Unfinished Learning Series
Math Community of Practice

Session 2:
Diagnosing Unfinished Learning in Math

Self-Assessment Reflection
• What did you learn? • What are your next steps? • Discuss and get feedback on a concrete next step.

4.NF.A.2 (page 21)
Grade 4 Teacher Companion Document

3.NF.A.3a-d (page 22)
Grade 3 Teacher Companion Document

Eureka Acceleration Tool
Grade 4 Module 5 Topic C

Student One

Diagnostic Assessment: Grade 4
Eureka Module 5, Topic C

Part C: 3.NF.A.3d

7. For the inequality $\frac{1}{2} > \frac{1}{4}$ to be valid, what must be true?

$\frac{1}{4}$ is big part $\frac{1}{2}$ is smaller

8. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} < \frac{5}{6}$

5 is more than 2

9. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} < \frac{2}{8}$

8 is more than 6

Strengths	Unfinished Learning
The student interpreted and used comparison symbols accurately. The student understands a fraction can represent a part of a whole.	The student work does not include evidence that indicates an understanding that the size of the whole must be equal when comparing fractions. The student identified $\frac{1}{4}$ as the larger fractional part. This leads me to wonder if the student understands unit fractions? The student applied whole number reasoning to compare the numerators and denominators. This leads me to believe the student may not understand a fraction is a single number and has an emerging understanding of the relationship between the denominator and the size of the fractional parts. The student work does not include any visual fraction models. This leads me to wonder how the student may be visualizing fractions?

Student Two

Diagnostic Assessment: Grade 4
Eureka Module 5, Topic C

Part C: 3.NF.A.3d

7. For the inequality $\frac{1}{2} > \frac{1}{4}$ to be valid, what must be true?

You have to draw a picture to show your work like a tape model.

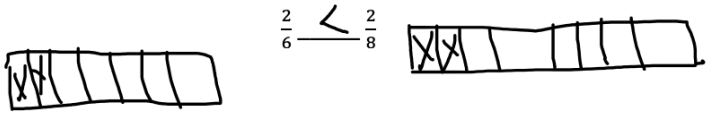
8. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} < \frac{5}{6}$

5 out of 6 is more than 2 out of 6.

9. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} < \frac{2}{8}$



2 out of 8 is more than 2 out of 6 because 8 has more parts.

Strengths	Unfinished Learning
The student interpreted and used comparison symbols accurately. The student drew tape diagrams to represent fractions. This leads me to believe the student knows… ● fractions can be parts of whole ● fhe denominator represents the number of parts the whole is partitioned into ● the numerator represents the number of parts counted, or being considered	The student work shows tape models with a different size whole unit. This leads me to believe the student does not yet understand that the size of the whole must be equal when comparing fractions. The student tape diagrams show unequal parts. This leads me to believe the student has not yet developed understanding fractions represent equal parts of the whole and/or strategies for equipartitioning. The student used _ out of _ language which leads me to wonder if the student understands a fraction is a single number. The student incorrectly compared the fractions in #9 basing the comparison on the number of parts instead of the size of the parts. This leads me to believe the student does not yet understand the relationship between the denominator and the size of the fractional parts.

Student Three

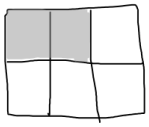
Diagnostic Assessment: Grade 4
Eureka Module 5, Topic C

Part C: 3.NF.A.3d

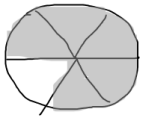
7. For the inequality $\frac{1}{2} > \frac{1}{4}$ to be valid, what must be true?

the alligater has to eat the bigger amount

8. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

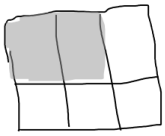


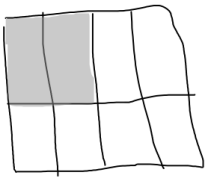
$\frac{2}{6} < \frac{5}{6}$



9. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} > \frac{2}{8}$





Strengths	Unfinished Learning
The student knows the comparison symbol opens towards the greater value. The student drew different area models to represent fractions. This leads me to believe the student understands fractions can be represented in a variety of ways. The student partitioned the area models into equal parts with some level of precision. This leads me to believe the student understands fractions can represent equal parts of the whole and has developed some equipartitioning strategies.	The student work includes evidence that indicates the student has not yet developed understanding that the size of the whole must be equal when comparing fractions. The student drew different size area models. The area models drawn for #9 do not appear to match the comparison the student made. This leads me to wonder if the student understands the magnitude of unit fractions *(e.g., one-eighth is a smaller area of the whole than one-sixth)*. Check-in with this student and ask her to explain how her models helped her decide which fraction was greater.

