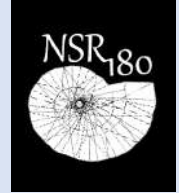


180 Days of Number Sense Routines

Grade 4

Days 141-160



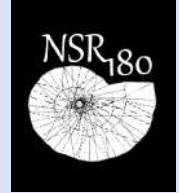


180 Days of Number Sense Routines

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.



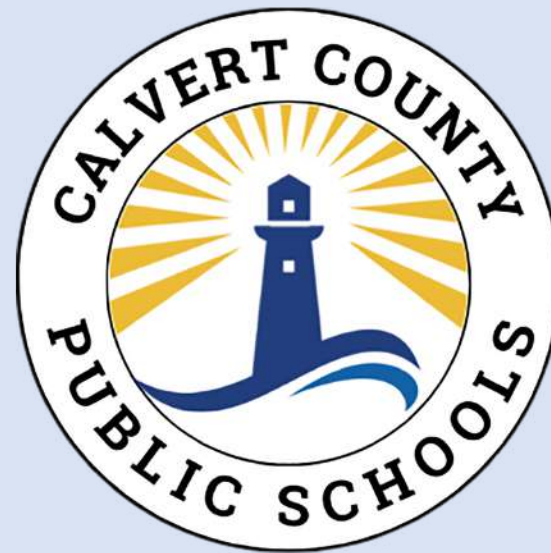


180 Days of Number Sense Routines

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.

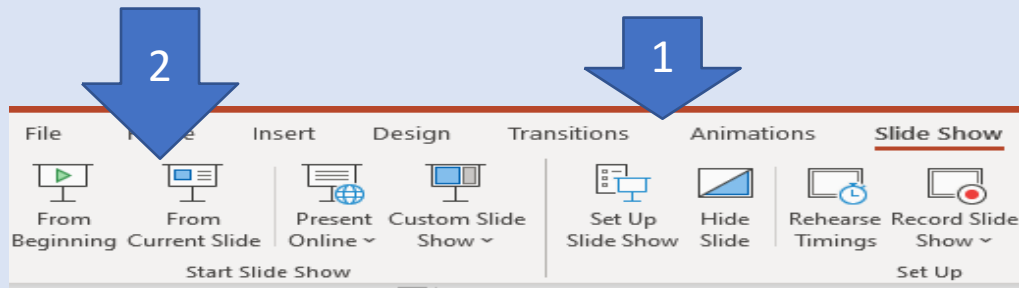


180 Days of Number Sense Routines

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

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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.





Photo D.Caine 2019

How many balls?

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

**There are 3 more soccer balls
than orange basketballs**

Clue #2

**The orange basketballs are
equal to the black basketballs**

Clue #3

**There are 2 less four-square
balls than total basketballs**

Clue #4

**The volleyballs equal 3 more
than the soccer balls**

Clue #5

Soccer balls + volleyballs = 19



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





The Reveal
Click to see the answer.



Using the DECIDE & DEFEND routine

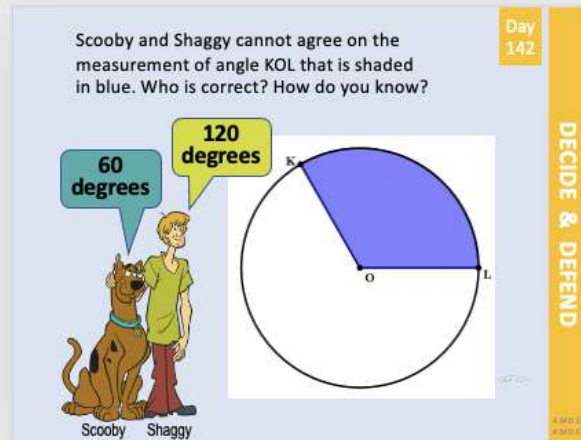
- **READ to Understand:** Begin by having students discuss the question being asked. At this time, do NOT focus on the math calculations required or the answer. This step is designed for students to understand the context of the question (What is the gist of the question?)
- **DECIDE:** Pair or group 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



