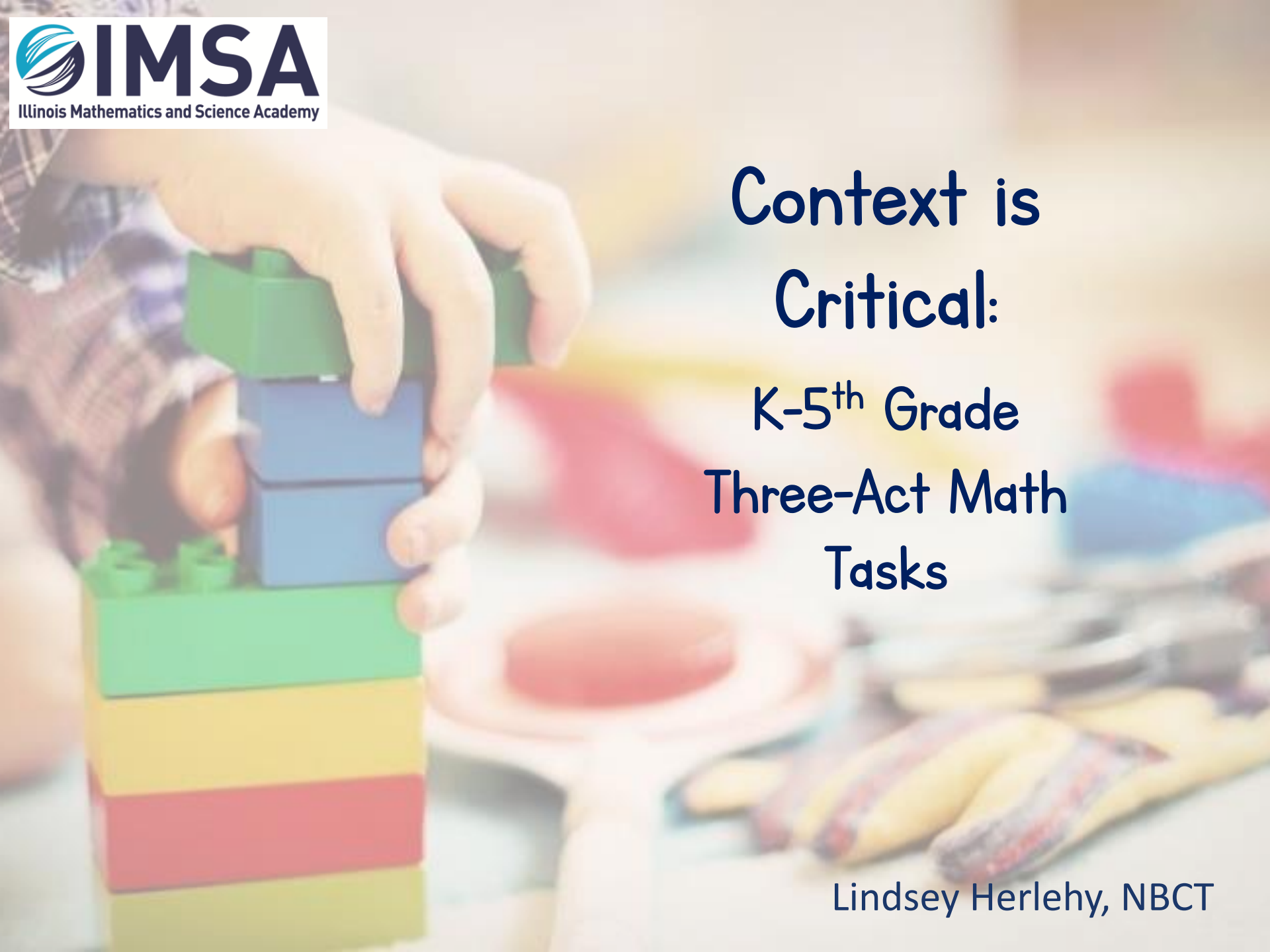

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Context is Critical:

K-5th Grade Three-Act Math Tasks

Lindsey Herlehy, NBCT

ACT 1

WHAT DO YOU NOTICE?

WHAT DO YOU WONDER?

