



Nebraska Unfinished Learning Series K-5 Math Community of Practice

Session 1: Defining our Approach to Addressing Unfinished Learning

A Tale of Two Schools

Like many schools across the country, Piedmont Valley School and Brightwood Academy started the year in a fully remote model with a phased return to in-person learning in January. Anticipating students would experience a spring/summer slide, both schools developed an approach to make up for lost instructional time and address unfinished teaching and learning as part of their vision for excellence.

Piedmont Valley School

At Piedmont Valley School, Principal Ross brought his leadership team together in the fall to develop a remediation plan. He acknowledged that the challenges they experienced trying to implement remote learning last spring meant that students had not had consistent access to the last two months of their curriculum. He says, "We can't let our students fall any further behind. We have to meet them where they are and catch them up." He charges the team with the task of figuring out how to adjust pacing calendars for the upcoming school year to allow for significant remediation at the beginning of the year based on missed content from their previous grade and data from a beginning of the year diagnostic administered to all students. In order to allot time in the curriculum for remediation, grade level teams are charged with adjusting pacing guides. In some cases, grade level teams decide to shorten every on-grade level unit by 1-2 weeks and in other cases, they identify units that address supplementary and additional standards to skip entirely. In addition to the beginning of the year diagnostic, Principal Ross moves forward with administering the fall MAP, a norm-referenced test, to identify students who need more intensive remediation. Intervention teachers provide additional small group instruction to students with RIT scores falling below the 40th percentile twice a week. These students are also assigned to a computer-based program to practice basic math facts and computation.



Brightwood Academy

At Brightwood Academy, Principal Metts brings her leadership team together to begin planning for the fall. She acknowledges the impact interruptions to teaching and learning have had on their students' social, emotional, and academic development (SEAD). She begins by sharing some research with her team about what works and what doesn't when it comes to addressing unfinished learning. She says, "Yes we may have some gaps to close, but if we pick up where left off this spring, we will just be creating another gap to close the following year. We have to focus on building on student strengths to accelerate their learning and ensure students can move forward with grade-level content this year." Over the summer Principal Metts formed a mathematics steering committee comprised of school leaders, teacher content leads from each grade-band, a lead Special Education teacher, and EL specialist. The committee outlined a plan that involved working with teachers to prioritize the essential instructional content for each grade level. Content leads then worked with grade level teams to adjust pacing calendars to allow time needed for in-depth instruction of the essential content. Principal Metts created a school schedule that carved out weekly collaborative planning times for teachers to work in PLCs. Before each unit of study, teachers meet in PLCs to trace the coherence of the standards addressed in the unit to identify prerequisite standards that will build the foundational understanding for the essential learning of the unit. Content leads support grade level teams to identify opportunities to integrate unfinished learning within grade-level content and plan how to support students in making connections to previous learning. An important part of this work is selecting and using formative assessment tasks to elicit evidence of students' understanding of the relevant prerequisite concepts connected to grade level content. Prior to starting a unit or topic of study, grade level teams interpret the evidence of student understanding uncovered through the formative assessment tasks. They use the evidence to inform decisions about how they will address any specific unfinished learning needs in whole group or small group instruction. They may do this by strategically teaching prerequisite skills before the connected topic of study, by adapting the actual grade level lesson, or by using instructional routines to incorporate spiral review. Teachers also plan targeted small group lessons for students



needing more intensive supports on the relevant foundational concepts and skills.

UNDERSTAND

Standards Analysis Case Study

Ms. Franklin, an 8th grade teacher, is the mathematics content lead for grades 5-8. Principal Metts has arranged for her to have two hours of daily release time to prepare and facilitate weekly grade level mathematics PLCs. Ms. Franklin is preparing to meet with the 5th grade team which consists of 3 general education teachers, and a special education teacher. She will be supporting them with unpacking their upcoming unit on adding and subtracting fractions with unlike denominators. In advance of the meeting, she has shared the PLC agenda with them, and requested all the teachers complete the unit assessment as pre-work.

