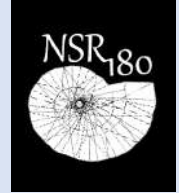


# **180 Days of Number Sense Routines**

## **Grade 3**

### **Days 141-160**





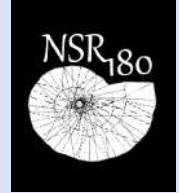
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## 180 Days of Number Sense Routines

**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.





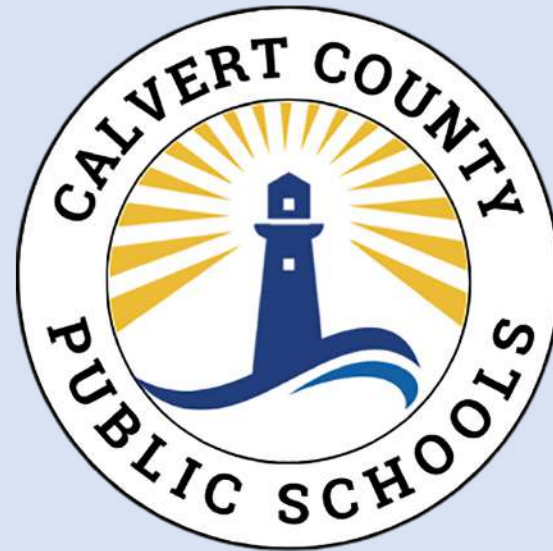
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## 180 Days of Number Sense Routines

**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 Prekindergarten through Grade 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, 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.

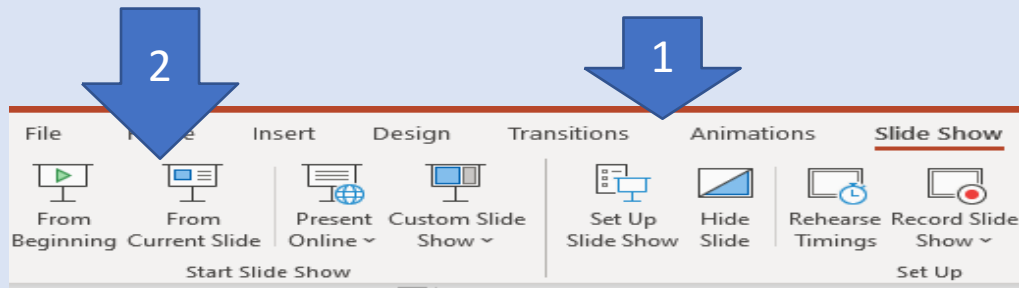


# 180 Days of Number Sense Routines

## 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>



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# 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](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
- *As Close As It Gets* <https://www.mathisfigureoutable.com/ascloseasitgets> by Pam Harris

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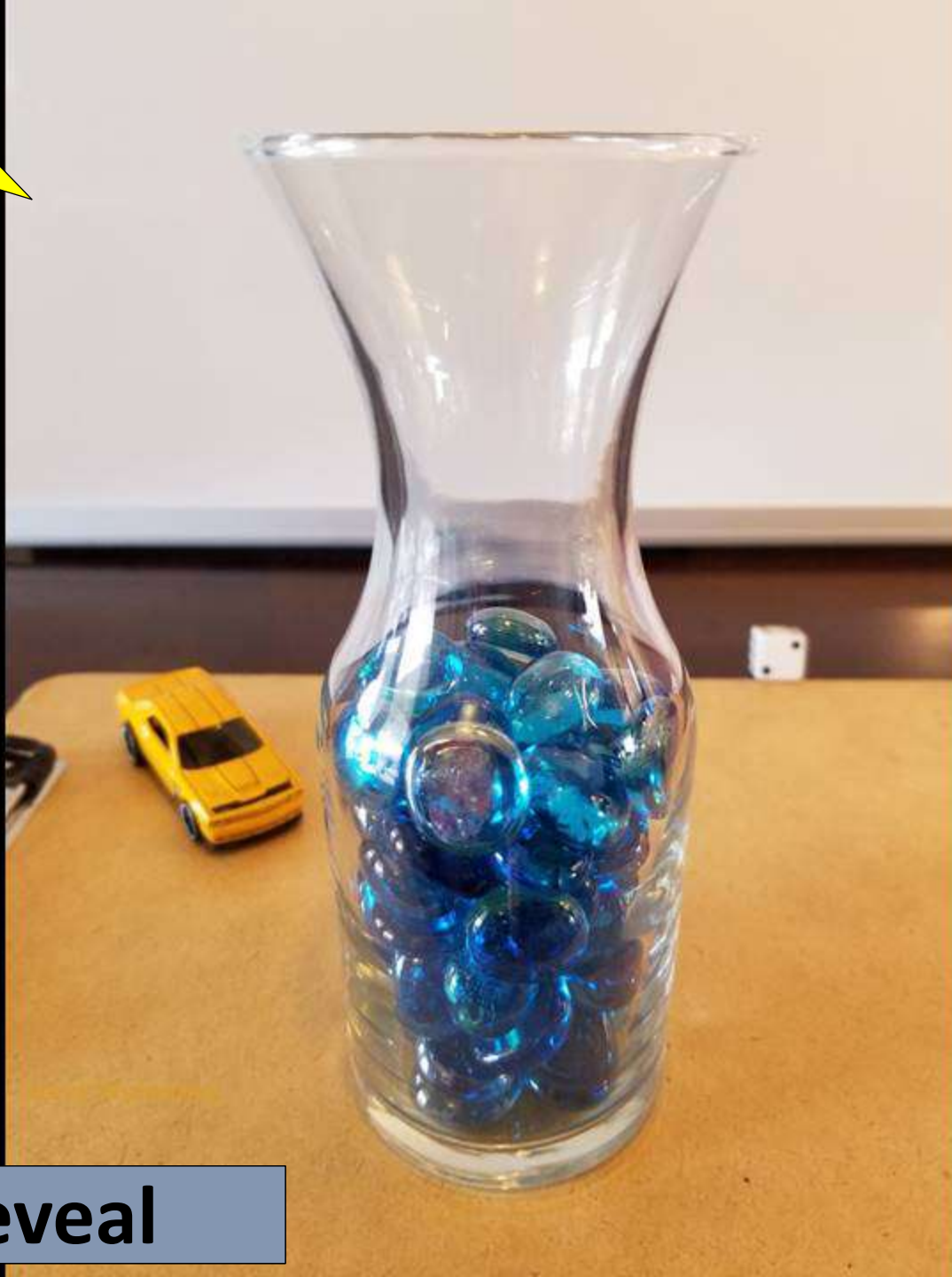
## Estimation Activity

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

**PROMPT: How many glass gems are in the vase?**



How many  
glass gems are  
in the vase?