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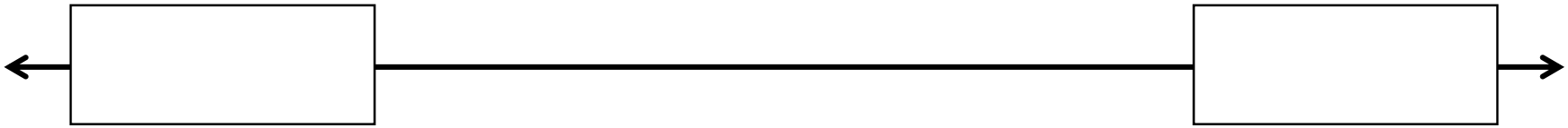
What do you wonder?

Please type your comment in the chat.

WHAT IS THE MAIN QUESTION THAT WE WANT ANSWERED?

How many Skittles are in the jar?

ESTIMATE



Too Low estimate

Too High estimate

Place your **just right** estimate along the number line. Be sure to label!

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ACT 2

What information would be useful to know to help you solve this problem? Enter your comments in the chat.

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Skittles
Original
Skittle
ORIGINAL

There are 58 packages of skittles in the jar.


THIS UNIT NOT LABELED
FOR RETAIL SALE
ORIGINAL
Skittles
Questions? Comments?

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Solve.

(And try more than one method.)

ACT 3

Please share your answer in the chat.

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What other questions could we investigate?

Please type your comment in the chat.

HOW DO THESE TWO PROBLEMS DIFFER?

Student Experience Real-World Application Inquiry

Name: _____ Date: _____ NBT.5 Multiplication Algorithms

Learning Target: I can multiply two 2-digit numbers in number stories.

1. Read the word problem.
2. Understand the problem
3. Write an equation with the unknown.
4. Solve the multiplication problem by using an area model
5. Write the answer.
6. Check your answer by solving the multiplication problem using a different algorithm, like partial products.
7. Write your final answer!

A.

Keith and Jeff were keeping track of the canned goods brought in for the food drive. So far, each classroom had 16 cans collected. There were 24 classrooms in the whole school. How many cans did the whole school collect so far?

Equation with unknown: _____

Final Answer: _____cans

Solve:

Answer: _____cans

Check:

Answer: _____cans

"IF YOU CAN ASK QUESTIONS ABOUT IT, IT'S IN YOUR REAL WORLD. IF YOU CAN GUESS ABOUT IT, IT'S IN YOUR REAL WORLD. IF YOU ARE ABLE TO ARGUE ABOUT IT, IT'S IN YOUR REAL WORLD."

- DAN MEYER

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Inquiry-based learning experiences are those which promote analytic thinking, knowledge generation and application, and construction of meaning through mindful investigation driven by compelling questions that have engaged, or have the potential of engaging, the learner's curiosity."

Inquiry Skills

Planning	Investigation	Analysis	Communication
• Questions are posed • Background knowledge is identified • Predictions are made • The investigation is organized	• Students gather information • Observations and data are documented • Appropriate tools are utilized	• Identifying relationships in patterns in the information • Evaluating the information in support of the inquiry question • Conclusions are drawn and defended • Arguments are constructed based on information	• Claims and conclusions are published with supporting evidence • Students share their investigation with the public • Time is allotted for self-assessment

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ACT 1

"Introduces the central conflict of your story clearly, visually and viscerally, using as few words as possible."

- Notice and Wonder
- Engage in "Goldilocks guessing"
- Collect data and invite all learners to participate

Name: _____ Date: _____

1. What did you notice?

2. What do you wonder?

3. Main Question:

4. Make an estimate.

low estimate — high estimate

Place an "X" to represent your estimate on the number line.

5. What information do you need?

SHOW YOUR THINKING ON THE BACK OF THE PAPER

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ACT 2

"The student overcomes obstacles, looks for resources and develops new tools."

- Investigate the constraints and requirements of the problem
- Identify and collect valuable information needed to solve
- "Mess" with the problem

Name: _____ Date: _____

1. What did you notice?

2. What do you wonder?

3. Main Question:

4. Make an estimate.

low estimate — high estimate

Place an "X" to represent your estimate on the number line.