During the meeting Ms. Franklin supports teachers with unpacking the grade level focus standard addressed in the unit. She reminds the team this focus standard is one the team had determined to prioritize in the fall when they were adjusting their



acing guide based on the recommendations in the NDE Mathematics Essential Instructional Content.

5.NF.A.1

Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)*

The teachers discuss the aspect of the rigor intended by the standard, the important concepts that frame the standard, and what students are expected to understand and do. Next, the team turns to studying the progression of the grade level standard. Ms. Franklin has the team start by referring to the NDE Mathematics Essential Instructional Content to identify considerations for foundational work. The team digs into reviewing the relevant foundational standards noted, 4.NF.A.1 and 4.NF.B.3.

4.NF.A.1

Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.B.3.B

Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.

4.NF.B.3.A: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

4.NF.B.3.B: Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.

Ms. Franklin then leads the team through a process to identify the specific concepts, procedures and strategies embedded in these foundational standards that could impact student success with the grade 5 standard. The team then

analyzes strategies and models from the grade 4 curriculum to see how these approaches are designed to build students' conceptual understanding of fraction equivalence. Together, they make a list of the potential misconceptions or incomplete understandings students may have about fractions as a result of unfinished instruction. They also consider the range of strategies students may use as they develop and deepen their understanding of fractions.

To determine students' current understanding of the concepts and skills in the foundational standards as well as strategies students are employing, Ms. Franklin tasks the team with selecting a couple of formative assessment tasks from their curriculum resources. The team identifies three tasks aligned to standards 4.NF.A.1 and 4.NF.B.3 from the grade 4 curriculum. They agree they will administer the tasks to their students before the next PLC meeting to collect evidence of how students' are presently reasoning about fractions.

DIAGNOSE

Evidence Analysis Case Study

After administering the aligned formative assessment tasks they selected during last week's PLC meeting, Ms. Franklin and the grade 5 team reconvened to analyze student responses. As pre-work for the meeting, Ms. Franklin had tasked teachers with creating a snapshot of student performance on the prerequisite standards.

Mr. Jones' chart looks like this.

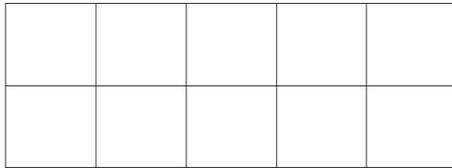
	Got It	Almost Got it	Not Yet
Item #1 4.NF.B.3b	A.S, M.B, J.P, P.K S.F, B.J, P.S, M.J A.L, K.A, J.S, T.W I.S	R.T, S.H, N.P, I.N	C.G, A.C, K.B
Item #2 4.NF.A.1	S.F, B.J, M.J	J.S, T.W, I.S, J.P I.N, P.K <i>*P.S (need more information)</i>	A.S, M.B R.T S.H, N.P, A.C K.B, C.G, A.L K.A
Item #3 4.NF.B.3b & d	A.S, I.S, B.J, A.L	S.F, K.A, M.B K.B, R.T, P.K, I.N T.W	J.S, P.S, J.P P.K, C.G, A.C S.F, N.P

After a quick check-in, Ms. Franklin starts the meeting by asking the team what trends they noticed in student performance on the formative assessment tasks.



While there were some differences between classes, the team notes decomposing fractions into a sum of fractions with the same denominator was a strength, and explaining why two fractions were equivalent was an area for growth. Knowing the importance of equivalence on the upcoming fraction unit, Ms. Franklin charges the teachers with charting students' approaches, strengths and misconceptions on the formative assessment task the team selected to elicit student understanding of 4.NF.A.1.

In the figure below, how many small squares need to be shaded so that $\frac{2}{5}$ of the figure is shaded? Illustrate and/or explain your thinking.



