



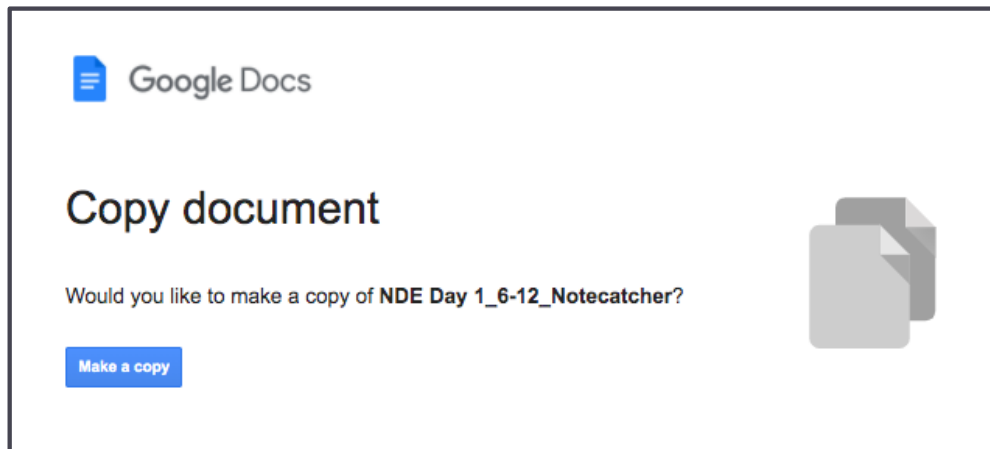
Assessing and Diagnosing Unfinished Learning in Math

Okera Hawkins
February 24, 2021



Access Materials

Access today's Note Catcher at the following link:
<https://tinyurl.com/NDESession2Materials>



Zoom Norms



Be present: keep camera on when possible



Audio: stay on “mute” if you are not speaking



Engage with others: Zoom Breakout Rooms feature!



Chat: use the chat feature when prompted



Materials: Soft copy of the note catcher; links in chat box

Which image best captures your experience in K-12 math?



1



2



3



4



Self-Assessment Reflection



Math Community of Practice
Self-Assessment

2. My teachers and support staff have a strong knowledge of the math content they teach.

- a. 4 = to a great extent (more than 75% of the time)
- b. 3 = to a partial extent (50-75% of your teachers and staff)
- c. 2 = to a limited extent (25-49% of your teachers and staff)
- d. 1 = little to no extent (less than 25% of your teachers and staff)

Provide evidence for your response.

of our students'
et means that a
ixed quality.

uggle, are taught

of our students who struggle, are taught
An example of this type of language includes "students with disabilities" and "our students can..." as compared with deficit-based language such as "my low students" and "our students can't..."

- a. 4 = to a great extent (more than 75% of your teachers and staff)
- b. 3 = to a partial extent (50-75% of your teachers and staff)

Learning Series at a Glance



Session 1	Session 2	Session 3	Session 4
Defining our Approach to Addressing Unfinished Teaching and Learning in Math	Assessing and Diagnosing Unfinished Learning in Math	Plan and Take Action Part I: Planning Intentional Core Supports	Plan and Take Action Part II: Planning Intentional Small Group and Individual Supports

What are we doing today? Why?



UNDERSTAND.



DIAGNOSE.



**PLAN &
TAKE ACTION.**

Session Agenda



Time	Topic
15 min	Getting Started
25 min	Deepening Understanding of the Math We Teach
40 min	Diagnosing Unfinished Learning
10 min	Reflection & Wrapping Up

Our Agenda



1. Getting Started

2. Deepening Understanding of the Math We Teach

3. Assessing and Diagnosing Unfinished Learning

4. Reflection & Wrapping Up

Understanding is NOT an ON/OFF switch

“Possessing deep knowledge of mathematical content means that teachers can pose good problems, ask good questions, and guide students to understanding by knowing where they want students to be.”

(Taper, 2012)



Preparing to Teach

7.EE.B.4.a (7.2.3.c):

Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?



Ms. Hutchins
Brightwood Academy
Grade 7 Teacher

Uncovering the Standards

Review Ms. Hutchins Standards Analysis for 7.EE.B.4.a.

Reflect:

- What do you notice?
- What do you wonder?