5. What information do you need?

SHOW YOUR THINKING ON THE BACK OF THE PAPER

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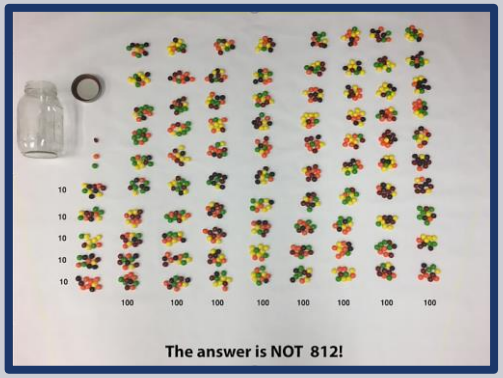
ACT 3

"Resolve the conflict and set up a sequel or extension."

- Evaluate the reasonableness of the answer and sources of error
- Formalize the content
- Reflect on the skills needed to solve the problem
- Investigate additional questions



Name: _____ Date: _____

1. What did you notice?

2. What do you wonder?

3. Main Question:

4. Make an estimate.

low estimate — high estimate

Place an "X" to represent your estimate on the number line.

5. What information do you need?

SHOW YOUR THINKING ON THE BACK OF THE PAPER

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ACT 1

Source: https://gfletchy.com/2016/10/23/3-act-task-a-kindergarten-lesson-captured/

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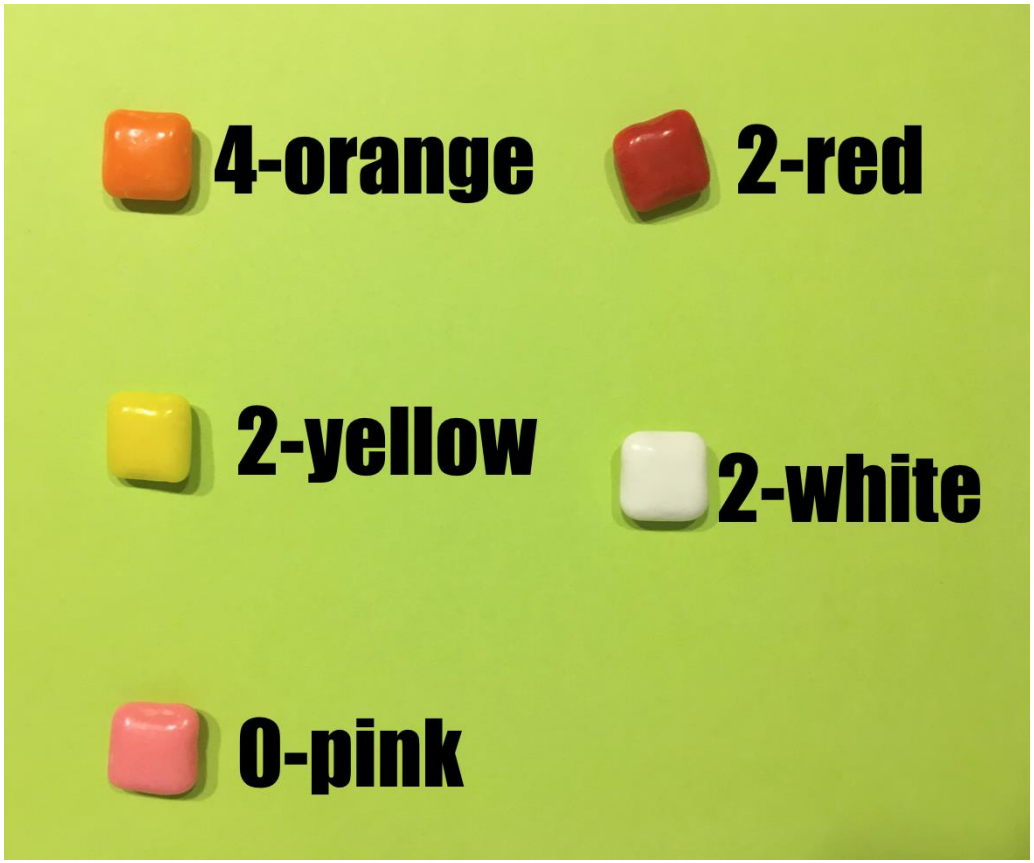
ACT 2



