180 Days of
Number Sense Routines
Grade 4
Days 41-60

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.

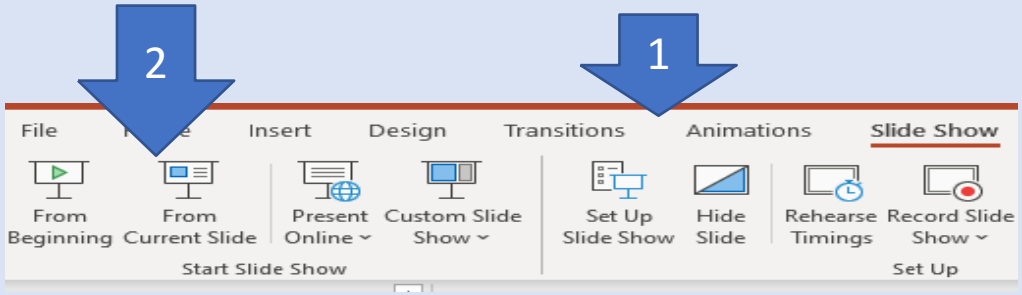
WHAT ARE THE CCPS IMPLEMENTATION EXPECTATIONS? Number sense routines have been developed for all 180 instructional days in grades 1-5. These routines are to be used every day, including early dismissal, late arrival, and field trip days. Because the routines do not require a specific order, it is permissible to trade routines among days within the week 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 OER materials. We have made our work available in Open Educational Resources so that others may benefit as we have from the collaboration of other educators. 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
- *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
- *As Close As It Gets* https://www.mathisfigureoutable.com/ascloseasitgets by Pam Harris

Looking for Patterns: Skip Counting by 9's

Day 41

- **SAY: "**We are going begin with the task of skip-counting by 9's. We'll begin with the number 9. Let's begin." CHORAL COUNT
- Go as far as students can go. Stop when the counting begins to "fall apart"

- **SAY**: "Let's count again. This time I will chart the numbers we count. As I circle the numbers, see if you can see a pattern that allows us to easily predict the next number."
- **CHART:** Use a 120 chart (next page) to chart the counting pattern. Start at the beginning and have students say their number again. This time, circle the number as students say them.

- **SAY: "**Math is all about patterns and relationships. Does anyone see a pattern with the numbers we circled during our count?"
- **DISCUSS:** Take time to discuss the pattern of circled numbers. Ask questions to continue focusing the discussion on the reasons WHY we see those patterns (9 is one less than 10, so the circled numbers will always be down one (+10) and then back one (-1) when it is charted.

- **If a student sees this patterns, let the student explain. If students struggle to see the pattern, ask question to help focus their attention to the pattern.**

- **SAY:** "Let's try counting by 9's again, but this time, let's begin with the number 8. As we count, think about the pattern we discovered."
  Erase the first circles and begin circling the new numbers: 8, 17, 26, 35, 44….
- **ASK**: "Do we see the same PATTERN?" yes – down one (+10) and back one (-1)

CHORAL COUNTING

Looking for Patterns

Skip Counting by 9's

Day 41

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

4.OA.B.4
4.OA.C.5

Day 42

Using the DECIDE & DEFEND routine

- **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 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

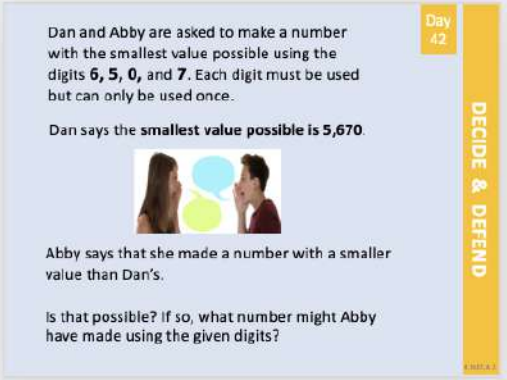
DECIDE & DEFEND

Use the NEXT SLIDE with students.

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

Day 42

DECIDE & DEFEND



There are many possibilities that create a value smaller than Dan's:
5067, 5607, 5706, and even 0567 and its variants.

Some students may have created 0567 – this will lead to a great discussion.
Never be afraid of a good discussion about numbers and mathematical relationships!
This number IS a possible choice. When we write a number, we begin with the largest NON-zero significant digit, so this number would be expressed as 567 when written in standard form.

Both 5067 and 0567 have merits and will provide a great conversation.
Be SURE to guide this conversation as it relates to PLACE VALUE. Students should leave the conversation understanding that the location of the digit determines its value.

Day 42

Dan and Abby are asked to make a number with the smallest value possible using the digits **6, 5, 0,** and **7**. Each digit must be used but can only be used once.

Dan says the **smallest value possible is 5,670**.

Abby says that she made a number with a smaller value than Dan's.

Is that possible? If so, what number might Abby have made using the given digits?

DECIDE & DEFEND

4.NBT.A.2

Day 42

Reflect on Learning

- A new math idea I learned today is….
- Next time I interpret someone else's work, I will…. *(ask myself, pay attention to,…)*

DECIDE & DEFEND

Use the NEXT SLIDE with students.

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

Day 43

ESTIMATION

Show this image to students.
ASK: *How many cheeseballs will fit on the baking sheet?*
Encourage partner/small group discussion.
Briefly discuss some of the ideas.
(click to transition to next slide for the first REVEAL)

ASK: *How many cheeseballs will fit on the plate?*
Encourage partner/small group discussion – consider using Numbered Heads strategy.
After small discussions, ask volunteers to share the ideas they discussed with partner/small groups.
Give plenty of time for the discussion – encourage students to support and critique each other's ideas.
Do not rush this discussion – students will build their capacity for greater Number Sense through these discussions.
(click to transition to the next slide)

A link will appear. Click the link to see a video reveal of the solution.

NOTE: **The next slide looks like a mess if you enter it without being in Slide Show mode. There is no need to "fix" it.**
**** It MUST be used in Slide Show mode to work properly.**

Day 43

How many cheese balls will fit on the plate?

Click HERE for the Video Reveal

***Note: This slide must be run in PowerPoint Slide Show mode*

ESTIMATION

3.MD.C
4.R.1

Day 44

238 + 184
361 + 292
515 + 127
209 + 136

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. Allow student sharing of these strategies and work toward determining which of the ways are most efficient and brain-friendly.

DURING

Breaking Each Number into its Place Value

Number can often be added by looking at the hundreds, tens, and ones separately.

Example: 238 + 184
200 + 100 = 300
30 + 80 = 110
8 + 4 = 12
300 + 110 + 12
410 + 12
422

AFTER

After doing the Number Talk String, be sure to highlight this strategy and encourage students to "look for" places they can use it throughout the day.