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Standard Analysis Case Study

This is Ms. Hutchins first year teaching seventh grade math at Brightwood Academy. Prior to teaching seventh grade, she taught ninth grade social studies for one year at another school. Ms. Franklin, the grade 7 content lead, is facilitating a planning meeting with the grade 7 team. The grade 7 team is preparing to teach a topic on fraction comparison. Before the meeting Ms. Franklin has requested the teachers review and annotate the grade level standard, 7.EE.B.4.a addressed in their upcoming topic.

Ms. Hutchins comes to the meeting prepared with her standard annotations:

7.EE.B.4
Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

7.EE.B.4.A
Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Annotations:

- Representations** (points to "represent")
- Number sets, types of equations** (points to "rational numbers")
- All verbs** (points to "Use", "construct", "solve", "compare")
- Methods** (points to "Solve equations of these forms fluently")

Let's Chat



- What do you notice and wonder about Ms. Hutchins analysis?
- How did the team discussion of the standard deepen their understanding?

Resource Spotlight



Louisiana STUDENT STANDARDS MATHEMATICS

Grade 7

Louisiana Student Standards: Companion Document for Teachers 2.0

This document is designed to assist educators in interpreting and implementing Louisiana's new mathematics standards. It contains descriptions of each grade 7 math standard to answer questions about the standard's meaning and how it applies to student knowledge and performance. Version 2.0 has been updated to include information from LDOE's Grade 7 Remediation and Rigor documents. Some examples have been added, deleted or revised to better reflect the intent of the standard. Examples are samples only and should not be considered an exhaustive list.

This companion document is considered a "living" document as we believe that teachers and other educators will find ways to improve the document as they use it. Please send feedback to classroomsupporttoolbox@la.gov so that we may use your input when updating this guide.

Additional information on the Louisiana Student Standards for Mathematics, including how to read the standards' codes, a listing of standards for each grade or course, and links to additional resources, is available at <http://www.louisianabelieves.com/resources/library/k-12-math-year-long-planning>.

Posted July 18, 2019



The Power of Progressions

Fragmenting the Standards into individual standards, or individual bits of standards, erases all these relationships and produces a sum of parts that is decidedly less than the whole.

The standards were designed from **intentional progressions**. These progressions are important to help students learn higher mathematics.



Uncovering the Progressions



Review the Learning Progression Protocol and Ms. Hutchins' annotations of the pre-requisite standards.

Reflect & Discuss:

- How does this process for uncovering the progression of learning equip Ms. Hutchins to assess and diagnose unfinished learning?

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Learning Progression Analysis Protocol

Step 1: Identify the pre-requisite standards connected to the grade level standard in the [Louisiana Important Prerequisite Math Standards](#)

Step 2: Read the prerequisite standards. Annotate the following...

- Any unfamiliar language or questions you have about the standard
- Aspect of rigor the standard is targeting (conceptual understanding, procedural fluency, application)
- Concept(s) students are expected to understand or know
- What students are expected to do or show
- Strategies and models students are expected to use
- Specifics or limits specified in the standard
- Connections to the grade level standard

Step 3: Read about the prerequisite standards in the LDOE Companion Document for Teachers.

Step 4: Complete assessment tasks aligned to the prerequisite standard

Ms. Hutchins' Prerequisite Standard Annotations & Example Assessment Tasks

7.EE.B.4.a Progression Analysis Example	
6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
7.EE.B.4.a - This is foundational for students to use variables to represent unknown quantities and write the expression to represent a real-world or mathematical problem.	7.EE.B.4.a - This is foundational for students to write and solve equations that are one step or two step equations involving rational numbers.

Part C: 6.EE.B.7

7.Allison is buying movie tickets for her and her friends. The price of each ticket is \$8.50, and she spent a total of \$42.50. Write and solve an equation to determine how many movie tickets Allison purchased.
Let t = the number of tickets purchased

$$\begin{aligned} 8.50t &= 42.50 \\ 8.50 & \quad 8.50 \\ t &= 5 \end{aligned}$$

Allison brought a total of 5 tickets

8.Lilla's water bottle has some water in it already, but she wants to completely fill it up before going to practice. She adds 21 ounces of water to completely fill the 40-ounce bottle. Write and solve an equation to determine the amount of water that was in Lilla's bottle before she completely filled the bottle.
Let n = number of ounces of water

$$\begin{aligned} n + 21 &= 40 \\ -21 & \quad -21 \end{aligned}$$

Resource Spotlight



Essential Instructional Content for 2020-2021



Mathematics

This document has been adapted for use by the Nebraska Department of Education for Nebraska educators. The following guidance contains information about essential Mathematics content for the 2020-2021 school year.