**The Reveal**



69 glass gems



The Reveal



The Reveal



The Reveal





8 x 10  
8 x 30  
8 x 300  
80 x 300

### TEACHER NOTES

#### 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.

#### DURING

**Multiply one-digit whole numbers by multiples of 10 in the range 10-90**

Key Ideas:

- $8 \times 10 = 80$  ---- do not spend too much time here. Each expression in the string does NOT require equal time!
- $8 \times 30 = 240$  ---- build from students' knowledge of  $8 \times 3 = 24$  and knowledge of  $8 \times 10 = 80$
- $8 \times 300 = 2400$  ---- build from students' understanding of  $8 \times 3$  and  $8 \times 100$  to understand  $8 \times 300$
- $80 \times 300 = 24,000$  ---- this one is outside of required mastery for 3<sup>rd</sup> grade, but does build on students' understanding of multiplying by multiples of 10. **A good strategy that students may use is  $8 \times 10 \times 300$  and use what they see in the previous to know  $8 \times 300 = 2400$  so we now are multiplying  $2400 \times 10$ . This would be a good place to remind students of the term *Commutative Property of Multiplication*.**

Remember, students will come with a variety of strategies. During a Number Talk, the students explain their way of thinking. When students find ways that are especially efficient, highlight those strategies in the reflection that should follow the Talk. 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

**Help students to recognize the patterns of products when values are multiplied by multiples of 10.**

**Do NOT use the language, "add a zero to the end" since we are, in fact, not adding zero.**

**Help students to use the language that we are multiplying by a multiple of 10 which will always cause the ones place to be a zero.**



8 x 10

Day  
142

# NUMBER TALK

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

**THE SAVVY SHOPPER**

Max is in charge of buying cookies for the school picnic. He is trying to decide which grocery store has the best price. For \$25, Max can buy

- 60 five-packs of cookies from Fast Stop
- 30 six-packs of cookies from Roland's
- 40 eight-packs of cookies from Giant

Which store is offering the best price?  
How do you know?

Day 143

DECIDE & DEFEND



This task builds on yesterday's Number Talk.

It further reinforces Standard 3.NBT.A.3: **Multiply one-digit whole numbers by multiples of 10 in the range 10-90.**

Giant offers the best price in this example with 40 eight-packs.

One method students may use is to calculate how many cookies can be purchased with the \$25:

Fast Stop:  $60 \times 5 = 300$  cookies for \$25

Roland's:  $30 \times 6 = 180$  cookies for \$25

**Giant:  $40 \times 8 = 320$  cookies for \$25**

# THE SAVVY SHOPPER

Day  
143

**Max is in charge of buying cookies for the school picnic. He is trying to decide which grocery store has the best price. For \$25, Max can buy**



- **60 five-packs of cookies from Fast Stop**
- **30 six-packs of cookies from Roland's**
- **40 eight-packs of cookies from Giant**

**Which store is offering the best price?  
How do you know?**

**DECIDE & DEFEND**



# Reflect on Learning

- A new math idea I learned today is...
- Next time I plan to... because...



## Use the NEXT SLIDE with students.

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

54	38
130	53

Three of these numbers....

Day  
144

WHICH ONE DOESN'T BELONG?

- Three of these numbers contain the digit 3. 54 does not contain the digit 3.
- Three of these numbers have more tens than ones (note 130 has 13 tens and 0 ones). 38 has fewer tens than ones.
- Three of these numbers are double-digit numbers. 130 is not a double-digit number since it has a hundreds place digit.
- Three of these numbers are even numbers. 53 is not even; it is an odd number.





54

38

130

53

Three of these numbers....



## Let's Count by Thirds

Day  
145

**SAY:**

**“Today we are going to CHORAL COUNT by thirds. Everyone will count together. We will count slowly and thoughtfully. As we count, I will CHART the numbers (*record on next slide*). As I chart the numbers, begin looking for patterns that we can discuss.”**

### **AFTER CHARTING THE COUNT:**

- Have students say  $1/3$ ,  $2/3$ ,  $3/3$ ,  $4/3$ ,  $5/3$ .....
- After you chart the thirds, ask students if they notice any patterns. Discuss.
  - *Did they notice that all of the denominators are 3?*
  - *Did they notice that the numerator increases by 1 each time?*
  - *Did they notice that the value is increasing?*
  - *Did they notice that  $3/3$  is equal to 1?*
  - *Did they notice that everything after  $3/3$  is a value greater than 1?*
- If it has not been noted already, go back and box all of the thirds that are equivalent to whole numbers:  $3/3$ ,  $6/3$ ,  $9/3$ .
- Ask students **what do they notice about the fractions that you boxed**  
Discuss their ideas.



# Let's Count by Thirds

Day  
145

$\frac{1}{3}$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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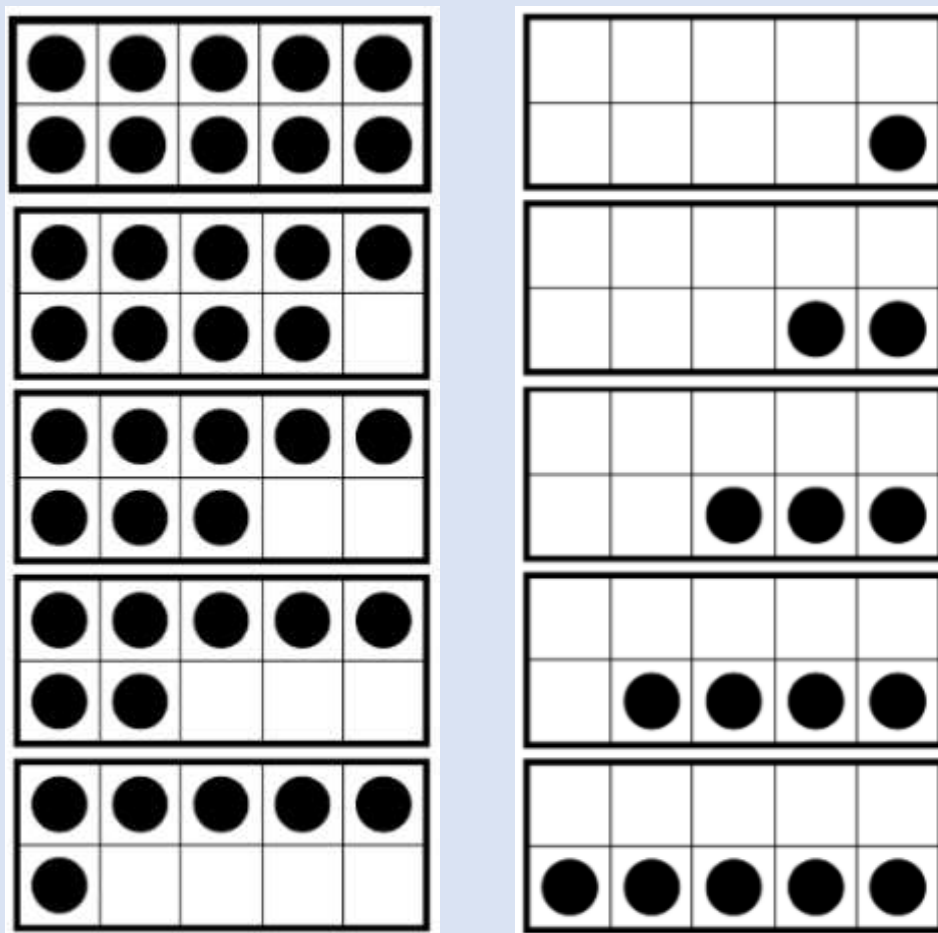
CHORAL COUNTING