NUMBER TALK

Day 44

238 + 184

361 + 292

515 + 127

209 + 136

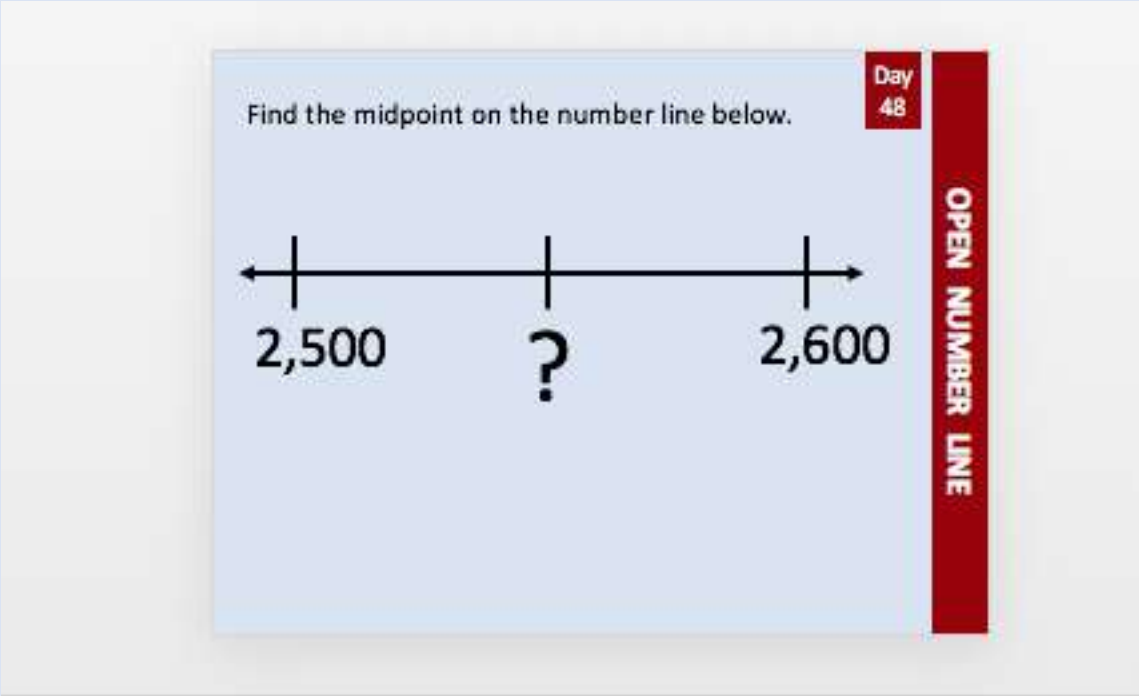
NUMBER TALK

4.NBT.B.4

Day 45

Use the NEXT SLIDE with students.

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



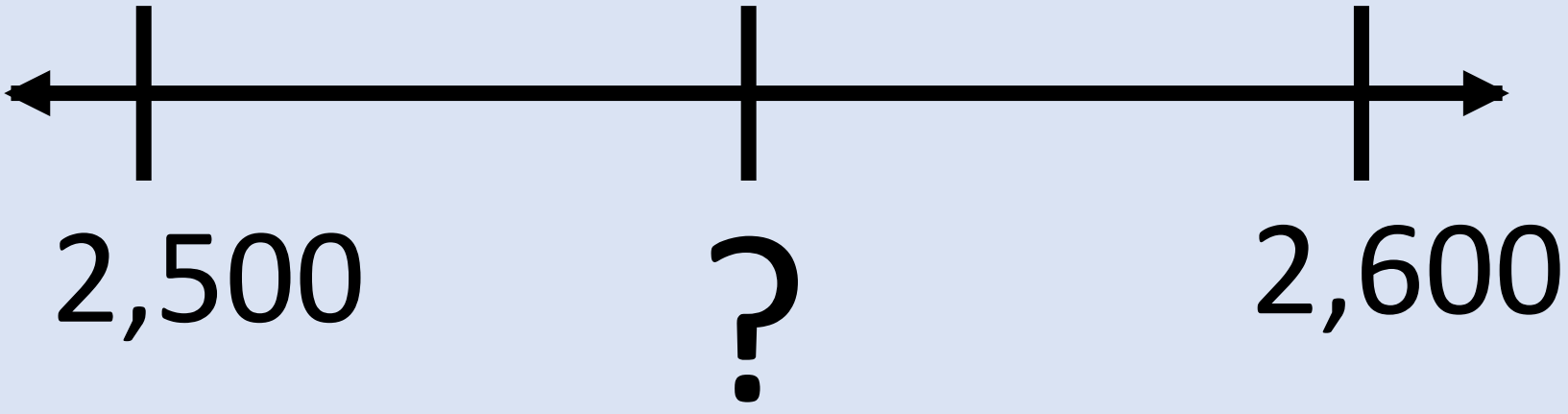
Many students will calculate the distance between 2500 and 2600 (100)
Half of that distance is 50.
Add 50 to 2500 or subtract 50 from 2600 to find the center value.
Midpoint = 2550

What other strategies did your students use?
Be sure to discuss the various strategies and then end the routine by helping students to generalize the efficient vs. non-efficient methods.

OPEN NUMBER LINE

Day 45

Find the **midpoint** on the number line below.
Be prepared to discuss the strategy you used.



OPEN NUMBER LINE

4.NBT.B.4
4.R.1

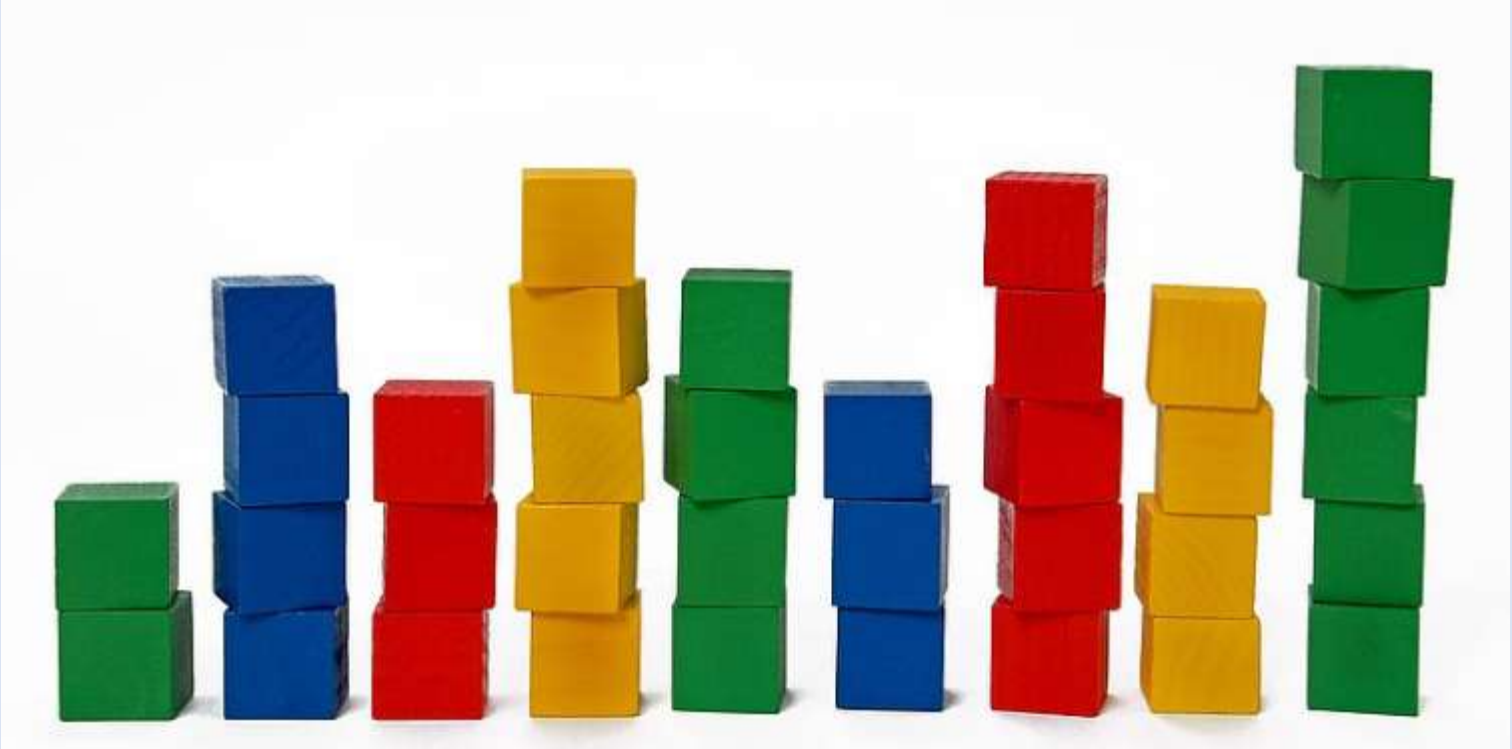
Directions for QUICK COUNT routines

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 (or 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.
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. Ask students to 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 how describe the shortcut counting strategy they used. Give time for partner discussions. Walk around 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.
    - Use your notes to select different students with different approaches.
    - The student explains his/her shortcut as the teacher **gestures** over the image.
    - 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.
    - Repeat the process using 3 different student-generated shortcut strategies.
10. End by asking students to explain what was "mathematically important"

Day 46

QUICK COUNT



What do you NOTICE?