Student Four

Diagnostic Assessment: Grade 4
Eureka Module 5, Topic C

Part C: 3.NF.A.3d

7. For the inequality $\frac{1}{2} > \frac{1}{4}$ to be valid, what must be true?

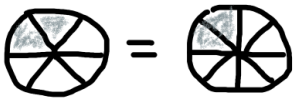
8. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} < \frac{5}{6}$

The denomenater is 6 so I compared 2 and 5.

9. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

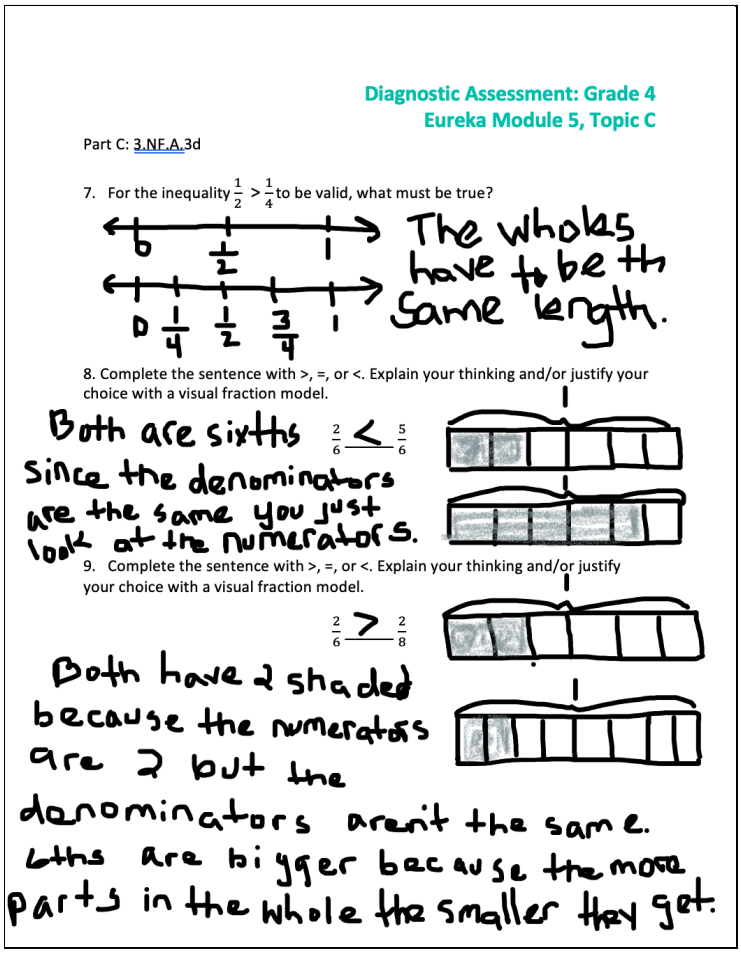
$\frac{2}{6} = \frac{2}{8}$



Both have 2 peces so they are the same.

Strengths	Unfinished Learning
The student wrote the comparison symbol opening toward the greater amount. This leads me to believe they understand the meaning of the comparison symbols. The student drew different area models and tape diagrams to represent fractions. This leads me to believe the student understands fractions can be represented in a variety of ways. The student partitioned the area models into equal parts with some level of precision. This leads me to believe the student understands fractions can represent equal parts of the whole and has developed equipartitioning strategies.	The student work includes evidence that indicates the student has not yet developed understanding that the size of the whole must be equal when comparing fractions. The student fraction models for #9 and conclusion the fractions are equal leads me to believe the student has an emerging understanding of the relationship between the denominator and the size of the parts. It leads me to believe the student is focusing on the number of parts counted when comparing, rather than the area of the whole a fraction describes.