## 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 different student-generated shortcut strategies.
10. End by asking students to explain what was "mathematically important"

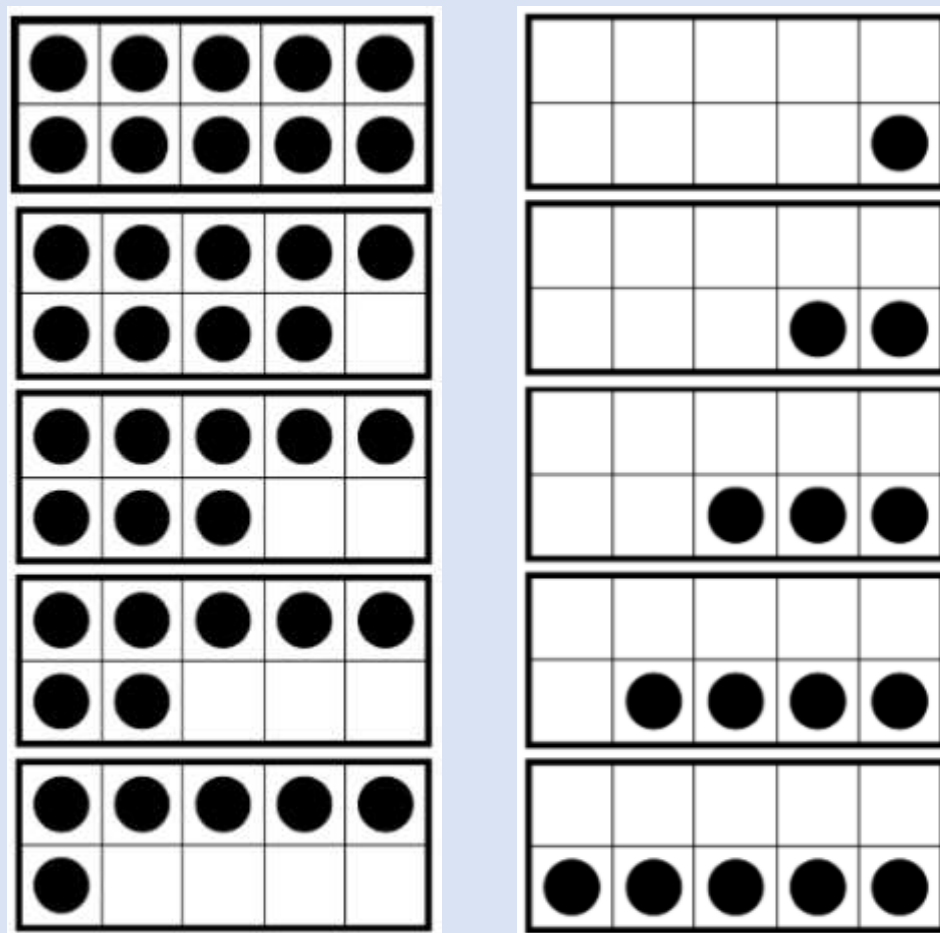




What do you NOTICE?

**What did you  
NOTICE?**





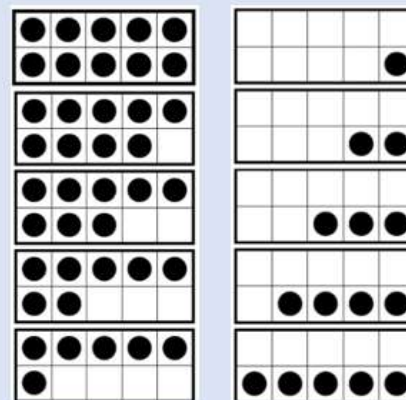
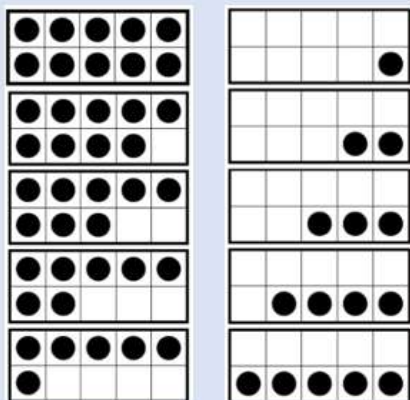
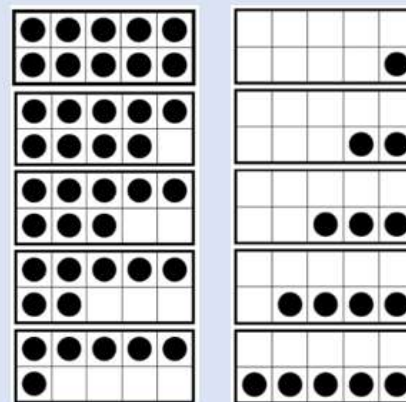
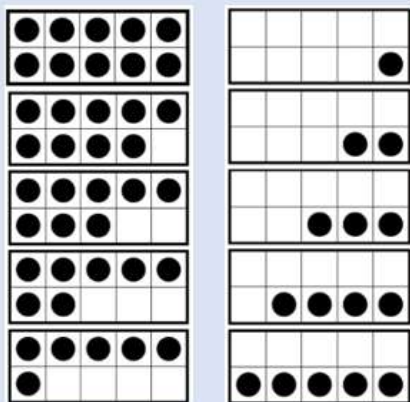
How many dots do you see?  
What counting shortcut did you use?



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

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

Day  
146



quick count

Reflect

**What was  
mathematically  
important?**

quick count



# What is the TOTAL VALUE of the dimes in the roll?

*(do not include the sample dime that is in front of the roll)*



**What value is too LOW?**

**What value is too HIGH?**

**What is your  
“JUST RIGHT ESTIMATE”?**

**Explain your REASONING?**

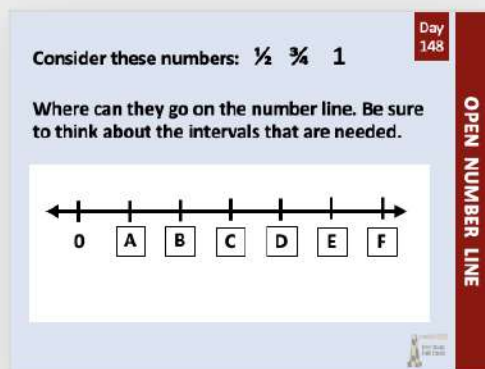
There are 49 dimes.