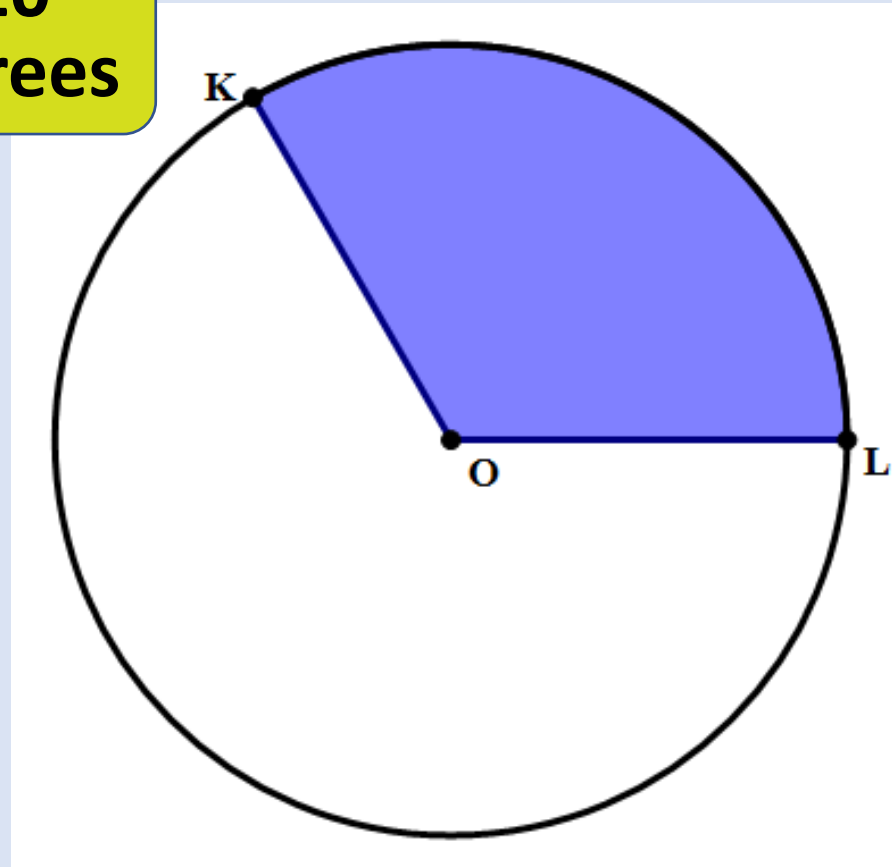
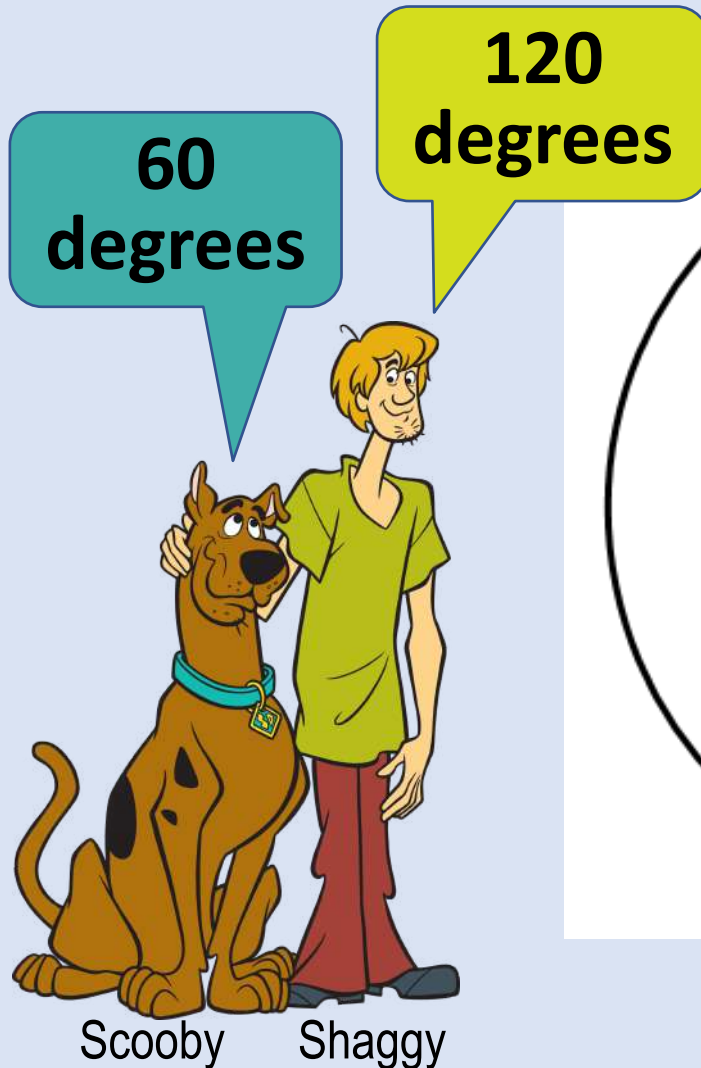
Use the NEXT SLIDE with students.

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



We do not need a protractor to determine the answer.
Encourage students to use logical reasoning.
This angle is clearly larger than a right angle which is 90 degrees, so 60 degrees is not possible.
Shaggy is correct.

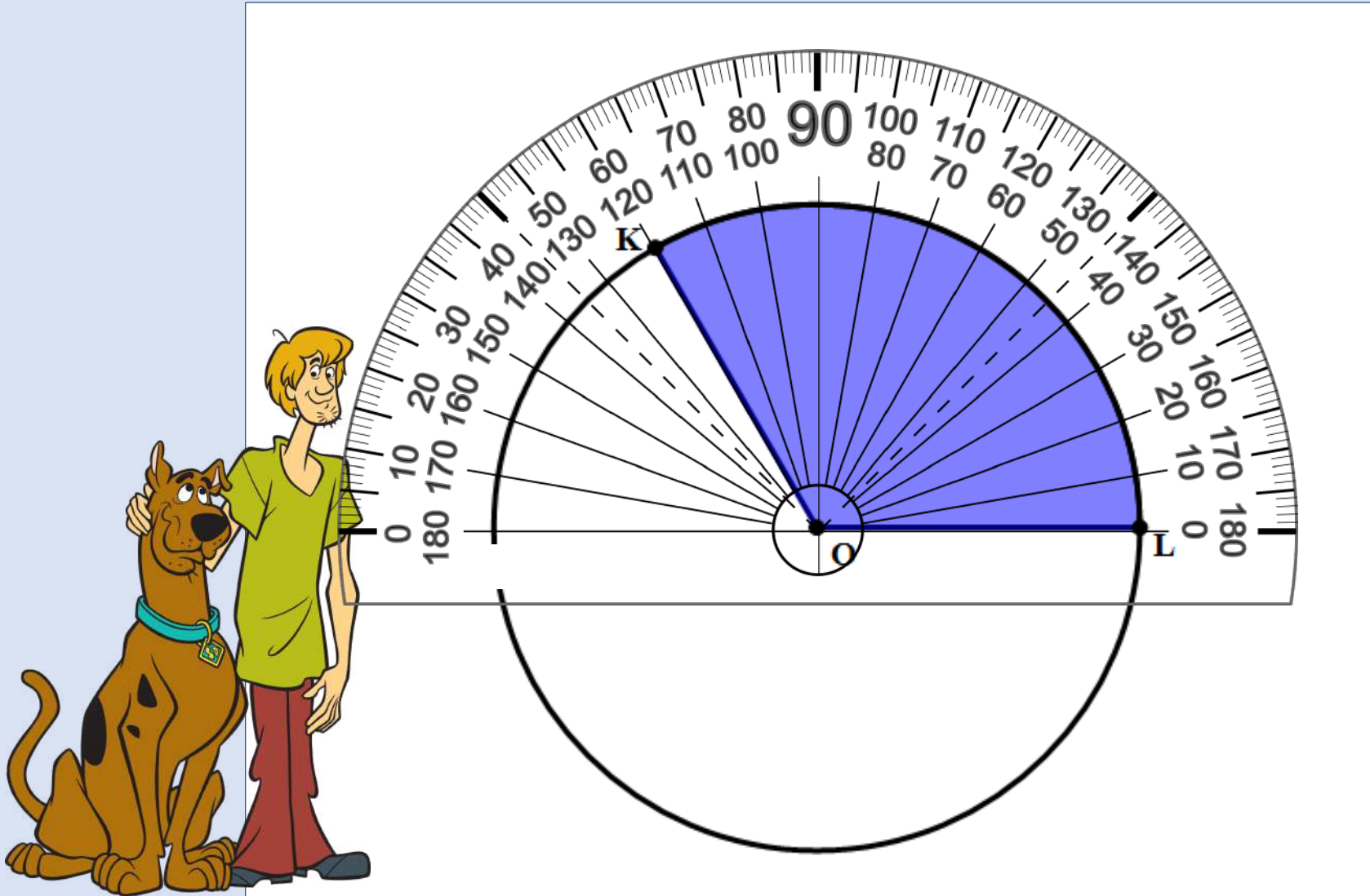
Scooby and Shaggy cannot agree on the measurement of angle KOL that is shaded in blue. Who is correct? How do you know?