Image Credit: Christopher Danielson @Trianglemancsd

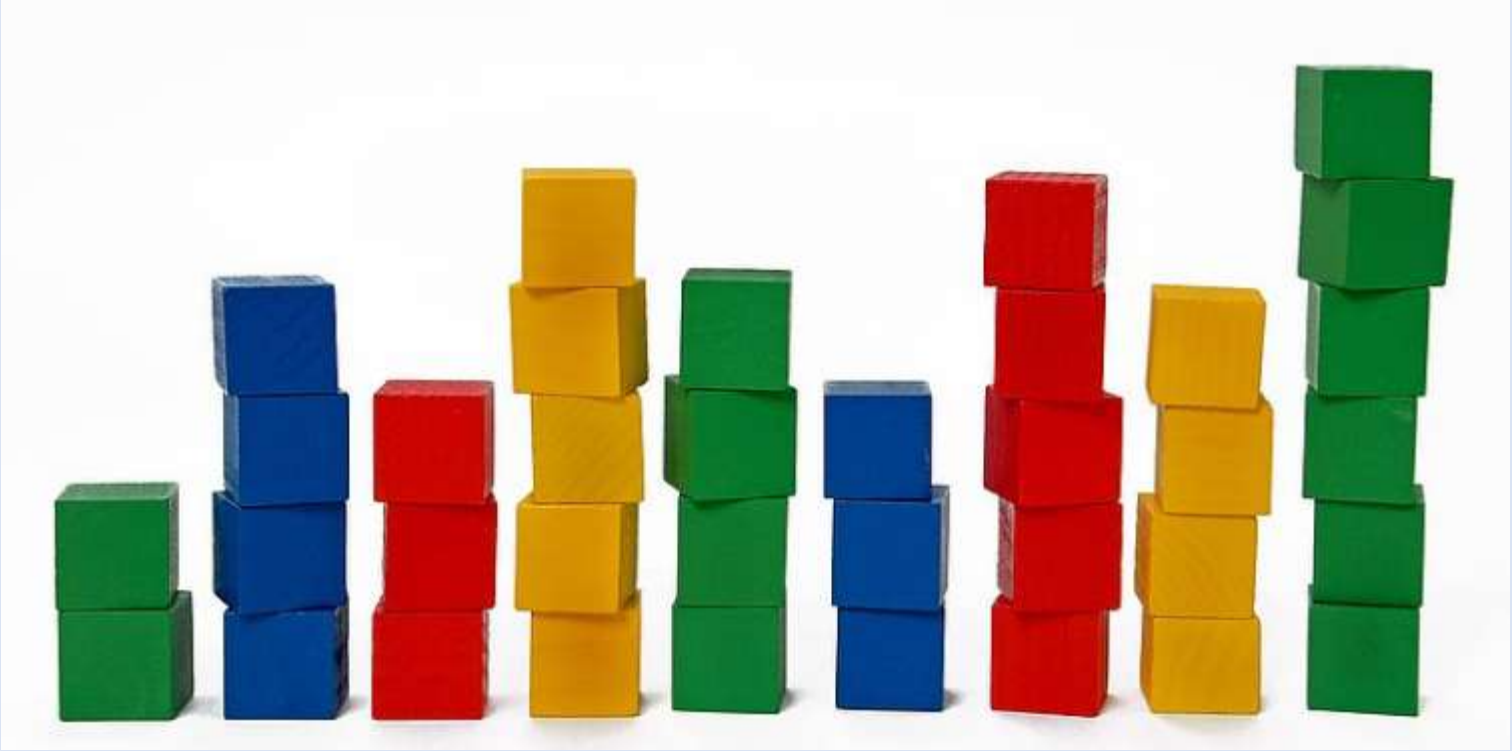
Day 46

QUICK COUNT

What did you NOTICE?

Day 46

QUICK COUNT

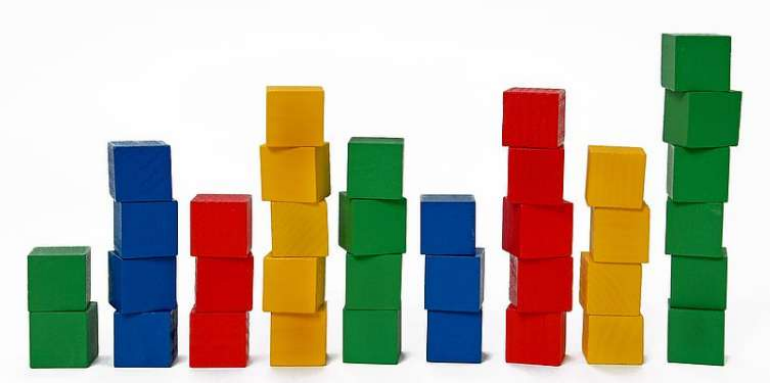


How many do you see?

What counting shortcut did you use?

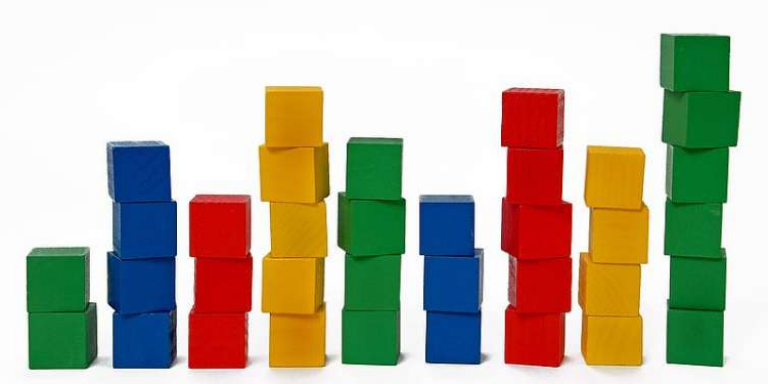
Day 46

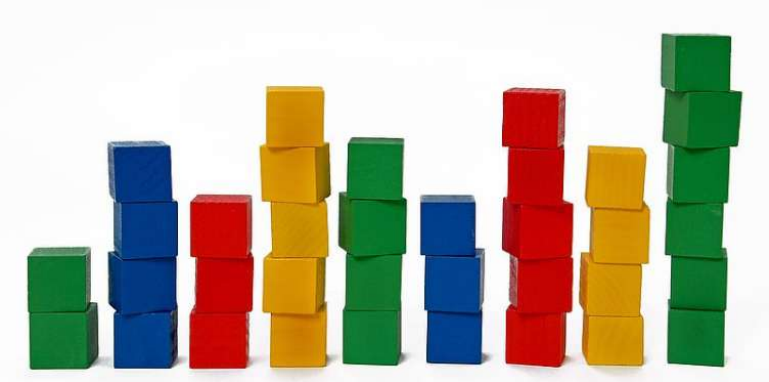
QUICK COUNT



(They) noticed ____ so they _____

I noticed ____ so I _____





Day 46

Reflect

What was mathematically important?

QUICK COUNT

Intro

SAME BUT DIFFERENT

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

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.

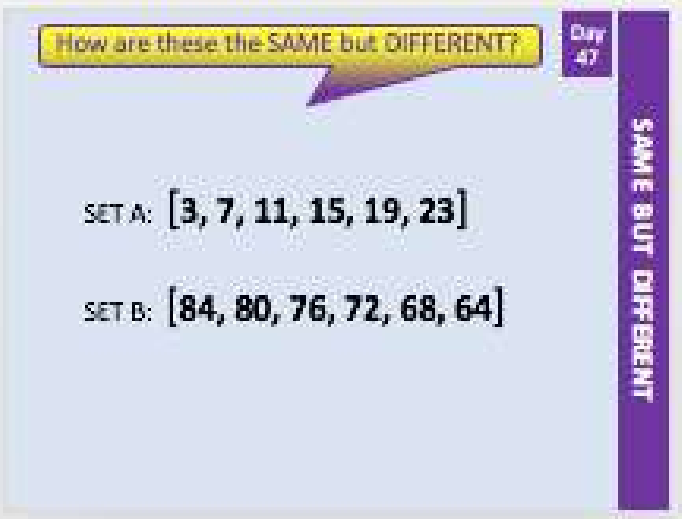
CALVERT COUNTY PUBLIC SCHOOLS

Day 47

Use the NEXT SLIDE with students.