Resource Spotlight



Considerations for Addressing <u>ESSENTIAL</u> Grade-Level Content	
The clusters and standards listed in this table name the essential instructional content for grade 7. The right-hand column contains approaches to shifting how time is dedicated to the clusters and standards in the left-hand column.	
Clusters/Standards	Considerations
See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.1.2.a, 7.2.1.b, 7.2.3.a, and 7.2.3.e. CCSSM: 7.RP.A	No special considerations for curricula well aligned to analyzing proportional relationships, as detailed by the cluster. Time spent on instruction and practice should NOT be reduced.
See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.1.2.b, 7.1.2.c, and 7.1.2.d. CCSSM: 7.NS.A	<i>Incorporate</i> foundational work on understandings of rational numbers (6.NS.C.5, 6, and 7) to build towards operations with rational numbers (7.NS.A), as detailed by the cluster.
See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.2.2.a.	<i>Incorporate</i> foundational work on writing and transforming linear expressions from grade 6 (6.EE.A) into the work of using properties of operations to generate equivalent expressions, as detailed by the cluster (7.EE.A).
See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.2.2.d, 7.2.3.a, and 7.2.3.c. CCSSM: 7.EE.B.3	No special considerations for curricula well aligned to solving multi-step real-life and mathematical problems, as detailed by the standard. Time spent on instruction and practice should NOT be reduced.
See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.2.1.a and 7.2.3.d. CCSSM: 7.EE.B.4	<i>Emphasize</i> equations relative to inequalities. <i>Incorporate</i> foundational work of reasoning about and solving one-variable equations (6.EE.B) to support students' work on constructing equations to solve problems, as detailed by the standard (7.EE.B.4). Time spent on instruction and practice relating to equations should NOT be reduced.

Resource Spotlight



Considerations for Addressing <u>ESSENTIAL</u> Grade-Level Content	
The clusters and standards listed in this table name the essential instructional content for grade 7. The right-hand column contains approaches to shifting how time is dedicated to the clusters and standards in the left-hand column.	
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<p>See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.1.2.a, 7.2.1.b, 7.2.3.a, and 7.2.3.e.</p> <p>CCSSM: 7.RP.A</p>	<p>No special considerations for curricula well aligned to analyzing proportional relationships, as detailed by the cluster. Time spent on instruction and practice should NOT be reduced.</p>
<p>See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.1.2.b, 7.1.2.c, and 7.1.2.d.</p> <p>CCSSM: 7.NS.A</p>	<p><i>Incorporate</i> foundational work on understandings of rational numbers (6.NS.C.5, 6, and 7) to build towards operations with rational numbers (7.NS.A), as detailed by the cluster.</p>
<p>See 2015 Nebraska College- and Career-Ready Mathematics Standards 7.2.2.a, 7.2.2.b, and 7.2.2.c.</p>	<p><i>Incorporate</i> foundational work on writing and transforming linear expressions from grade 6 (6.EE.A) into the work of using properties of operations to generate equivalent expressions, as detailed by the cluster (7.EE.A).</p>

Key Point

Uncovering the math and progressions in the standards, equips us to assess and accurately diagnose unfinished learning.

Our Agenda



1. Getting Started
2. Deepening Understanding of the Math We Teach
3. Assessing and Diagnosing Unfinished Learning
4. Reflection & Wrapping Up

Key Actions to Diagnose



Identify

Identify the right diagnostics.

Consider

Consider what constitutes evidence.

Interpret

Interpret the evidence.

Resource Spotlight

Eureka Acceleration Tool

- Organized by Module (a “Module” is essentially a “unit” in the Eureka curriculum and Topic (a set of related lessons in the module)
- Includes a diagnostic assessment of prerequisite standards for the Topic (in this case, Solving Problems involving Expressions, Equations and Inequalities)

Eureka Acceleration Tool: Grade 7 Module 3, Topic B

To become mathematically proficient, students must access on-grade-level content. This document aims to help teachers who use the Eureka curriculum to ensure readiness for students before and during on-grade-level work, creating opportunities for timely support directly connected to the new learning.