Use this screen as an extension AFTER discussing student reasonings.

Day
142

Scooby was not correct. What might have caused Scooby to think the angle was 60° ?



DECIDE & DEFEND

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, ...*)
- To convince a skeptic, it's important to



What number does
this represent?

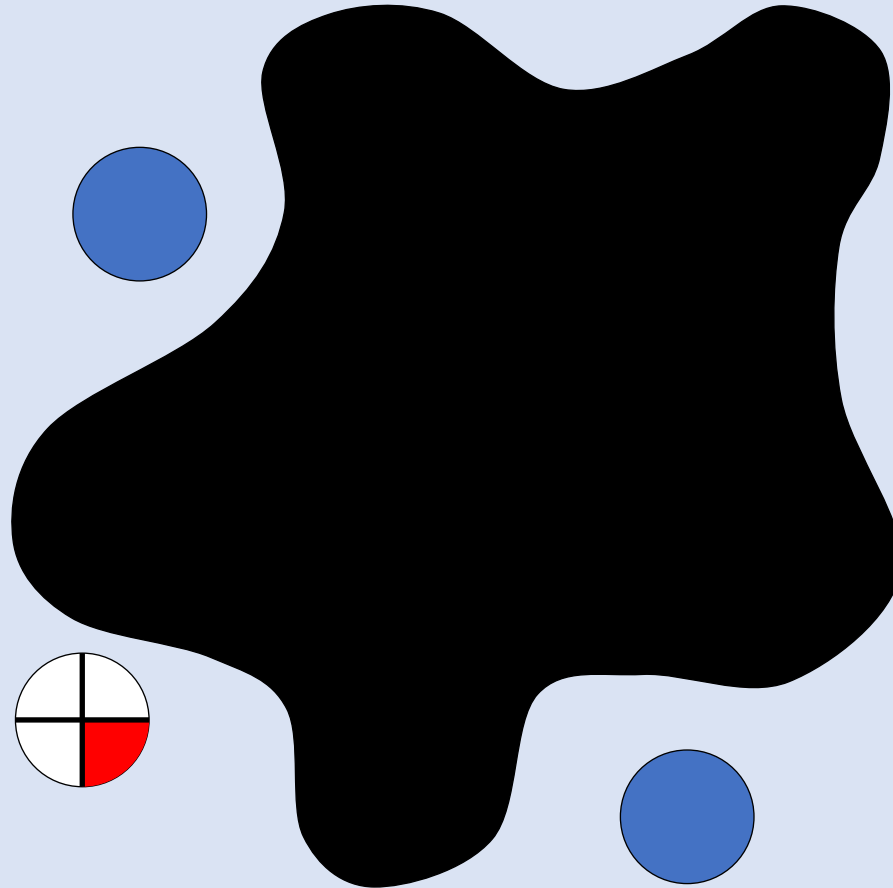
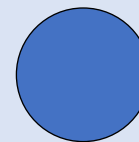
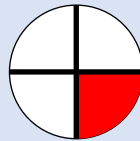
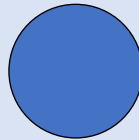
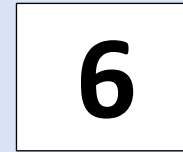
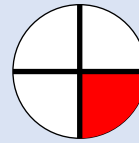
How do you
know?

Splat!

What is the total
under the splat?

How else could
you know?

How can you prove
that the value of the
dots hiding under
the splat is $2\frac{1}{2}$?



TEACHER NOTES

BEFORE

$$\frac{1}{2} \times 8$$

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.

$$\frac{1}{4} \times 8$$

DURING**Multiplying a Fraction by a Whole Number**

Each expression in the string builds on the previous understandings.

$$\frac{1}{4} \times 16$$

- Most students will simply recognize that $\frac{1}{2}$ of 8 is 4.
- If $\frac{1}{2}$ of 8 is 4, then we can reason that $\frac{1}{4}$ of 8 must be 2. Some may visualize the 8 partitioned into 4 pieces others may build from their understanding of that $\frac{1}{4}$ is half as much as $\frac{1}{2}$.

$$\frac{1}{8} \times 16$$

- $\frac{1}{4}$ of 16 is 4. Some may reason that if $\frac{1}{4}$ of 8 is 2, then $\frac{1}{4}$ of 16 must be 4 since 16 is double the value of 8. Others may imagine partitioning 16 into 4 equal parts.
- $\frac{1}{8}$ of 16 is 2. Again, some may build from the previous question while others partition.