Here is 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 a difference of "4" between each number in the series
- Both have six values in the number set
- Set A increases in value. Set B decreases in value
- Set A is made up of ODD numbers. Set B is made up of EVEN numbers

SAME BUT DIFFERENT

How are these the SAME but DIFFERENT?

Day 47

SET A: **[3, 7, 11, 15, 19, 23]**

SET B: **[84, 80, 76, 72, 68, 64]**

SAME BUT DIFFERENT

4.OA.C.5

Day 48

SPLAT!

19

How many blue shapes do you

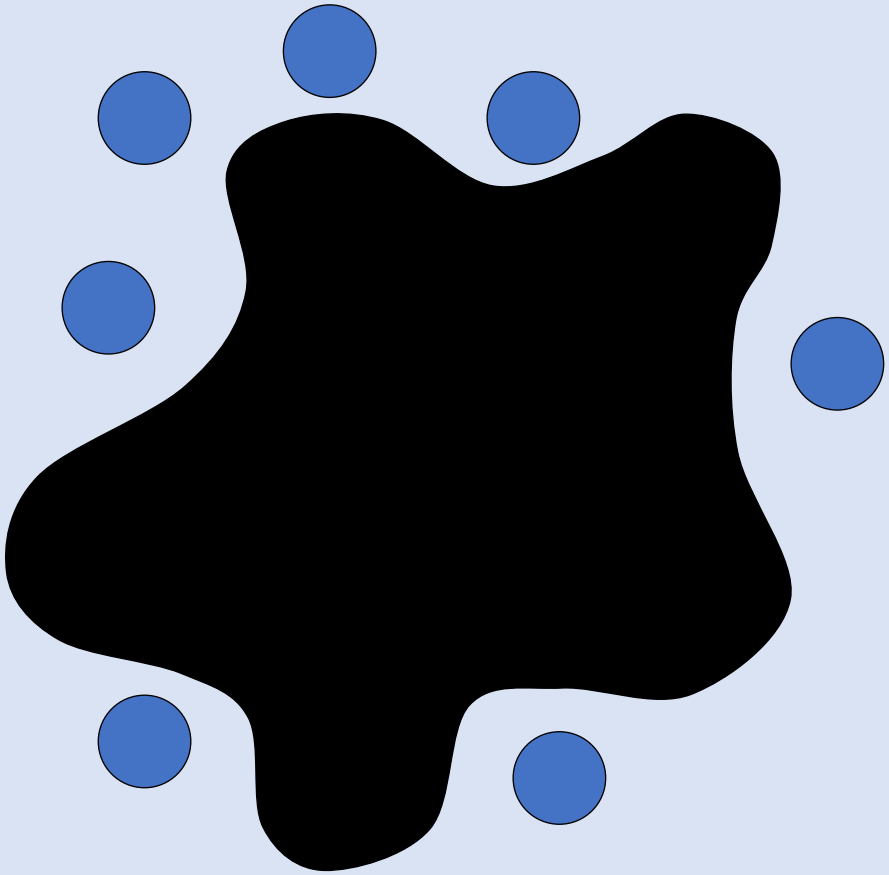
Splat!

How many shapes are under the splat? How

How else could you know?

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

What can we learn from this picture?

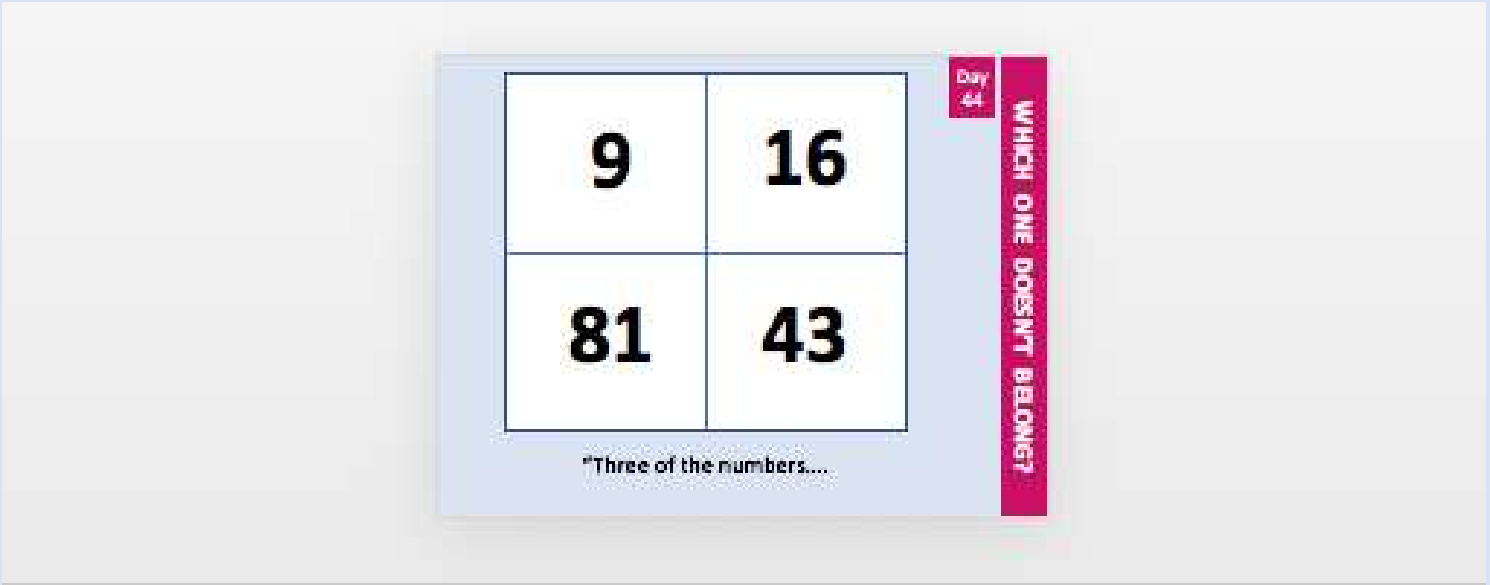


4.OA.B.4
3.OA.B

Day 49

Use the NEXT SLIDE with students.

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



Examples (NOTE: These are not the only responses possible)

- Three of the numbers are odd, but **16** is not odd, it is even
- Three of the numbers are double digit numbers, but **9** is not a double digit number
- Three of the numbers are the product of same number (perfect square 3x3 4x4 9x9), but **43** is not the product of the same numbers being multiplied to itself
- Three of the numbers have a value less than 50. The value of **81** is not less than 50.

WHICH ONE DOESN'T BELONG?

Day 49

WHICH ONE DOESN'T BELONG?

9	16
81	43

"Three of the numbers….

Count by 3s beginning with 342

Day 50

BEGIN WITH NUMBER: 342
COUNTING RULE: +3
GOAL:

- Find PATTERNS within the counted numbers.
- Use those patterns to PREDICT numbers that will appear later in the counting sequence.

CHART: As students choral count, chart their responses – this will give them a visual while counting AND will prompt great discussion when finished counting. **Be sure to write the numbers aligned as shown on the next page to make the patterns more visible (or you can write 10 ACROSS in each row).**

Ask: What patterns do you notice when you look at the numbers that we counted?

The fun is in DISCOVERING the various patterns – Give TIME & SPACE for students to discover!

Possible Patterns to Notice

- Each column to the right increases by 30 when compared to the number directly to the left of it (why? Because we are counting by 3s and there are 10 numbers on each row, so 3x10=30)
- Each row has the same number in the ONES PLACE
- The diagonal INcreases by 33 when you go down left to right.
  It DEcreases by 27 when you go down right to left (Why do you think that is true?)