Student 5



Diagnostic Assessment: Grade 4
Eureka Module 5, Topic C

Part C: 3.NF.A.3d

7. For the inequality $\frac{1}{2} > \frac{1}{4}$ to be valid, what must be true?

The wholes have to be the same length.

8. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} < \frac{5}{6}$

Both are sixths since the denominators are the same you just look at the numerators.

9. Complete the sentence with >, =, or <. Explain your thinking and/or justify your choice with a visual fraction model.

$\frac{2}{6} > \frac{2}{8}$

Both have 2 shaded because the numerators are 2 but the denominators aren't the same. 6ths are bigger because the more parts in the whole the smaller they get.

Strengths	Unfinished Learning
The student conceptually understands the significance of the whole when comparing fractions. The student understands fractions can be represented in different ways (e.g., as points on a number line and equal parts of a whole). The student labeled and partitioned the whole into equal parts. This leads me to believe they are using equipartitioning strategies. The student used the comparison symbol correctly. This leads me to believe they understand the meaning of comparison symbols. The student referred to the parts as sixths in task 8. This leads me to believe they understand the denominator indicates the size of each part. The student also made a connection between the number of parts in the whole and the size of the parts.	Reinforce specifying "equal" parts in explanations

Ms. Hutchins Data Snapshot

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

Strengths	Misconceptions/Unfinished Learning
• 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	• 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., $\frac{2}{8} > \frac{2}{6}$ 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 part decreases)

Pause Point
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?

Example Common Planning Agenda for Looking at Student Work

0. PREWORK for Content Lead or to be completed by team at start of meeting	**Collect Student Work from Teachers** **Review Task and Determine What Constitutes Evidence:** ● What would an exemplar response require? ○ Be specific and pull from the standard, Eureka Acceleration Tool, or curriculum exemplars related to this task to identify ***criteria for success*** **Create Exemplar** ● What would an exemplar response look like? ● Is this what you would expect from students?
2. NORM ON WHAT CONSTITUTES EVIDENCE	**NORM ON WHAT CONSTITUTES EVIDENCE** ● Review criteria for success and norm as a group (make any necessary adjustments) ● Review 1 piece of student work that meets the criteria for success and discuss why it meets the criteria ○ What makes this response exemplary? ○ How is it similar to your exemplar? ○ How is it different from your exemplar? ○ Does it require any adjustments to the ***criteria for success*** you identified?
3. INTERPRET EVIDENCE	**INDEPENDENT SORT & ANALYSIS** ● Sort student work by your criteria for success into three categories (Got it, Almost Got it, Not Yet) ● Review student work: ○ What trends do you see in the student work (successes and misconceptions)? ○ Look at **Got It** student work: ■ What do they understand? ■ What supported them in being successful? ○ Look at **Almost Got It** student work: ■ What do they understand? What do they not yet understand? What is their key misconception? What adjustment or support could move them to mastery? ○ Look at **Not Yet** student work: ■ What do they understand? ■ What do they not yet understand? What adjustment or support could better help them access this task and move toward mastery?

4. DIAGNOSE	**GROUP DISCUSSION AND CALIBRATION** ● Review list of student strengths and what students do not yet understand. ● Discuss what is needed for students to move to mastery (think about trends) ● Identify 1-2 highest leverage instructional points that would support whole group (or subgroup) advancing understanding of foundational standards ● Work toward agreement on the 1-2 highest impact analysis statements using the sentence starter: ○ Student understanding would improve the most if…..
5. ACTION STEPS	**DETERMINE GOALS** ● Is there a teaching point that needs to be mastered by the whole class or a sub-group? ● What additional supports are needed for students not yet approaching mastery to help them access the content? ● What small group or individual student goals might you set?
	WRAP-UP AND KEY TAKEAWAYS ● Whip-around to share the most important thing to implement in order to address unfinished learning.