SteveWyborney.com](http://www.SteveWyborney.com)
- *Same But Different* discussion from Developing Grayscale Thinking by Looney Math Consulting at <https://www.samebutdifferentmath.com>
- *Which One Doesn't Belong* tasks adapted from <http://wodb.ca> by Mary Bourassa

## Usage Rights

These files are for educational use only. Users have permission to download these files and modify them to fit instructional needs. These files are for non-commercial use. They may be freely shared but may not be sold, nor should compensation of any sort be received for sharing them. If your school/district is interested in professional development, contact Dawn Caine at [HelloMrsCaine@gmail.com](mailto:HelloMrsCaine@gmail.com) or Jennifer Young at [JenniferYoung497@gmail.com](mailto:JenniferYoung497@gmail.com)



# Counting On From the Middle

## CHORAL COUNTING

- Count by 1s starting from any number.
- The teacher announces a random number.
- The class choral counts the next THREE numbers in the sequence
- Example: 27 (28, 29, 30)
- The teacher randomly picks a new number (109)
- The class choral counts (110, 111, 112)
- Do several rounds of choral counting
- Select a variety of starting numbers such as 0, 18, 51, 97, etc....
- After choral counting as a class, consider having students work in partners with one partner picking the number and his/her partner trying to count on – students then trade roles

Note: The counting range for Grade 1 is to 120

## Using the DECIDE & DEFEND routine

As you do this routine with students, USE the CHECKLIST on the left side of the problem as a way to help organize the thinking process

- **READ to Understand:** Begin by having students discuss the question being asked. At this time, do NOT focus on the math calculations required or the answer. This step is designed for students to understand the context of the question (What is the gist of the question?)
- **DECIDE:** Pair or group students. Using a consistent pairing will make this routine more fluid so you do not have to take time to pair students every time you want them to discuss. Have students discuss the question and decide which solution is correct (note: partners may not agree and that is fine provided they can justify their own thinking).
- **DRAFT:** Students draft a statement about their ideas (either as a group or individually and it can be written or oral – teacher’s choice)
- **DEFEND:** Students share their ideas and defend their reasoning with the whole group. Encourage active listening and [accountable talk](#).
- **RELECT:** To further develop comprehension, have students use ONE of the sentence starters on the “Reflect on Learning” slide after they have discussed and listened to new ideas with classmates.

*NOTE: This is the CCPS adaptation of the original Decide and Defend protocol*





Use  
Numbered  
Heads

READ to  
Understand

Decide

Draft

Defend

Reflect

Erin was looking for insects.  
She found 9 insects.  
5 of the insects were caterpillars.  
The rest of the insects were butterflies.



How many butterflies did Erin find?

- ☐ 4 butterflies
- ☐ 5 butterflies
- ☐ 14 butterflies



# Reflect on Learning

- A new math idea I learned today is...
- When you want to convince someone of your ideas, you should...
- To work carefully like a mathematician, I need to...

# Estimation Activity

Have you already watched the teacher information video?

When you are ready to use this activity,  
use the PowerPoint Slide Show platform so the slides work properly.

**PROMPT: How many marbles are in the jar?**

How many  
marbles are in  
the jar?



# The Reveal



**41 marbles**



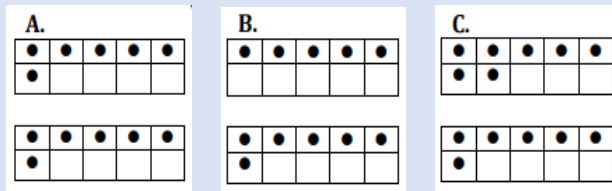
**The Reveal**



**The Reveal**



**The Reveal**



### TEACHER NOTES

#### BEFORE

The next slide has the String of Tens-Frames that you will use for today's Number Talk. You can use Smart Ink, right click for PowerPoint Pen, or convert this slide to Smart Notebook so you can easily annotate on the slide. The annotation is an important part of the routine. The expressions should be presented one-at-a-time with skills building on one another.

#### DURING

##### Addition: Doubles/Near-Doubles Using Double Tens-Frames

Show each frame one at a time by using the screen shade on your SmartBoard. As each problem is shown, ask students,

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

Encourage more than one student to explain since there will be slightly different ways.

Example - Set A

- $6 + 6$  (the student saw the double sixes)
- $5 + 5 = 10$  then  $10 + 1 + 1 = 12$  (student saw the double fives)
- $6 + 4 + 2$  (the student visualized moving 4 from the bottom to the top to make a full ten-frame)

Notes:

1. Counting each dot one-by-one is, in fact, a strategy of counting the dots – just not very efficient. If a student uses this method of counting, acknowledge and then ask, “Is there a way that we can count the dots more quickly by grouping them?”
2. Do not allow students to come up to the board. We are trying to build their precise mathematical language and the best way to do that is to have them use precise mathematical language in an effort to get their classmates and teacher to understand their ideas.
3. This activity is not a “flash activity” so do NOT flash the image and cover; rather, it is intended to be visible throughout the discussion for students to discuss the various ways of counting the dots. Remind students that we are working toward efficient methods of counting.

Remember, students will come with a variety of strategies. Help students to understand a wide variety and guide them into understanding that some strategies work better in some situations, so knowing more than one way to solve an equation like this one is important so they can later choose the method that is most efficient.

#### AFTER

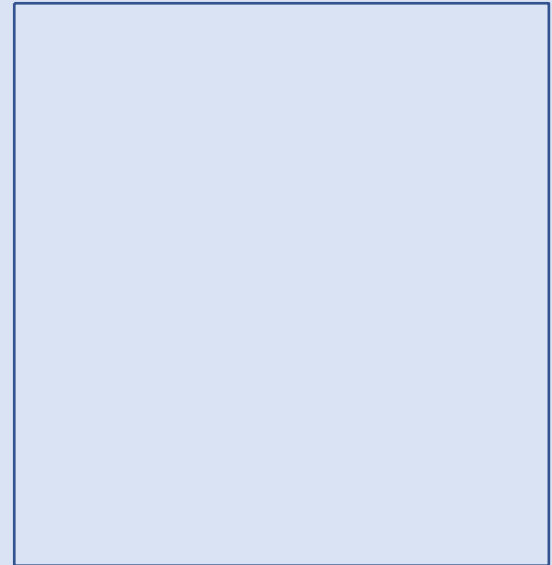
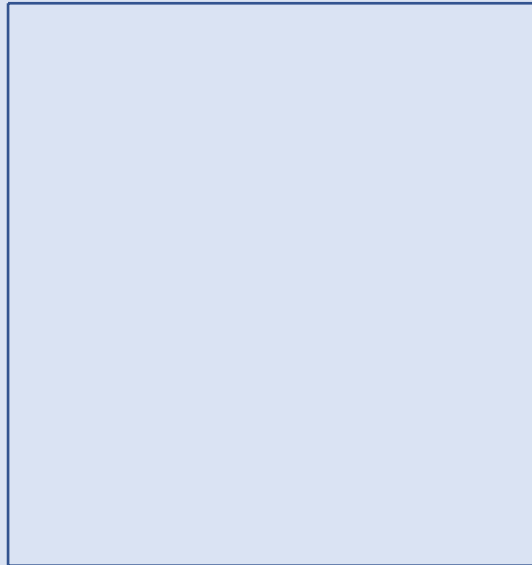
After finding the sums of the pairs of Tens-Frames, discuss the various efficient strategies that were used. Pay special attention to the use of Doubles and Near Doubles in today's Number Talk



A.