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.

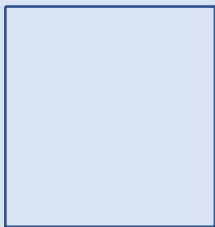
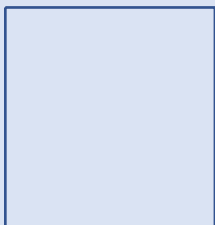
AFTER

Bring students attention back to the strategies that were highly efficient. Help students to recognize that there are various ways to calculate the product. Two ways include (1) partitioning into equal parts based on the denominator value or (2) using reasoning based on a known value such as $\frac{1}{2}$ of the whole number and building understanding.



$$\frac{1}{2} \times 8$$

Day
144




NUMBER TALK


Use the NEXT SLIDE with students.

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


A




B



C



D



Day
145

WHICH ONE DOESN'T BELONG?

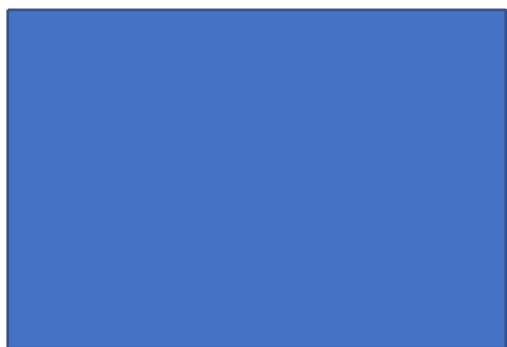
"Three of these shapes..."

Possible Responses:

- Three of these shapes have angles that are not 90 degrees.
Shape A has 90 degree angles.
- Three of these shapes have at least one line of symmetry.
Shape B does not have a line of symmetry.
- Three of these shapes have at least TWO pairs of sides of equal length.
Shape C has only ONE PAIR of sides with equal lengths.
- Three of these shapes are quadrilaterals.
Shape D is not a quadrilaterals, it is a pentagon.



A



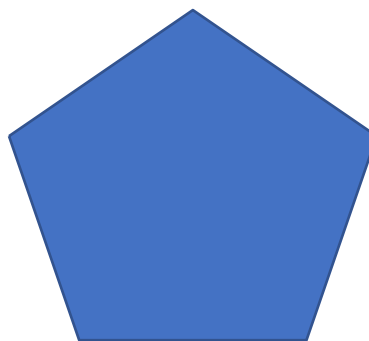
B



C



D



“Three of these shapes...”



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"



What do you NOTICE?



**What did you
NOTICE?**



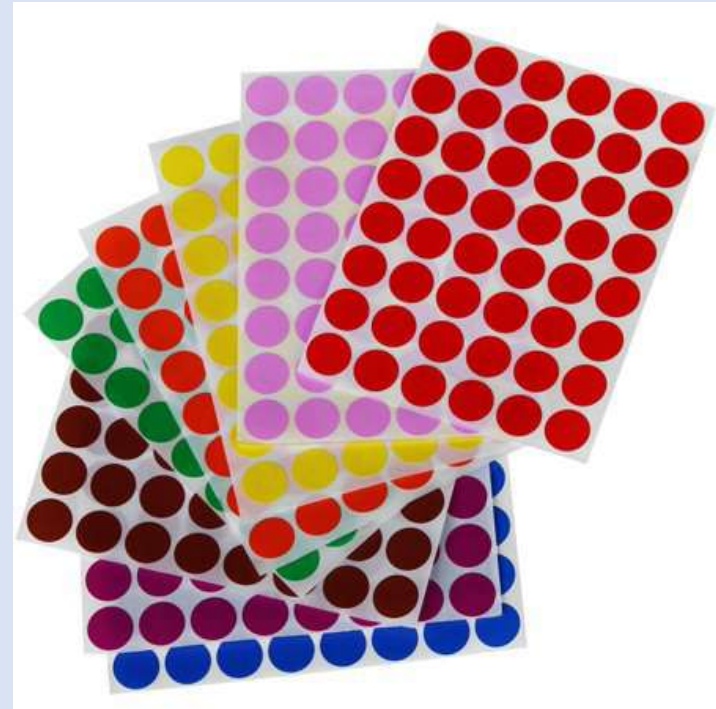
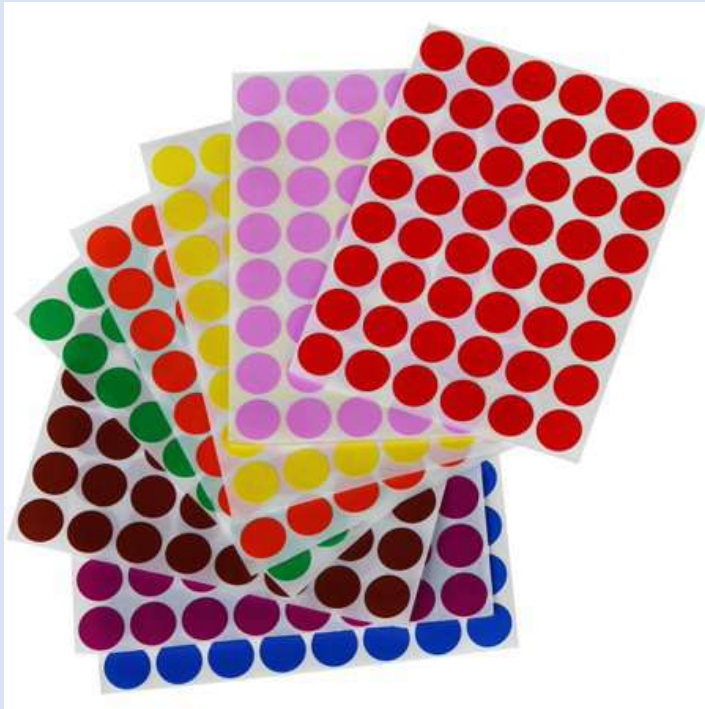
How many dot stickers?
What counting shortcut did you use?