$49 \times 10 \text{ cents} = 490 \text{ cents}$

$490 \text{ cents} = \$4.90$

## Use the NEXT SLIDE with students.

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



The zero has been placed at the far left of the number line.

Possible Response:

- $\frac{1}{2} = B$ ,  $\frac{3}{4} = C$ ,  $1 = D$  (the interval between  $\frac{3}{4}$  and  $1$  is one-fourth, so  $A$  would be  $\frac{1}{4}$  and  $B$  would be  $\frac{1}{2}$ )

Other possibilities exist, too:

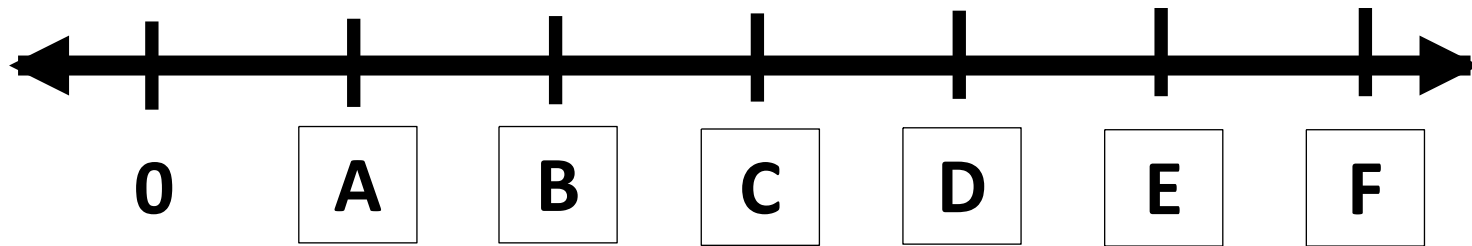
- $\frac{1}{2} = A$ ,  $1 = B$ . In this example, each interval is  $\frac{1}{2}$ , so  $\frac{3}{4}$  would fall BETWEEN  $A$  and  $B$
- If students place the  $\frac{1}{2}$  at  $C$ , then  $F$  must represent  $1$ . The value of  $\frac{3}{4}$  would then fall halfway between  $C$  and  $F$  which is between  $D$  &  $E$ .

The goal of this task is to understand INTERVALS. The interval between  $\frac{1}{2}$  (or  $\frac{2}{4}$ ) and  $\frac{3}{4}$  is the SAME as the interval between  $\frac{3}{4}$  and  $1$  whole (or  $\frac{4}{4}$ )



Consider these numbers:  $\frac{1}{2}$   $\frac{3}{4}$  1

Where can they go on the number line. Be sure to think about the intervals that are needed.



6

SPLAT!

What whole number is  
represented by the shapes?

Splat!

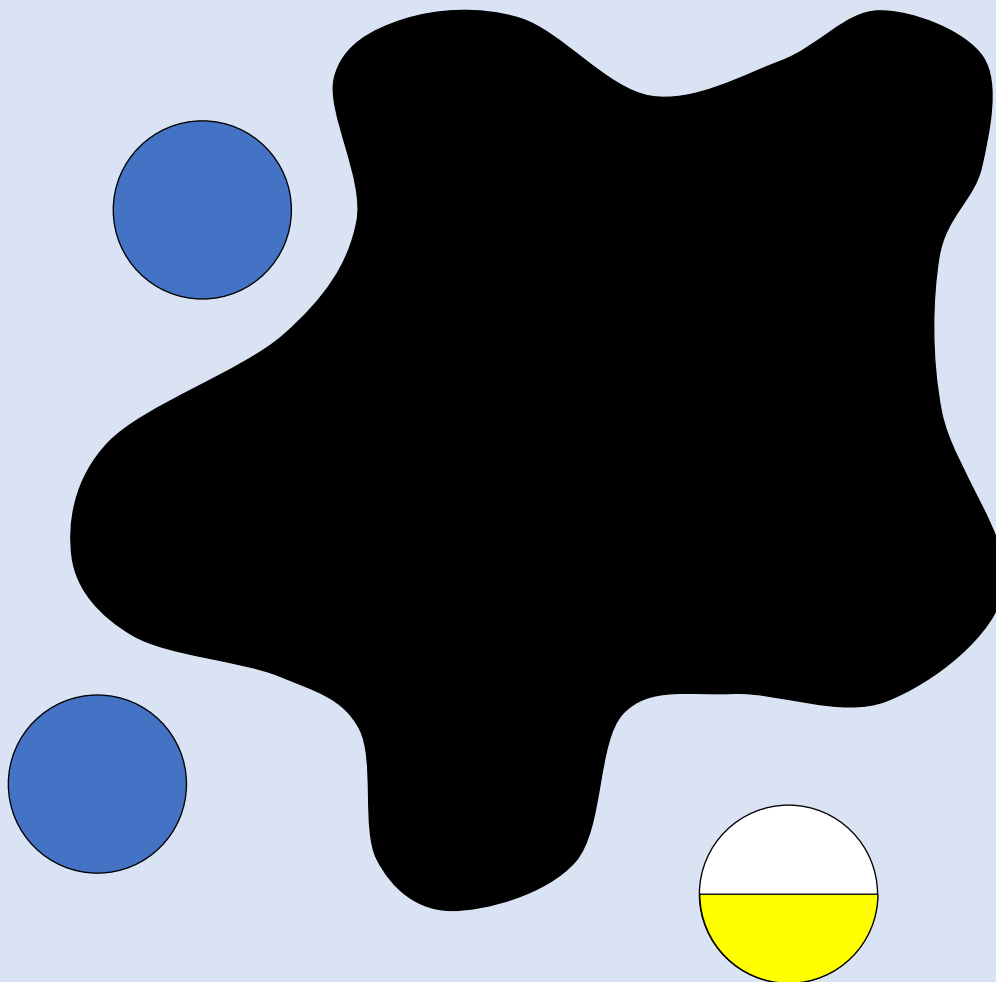
What value is hiding?  
How do you know?

How could we

What is another way  
we could represent  
that value?

Let's look under the splat to  
see what is hiding?

What can we learn  
from this picture?



## Directions for the CHORAL COUNT routine

Choral Counting is an activity in which the teacher leads children in counting aloud together by a given number. As the class calls out each number, the teacher records the count on the board, pausing the count at strategic moments.

To begin, the teacher decides on a number for the students to skip count by, whether to count forwards or backwards, and what number to start and end the count on. Different numbers lend themselves well to surfacing different mathematical ideas.

The goal of this activity is not just to practice rote counting, but to engage children in reasoning, predicting, and justifying. To do this, teachers record the count so that patterns within the numbers are readily noticeable and pause during the count to ask questions like, “What do you think will come next? How do you know?”

– [Tedd.org](https://www.tedd.org/)



Want to see a Choral Counting routine in action?  
Click the image.





## Skip Counting Patterns

**SAY:** Today we are going to skip count by 2's beginning with the number 58. We will do this count together. Let's go slowly, so I can record the values you say as you count. As I record the values, begin looking for patterns that we will talk about after the count.