●	●	●	●	●
●				

●	●	●	●	●
●				



## Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!

**Goal:** *Understand the relationship between 0, 5, and 10 by recognizing 5 as the midpoint between 0 and 10*

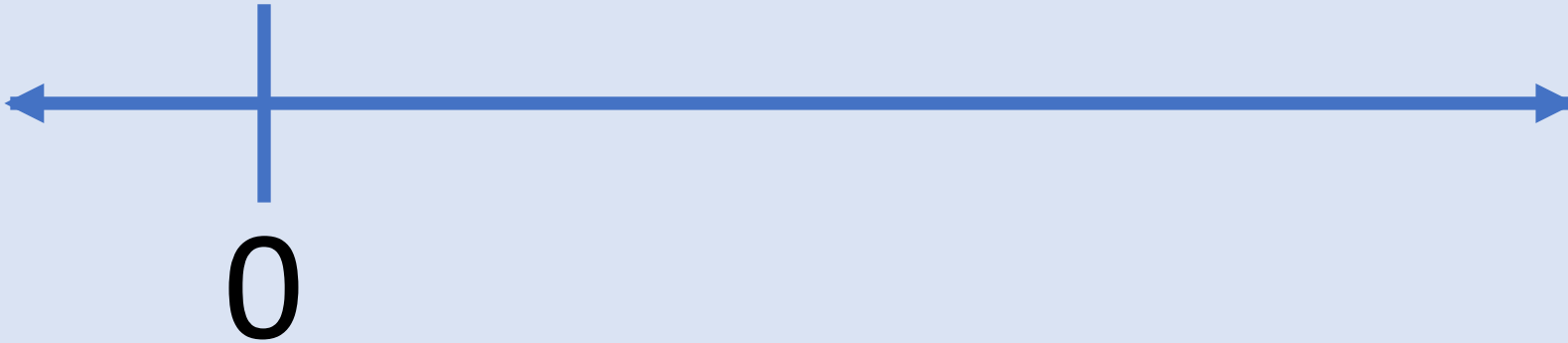
Where does the 5 go?



### Directions:

- Draw a hash mark to the right of the zero to the far right of the number line.
- Write the number 10 below the hash mark.
- Ask students where the number 5 would go on the number line.
- Draw the 5 on the number line.
- Discuss.
- Erase the 10 (**not the 5**)
- Write the 10 in a new location.
- Ask students if the 5 is still in the correct place (it is not).
- Erase the 5 and move it to the new correct location.
- Continue this process to build understanding of midpoint and equal intervals.
- Discuss the concept of midpoints and equal intervals on the number line.

# Where does the 5 go?



**Goals:** Understand the relationship between 0, 5, and 10 by recognizing 5 as the midpoint between 0 and 10

**Directions:** Draw a hash mark and write the number 10 below it. Ask students where 5 would go on the number line. Draw the 5 on the number line. Discuss. Then erase the 10 and move it to a new location. Ask students if the 5 is still in the correct place. Erase the 5 and move it to the new correct location. Continue this process to build understanding. Discuss the concept of midpoints and equal intervals on the number line.





## Directions for QUICK COUNT routines

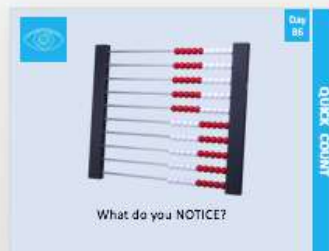
Quick Count is an instructional routine designed to shift attention away from mindless calculations and toward necessary structural interpretations of mathematics. This routine fosters structural thinking, Math Practice 7, and promotes student discourse.

1. Pair students into Numbered Heads (Peanut Butter Jelly partners, etc.)
2. **Show students the first image slide for about 3-5 seconds depending on the complexity of the image and level/experience of the students.**  
**After 3-5 seconds, advance the slide to hide the image.**
3. With their partner, students discuss everything they can remember about the image.
4. After a minute of partner discussions, have students share ideas to the group.
5. Create a list of student ideas that students can refer to when the image is shown again.
6. Tell students that you are going to put the slide back up without hiding it so they can COUNT the images using some type of **shortcut strategy** (chunking, symmetry, arrays...)
7. Show the image again and leave it displayed as students look for counting shortcuts.
8. With their partner again, students discuss how many objects are in the image and describe the shortcut counting strategy they used. Give time for partner discussions. Listen in and take notes about discussions to determine which students will share.
9. Use the slide with identical images as a comparative visual as students take turns explaining how they counted the objects in the image. This 2-step process is important for building listening comprehension and students' ability to articulate the ideas of others.
  - a. Use your notes to select different students with different approaches.
  - b. The student explains his/her shortcut as the teacher **gestures** over the image.
  - c. A **different student** is asked to **REPEAT the original student's shortcut** as the teacher **annotates** (circles, underlines) on the image to show the shortcut used.
  - d. Repeat the process using different student-generated shortcut strategies.
10. End by asking students to explain what was "mathematically important"



# Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!



## 1st VIEWING:

- Pair students into Numbered Heads (or Peanut Butter Jelly partners, etc.)
- Show students the first image slide for about 3-5 seconds
- With their partner, students discuss everything they can remember about the image.
- As a class, make a list of everything you can remember about the image (record ideas even if they are not accurate).