NOTE:
The NEXT SLIDE is a MODEL. You may not be able to write small enough on the slide, and it is important that numbers are charted in columns (or rows) with 10 numbers in each column (or row) for students to easily see the pattern; If needed, use your whiteboard or chart paper.

CHORAL COUNTING

Day 50

CHORAL COUNTING

342	372	402	_____
345	375	405	_____
348	378	408	_____
351	381	411	_____
354	384	414	_____
357	387	417	_____
360	390	420	_____
363	393	423	???
366	396	426	_____
369	399	429	_____

- What patterns do you notice?
- Using the patterns you see, what number would replace the ???
- Why is the number in the next column always +30?

4.OA.C.5

If the small box is 1 square unit,
what is the area of the big box?

Day 51

*The Estimation routine on the next slide has animations. It must be run in PowerPoint **Slide Show** mode to work correctly.

Show the image with the large empty box and the small purple box.
SAY: If the small box is 1 square unit, what is the area of the big box?
Have students discuss with partners/small groups.
Ask several students to share their ideas with the whole group.
Encourage students to both support and critique each other's reasoning.

CLICK to reveal the number of square units that fit along the edge of one side.
Again, have students use this new information to discuss the possible area of the large rectangle.
When you discuss with the whole class, ask if the new information caused anyone to change their original estimate.
Discuss and celebrate that students are using the new information to make better estimates.

CLICK to reveal a few more unit squares placed in the large shape.
Have students discuss with partners/small groups.
After ample small group discussion, discuss the new information and new estimates as a whole class.
Have several students share their strategy:

- Some may fill in half of the image (12) and then say that they doubled that value to get 24
- Some may know the length times width algorithm and state that they multiplied 4 x 6 --- be sure to ask them where they see "6" if they do not explain
- Some may use a skip counting strategy 4, 8, 12, 16, 20, 24 to count the columns
- Some may visualize that 6 fits across the top and skip count by 6s: 6, 12, 18, 24

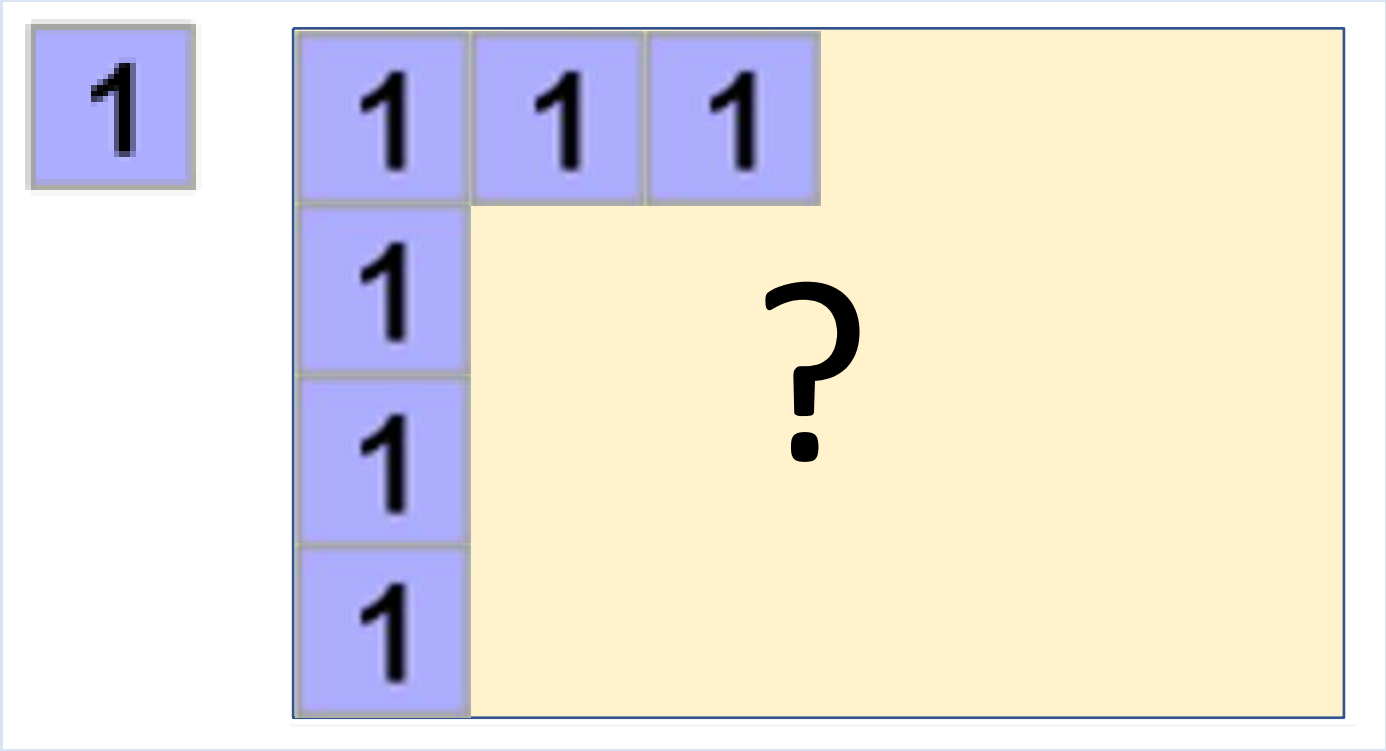
Reminder: Let THEM talk! Your job is to ASK good questions to focus students to the mathematics needed, not to teach a lesson or tell students a process for solving.

CLICK to be prompted that the Reveal is about to happen
CLICK again to reveal the solution. Students may benefit from a discussion of the solution after it is revealed.

ESTIMATION

Day 51

If the small box is 1 square unit, what is the area of the big box?



The Reveal

24 square units

***Note: This slide must be run in Power Point Slide Show in order to work correctly.

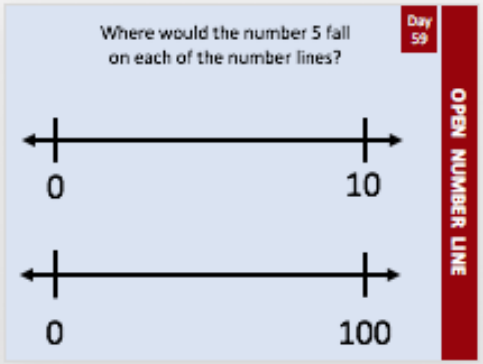
ESTIMATION

3.MD.C

Day 52

Use the NEXT SLIDE with students.

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



Show BOTH number lines at the same time.
ASK: Think about how the scale or magnitude of each number line is different.

- Ask students where the number 5 would fall on the 1-10 number line.
- This one should be fairly simple and should take just enough time for students to explain "midpoint".

- Next ask students to determine where 5 would fall on the 1-100 number line.
- Discuss how and why the 5's are in different locations.
- Encourage students to use benchmark numbers to locate the position of 5 as precisely as possible (they may find 50, then 25, then partition 0-25 into 5 parts and determine that 5 is at the first partition)
- **NEXT, ask students where 20 would fall on each number line**
- Note that on the 10 number line, the 20 would be an **equal distance from 10 as the 0 is to 10**, but will be to the right and not the left of 10.
- Some students will state that 20 does not go on the number line. Be sure to point out that the number line continues beyond what we can see.

OPEN NUMBER LINE

Day 52

Where would the number 5 fall on each of the number lines?

How do you know?