Mr. Jones' chart looks like this.

Approaches	Students
Visualized the horizontal line disappearing	S.F, B.P
Circled columns to show composing two-tenths into one-fifth	M.B
Attempted to draw two tape diagram models to show $\frac{2}{5} = \frac{4}{10}$	P.K
Used benchmark to reason $\frac{2}{5}$ was less than $\frac{1}{2}$	A.S
Multiplied $\frac{2}{5}$ by $\frac{2}{2}$ in order to determine how many parts to shade	P.S
<p>Strengths</p> <ul style="list-style-type: none"> Understood fractional parts are equal sized pieces of a whole Understood the denominator names the unit size or the number of parts the whole has been divided in Understood the numerator represented the number of parts shaded 	<p>Misconceptions or Other Solving Methods</p> <ul style="list-style-type: none"> 3 students shaded two parts and ignored the denominator; may not yet understand the role of denominator in a fraction 2 students shaded two parts in the first row and five parts in the second row; sees fractions as two separate numbers instead of single number 1 student did not shade any squares, but drew an area model to show $\frac{2}{5}$; believes a model can only be used to show one fraction at a time 4 students shaded $\frac{4}{10}$ but did not explain; may have shallow understanding of what equivalent fractions are 1 student multiplied $\frac{2}{5}$ by $\frac{2}{2}$ in order to determine how many parts to shade; may not fully understand how the model shows $\frac{2}{5}$.

The team discusses trends in the approaches, strengths, and misconceptions they observed in student work. Next, Ms. Franklin asks the team to consider what a plan of action needs to include based on the trends. The team names their plan of action should accomplish the following:

- Build on student understanding of equal parts and the meaning of the numerators and denominator in fractions
- Incorporate core supports to develop emerging understanding that two or more fractions can look different but still be equal
- Plan core support questions and tasks that will engage students in providing justifications to communicate whether or not two fractions are equivalent



For the remaining two formative assessment tasks, Ms. Franklin has the grade 5 team briefly discuss patterns (successes and struggles) they observed across student work samples, as well as things they didn't see in the work. Based on their analysis of the student work, Ms. Franklin asks the grade 5 teachers to record any teaching points that would support all students with accessing the content in their upcoming fraction unit, and which fraction models would be best to incorporate. The team agrees deepening students' understanding of equivalence would benefit the whole grade, as well as using number lines to make sense of subtracting fractions from whole numbers and mixed numbers.

Before closing out the meeting, Ms. Franklin tasks teachers with identifying students who would benefit from targeted small group lessons as well as individual students who will need more intensive intervention. Because the grade 5 team will be starting the fraction unit the following week, Ms. Franklin schedules additional time for the PLC team to meet during the school's weekly staff development time on Friday to plan core supports and targeted small group lessons.

PLAN & TAKE ACTION

Instructional Response Case Study

Ms. Franklin opens the Friday planning time by sharing the goals of the team meeting are to...

1. Identify the most appropriate place within the learning sequence to incorporate teaching points to build student emerging understanding and connect to lesson content
2. Plan core supports to implement the teaching points
3. Start preparing for small group, or individualized instruction

She reminds the team of the teaching points they identified during their last PLC meeting to address students' emerging understanding and build an on-ramp for the grade 5 fraction content.

The team starts by reviewing all of the lesson objectives in the fraction unit to get a sense of where it makes sense to address unfinished learning on the foundational standards.