I noticed ____ so I ____

(They) noticed ____ so they ____

Day
146



quick count



Reflect

**What was
mathematically
important?**

quick count

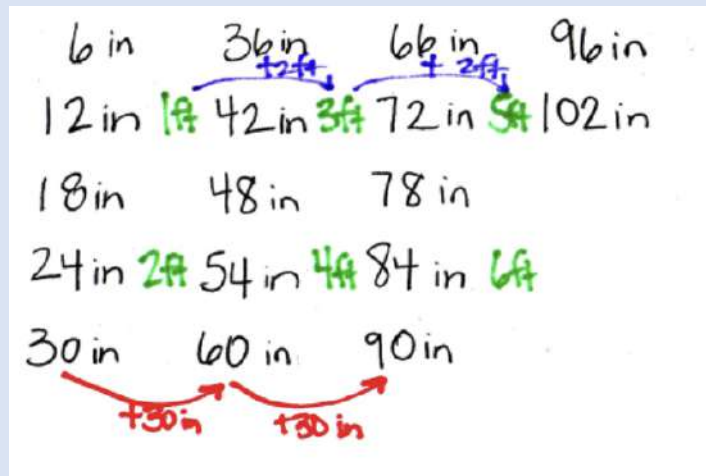


Use the NEXT SLIDE with students.

Here are some possible responses. This list is not all-inclusive.

Today, you will ask your students to choral count by 6 inches. Count from 6 up to about 102 inches. Yes, this is just like skip-counting by 6s, except you will continue the routine after you finish counting to discuss conversions to feet and patterns.

Have students look for the PATTERNS. These patterns (not the actual counting) are the power and beauty of this routine. Below are a few of the patterns that students may notice. Would these patterns have occurred if we organized the numbers in, let's say, columns with 6 values instead of 5?



Here's the real power of the routine:
Explore the mathematical reasons
WHY we see these patterns when we
arrange the numbers in this way.

Image Source: © 2015 University of Washington.
For noncommercial use only.



Counting by 6-inch Increments and Converting to Feet

Day
147

6 inches

12 in.



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

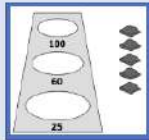


Use the NEXT SLIDE with students.

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

You earned 230 points playing beanbag toss.
You threw 5 beanbags.

How were 230 points scored with 5 beanbags?



What generalizations can you make about the number of beanbags that must go through the bottom hole for 230 points to be possible?

Day 148

DECIDE & DEFEND

Calvert County Public Schools logo

The bottom hole is worth 25 points.

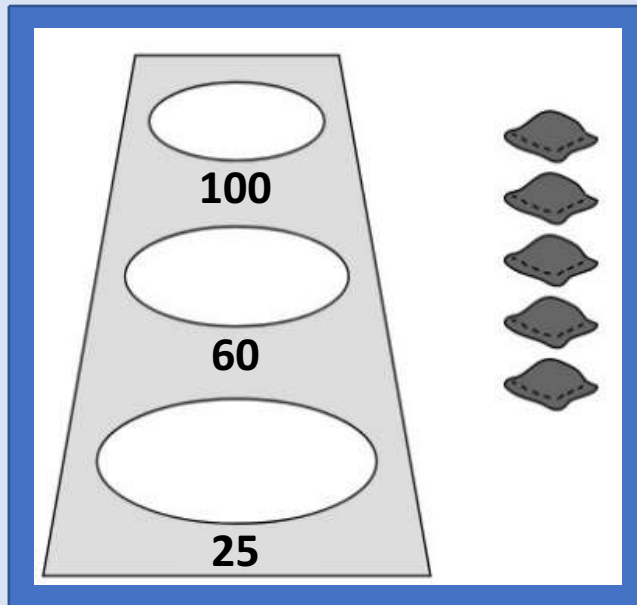
This is an ODD number.

In order to score an even number of points (230), the number of bags that pass through the bottom hole must be an even number (0, 2, or 4)

- If 0 pass in the bottom, 230 points is not possible
- **If 2 pass in the bottom (50), we need 180 more points by throwing 3 in the middle hole**
- If 4 pass in the bottom hole (100), we need 130 more points, this is not possible

You earned **230 points** playing beanbag toss.
You threw 5 beanbags.

How were 230 points scored with 5 beanbags?



What **generalizations** can you make about the
**number of beanbags that must go through the
bottom hole** for 230 points to be possible?



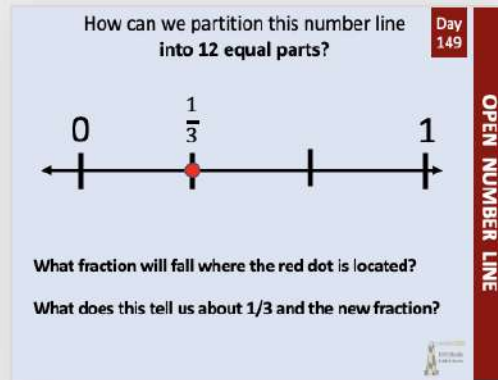
Reflect on Learning

- 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!



How can we easily partition this number line into 12 equal parts?

A: Divide each of the thirds into 4 equal parts. Teach students to use benchmarks such as halves to partition.

What fraction will fall where the red dot is located?