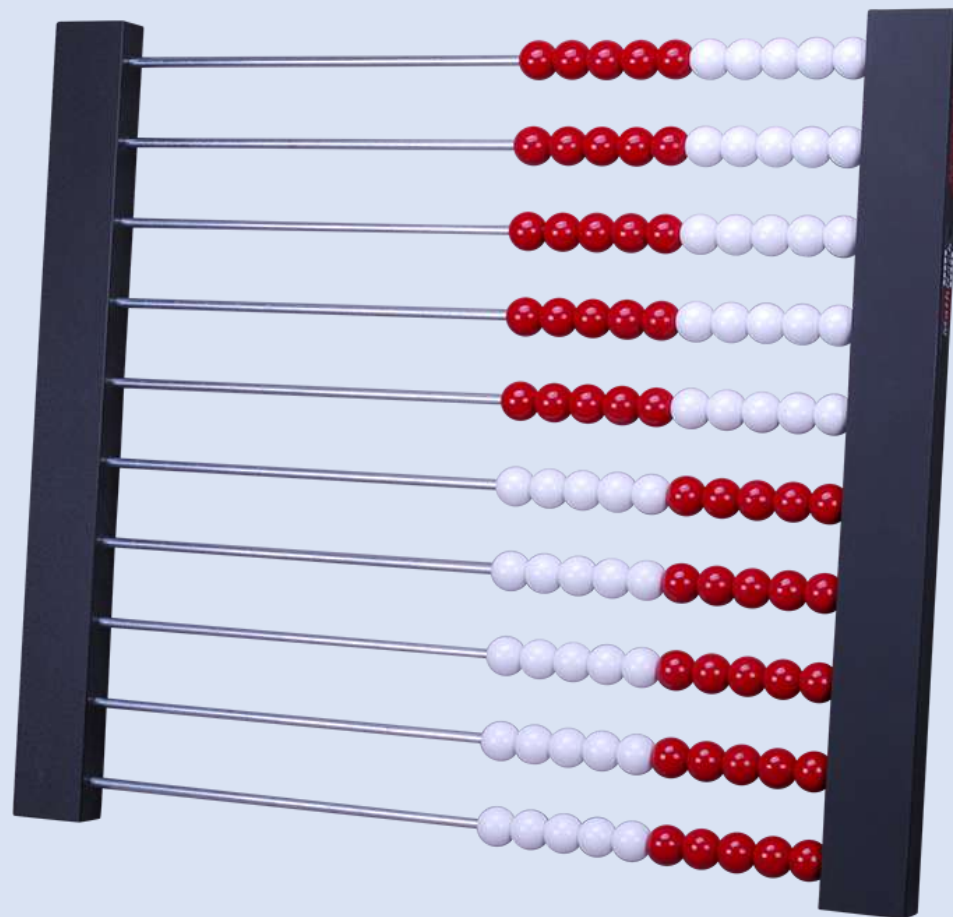
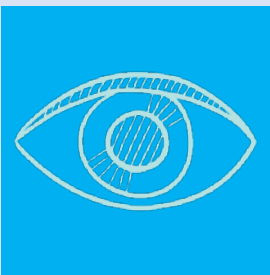
## 2nd VIEWING GOAL:

Students find various short cuts for determining the total.

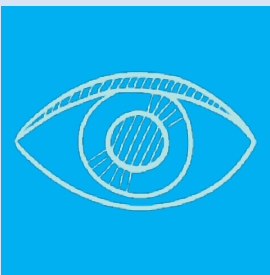
Help students begin to move away from "counting each" to "counting groups" using subitizing/composing/decomposing strategies

## POSSIBLE RESPONSES:

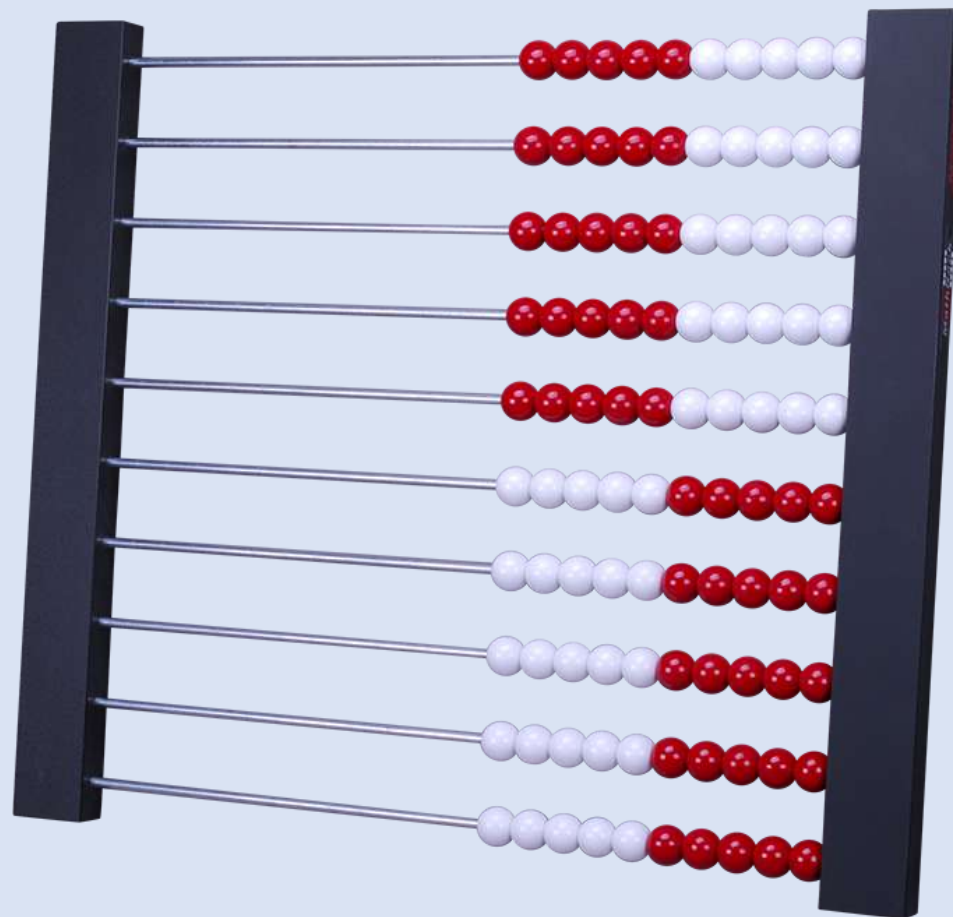
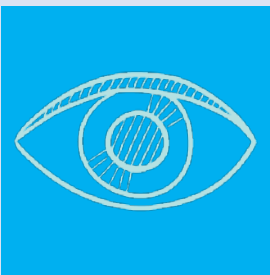
- There are red and white beads
- There are 10 rows of beads
- There are 100 beads
- There are 5 red and 5 white on each row
- The colors switch from red and white to white and red
- All of the beads are in the "at rest" position (moved to the far right)
- The value shown on the Rekenrek (or Math Rack) is zero since all of the beads are "at rest"