OPEN NUMBER LINE

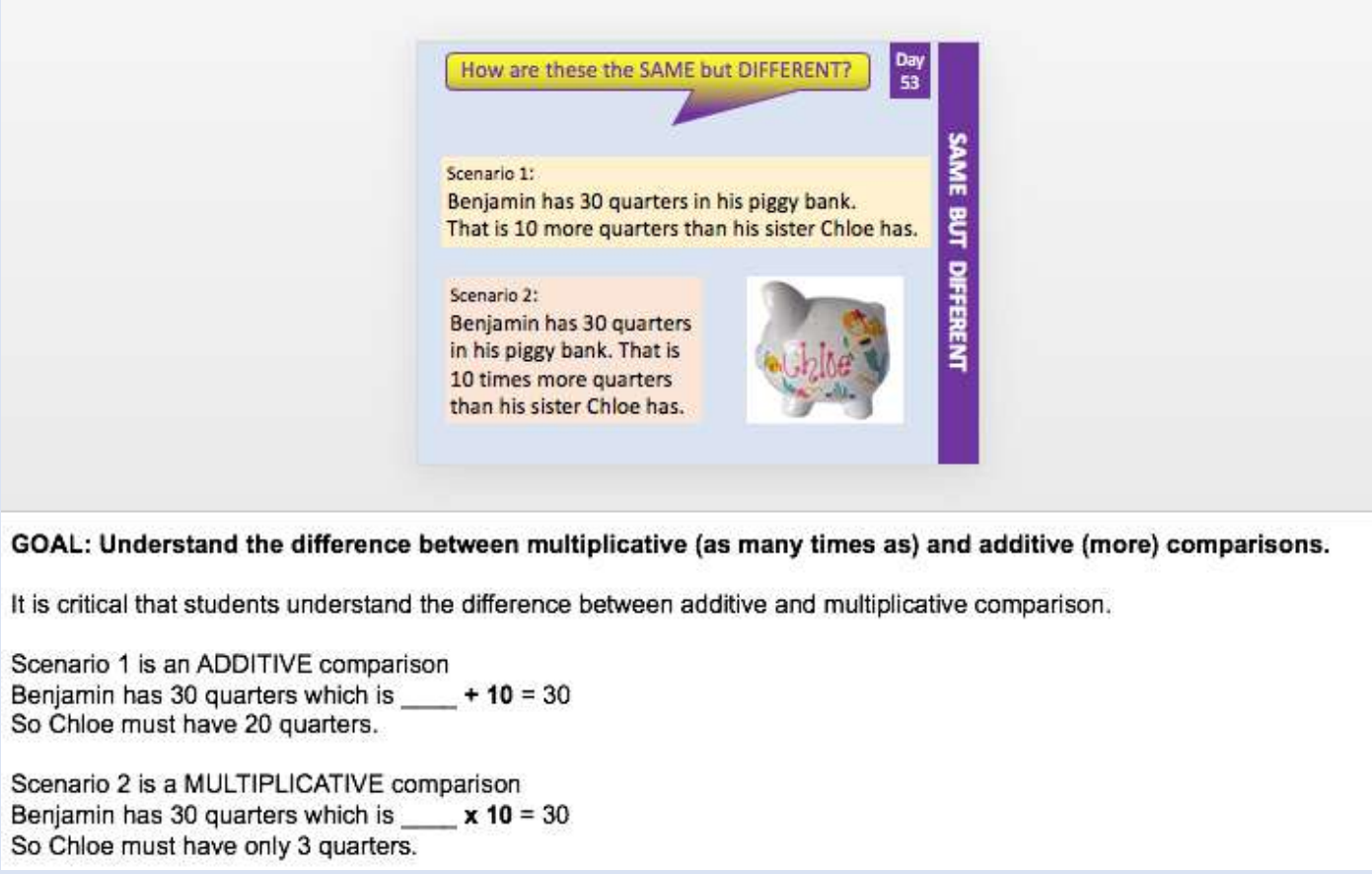
Use the NEXT SLIDE with students.

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

Day 53

SAME BUT DIFFERENT

- 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….”



GOAL: Understand the difference between multiplicative (as many times as) and additive (more) comparisons.

It is critical that students understand the difference between additive and multiplicative comparison.

Scenario 1 is an ADDITIVE comparison
Benjamin has 30 quarters which is ____ **+ 10** = 30
So Chloe must have 20 quarters.

Scenario 2 is a MULTIPLICATIVE comparison
Benjamin has 30 quarters which is ____ **x 10** = 30
So Chloe must have only 3 quarters.

How are these the SAME but DIFFERENT?

Day 53

SAME BUT DIFFERENT

Scenario 1:

Benjamin has 30 quarters in his piggy bank. That is 10 more quarters than his sister Chloe has.

Scenario 2:

Benjamin has 30 quarters in his piggy bank. That is 10 times more quarters than his sister Chloe has.

CALVERT COUNTY PUBLIC SCHOOLS

Day 54

400 - 299
400 - 349
400 - 274

BEFORE

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. Allow student sharing of these strategies and work toward determining which of the ways are most efficient and brain-friendly.

DURING

Adding Up to Subtract Across Zeroes

This number string includes computation problems where the whole is a multiple of one hundred and the subtrahend is close to an easier landmark number

Example: 400 – 299

400 – 300 = 100 (notice that if we add one, it makes the problem much easier to calculate mentally, but we must compensate at the end by adjusting the answer by one to arrive at the correct solution.

so 400 – 299 = 101

AFTER

After doing the Number Talk String, be sure to highlight this strategy and encourage students to "look for" places they can use it throughout the day.

NUMBER TALK

Day 54

400 - 299

NUMBER TALK

4.NBT.B.4

Use the NEXT SLIDE with students.

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

Day 55

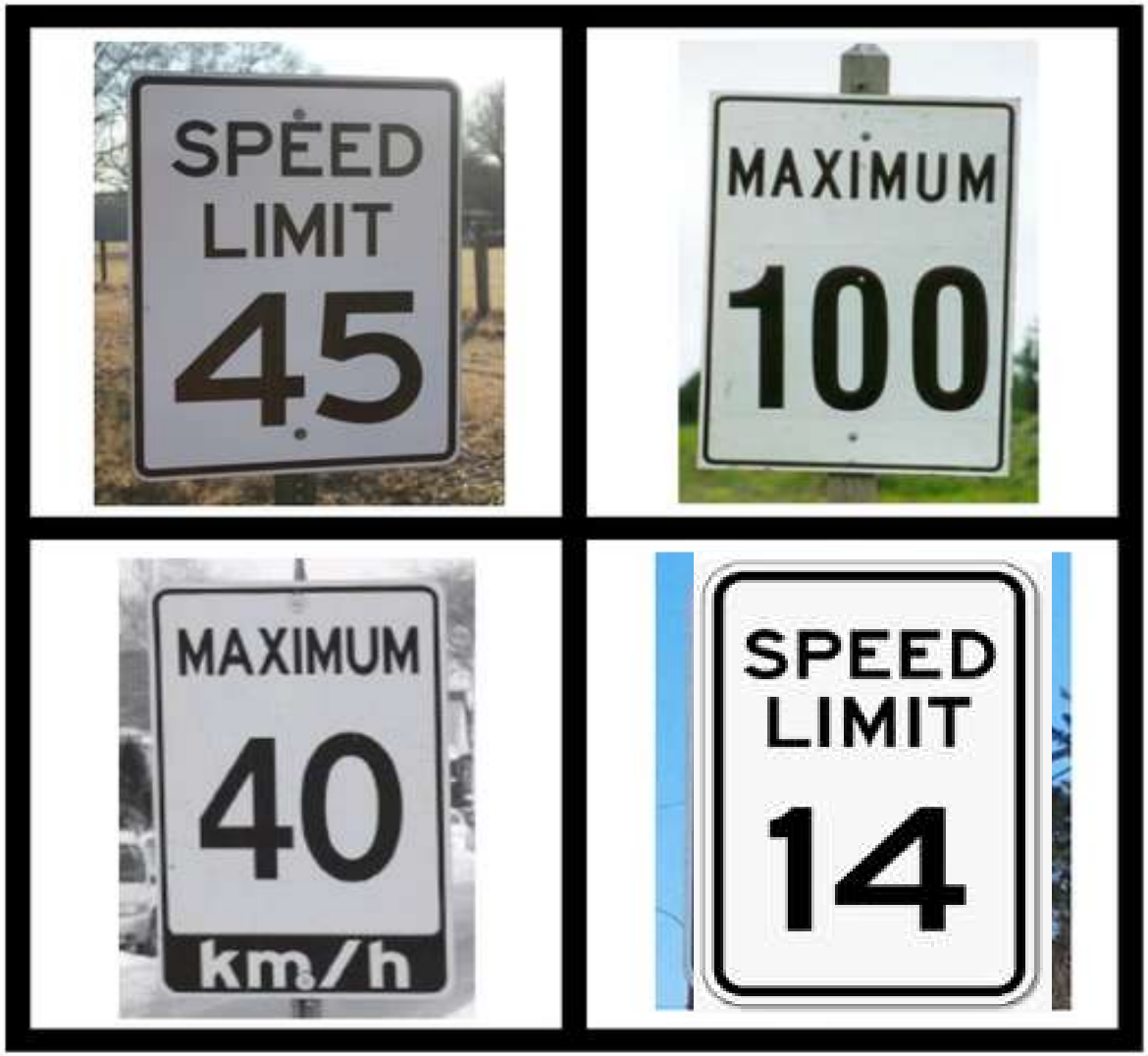
WHICH ONE DOESN'T BELONG?