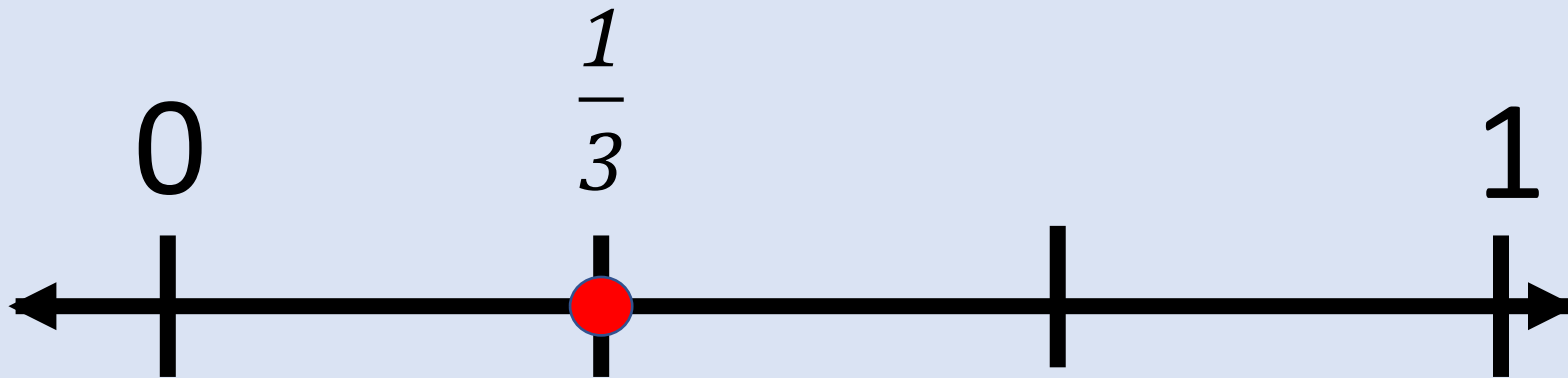
A: $\frac{4}{12}$

What does this tell us about $\frac{1}{3}$ and the new fraction?

A: $\frac{1}{3}$ is equivalent to $\frac{4}{12}$



How can we partition this number line into 12 equal parts?



What fraction will fall where the red dot is located?

What does this tell us about $\frac{1}{3}$ and the new fraction?

396

How did you calculate it?

How else could you
calculate it?

What is the total?

What is the sum of the
numbers that are
under the splat?

What numbers?

What could those
numbers be?

Are there other
possible
combinations?

Let's look under the
splat to see what
numbers are there.

66

33

33

66

SPLAT!

What do you NOTICE?



quick count

**What did you
NOTICE?**



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

Day
151



quick count

I noticed ____ so I ____

(They) noticed ____ so they ____

Day
151



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

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?

Day 152

0.62 $\frac{62}{100}$

SAME BUT DIFFERENT

- One is represented as a decimal, the other is a fraction
- Both represent 62-hundredths
- Both are values less than 1
- They both use the digits 6 and 2 but the decimal does not use the digit 1
- The model for both could look the same

How are these the SAME but DIFFERENT?

Day
152

0.62

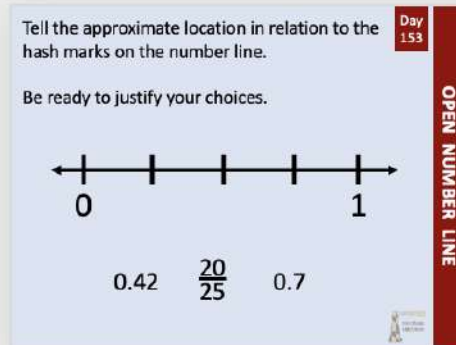
$$\frac{62}{100}$$

SAME BUT DIFFERENT



Use the NEXT SLIDE with students.