As students do a choral count, record the numbers on the next slide.

Say, "What are some things you notice about the pattern of numbers we counted?"

- Every number is an EVEN number because we are beginning on an even number and that pattern will continue since we are counting by 2s
- Each number will be a number that is 2 greater than the last number stated.
- If we multiply the number of people in the circle by 2 and add that number to 183, we will know the last number stated.

**ASK:** Think about how the pattern would be different if we start at 57 and skip-count by 2s? Let's try it. Let's begin on 57 and skip-count by 2s. We'll count slowly so I can record the numbers.

- Students should notice that each number is ODD this time because we started on an odd number.



# Skip Counting Patterns by 2s

Day  
150

58

57

60

59

\_\_\_\_\_

\_\_\_\_\_

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CHORAL COUNTING

## 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....”

How are these the SAME but DIFFERENT?

$29 \times 5$	$29 \times 5$
$(30 \times 5) - (1 \times 5)$	$(20 \times 5) + (9 \times 5)$
$150 - 5$	$100 + 45$
<b>145</b>	<b>145</b>

SAME BUT DIFFERENT



- They are the same expression and the same product, but they took different approaches to find the product
- They both have changed the original equation, but the left uses subtraction, and the right uses addition
- They both changed the original equation to make friendly numbers but the left increased 29 to 30 and the right decomposed 29 into  $20 + 9$
- They both use the Distributive Property as a strategy for solving

# How are these the SAME but DIFFERENT?

Day  
151

$$29 \times 5$$

$$(30 \times 5) - (1 \times 5)$$

$$150 - 5$$

$$145$$

$$29 \times 5$$

$$(20 \times 5) + (9 \times 5)$$

$$100 + 45$$

$$145$$

SAME BUT DIFFERENT



# Esti-Mystery

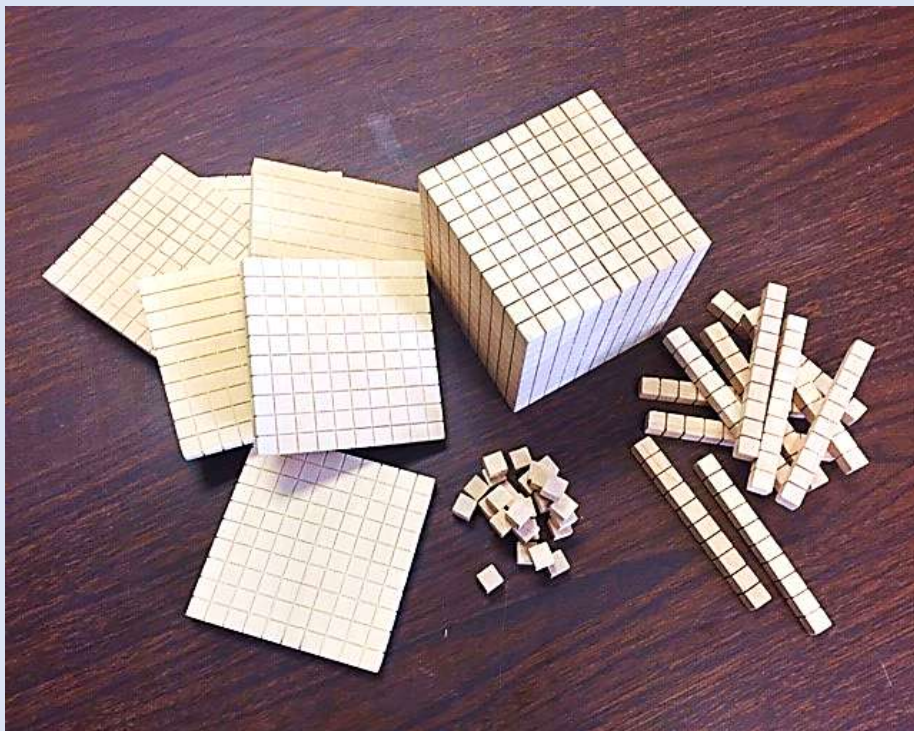
Estimation Activity with clues!

**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.**

**Clues are revealed one at a time with time to discuss and refine original estimates after EACH clue is revealed.  
No one should be stuck with their original estimate – encourage mindful refinements.**

**Students may benefit from using paper and pencil to work through possibilities or consider creating a class chart where possibilities are added and crossed off as each clue is revealed.**