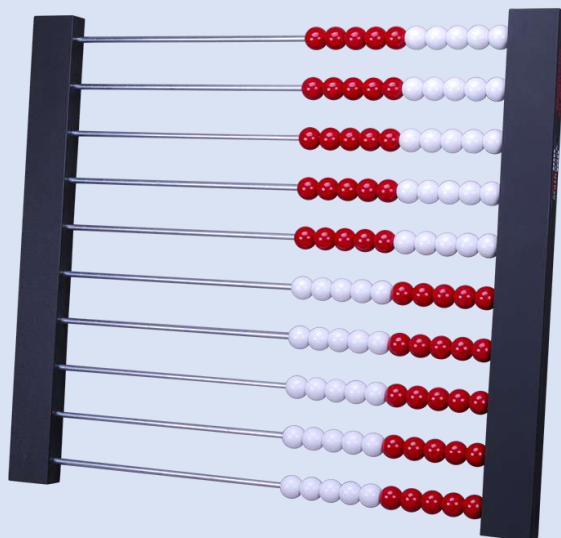
What do you NOTICE?



**What did you  
NOTICE?**



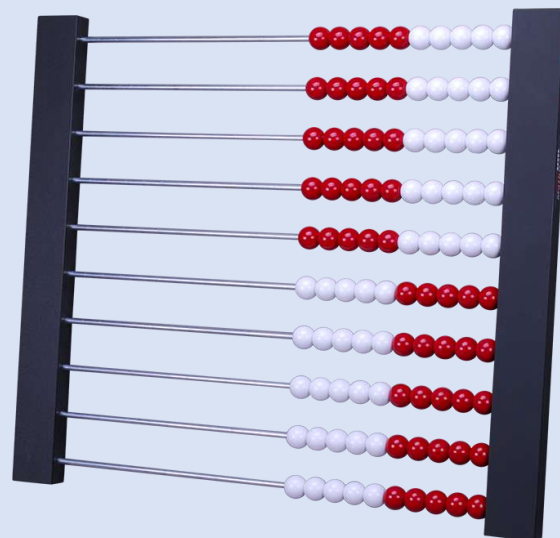
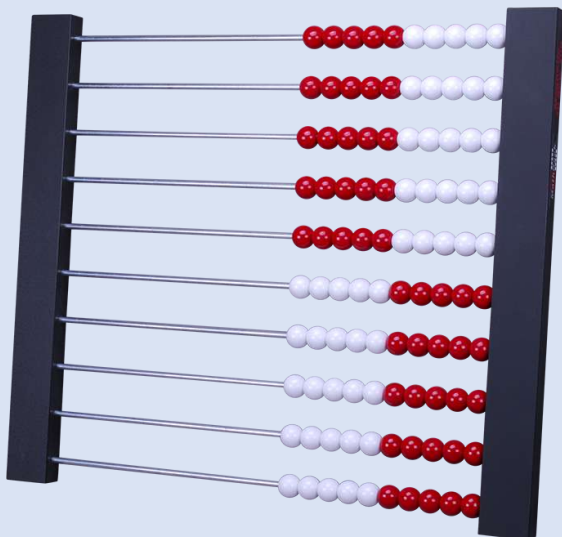
How many do you see?  
What counting shortcut did you use?



(They) noticed \_\_\_\_\_  
so they \_\_\_\_\_

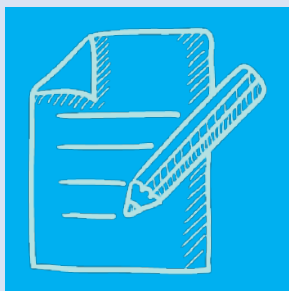
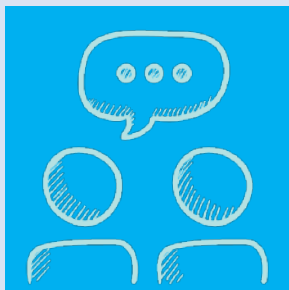
Day  
86

I noticed \_\_\_\_\_  
so I \_\_\_\_\_



quick count

## Reflect



**What was  
mathematically  
important?**

## About the SAME BUT DIFFERENT Routine

*Same But Different* is a powerful routine for use in math classrooms. The *Same but Different* routine compares two things **calling attention to both how they are the same and how they are different**. This apparent paradox is the beauty of the activity. In this analysis, *instead of making a choice and trying to prove that these are the same or prove that they are different, students consider how two items can be both*. This is a critically important distinction from many other tasks.

**One of the reasons students struggle in math is that they struggle to make connections.** Someone who has poorly developed number sense might see each number as its own thing, and not part of the larger network of mathematical ideas. A mathematical conversation using the language *same but different* that calls attention to how a new concept in math is the same as another familiar and comfortable concept but different in a specific way is a useful conversation in growing a student's network of connections. Building these connections could also reduce anxiety as children become the sense-makers in the conversation.

Source: [www.samebutdifferent.net.com/about](http://www.samebutdifferent.net.com/about)

## Facilitating the SAME BUT DIFFERENT Routine

1. Present the slide
2. Ask students to THINK about how the two items are both the SAME AND DIFFERENT.
3. Do not allow conversation at this time -- give ample think time for students to consider the possibilities
4. After some time has been given (a minute or so), ask students to talk with their Number Head partner or small group about their ideas -- allow this conversation to dominate the time dedicated to this routine
5. As students talk with partners/groups, walk around and listen to the conversations. Resist jumping in; let them grapple with the ideas with their peers.
6. As you walk around listening, take notes. You will use these notes to help direct the whole group conversation.
7. Refocus student attention to the front of the room for a whole group debriefing session. Ask students to share some of their ideas about how the two were both the SAME and DIFFERENT – use the notes you took to bring out important ideas that will benefit the entire room.

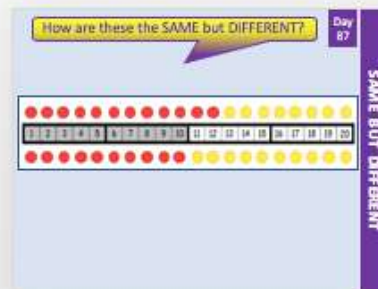




## Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!

- Students may simply recognize a component that makes them the “same” OR “different”
- Some students may state a same/different relationship and say that they are the “same because.... But different because....”