Examples (NOTE: These are not the only responses possible)

- Three of these signs are double digit values, the **100** is not a double-digit number
- Three of these signs are even values, **45** is not an even number
- Three of these signs have a digital root (when you add the digits together) that is an odd number, **40** does not have an odd digital root
- Three of these signs do not show the unit of measure, **40** shows that this speed is in kilometers per hour
- Three of these signs are a multiple of 5, **14** is not a multiple of 5

Day 55

WHICH ONE DOESN'T BELONG?



Three of these signs….

CALVERT COUNTY PUBLIC SCHOOLS

4.OA.B.4

Day 56

DECIDE & DEFEND

Using the DECIDE & DEFEND routine

- **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 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 the NEXT SLIDE with students.

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

Day 56

DECIDE & DEFEND

GOAL: Understand the difference between multiplicative (as many times as) and additive (more) comparisons.
It is critical that students understand the difference between additive and multiplicative comparison.
This situation is a MULTIPLICATIVE COMPARISON – we are signaled to this fact by the wording "4 time more" rather than just "4 more"

ADDITIVE comparison
12+4 = 16

MULTIPLICATIVE comparison
12x4=48

Other wording to signal MULTIPLICATIVE comparisons could include:
- 4 times more than
- 4 times as many
- 4 times as much

Day 56

Sarah and Mei-Li are cleaning up the soccer balls after practice. Sarah collected 12 balls. Mei-Li collected 4 times more than Sarah.

How many soccer balls did Mei-Li collect?

16 soccer balls or **48 soccer balls**

How do you know?

DECIDE & DEFEND

4.OA.A.2

Day 56

Reflect on Learning

- What was mathematically important in the problem?
- What new math idea did you learn today?
- Next time I plan to… because….

DECIDE & DEFEND

750 – 709
750 – 599
750 – 449

Day 57

NUMBER TALK

BEFORE

BEFORE

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DURING

Adding Up to Subtract Across Zeroes

This number string includes computation problems where the whole is a multiple of one hundred and the subtrahend is close to an easier landmark number

Example: 750 - 709
750 – 710 = 40
Because we subtracted one more than needed to make is easier, we must add that one back
40 + 1 = 41

AFTER

After doing the Number Talk String, be sure to highlight this strategy and encourage students to "look for" places they can use it throughout the day

750 – 709

Day 57

NUMBER TALK

4.NBT.B.4

Day 58

SPLAT!

What number does this

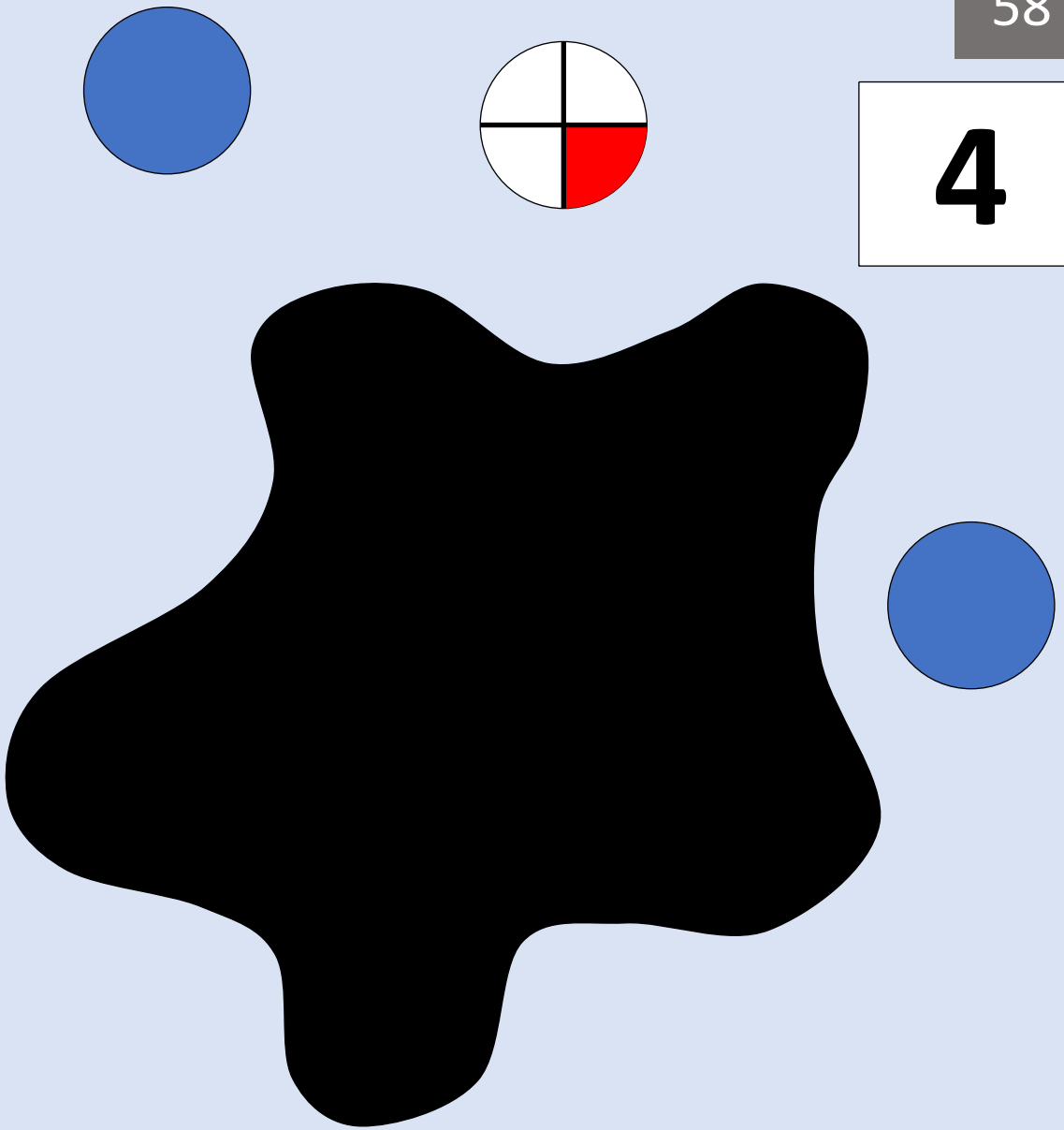
Splat!

What is the total under the splat? How do you

How else could you know?