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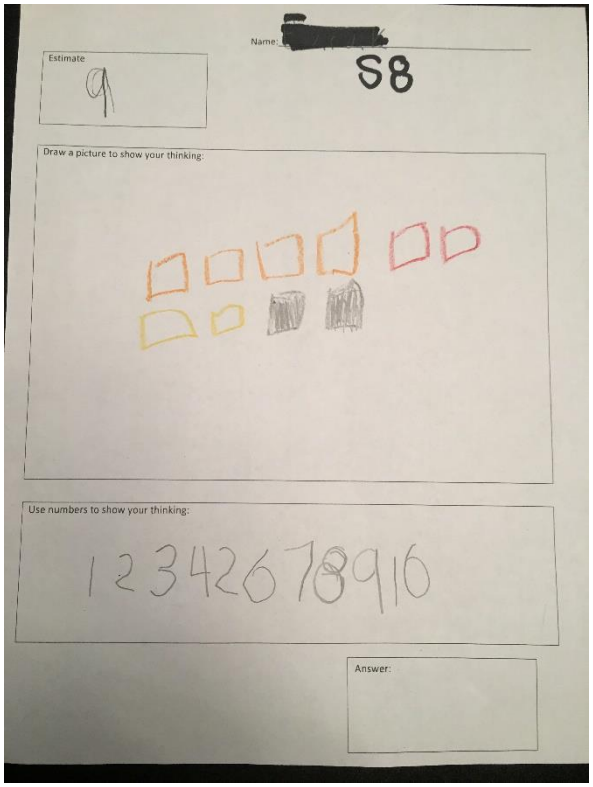
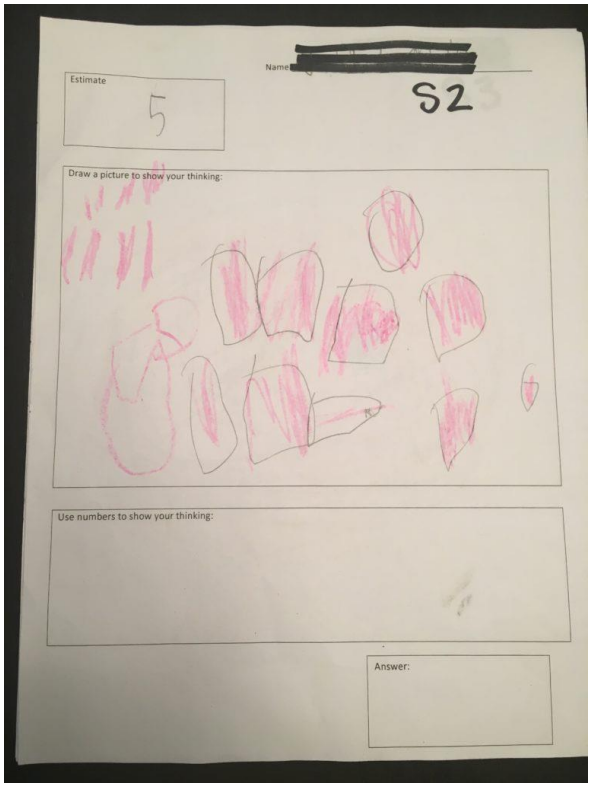
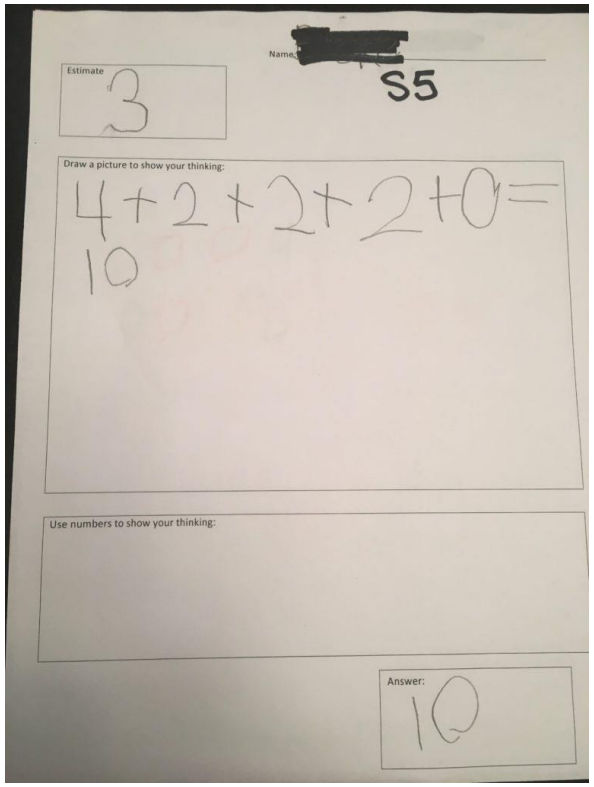
STUDENT WORK