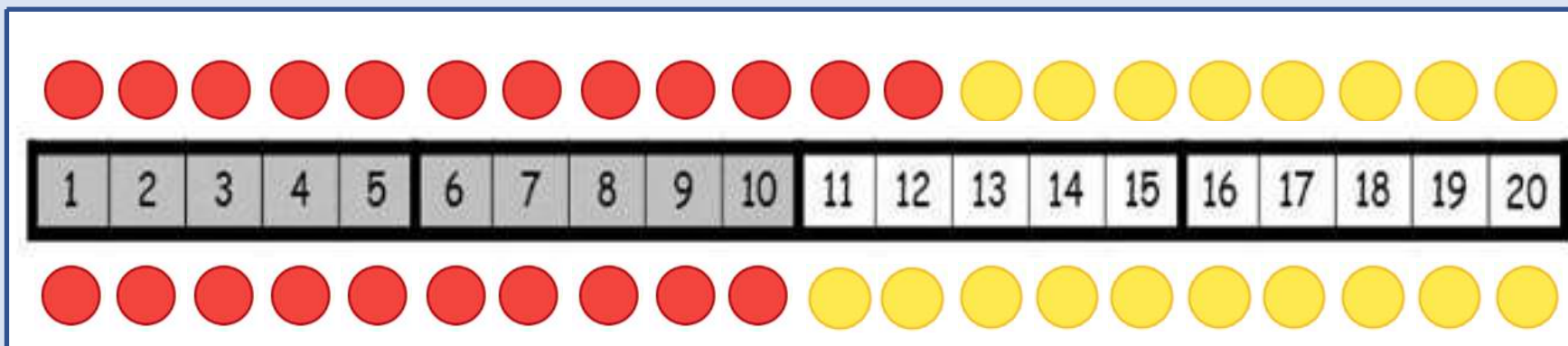


### Possible Responses:

- The top and bottom both have a total of 20 but the red and yellow amounts are different
- The top has 12 red and the bottom has 10 red
- The top has 8 yellow and the bottom has 10 yellow
- The top has a different amount of red and yellow – the bottom has the same amount of red as yellow (10)
- They both are lined up with red first and yellow second
- They both are aligned to the number path
- One is above the numbers – the other is below the numbers

How is the top row of dots the SAME but DIFFERENT from the bottom row of dots?

SAME BUT DIFFERENT



10

Day  
88

SPLAT!

How many blue

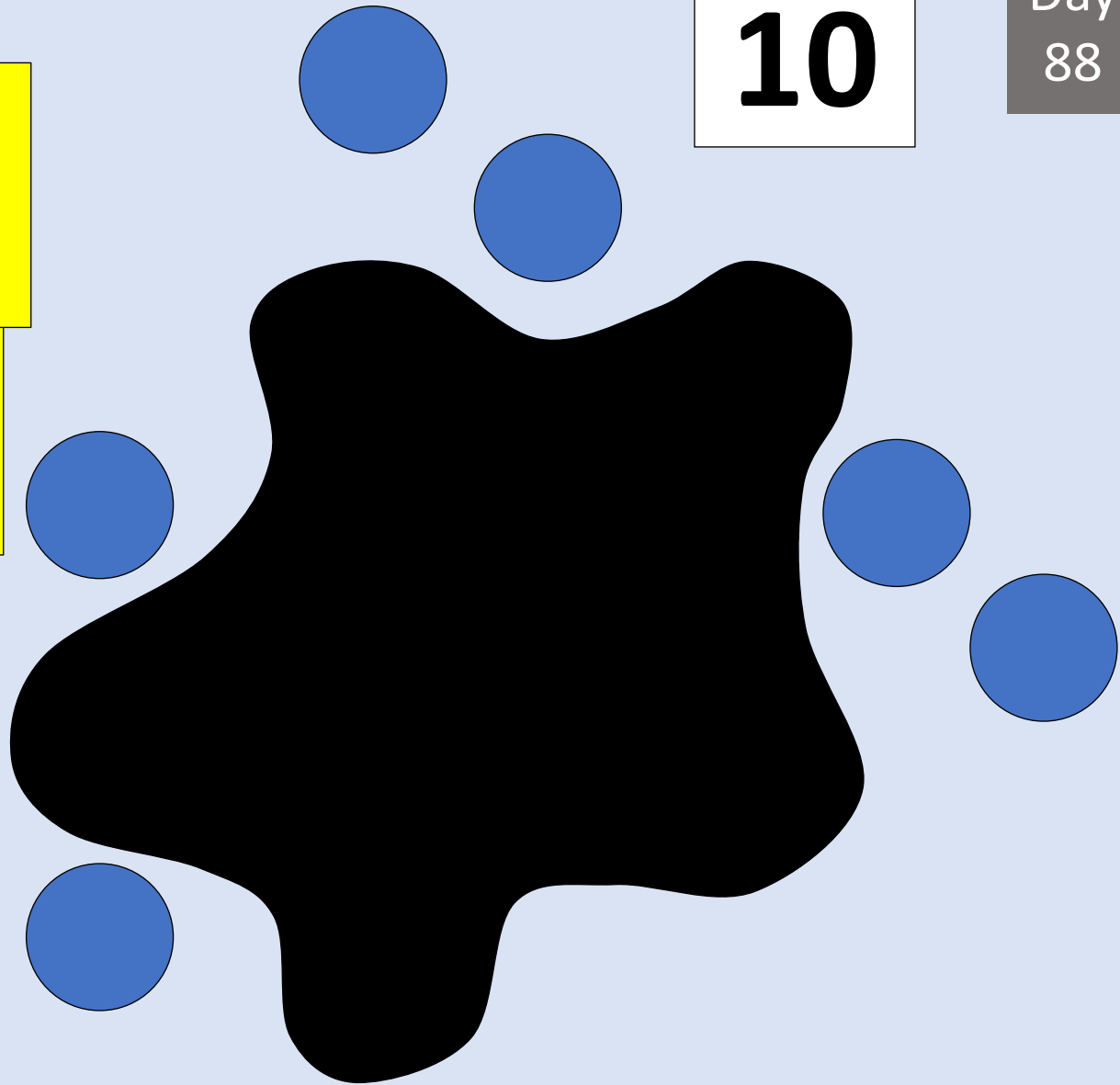
How did you  
count them?

How many shapes  
are under the splat?

How else could  
you know?

Let's look under  
the splat to see  
how many shapes

What can we learn  
from this picture?



## Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!

A	$17 - 7$	$7 + 1$	B
C	$6 + 4$	$3 + 7$	D

Day 89

WHICH ONE DOESN'T BELONG?

Three of these...

### Possible Responses:

- A – Three of these expressions are addition.  $17 - 7$  is not addition
- B – Three of these expressions equal ten.  $7 + 1$  is not equal to 10
- C – Three of these expressions have a 7.  $6 + 4$  does not have a 7
- D – Three of these expressions have the greater number written first. 3 is not greater than 7

D may be a tough one – remember these are possible responses – students will think of other correct ideas, too!