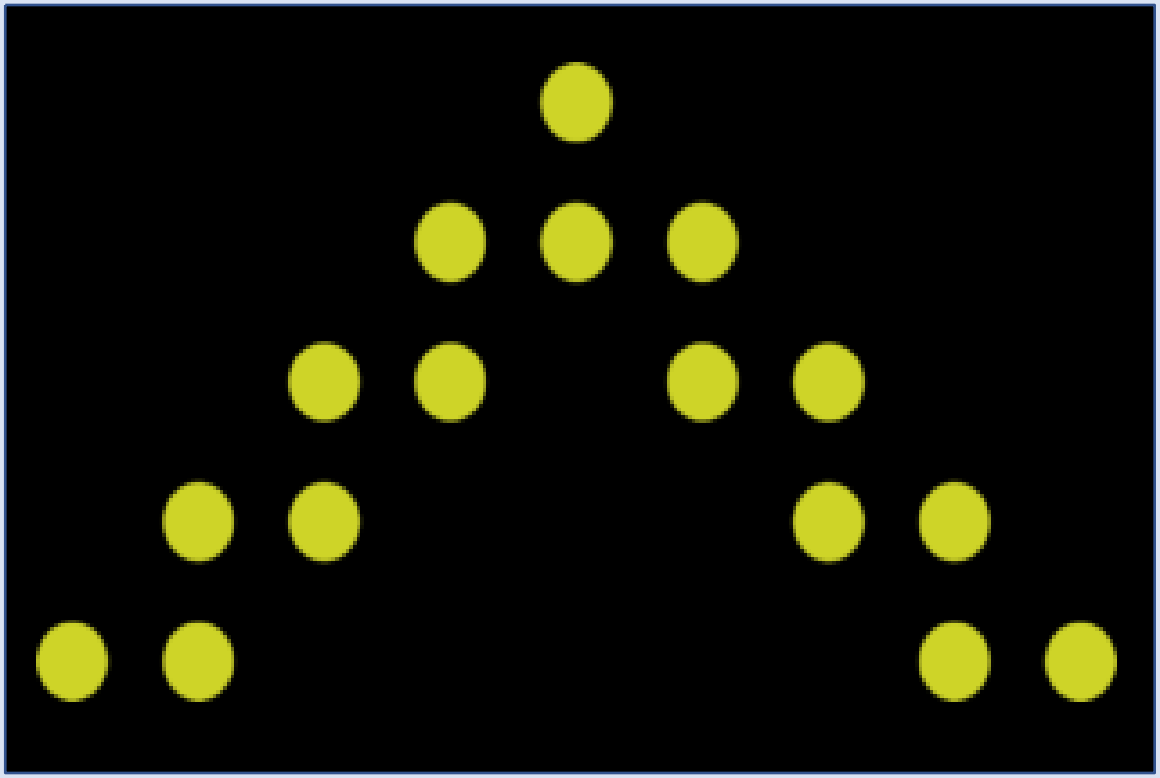
Let's look under the splat to see

What can we learn from this picture?



Day 59

QUICK COUNT



What do you NOTICE?

4.OA.B.4
4.R.1

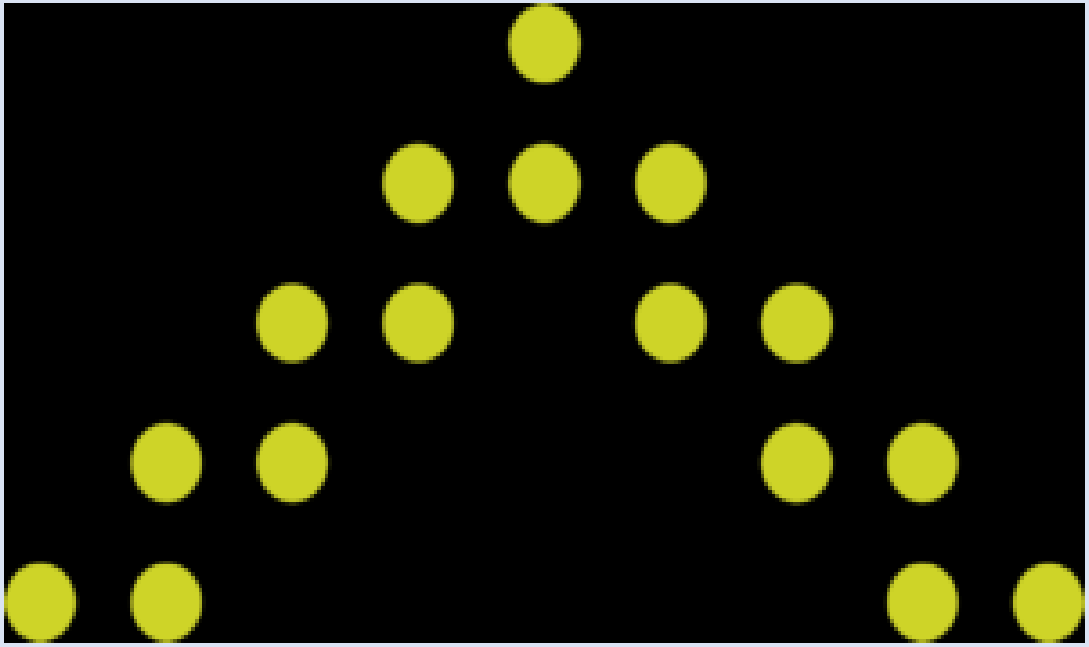
Day 59

QUICK COUNT

What did you NOTICE?

Day 59

QUICK COUNT

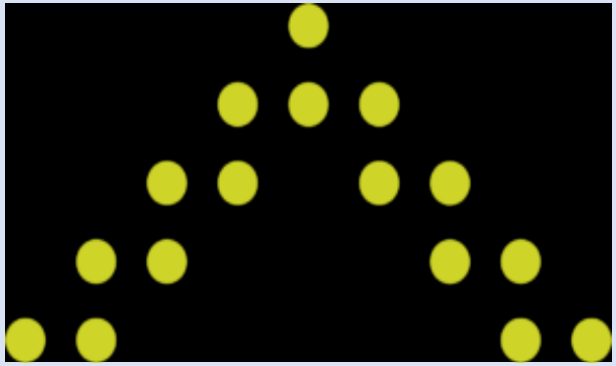


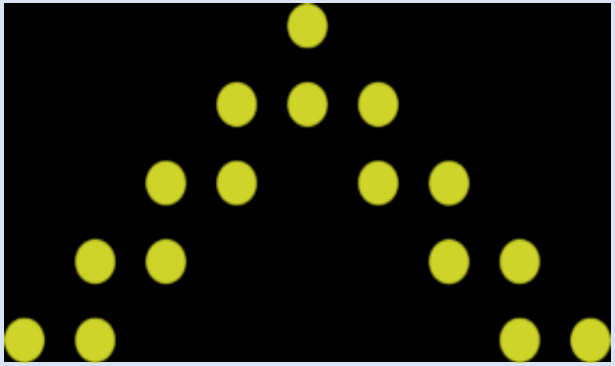
How many do you see?
What counting shortcut did you use?

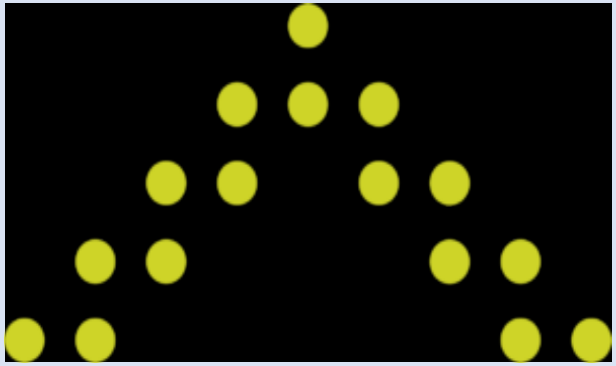
I noticed ____ so I _____

(They) noticed ____ so they___

Day 59







QUICK COUNT

Day 59

Reflect

What was mathematically important?

QUICK COUNT

Day 60

400 - 329
420 - 329
423 - 318
444 - 298

BEFORE

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DURING

Adding Up

This number string includes computation problems where the whole is not a multiple of one hundred and the subtrahend is close to an easier landmark number

Example: 400 – 329
400 – 330 = 70
70 + 1 = 71 (since we subtracted one more than we were asked to subtract, we must compensate by adding that one back on at the end)

AFTER

After doing the Number Talk String, be sure to highlight this strategy and encourage students to "look for" places they can use it throughout the day

NUMBER TALK

Day 60

400 - 329

420 - 329

423 - 318

444 - 298

NUMBER TALK

4.NBT.B.4