About this Topic

Focus Standards:

7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

7.EE.B.4: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

- Solve word problems leading to equations of the form $px + q = r$, and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 5 cm. What is its width?*
- Solve word problems leading to inequalities of the form $px + q > r$, $px + q \geq r$, $px + q < r$ or $px + q \leq r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make and describe the solutions.*

7.G.B.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and use them to solve simple equations for an unknown angle in a figure.

Topic Overview per the Eureka Curriculum

Topic B begins in Lesson 7 with students evaluating equations and problems modeled with equations for given rational number values to determine whether the value makes a true or false number sentence. In Lessons 8 and 9, students are given problems of perimeter; total cost; age comparisons; and distance, rate, and time to solve. Students will discover that modeling these types of problems with an equation becomes an efficient approach to solving the problem, especially when the problem contains rational numbers (7.EE.B.3, 7.EE.B.4a). Students apply the properties of equality to isolate the variable in these equations as well as those created to model missing angle problems in Lessons 10 and 11. All problems provide a real-world or mathematical context so that students can connect the (abstract) variable, or letter, to the number that it actually represents in the problem. The number already exists; students just need to find it.

Lesson 12 introduces students to situations that are modeled in the form $px + q > r$ and $px + q < r$. Initially, students start by translating from verbal to algebraic, choosing the inequality symbol that best represents the given situation. Students then find the number(s) that make each inequality true. To better understand how to solve an inequality containing a variable, students look at statements comparing numbers in Lesson 13. They discover when (and why) multiplying by a negative number reverses the inequality symbol when this symbol is preserved. In Lesson 14, students extend the idea of isolating the variable in an equation to solve problems modeled with inequalities using the properties of inequality. This topic concludes with students modeling inequality solutions on a number line and interpreting what each solution means within the context of the problem (7.EE.B.4b).

This Eureka Acceleration Tool is considered a “living” document as we believe that teachers and other educators will find ways to improve the document as they use it. Please send feedback to STEM@ia.gov so that we can use your input when updating this guide.

Eureka Acceleration Tools



- Currently available for **grades 4-8** (most major work topics)

What if we don't use Eureka or I teach a grade with no available Eureka Acceleration Tools?

- The process we are learning is **transferable** to any curriculum → focus on the key takeaways from the process!

Other Sources for Diagnostics



High Quality Curriculum

- Eureka Math Equip
- Previous Grade Level Tasks from Curriculum
- *IM Check Your Readiness*

Achieve the Core

- Mini-assessments
- Do Nows for Unfinished Learning

Diagnostics are...



1. **TIMELY:** Happen at the unit/topic level or lesson level
2. **TARGETED:** Target the key prerequisite concepts/skills
3. **MANAGEABLE:** Can be administered without taking away from instructional time and provide a manageable amount of just in time data
4. **FORMATIVE:** Assessment FOR learning, not Assessment OF learning; Used to adjust instruction, not sort students based on perceived readiness

Zoom In: Diagnostic Assessment



- Organized into 2-3 parts (A, B, C)
- Each part is aligned to a foundational standard from previous grade
- Each part has three items

Diagnostic Assessment: Grade 7 Topic B

What opportunities does each item in Part C provide for eliciting evidence of student thinking on the prerequisite standards?

9. Brandon has \$40. Write and explain how many video games he is allowed to purchase. (Each video game costs \$10.)

Key Actions to Diagnose



Identify

Identify the right diagnostics.

Consider

Consider what constitutes evidence.

Interpret

Interpret the evidence.

Define what Constitutes Evidence

Acceleration Guidance: Grade 7 Eureka Module 3, Topic B

Part C Focus: 6.EE.B.7: Solve real-world and mathematical problems by writing and solving equations and inequalities of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers. Inequalities will include $<$, $>$, \leq , and \geq .