A

$$17 - 7$$

B

$$7 + 1$$

C

$$6 + 4$$

D

$$3 + 7$$

“Three of these...”

# Use the NEXT SLIDE with students.

Day  
90

**TODAY'S GOAL:** Since Day 90 marks the halfway point of the schoolyear, we will use our Number Sense Routine today to explore the concept of halves and its relationship to doubles.

Before beginning, set the stage by explaining why today is a special day:

*Today is Day 90 of school. We go to school 180 days each year.*

*The number **90** is **HALF of 180**, so today marks the HALFWAY point of our school year.*

*To celebrate the HALFWAY point of school, we will focus our Number Talk today on HALVES.*

*We have already learned about **doubles** – for example, we know that  $5+5$  is a doubles fact that equals 10. So HALF of 10 is 5 because it takes two 5s to make a total of 10.*

For each image, ASK the questions below:

- **How many eggs?**
- **What doubles fact is equal to that number of eggs?**
- **What is HALF of \_\_\_\_ (the number of counted eggs)?**
- **How do you know? (encourage students to use the image to support their ideas)**

After discussing student ideas in pairs and with the whole class, have students tell the mathematical annotation for each image.



$3+3=6$   
3 is HALF of 6



$6+6=12$   
6 is HALF of 12

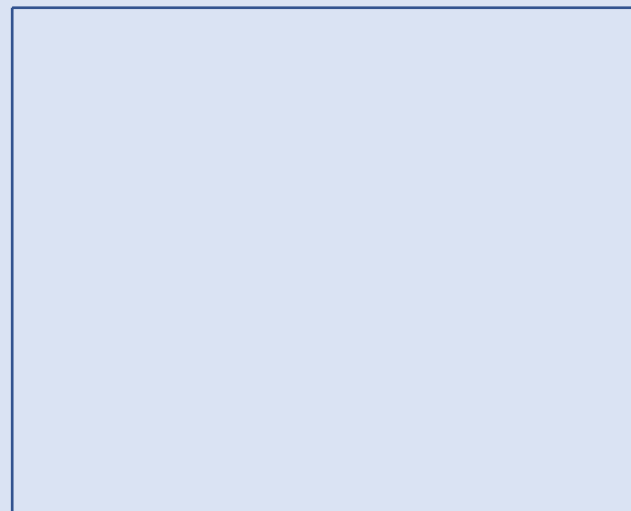
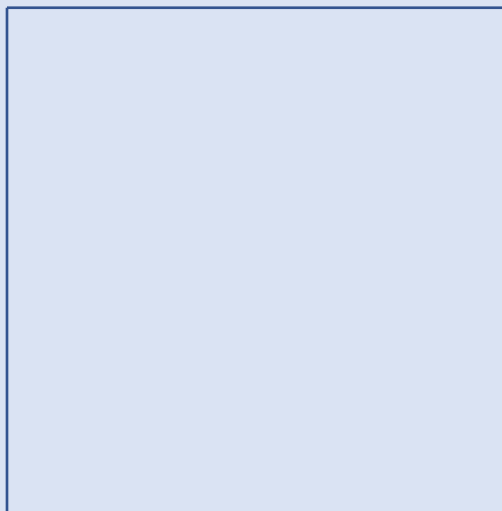


$9+9=18$   
9 is HALF of 18



- How many eggs?
- What doubles fact is equal to that number of eggs?
- What is HALF of \_\_\_\_ (the number of counted eggs)?
- How do you know? How does the image help support your idea?

Annotate the math for each image after giving students time to discuss and share



## Esti-Mystery

**Students use clues to solve the estimation mystery.  
After all of the clues are revealed, students will have enough  
information to determine if their initial estimate was correct.**





**Before seeing the clues,  
estimate how many erasers  
are in the cup.**

**As the clues appear, use the  
information to narrow the  
possibilities to a smaller set.  
Then use estimation to  
determine which of the  
remaining answers is the  
most reasonable.**

\*Esti-Mysteries will only work correctly in Slide Show  
mode of PowerPoint – select “Play from Current Slide”



**Clue #1**

**Count by 2's from 2 to 30. The answer is one of those numbers.**

**Clue #2**

**The answer is greater than 10.**

**Clue #3**

**The answer is less than 30.**

**Clue #4**

**One of the digits is a 4.**

**Clue #5**

**There are now two possibilities.  
Which one do you think it is?**

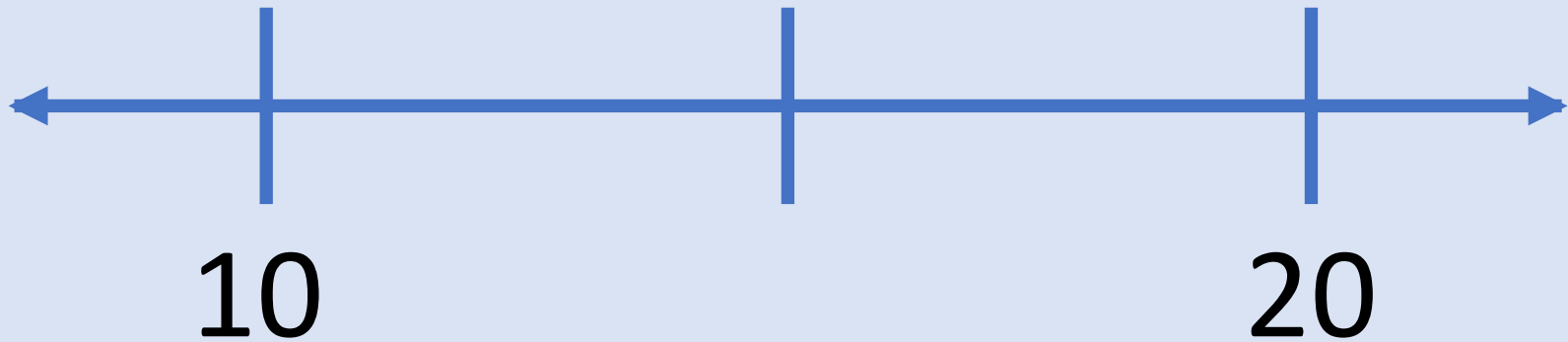


**By combining the clues and estimation, you now have enough information to determine the answer.**

**The Reveal**  
**Click to see the answer.**





Question Prompts

Think about the number 12. Would it go closer to 10 or closer to 20? How do you know?

What number would go on the empty hash mark that is halfway between 10 and 20? How do you know?

Where would the 2 go on this number line? (*Help students visualize the number line extending far to the left*)

What is a number that would be to the right of 20? What is another number that would be to the right of 20?