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

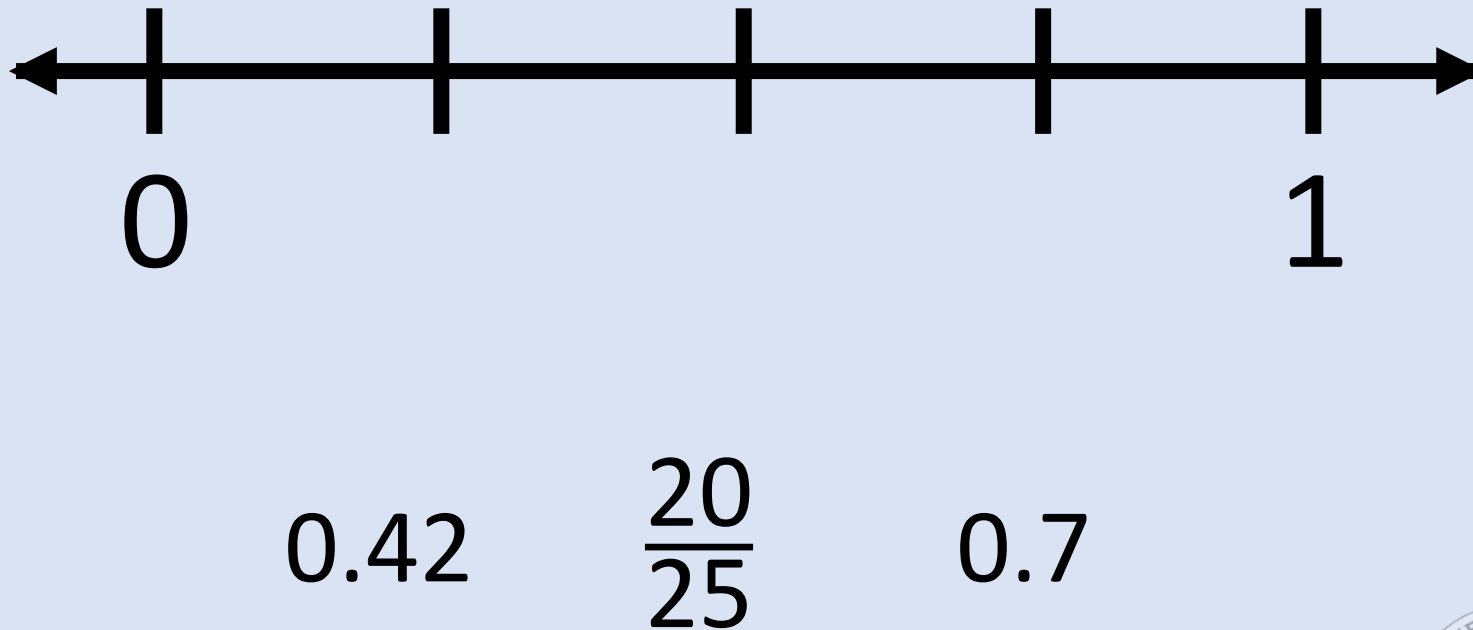


- The line is marked off into $\frac{1}{4}$ markings.
- $0.42 = \frac{42}{100}$ falls between $\frac{25}{100}$ and $\frac{50}{100}$, so 0.42 would fall between the $\frac{1}{4}$ and $\frac{1}{2}$ marks. It would be closer to the $\frac{1}{2}$ mark since $\frac{42}{100}$ is closer to $\frac{50}{100}$ than $\frac{25}{100}$.
- $\frac{20}{25}$ is equivalent $\frac{80}{100}$. $\frac{3}{4}$ is $\frac{75}{100}$, so $\frac{20}{25}$ would be just to the RIGHT of the third hash mark.
- 0.7 would be just to the LEFT of the third hash mark since $\frac{3}{4}$ is $\frac{75}{100}$ and $0.7 = 0.70 = \frac{70}{100}$



Tell the approximate location in relation to the hash marks on the number line.

Be ready to justify your choices.



Estimation-Differences

This estimation routine is a little different than the types we have seen so far. In this routine, you will ask students what they believe the DIFFERENCE is between the two cups of gems.

Show the image of the cups. Ask students, “What is the mathematical difference between the number of gems in the two cups?” (i.e. the value if we subtract)

Record the various ideas.

Reveal the difference between the two cups.

Now ask students how many gems they believe is in each cup. Students should give you a count for the first cup and a count for the second cup. The difference between the two counts should be equal to the revealed difference. Record ideas.

Encourage a variety of reasonable answers and discuss the answers offered.

Repeat with the second image. Encourage and expect more discussion.



What is the mathematical difference between the gems in these two cups?

How many are in each cup?

glass gems.

19 glass gems

26 glass gems

What is the mathematical difference between the gems in these two cups? glass gems.

How many are in each cup?



50 glass gems



68 glass gems

Use the NEXT SLIDE with students.

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

Day
155

1.4	$2\frac{7}{10}$
0.9	3.85

WHICH ONE DOESN'T BELONG?

Possible Responses:

- Three of these values have a fractional part that is greater than $\frac{1}{2}$
1.4 does not have a fractional part that is greater than $\frac{1}{2}$
- Three of these values are written in decimal notation.
 $2\frac{7}{10}$ is not written in decimal notation
- Three of these values have a value that is greater than 1
0.9 does not have a value that is greater than 1 (does not have a whole number part)
- Three of these values are partitioned into tenths.
3.85 is not partitioned into tenths, it is partitioned into hundredths



1.4

$2\frac{7}{10}$

0.9

3.85



4 x 25
8 x 25
8 x 75
16 x 25

TEACHER NOTES

BEFORE

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DURING

Multiplying

This strategy allows students to build on known facts to solve more complex problems.

- Many students will recognize that $4 \times 25 = 100$ based on their experiences with money (quarters). Some will rely on partial product strategies $80 + 20 = 100$
- 8×25 --- the hope is that students will recognize that 8×25 is simply double the value of 4×25 since the 4 doubles to 8. Some may partition 8 into $4 + 4$ and use the Distributive Property to multiply $4 \times 25 + 4 \times 25 = 100 + 100 = 200$
- 8×75 can be built from 8×25 . Since 75 is 3x the value of 25, the final product will be 3x larger --- $200 \times 3 = 600$
- 16×25 can again be built from 8×25 . If students remember that $8 \times 25 = 200$, then 16×25 would be double that product since 16 is double of 8. $16 \times 25 = 400$

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

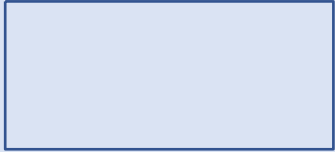
Give special attention to the strategies that build on the previous ones to help students recognize the patterns that exist --- when we double on of the factors, the product will double

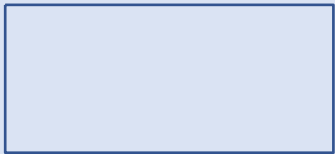


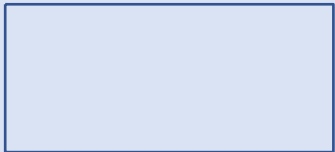
4 x 25

Day
156

NUMBER TALK







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.

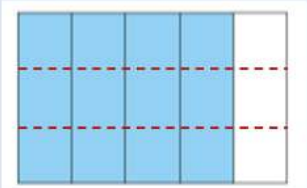
NOTE: This is the CCPS adaptation of the original Decide and Defend protocol



Use the NEXT SLIDE with students.

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


Does the model prove the equation is true?
Be ready to defend your ideas.



???