<p>Why this is important for current grade level work: Students began formally creating and solving algebraic equations and inequalities in Grade 6. While limited to single-step equations and inequalities, the target Topic extends the work of Grade 6 to creating and solving two-step equations and inequalities of various forms involving all rational numbers. Having the procedural skill of solving an equation and/or inequality is not enough to serve as readiness for the target Topic as much of the Topic is connected to real-world problem solving. These items will help you determine which students can appropriately model a real-world problem with an algebraic equation/inequality as well as interpret their answer in the context of the problem. Students will build more procedural skill and fluency within the target Topic.</p>	<p>Acceleration Resources for Targeted Instruction:</p> <p><u>6th Grade, Module 4, Topic G, Lesson(s) 26 – 29</u></p> <p>Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set that focus on conceptual understanding and/or application.</p>	
<p>Using the Diagnostic Assessment to identify gaps:</p> <table><tr><td><p>Problems 7-8: Take note of students who simply solve the problem without writing the actual equation. Many students experience difficulty with creating an algebraic equation to represent a real-world problem but can come up with a math strategy to find a solution to a problem; however, this will be significantly more difficult as the complexity of the problems increases in the target Topic.</p></td><td><p>Problem 9: Look for students who struggle to connect the fractional answer to their inequality to the real-world problem they are trying to solve. Students should recognize that you cannot purchase a fractional part of a video game, requiring them to use only the whole number from their solution.</p></td></tr></table>		<p>Problems 7-8: Take note of students who simply solve the problem without writing the actual equation. Many students experience difficulty with creating an algebraic equation to represent a real-world problem but can come up with a math strategy to find a solution to a problem; however, this will be significantly more difficult as the complexity of the problems increases in the target Topic.</p>
<p>Problems 7-8: Take note of students who simply solve the problem without writing the actual equation. Many students experience difficulty with creating an algebraic equation to represent a real-world problem but can come up with a math strategy to find a solution to a problem; however, this will be significantly more difficult as the complexity of the problems increases in the target Topic.</p>	<p>Problem 9: Look for students who struggle to connect the fractional answer to their inequality to the real-world problem they are trying to solve. Students should recognize that you cannot purchase a fractional part of a video game, requiring them to use only the whole number from their solution.</p>	

Review the look fors for Part C in the Topic C Diagnostic Assessment Tasks (pg. 7)

Define what Constitutes Evidence



- Create exemplar response for **ONE** of the items in Part C
- Based on Ms. Hutchins standard and progression analysis, what misconceptions and incomplete understandings might the item reveal?

Diagnostic Assessment: Grade 7 Eureka Module 3, Topic B

Part C: 6.EE.B.7

7. Allison is buying movie tickets for she and her friends. The price of each ticket is \$8.50 and she spent a total of \$42.50. Write and solve an equation determine how many movie tickets Allison purchased.

8. Lilla's water bottle has some water in it already, but she wants to completely fill it up before going to practice. She adds 21 ounces of water to completely fill the 40-ounce bottle. Write and solve an equation to determine the amount of water that was in Lilla's bottle before she completely filled the bottle.

9. Brandon's mother will allow him to spend no more than \$90 on video games. Each video game costs \$40. Write and solve an inequality determine how many video games Brandon is allowed to purchase.

Key Actions to Diagnose



Identify

Identify the right diagnostics.

Consider

Consider what constitutes evidence.

Interpret

Interpret the evidence.

Interpret the Evidence



Examine the student work samples.

- What stands out to you about the teacher analysis?
- How does the previous work uncovering the standards, and learning progression inform the interpretation of student work?

Diagnostic Assessment: Grade 7
Eureka Module 3, Topic B

Student Two

Part C: 6.EE.B.7
7. Allison is buying movie tickets for her and her friends. The price of each ticket is \$8.50 and she spent a total of \$42.50. Write and solve an equation to determine how many movie tickets Allison purchased.

$$\frac{8.50x}{8.50} = \frac{42.50}{8.50} \quad 5 \text{ tickets}$$
$$x = 5$$

8. Lilla's water bottle has some water in it already, but she wants to completely fill it up before going to practice. She adds 21 ounces of water to completely fill the 40-ounce bottle. Write and solve an equation to determine the amount of water that was in Lilla's bottle before she completely filled the bottle.

$$\boxed{21}$$
$$\begin{array}{r} n + 21 = 40 \\ -21 \quad -21 \\ \hline n = 19 \end{array}$$

9. Brandon's mother will allow him to spend no more than \$90 on video games. Each video game costs \$40. Write and solve an inequality that determines how many video games Brandon is allowed to purchase.

$$\frac{40g}{40} < \frac{90}{40}$$
$$g < 2.25 \quad 2 \text{ games}$$

When we look at student work...