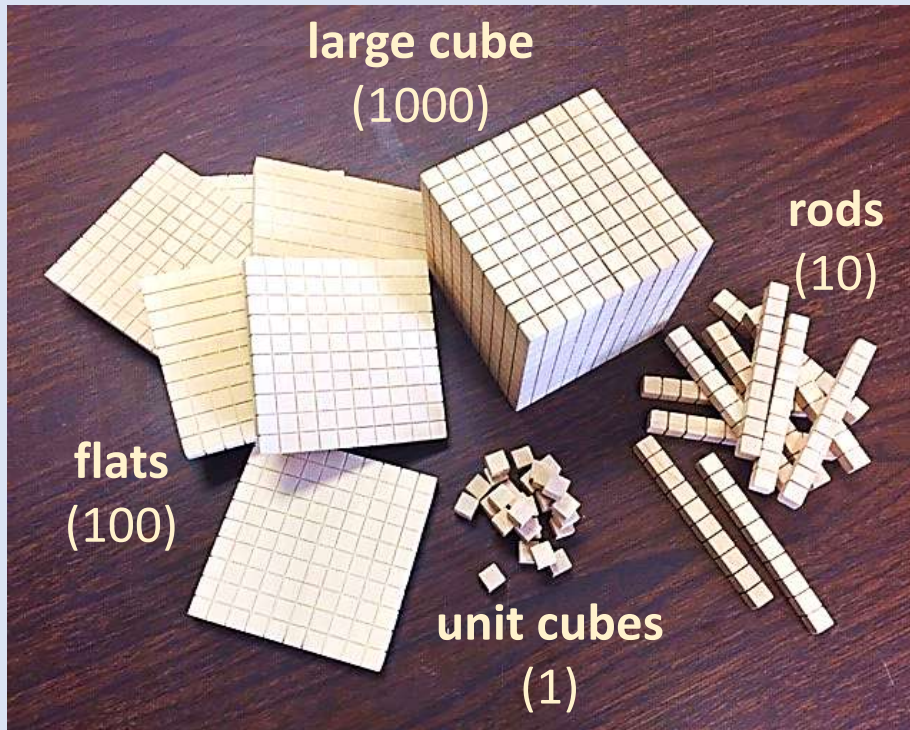


**What number do these  
Base Ten Blocks represent?**

**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.**







### Clue #1

The large cube is worth 1000

### Clue #2

The total value is  $< 2000$

### Clue #3

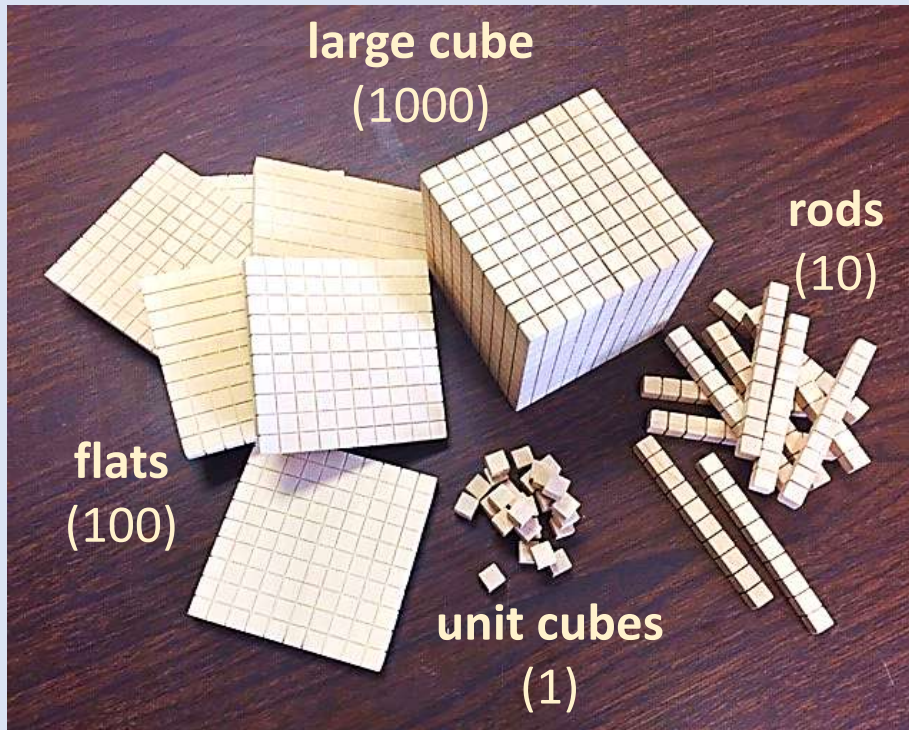
The sum of the flats is  $\frac{3}{5}$  the value of the large cube

### Clue #4

The sum of the pile of rods equals  $1\frac{1}{10}$  of a flat

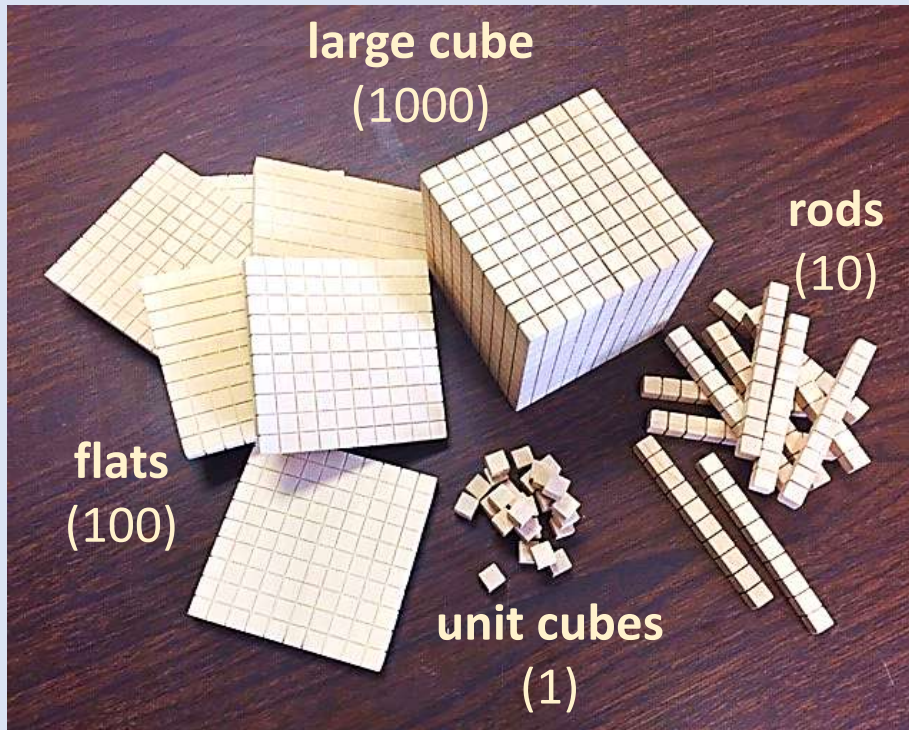
### Clue #5

There are 29 unit cubes



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





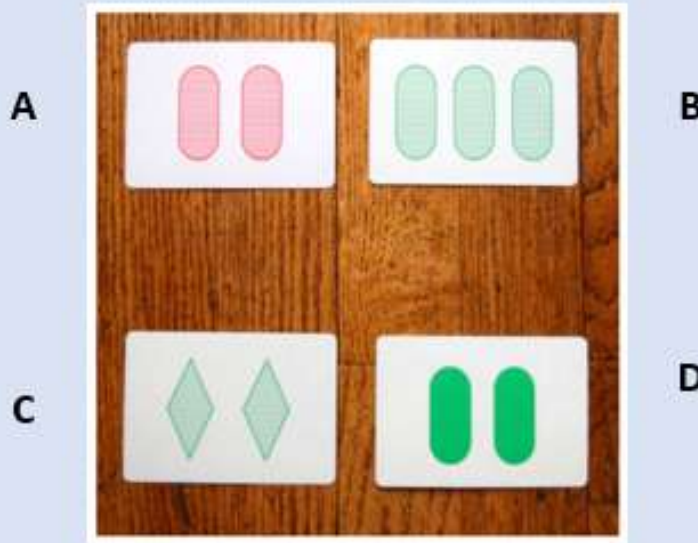
**The Reveal**  
**Click to see the answer.**





## Use the NEXT SLIDE with students.

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



"Three of these images..."

Day  
153

WHICH ONE DOESN'T BELONG?

### Possible Responses

- Three of these images are green. A is not green.
- Three of these images have two figures. B does not have 2 figures, it has 3.
- Three of these images are ovals. C is not made of ovals, they are quadrilaterals.
- Three of these images are shaded with lines (we can say, "have hatch marks"). D is not hatched, the shading is solid.



A



B



C



D



“Three of these images...”



205 - 100  
199 - 98  
200 - 98  
201 - 99

### TEACHER NOTES

#### 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.

#### DURING

**Adjusting One Number to Create an Easier Problem:** *The following number talks require students to make decisions about which numbers might be adjusted to create an easier problem.*

- 205 – 100 ---- this one is designed to be foundational and should take a very short amount of time. Help students to notice that because the subtrahend is 100, it is easy to subtract it.
- 199 – 98 ---- this one is also designed to be foundational and should take a very short amount of time. Help students to recognize that because the minuend is 199, it is easy to subtract from the 9s
- 200 – 98 ---- this one might be trickier, but if students think of the 200 as 199, it becomes very easy. They can picture 199-98 and then add the 1 back at the end OR they can think of it as 199-97. By reducing BOTH values by 1, the distance remains the same which means the solution is the same.
- 201 – 99 ---- students might increase 99 to 100 and subtract. They will need to remember to subtract the 1 at the end or they could adjust both values to keep the distance equal  $199 - 97 = 102$

Remember, students will come with a variety of strategies. During a Number Talk, the students explain their way of thinking. When students find ways that are especially efficient, highlight those strategies in the reflection that should follow the Talk. 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

**Help students recognize the shortcuts that may exist. Teach them to look for ways to subtract efficiently using strategies, such as compensation.**



205 - 100

Day  
154

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**SAY:** We are going to skip count by 2's beginning with the number 183.