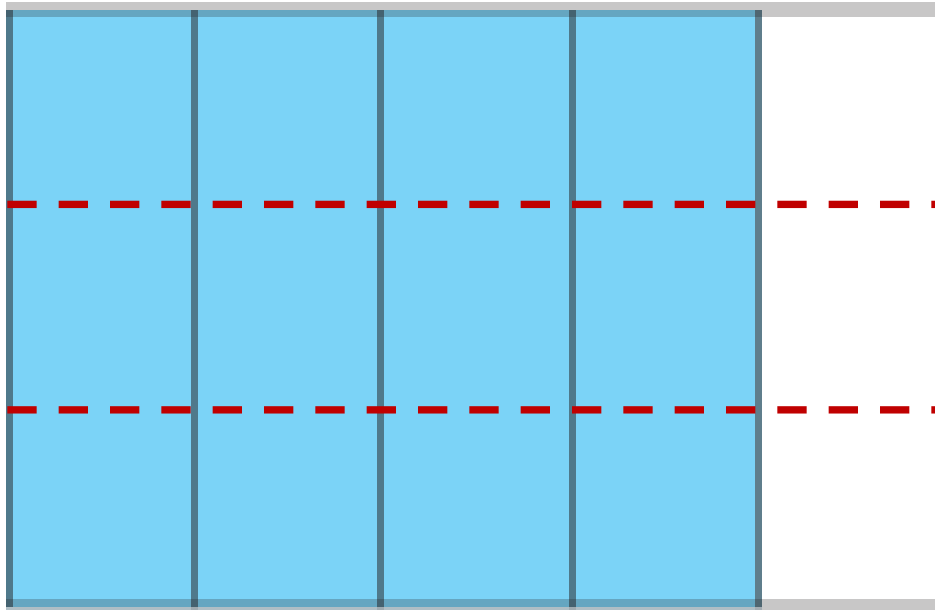
$$\frac{12}{15} = \frac{4}{5}$$

DECIDE & DEFEND



The original model shows 5 parts with 4 of the parts shaded in blue.
The original was then partitioned into 3 equal sections.
We did not shade any additional parts, but we now see that $\frac{12}{15}$ is the same as $\frac{4}{5}$
Continue to remind students that "parts" always need to be equal.

Does the model prove the equation is true?
Be ready to defend your ideas.



$$\frac{12}{15} = \frac{4}{5}$$



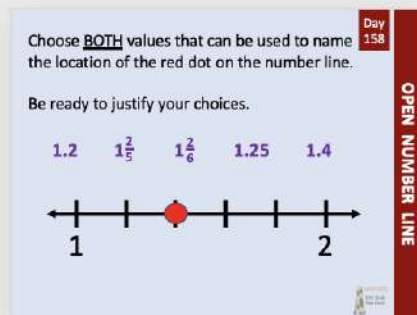
Reflect on Learning

- What was mathematically important in the problem?
- What new math idea did you learn today?
- How is it possible that the 12 parts were equal to the 4 parts?



Use the NEXT SLIDE with students.

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



The correct solutions include $1\frac{2}{5}$ and 1.4

Students should easily recognize the $1\frac{2}{5}$ since the red dot is on the second hash out of 5 partitions.

1.4 requires students to understand this as $1\frac{4}{10}$ which is equivalent to $1\frac{2}{5}$.

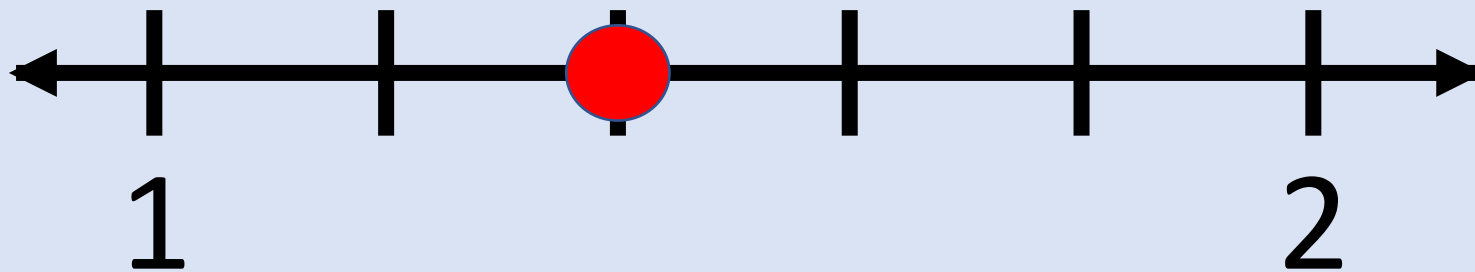
Students may also recognize 1.4 by skip counting by 0.2 --- 1.2, 1.4, 1.6, 1.8, 2.0 and seeing that the red dot lands on the 1.4 named marking.

- 1.2 is not correct because 0.2 means 2 out of 10 and this is 2 out of 5
- $1\frac{2}{6}$ is not correct because you do not count the starting hash mark over the 1. You count the spaces.
- 1.25 is not correct because the dot is located on the mark that is 2 out of 5, not .25

Choose BOTH values that can be used to name the location of the red dot on the number line.

Be ready to justify your choices.

1.2 $1\frac{2}{5}$ $1\frac{2}{6}$ 1.25 1.4



What do you NOTICE?



Figure 1



Figure 2



Figure 3

**What did you
NOTICE?**



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



Figure 1



Figure 2



Figure 3

I noticed ____ so I ____

(They) noticed ____ so they ____

Day
159

quick count



Figure 1



Figure 2



Figure 3



Figure 1



Figure 2



Figure 3



Reflect

**What was
mathematically
important?**



$$35 \times 2$$
$$35 \times 10$$
$$35 \times 20$$
$$755 \div 35$$

TEACHER NOTES

BEFORE

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DURING

Multiplying Up to Divide Using known Multiplication Facts

Possible reasonings:

- 35×2 – students may simply double 35 or may use partial product ($60 + 10$)
- 35×10 – students should immediately recognize this a 350 – very little discussion will be needed but it is a building block to the next expression
- 35×20 – some students may double the value of 35×10 and some may use partial product strategies to get 700
- If students recognize that $35 \times 20 = 700$, they should connect $700 \div 35 = 20$ leaving 55 more. $55 \div 35 = 1 \text{ r. } 20$ for a final quotient of 21 r.20

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 strategy of using known multiplication facts to determine quotients.



35 x 2