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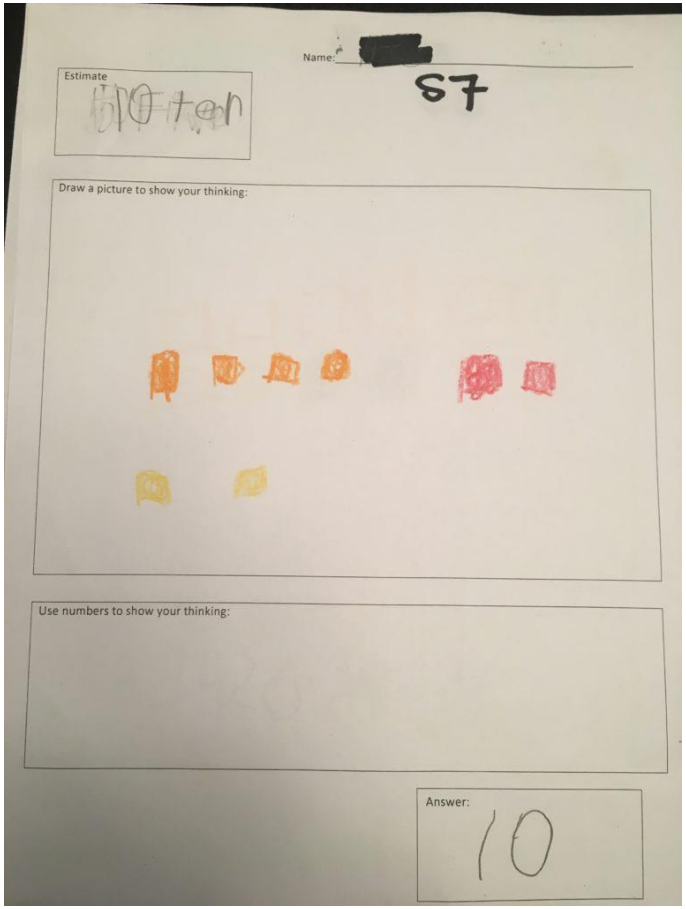