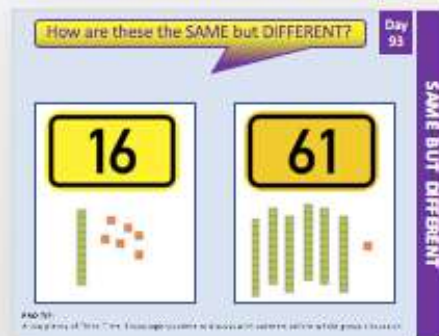
Where would the number 18 go? Would it be closer to the 20 or closer to the 15? How do you know?



## Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!

- Students may simply recognize a component that makes them the “same” OR “different”
- Some students may state a same/different relationship and say that they are the “same because.... But different because....”



### Possible Responses:

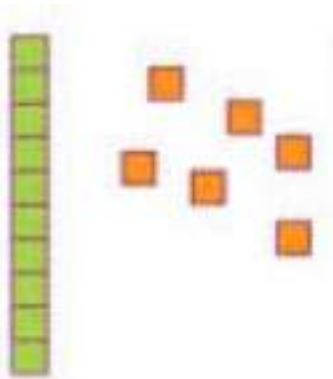
- Both have the digits 1 and 6 but they are not in the same place.
- Both are numbers greater than 10 but one is 16 and the other is 61.
- Both have some tens and some ones, but 16 has only 1 ten and 61 has 6 tens.
- Both have digits 1 and 6 but 16 has 1 ten and 6 ones and 61 has 6 tens and 1 one.
- They are both on the number line, but they are located at different places on the number line.

How are these the SAME but DIFFERENT?

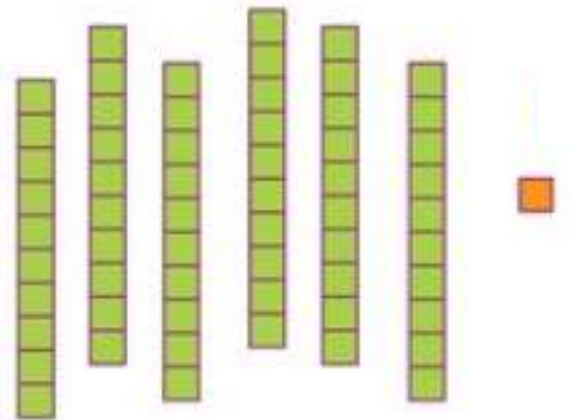
Day  
93

SAME BUT DIFFERENT

16



61



**PRO TIP:**

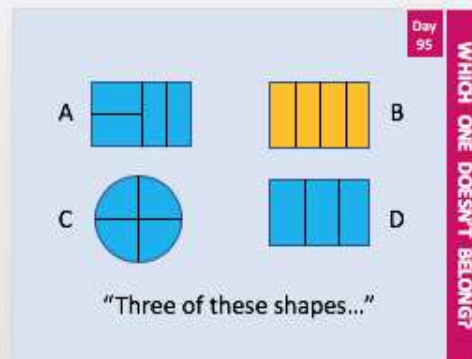
Allow plenty of Think Time.

Encourage students to discuss with partners before whole group discussion.



## Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!

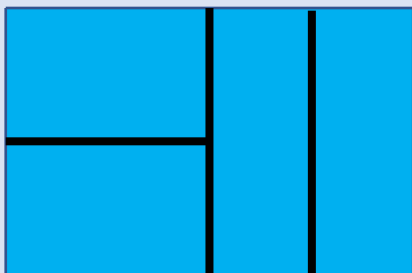


- A – Three of the shapes are partitioned into identical pieces. Shape A does not have identical (congruent) pieces
- B – three of the shapes are blue. Shape B is not blue
- C – Three of the shapes are rectangles. Shape C is not a rectangle, it is a circle
- D – Three of the shapes are partitioned into fourths. Shape D is not in fourths, it is partitioned into thirds

NOTE: Shape A is partitioned into fourths they ARE the same size (area) but not the same dimensions



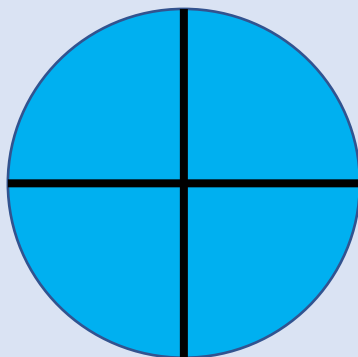
A



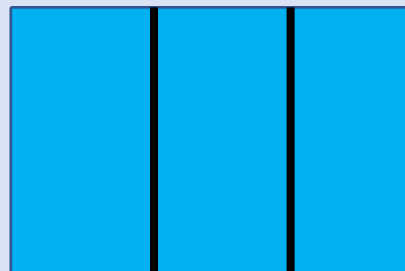
B



C



D



“Three of these shapes...”



Use  
Numbered  
Heads

READ to  
Understand

Decide

Draft

Defend

Reflect

Sam has a 12 jellybeans in his pocket.  
**He gave all of the yellow jellybeans to a friend and he ate 3 of the green ones.**

**Decide how many jellybeans Sam has now.**  
Be ready to talk about your strategy 😊

- ☐ 4 jellybeans
- ☐ 5 jellybeans
- ☐ 6 jellybeans



# Reflect on Learning

- A new math idea I learned today is...
- When you want to convince someone of your ideas, you should...
- To work carefully like a mathematician, I need to...

# Adding 2 More

Day  
96

Adding 2 More - Start at 3									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

Day  
96  
CHORAL COUNTING

*Begin by pointing out that the 3 has been circled.*

- Ask, "Does anyone know what is 2 more than 3?"
- Ask, "How do we know 5 is two more than 3?"
- Ask, "How else could we know 5 is two more than 3?"

*Take time to discuss.*

*Continue in this manner:*

- Ask, "Does anyone know what is 2 more than 5?"
- Ask, "How do we know 7 is two more than 5?"
- Ask, "How else could we know 7 is two more than 5?"
- Ask, "Does anyone know what is 2 more than 7?"
- Ask, "How do we know 9 is two more than 7?"
- Ask, "How else could we know 9 is two more than 7?"

*Be sure students understand how to track from the end of one row to the beginning of the next row after circling 9.*

- Ask, "Do you notice any patterns for the numbers we counted circle so far?"
- Ask, "What number do you think will be next in the pattern?"
- Discuss and circle the number 11. Continue in this way through 19.
- Ask, "What number do you think will be circled next?" Have students discuss with a partner first.
- Explore/Discuss.
- "Do you think we could use the pattern we've discovered to skip-count all the way up to 120? Let's try it."
- Choral count and circle the numbers as you go. Move slowly. Encourage students to stay with you as you circle.