We will do this count together. Let's go slowly, so I can record the values you say as you count. As I record the values, begin looking for patterns that we will talk about after the count.

As students do a choral count, record the numbers on the next slide.

Say, "What are some things you notice about the pattern of numbers we counted?"

- Every number is an ODD number because we are beginning on an odd number and that pattern will continue since we are counting by 2s
- Each number will be a number that is 2 greater than the last number stated.
- If we multiply the number of people in the circle by 2 and add that number to 183, we will know the last number stated.

**ASK:** Think about how the pattern would be different if we start at 183 and skip-count by 3s? Let's try it. Let's begin on 183 and skip-count by 3s. We'll count slowly so I can record the numbers.

- Numbers would alternate even, odd, even, odd
- The last number stated would be greater than 183 and greater than the last number of the skip-count by 2 routine
- If there is an odd number of people in the circle, the last number will be odd since we started with an odd number.
- If there is an even number of people in the circle, the last number will be even since the 2<sup>nd</sup> person would say an even number since the first number was odd.

**AFTER** the count, discuss the CHART on the next slide to compare the 2s vs the 3s pattern.





# Skip Counting Patterns

Day  
155

by 2s

183

185

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

by 3s

183

186

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



CHORAL COUNTING

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

**What question is being asked?**  
**How can you begin building understanding?**

Elena makes \$30 every Saturday for helping her aunt.  
Elena says that she will need to work for 8 weeks to buy the Scooter shown below.

**Why didn't Elena have enough money after 8 weeks?**

Day  
156

DECIDE & DEFEND



**Elena's Work**

$$\$30 \times \_\_\text{weeks} = \$270$$
$$3 \times 8 = 27$$
$$30 \times 8 = 270$$

$30 \times 8 = 240$ , so 8 weeks is not enough

$30 \times 9 = 270$ , so she will need to work one additional week to have enough money.

## What question is being asked? How can you begin building understanding?

Elena makes \$30 every Saturday for helping her aunt. Elena says that she will need to work for 8 weeks to buy the Scooter shown below.

**Why didn't Elena have enough money after 8 weeks?**



### Elena's Work

$$\$30 \times \underline{\hspace{1cm}} \text{ weeks} = \$270$$

$$3 \times 8 = 27$$

$$30 \times 8 = 270$$

# 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, ...*)



What is the value of the  
shapes shown below?

W?

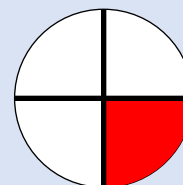
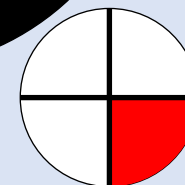
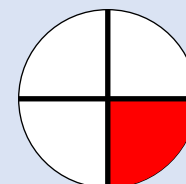
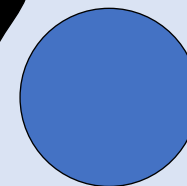
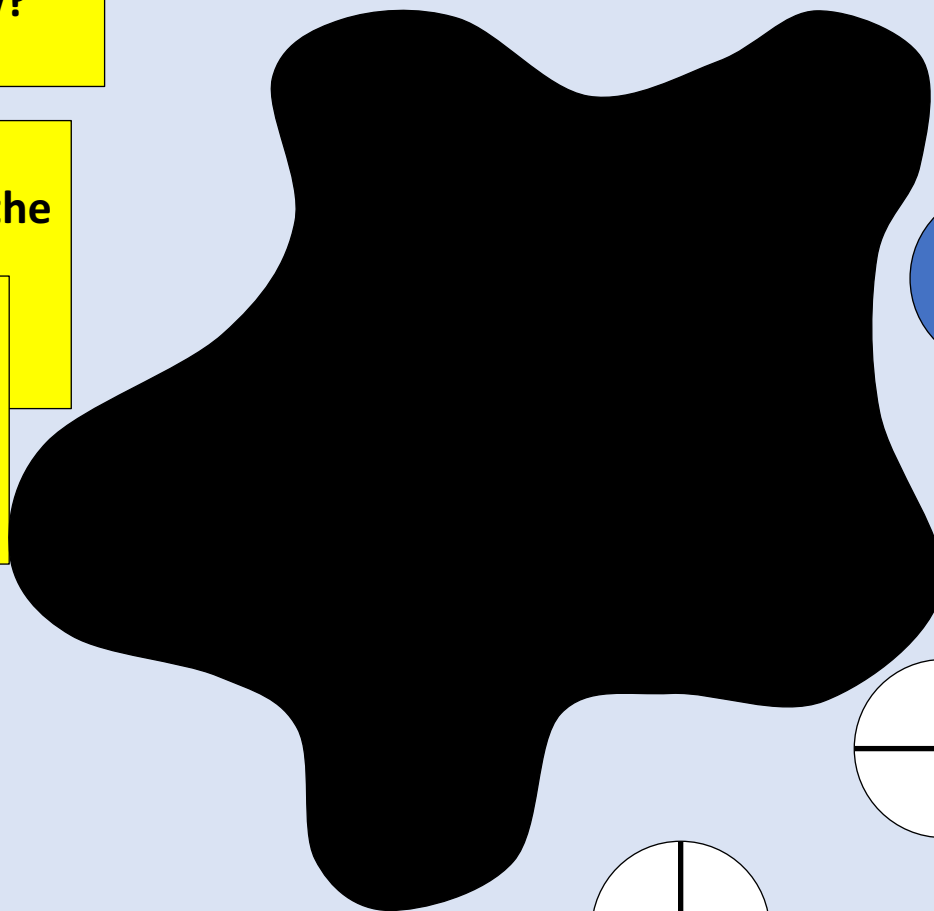
Splat!

What is the value of the  
hidden shapes?