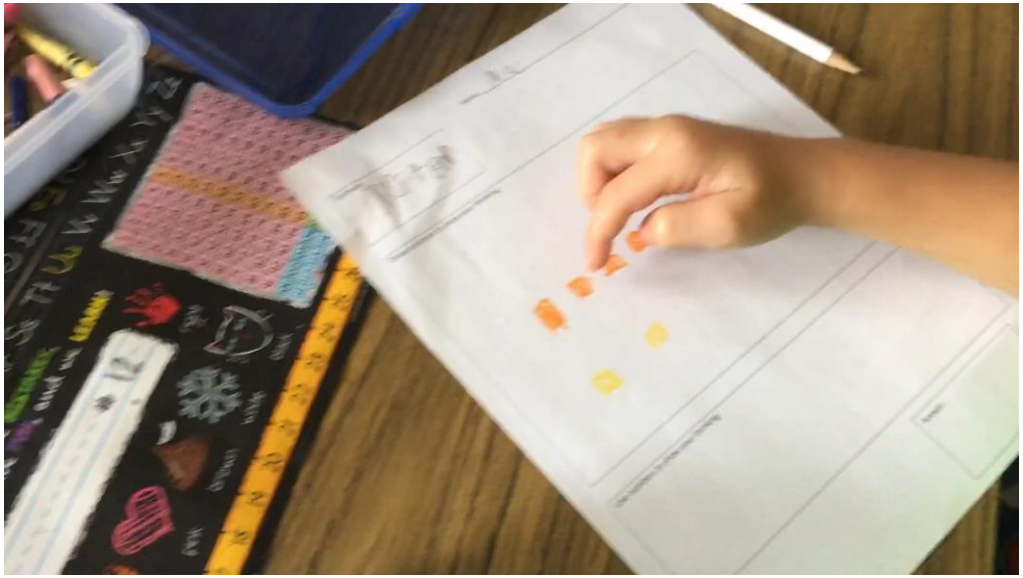
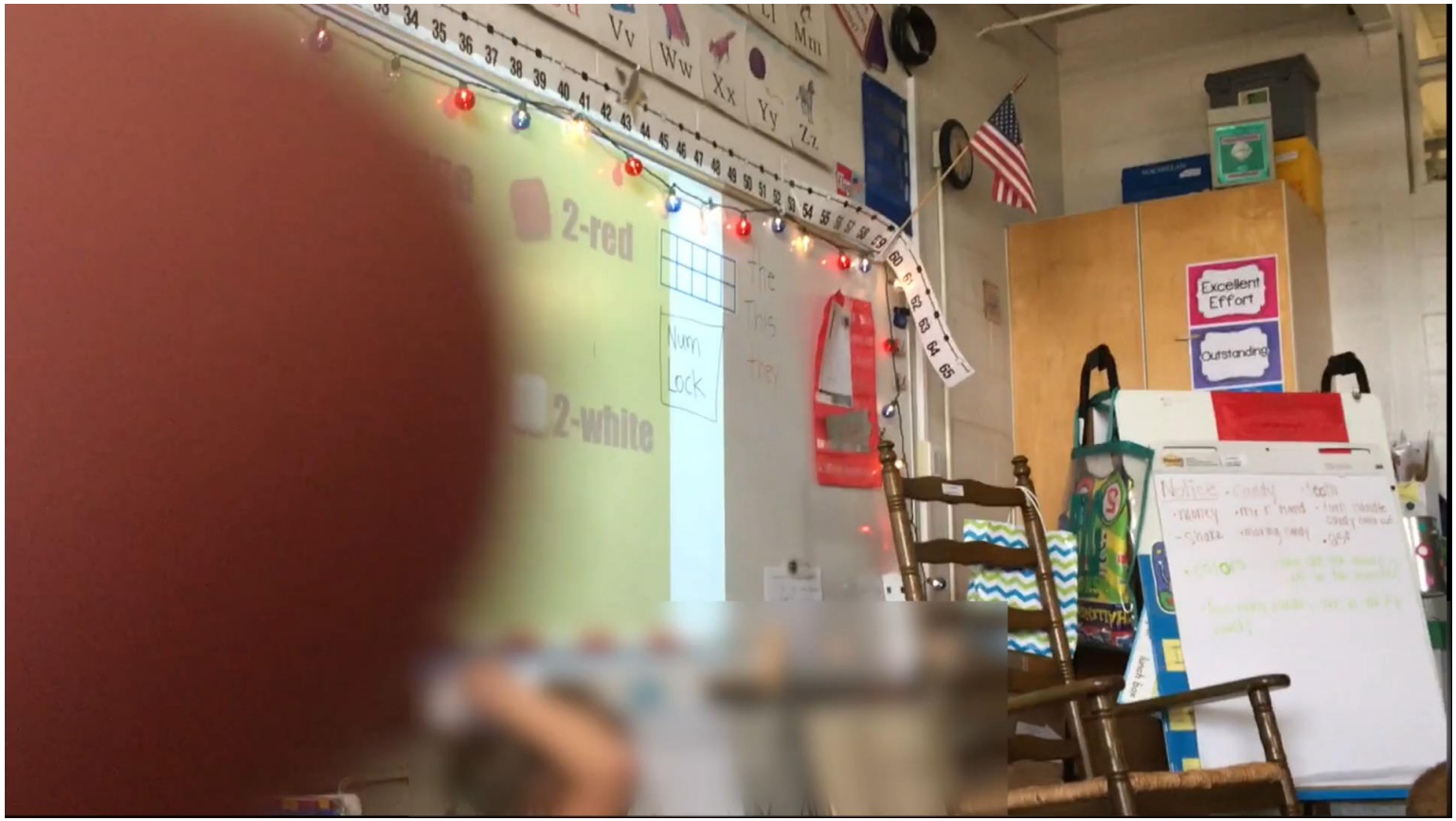
STUDENT WORK