**When finished, discuss patterns they notice.**

CHORAL COUNTING



## Adding 2 More – Start at 3

Day  
96

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

CHORAL COUNTING

## Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.  
Additional ideas encouraged!



**GOAL:** Help students to discover the efficiency of skip-counting. Move students to an understanding that counting one-by-one is not efficient.

One possible strategy for counting efficiently is to use the doubles strategy. Students may count the first row one by one or by subitizing the crayons and counting in smaller groups then double the 8 since the two groups of crayons are identical to know that there is a total of 16 crayons (counting all 16 one-by-one).

If all students count the crayons 1-by-1 to find 16, prompt students to think of more efficient strategies by asking, "How could we have known how many crayons without counting every single one?"

Give think time and partner discussion time.



# What do you NOTICE?



quick count

**What did you  
NOTICE?**



How many crayons do you see?  
What **counting shortcut** did you use?



quick count

I noticed \_\_\_\_\_  
so I \_\_\_\_\_

(They) noticed \_\_\_\_\_  
so they \_\_\_\_\_



Reflect

**What was  
mathematically  
important?**

quick count

**Use the NEXT SLIDE with students.**

Day  
98

OPEN NUMBER LINE

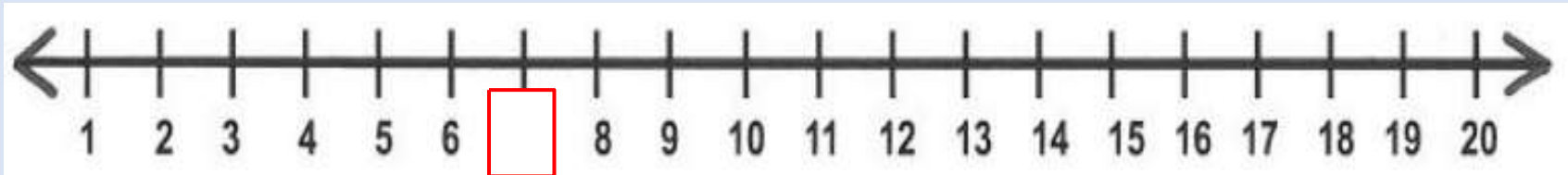
The number line task on the next page is designed to build precise language of BEFORE, AFTER, and BETWEEN

TIP: Use the screen shade to reveal just one question at a time

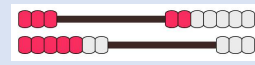
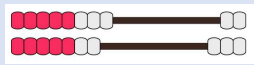
Discuss each question. Encourage students to talk in Numbered Heads partners before a whole class discussion of the solution.

During the whole group discussion, ask students “How Do You Know” as they state the number solution to each prompt. Encourage reasoning and mathematical language in student responses.





- What number is BETWEEN 17 and 19?
- Which two numbers are BETWEEN 11 and 14?
- What number comes BEFORE 15?
- What number comes BEFORE 1 on the number line?
- What number comes AFTER 12?
- Tell me any number that is LESS THAN 19?
  - *note – discuss that there are many choices*
- What number goes in the red box?
  - How do you know?
  - How else could you know?



## TEACHER NOTES

Day  
99

### BEFORE

This slide has the String of expressions that you will use for today's Number Talk. You can use Smart Ink, right click for PowerPoint Pen, or convert this slide to Smart Notebook so you can easily annotate on the slide. The annotation is an important part of the routine. The expressions should be presented one-at-a-time with skills building on one another. Remember, students will come with a wide variety of strategies. Encourage student sharing of these strategies and work toward determining which of the ways were most efficient and brain-friendly. Students should be guided to do much of the talking during a Number Talk.

### DURING

**Addition with the Rekenrek** (pronounced *rek-n-rek*). This tool is also referred to as a Math Rack.

Show each frame one at a time by using the screen shade on your SmartBoard. As each model is shown, ask students,

- How many beads are in play? (in play means moved to the left on the rack)
- How do you see them? (students should describe how they grouped the beads to find the total sum)

Encourage more than one student to explain since there will be slightly different ways that may prove to be equally efficient.

Set A  $5+5+1=11$  (red top, red bottom, white) or  $6+5=11$  (top, bottom) or  $10+1=11$  (all red, white)

Set B  $5+5+5=15$  (red, red, whites) or  $5+5+3+2=15$  (red, red, white top, white bottom) or  $10+5=15$  (all red, all white)

Set C  $5+5=10$  (moved whites up to make 5) or  $3+7=10$  (top and bottom) or  $8+2=10$  (red and white)

Remember, students will come with a variety of strategies. We must help to develop their strategies AND expose them to other strategies if we expect their work with numbers to continue to develop into efficient and effective ways of doing calculations. Help students to understand a wide variety and guide them into understanding that some strategies work better in some situations, so knowing more than one way to solve an equation like this one is important so they can later choose the method that is most efficient.

### Notes:

1. Counting each bead one-by-one is, in fact, a strategy of counting the beads – just not very efficient. If a student uses this method of counting, acknowledge and then ask, “Is there a way that we can count the beads more quickly by grouping them?”
2. Do not allow students to come up to the board. We are trying to build their precise mathematical language and the best way to do that is to have them use precise mathematical language in an effort to get their classmates and teacher to understand their ideas.
3. This activity is not a “flash activity” so do NOT flash the image and cover; rather, it is intended to be visible throughout the discussion for students to discuss the various ways of counting the dots. Remind students that we are working toward efficient methods of counting.

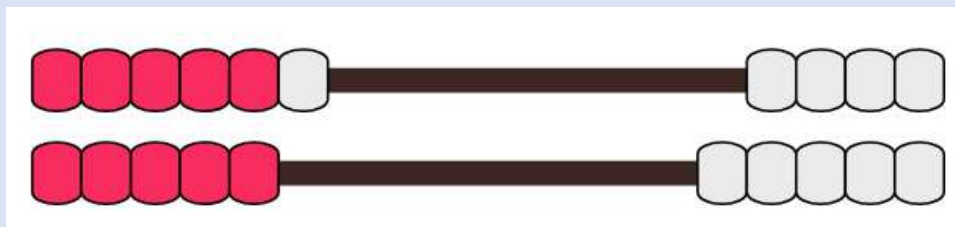
### AFTER

Help students to see how using grouping strategies makes adding more efficient.



# The Rekenrek (Math Rack)

## How Many? How do you see it?



# 100

Day  
100

Let's count to 100!

as each 10s appears.

Were you thinking  
60 or 6 tens?

Let's look under the splat  
and find the value by  
skip-counting by 10s.

10

10

10

10

# SPLAT!