Standards	Topics and Objectives	Days
4.NF.1 4.NF.3c 4.NF.3d	A Equivalent Fractions Add Do Now: How are $\frac{2}{5}$ and $\frac{4}{10}$ similar? How are they different? Lesson 1: Make equivalent fractions with the number line, the area model, and numbers. Swap out fluency activity 2 for Draw Equivalent Fractions from Gr 4 M5 L7 Lesson 2: Make equivalent fractions with sums of fractions with like denominators. Swap out fluency Equivalent Fraction Sprint for place fractions on a number line and renaming fractions by composing larger fractional units (see Gr 4 M4 L9)	2
5.NF.1 5.NF.2 Use Flex Days	B Making Like Units Pictorially Lesson 3: Add fractions with unlike units using the strategy of creating equivalent fractions. Lesson 4: Add fractions with sums between 1 and 2. Lesson 5: Subtract fractions with unlike units using the strategy of creating equivalent fractions. Add Lesson: Subtract a fraction from a whole number with like units using area models and number lines Add Lesson: Subtract a fraction from a mixed number with like units using area models and number lines Lesson 6: Subtract fractions from numbers between 1 and 2. Lesson 7: Solve two-step word problems.	5 7
	Mid-Module Assessment: Topics A–B (assessment $\frac{1}{2}$ day, return $\frac{1}{2}$ day, remediation or further applications 2 days)	3
5.NF.1 5.NF.2	C Making Like Units Numerically Use fluency Equivalent Fraction Sprint from Lesson 2 Lesson 8: Add fractions to and subtract fractions from whole numbers using equivalence and the number line as strategies. Lesson 9: Add fractions making like units numerically. Lesson 10: Add fractions with sums greater than 2. Lesson 11: Subtract fractions making like units numerically. Lesson 12: Subtract fractions greater than or equal to 1.	5

Once the team identifies the best places to address unfinished teaching and learning in the context of grade-level content, they then start making a plan for HOW they will integrate work on previous standards. For instance, one decision they made was to add a Do Now at the beginning of lesson 1 to connect the concept of equivalence to students' current understanding of fractions. Since the team noted students had some unfinished learning around subtracting fractions from whole numbers and mixed numbers, they decided to spend two flex days to address this concept before lesson 6. The team also paid close attention to lessons or tasks in the curriculum that assume students have developed conceptual understanding and are ready to learn or practice procedures. For instance, the fluency activity in lesson 2 is procedurally finding equivalent fractions. Since the



team noted students had some unfinished learning around the concept of fraction equivalence from previous grades, they decided to replace this fluency activity and address it later in the sequence once they've had time to attend to concept building.

Finally, Ms. Franklin has the team turn to planning for targeted small group lessons. The teachers look at their student work snapshot and evidence analysis. Students from across the grade are grouped based on the specific knowledge, strategies, or skills they need to be successful with the topic but have not yet mastered. Teachers look at how many different groups are needed and the size of each group, and then decide which teacher will work with each group during their math intervention block that occurs three times a week. Groups change based on data every 1 to 3 weeks depending on when new topics begin and student progress along the way. Ms. Jewel, a special education teacher, works with the grade 5 general education teachers to support students who would benefit from individualized support. These may or may not be students who have IEPs.

To plan their small group lessons, Ms. Franklin supports the teachers with selecting problem-based tasks from the grade 4 curriculum that align to the relevant foundational concepts and skills and will intentionally engage students in the Standards for Mathematical Practice.

Ms. Franklin closes the meeting by having teachers share their next steps for planning and implementing the instructional decisions they made. She reminds them to bring evidence of student work from lessons 1 and 2 to their next PLC meeting so the team can reflect on and adjust their plans as needed.

Pause Point: Consider Your Context

- To what extent are these 3 essential practices happening effectively? How do you know?
- What feels most urgent to address right now? Why?



UNDERSTAND.



DIAGNOSE.



PLAN &
TAKE ACTION.

Systems & Structures Reflection

- What is currently happening effectively at your school?
- What, specifically, could be improved? Why and how?

Next Steps: Complete the Self-Assessment

Access and make a copy of the self-assessment here:

<https://tinyurl.com/MathSelfAssessment>

- **When** will you complete this self-assessment?
- **Who** will be the point person for holding the team accountable for completing the assessment?



- **How** will you work together as a team to complete and norm on this self assessment?