ACT 3



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THIS IS ALL GREAT, BUT WHERE DO I START?

WWW.ESTIMATION180.COM

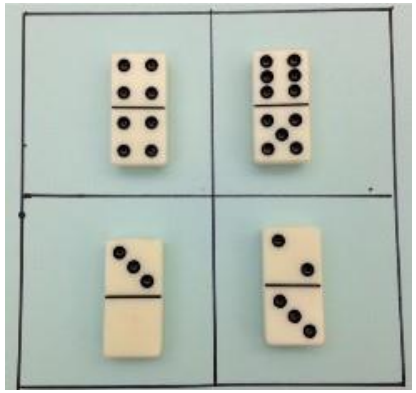
WWW.OPENMIDDLE.COM

EQUIVALENT STATEMENTS

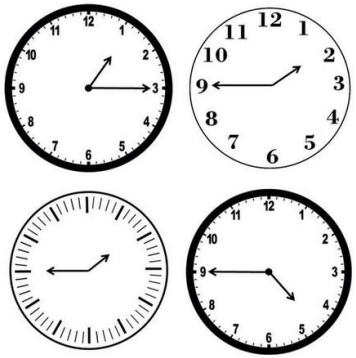
Directions: Place numbers 1 through 9 in the boxes to create a true statement. Each number can only be used once.

$$\square = \square + \square = \square + \square + \square$$

WODB.CA



5 + 5	2 + 8
9 + 1	3 + 9



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HTTPS://GFLETCHY.COM/3-ACT-LESSONS/

Website 3-Act Tasks (Graham Fletcher) : Sheet1

Date Added	Lesson Title	Standard 1	Standard 2	Big Ideas	What do you wonder?
4/17/2014	Peas in a Pod	K.NBT.1	K.CC.4	counting	If all the peas were in one pod, how many peas would there be?
4/25/2014	Dotty	K.CC.1,2,3	K.CC.4,5	counting and patterns	How many dots will be on the screen after the last bell?
2/9/2016	the Candyman	K.CC.1,2,3	K.CC.4,5	counting and joining sets	How many candies are in are in his hand?
12/6/2015	Share the Love	K.CC.1,2,3	.	sharing quantitites within 20	How many M&Ms will each girls get?
1/16/2015	Counting Squares	K.NBT.1	K.CC.4,5	counting and patterns	How many tiles are in the pile?
1/16/2015	Stage 5 Series	K.NBT.1	K.CC.4,5	counting and patterns	What will stage 5 look like?
3/24/2015	Shark Bait	K.NBT.1	K.CC.4,5	counting and joining sets through 20	How long is the worm?
3/4/2014	Lil' Sister	K.MD.2	K.CC.6	comparing measurements	How much shorter is Lil' Sister than Big Sister?
9/1/2015	Bag-O-Chips	K.OA.4	K.OA.5	building fluency through 10	How many bags of chips were missing?
5/8/2014	Balancing Numbers	K.OA.2	.	number combinations through	What is needed to make both side of the scale equal? (balance)
9/27/2015	Humpty Dumpty	K.OA.1,2,3	.	addition and subtraction within 20	How many eggs didn't break?
10/10/2017	Popping Balloons	K.OA.1,2,3	.	building fluency through 10	How many balloons are left?
2/15/2015	the Cookie Monster	1.NBT.1	1.NBT.4	addtion and subtraction within 50	How many cookies did the cookie monster eat?
11/7/2016	the Pringle Ringle	1.NBT.1	1.NBT.4	addition and subtraction within 100	How many Pringles did it take to make the Pringle Ringle?
5/3/2014	the Juggler	1.NBT.1	1.NBT.4	addition and subtraction	How many times will the juggler be able to juggle the ball until it hits the ground?
11/10/2014	Graham Cracker	1.NBT.1	1.NBT.4	addition and subtraction within 100	How many crackers will fit inside the Graham Cracker box?
5/16/2016	Bright Idea	1.NBT.1	1.NBT.4	addition and subtraction within 100	How many Skittles fit inside the light bulb?
9/4/2017	Snack Machine	1.NBT.6	.	addition and subtraction within 100	How much did the Munchos cost?
3/30/2017	Sliced Up	1.G.3	4.NF.4	working with quarters and wholes	How many orange wedges are in the bowl?
2/9/2016	the Whopper Jar	2.NBT.5	1.NBT.4	addition and subtraction within 100	How many Whoppers are inside the jar?
3/7/2015	It All Adds Up	2.NBT.5	.	adding and subtracting money	What coins are in the bank?
9/9/2015	Let It Fly	2.NBT.7	.	adding and subtracting within 1000	How far did he throw the disc?
2/1/2016	Downsizing Tomatoes	2.NBT.7	.	adding and subtracting within 1000	How many little ketchup bottles will will the big bottle fill up?
11/21/2014	the Race	2.MD.6	.	adding and subtracting within 1000	Which sister won the race?
2/15/2015	the Water Boy	3.NBT.2	5.NBT.7	adding and subtracting within 1000	How much water was comsumed?
11/13/2014	Paper Cut	3.MD.5,6,7	3.OA.3	area	Which piece is bigger? Which piece has the greater area?
2/2/2014	the Orange	3.MD.2	.	multiplication and division within 100	How many cubes will it take to balance the scale?
5/1/2017	Seesaw	3.OA.3	2.NBT.5	multiplication and division within 100	How many bricks will it take to balance out the seesaw?
3/30/2017	Fruit & Nuts	3.OA.3	.	multiplication and division within 100	How many pieces of chocolate in the whole bar?
9/21/2016	Knotty Rope	3.OA.7,8	.	multiplication and division within 100	How many knots will fit on the rope?
3/2/2015	All Aboard	3.NBT.3	3.MD.1	elapsed time	How long will it take for the train to pass?
12/10/2013	Piles of Tiles	3.MD.5,6,7	.	area	Are there enough tiles to cover the entire table?
3/3/2014	Cover the Floor	3.MD.5,6,7	.	building arrays within 100	How many blue squares will it take to cover the yellow square?
5/17/2016	Dill 'er Up	4.OA.1	4.OA.4	Identifying multiples and relating to time	How long will it take to fill up the 4 pickle jars?