Evidence vs. Inference



EVIDENCE looks like...

- Pictures and diagrams
- Calculations
- Justification

EVIDENCE of student understanding creates...

- Conclusions with confidence
- Focused, intentional next steps

INFERENCE sounds like...

- “He does it in class.”
- “It was a careless mistake.”
- “He was having a bad day.”

INFERENCE of student understanding creates...

- Misdiagnosis or Premature advance
- Apparent difficulty with retention of topics

Interpret the Evidence



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Ms. Hutchins Data Snapshot

SCHOOL KIT

Assessment Task	Got It	Almost Got It	Not Yet
#7 <i>Evidence of understanding in models and explanation</i> Dakari		<i>Evidence of understanding in models drawn, no explanation</i> Janelle, Ivette, Kapone	<i>No Evidence</i> Sydney, Rochelle, Nyla, Byrce, Isaiah, Neveah, Anniyah, Edwin, Joseph, Elijah, Kamal, Malayah, Richard, Jeremiah, Andre, Zion
#8 <i>Correct comparison and complete reasoning</i> Dakari, Janelle, Ivette, Kapone, Rochelle, Nyla		<i>Correct Comparison, Incomplete Reasoning and/or Inaccurate Model</i> Sydney, Isaiah, Neveah, Anniyah, Richard, Zion, Edwin, Elijah	<i>Incorrect Comparison, and/or Faulty Reasoning</i> Byrce, Joseph, Kamal, Malayah, Jeremiah, Andre
#9 <i>Correct comparison and complete reasoning</i> Dakari, Janelle, Ivette, Kapone, Nyla, Elijah, Isaiah		<i>Correct Comparison, Incomplete Reasoning</i> Sydney, Rochelle, Zion	<i>Incorrect Comparison, and/or Faulty Reasoning</i> Byrce, Neveah, Anniyah, Edwin, Joseph, Kamal, Malayah, Richard, Jeremiah, Andre

Strengths	Misconceptions/Unfinished Learning
<ul style="list-style-type: none"> Interpretation and use of comparison symbols Use of tape diagrams and area models to compare fractions Comparing unit fractions Understanding the denominator tells the number of equal parts into which a whole is partitioned and the numerator the number of copies of the fractional part Noticing common numerators 	<ul style="list-style-type: none"> Not yet recognizing the whole units must be equal for comparisons to be valid Labeling the whole unit Applying whole number reasoning to compare fractions (e.g., $\frac{7}{8} > \frac{5}{8}$ because $8 > 6$) Justifying comparisons by reasoning about the denominator and the size of the fractional parts (as the number of equal parts in a whole (denominator) increases, the size of the fractional parts decreases)

Equips her to identify...

- student strengths to connect and build on
- specific models students are currently using and their level of precision with those models
- specific concepts students have unfinished learning with
- specific misconceptions to address in instruction
- concepts to target in whole group instruction and small group instruction
- students for targeted small group instruction and/or individual interventions

Key Points



To accurately diagnose unfinished learning, we must:

- look at **bite-sized amounts** of “**just in time**” data (formative data at the topic or even lesson level)
- **Interpret evidence** of student learning and identify specifically what students currently do understand/can do and what they don't yet understand/have the ability to do

Our Agenda



1. Getting Started
2. Deepening Understanding of the Math We Teach
3. Assessing and Diagnosing Unfinished Learning
4. Reflection & Wrapping Up

Let's Reflect



Independently Reflect:

- To what extent is this work currently happening at your school/in your classroom?
- What implications might this learning have on how you support schools or teachers with assessing and diagnosing unfinished learning in your role?

Looking Ahead



Session 1	Session 2	Session 3	Session 4
Defining our Approach to Addressing Unfinished Teaching and Learning in Math	Assessing and Diagnosing Unfinished Learning in Math	Plan and Take Action Part I: Planning Intentional Core Supports	Plan and Take Action Part II: Planning Intentional Small Group and Individual Supports