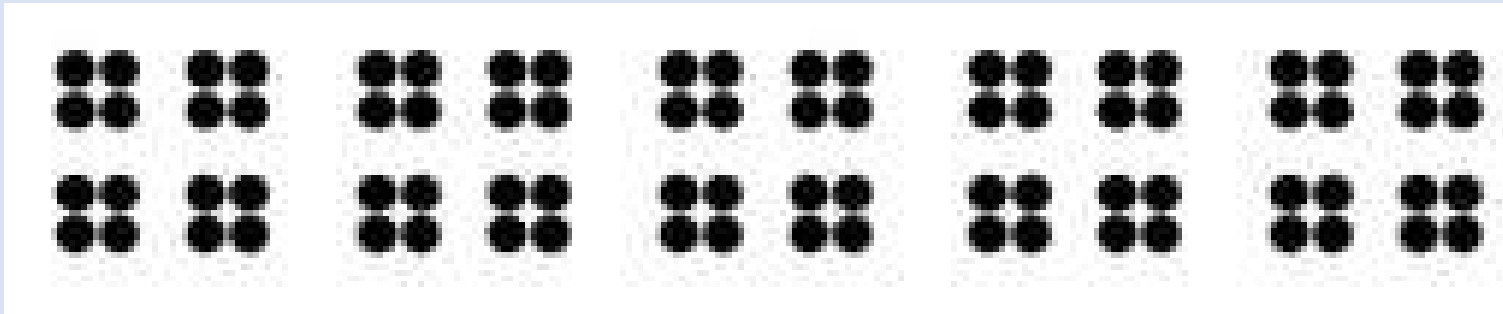
How could that value  
be represented?

Let's look under  
the splat to see

What can we learn  
from this picture?



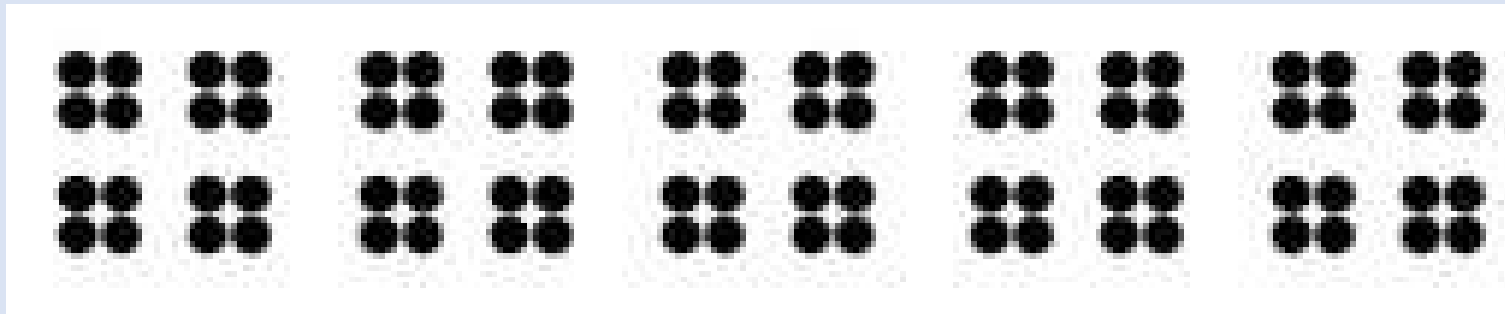
What do you NOTICE?



**What did you  
NOTICE?**





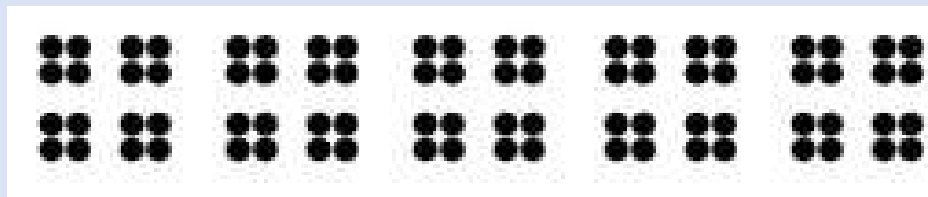
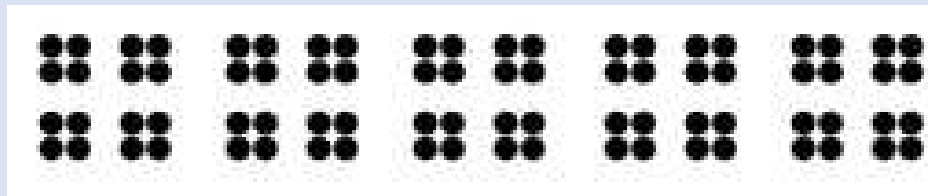
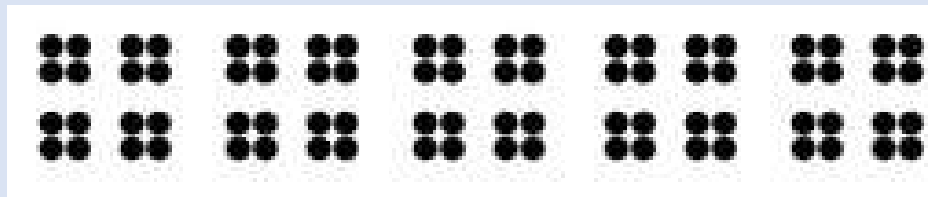


How many dots do you see?  
What counting shortcut did you use?

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

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

Day  
158



quick count



Reflect

**What was  
mathematically  
important?**




## Use the NEXT SLIDE with students.

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

Day 159

Would  $148 + 64$  be more or less than 200?  
Use the number line to help justify your choice.



OPEN NUMBER LINE

For more Open Number Line Activities, visit <http://www.Math-Search.com>

The number line is a horizontal line with arrows at both ends. A tick mark is labeled '200'. There is another tick mark to the left of 200, but it is not labeled.

There are many ways to use the number line to assist in addition. Here is ONE way:

$148 + 2 = 150$  [using benchmark numbers]  
Now we only need 50 more to get to 200.

Since the 50 that we need and the 2 that we used previously to get to 150 is only 52, we will have many extras from the 64 to go beyond the 200 on the number line.



**Would  $148 + 64$  be more or less than 200?**  
**Use the number line to help justify your choice.**



$$73 + 8$$
$$248 + 6$$
$$137 + 18$$
$$565 + 17$$

### TEACHER NOTES

#### 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.

#### DURING

##### **Adding Up to Multiples of 10**

Possible Responses:

- $73 + 8$  ---- we need 7 to make a multiple of 10, so decompose 8 into  $7 + 1$ , then  $73 + 7 = 80$  and  $80 + 1 = 81$
- $248 + 6$  ---- we need 2 to make a multiple of 10, so decompose 6 into  $2 + 4$ , then  $248 + 2 = 250$  and  $250 + 4 = 254$
- $137 + 18$  ---- we need 3 to make a multiple of 10, so decompose 18 into  $3 + 15$ , the  $137 + 3 = 140$  and  $140 + 15 = 155$
- $565 + 17$  ---- we need 5 to make a multiple of 10, so decompose 17 into  $5 + 12$ , then  $565 + 5 = 570$ , then  $570 + 12 = 582$

Remember, students will come with a variety of strategies. During a Number Talk, the students explain their way of thinking. When students find ways that are especially efficient, highlight those strategies in the reflection that should follow the Talk.

#### AFTER

**Help students to recognize how to use the Commutative Property to make calculations more efficient.**



$$73 + 8$$

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