Want more of the good stuff?

Dan Meyer's (6-12) Robert Kaplinsky' (K-12) Mike Wiernicki (K-8) Andrew Stadel (6-12) Dane Ehlert (6-12) Kyle Pearce (3-12) Jon Orr (6-12)
Catherine Castillo(K-5) Kendra Lomax (K-3) Kristen Acosta (K-5)

K-2

COUNTING & CARDINALITY

Share the Love - Sharing Quantities within 20

OPERATIONS & ALGEBRAIC THINKING

Humpty Dumpty – Addition and Subtraction within 20

NUMBER & OPERATIONS IN BASE TEN

Downsizing Tomatoes – Addition and Subtraction within 100

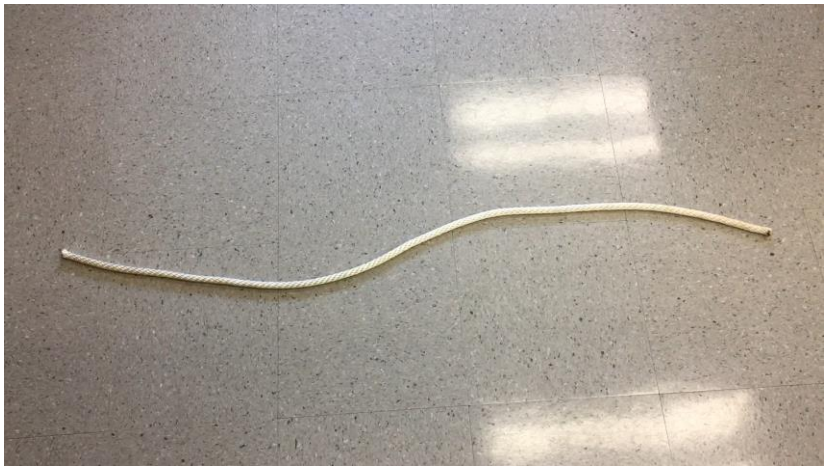
GEOMETRY

Sliced Up – Working with Quarters and Wholes

3-5

OPERATIONS & ALGEBRAIC THINKING

Knotty Rope – Multiplication and Division within 100



MEASUREMENT & DATA

Cover the Floor – Building Arrays within 100

NUMBER & OPERATIONS IN BASE TEN

Where's the Beef – Multiplication and Division within 100

NUMBER & OPERATIONS – FRACTIONS

The Big Pad – Area with Unit Fractions

THANK YOU!

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