LAUNCH NEBRASKA

Summer Learning and Beyond

Unfinished Learning in Mathematics

May 19, 2020

Welcome and Thank You!

- Last Thursday's webinar linked unfinished learning and instructional equity.
  - Keynote by Lacey Robinson from UnboundEd
  - Webinar and slides archived at: https://www.launchne.com/professional-learning-and-resources/
- Continue the conversation!

#launchnebraska
@NDE_TLA
@schoolkitgroup

Summer Learning and Beyond: Professional Learning Series

- A webinar series designed to provide **clear, actionable information** for school districts/school systems.
- Aligned with **Continuity of Learning** Plans.
- Our first focus is preparing for **summer learning.**
- Later, we'll focus on preparing for the **coming school year.**

Our partner: SchoolKit

Meet Brian

- Director of Math
- Former teacher, coach, principal and district support staff
- Based in Denver, CO
- Regular outdoorsman, camping and enjoying the beauty of Colorado

Session Norms:

- Use the Q & A feature if you have questions about technology or logistics
- Go to "View Options" to exit full screen to access the links in your web browser.
- Recorded session and this PPT deck will be available at www.launchne.com.

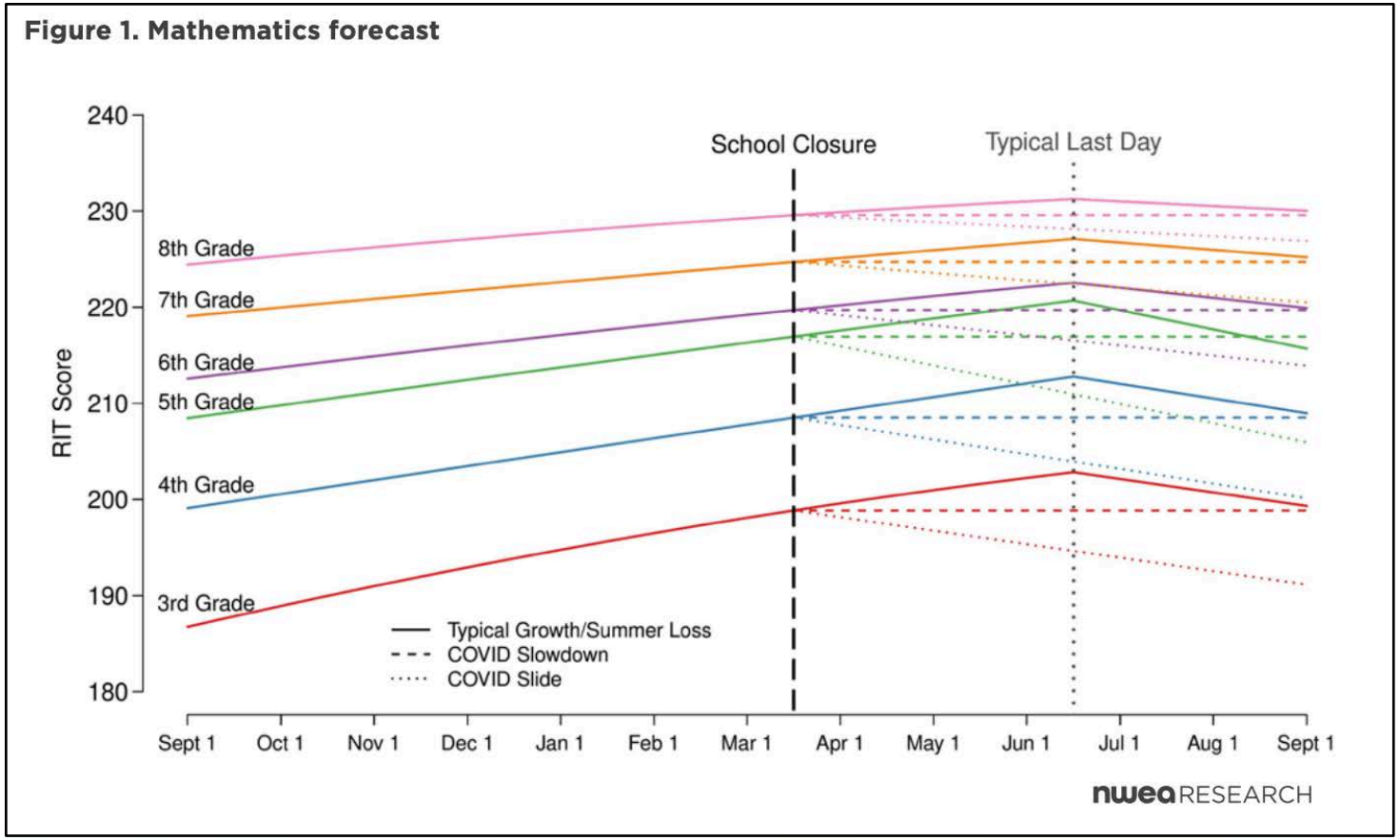
Chat Feature

- Use “Chat” when prompted to respond
  - During whole group shares→ “Chat All Panelists”

Session Focus:

This session will explore ***evidence-based practices*** *that address* ***unfinished learning in mathematics*** *and preview* ***Zearn Math****, a summer learning tool to address unfinished learning in mathematics.*

An Even Bigger Problem in Math



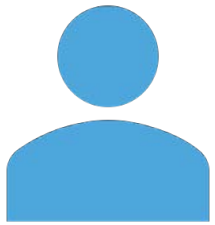
Predicted unfinished learning of at least 50%

Guiding Principles

1. Put people first
2. Integrate don't remediate
3. Keep it simple (and focused)*

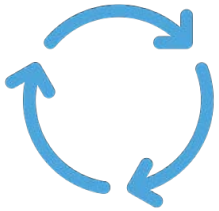
**Stay the course with implementing HQC*

The Phases of Action Planning



Setting the Stage

Planning



Implementation

A Tale of Two Students

Tanya

Cowan
Elementary School
(PreK-8)

Greenbrier
Elementary School
(PreK-8)

Damien

Let's Read!

- **Access** the "Tale of Two Students" document here:
  https://tinyurl.com/NDE2Students
- **Read** the two scenarios
- **Reflect:**
  - What do you **notice** about how each school's approach will impact Tanya and Damien's experience with math?
  - What do you **wonder** about how each school's approach will impact Tanya and Damien's experience with math?

Let's Debrief: Tanya

Tanya attends Cowan Elementary School

CHAT "ALL PANELISTS AND ATTENDEES"

What do you notice and wonder about how each school's approach will impact Tanya's experience with math?

Misaligned Approach

Tanya attends Cowan Elementary School

FOCUSED ON REMEDIATION

- Procedural tips and tricks to speed up instruction →illusion of mastery, shallow conceptual understanding
- Intervention based on weakest domains and reliance on blended learning programs were not aligned with units of study
- Condensed 5th Grade content focuses on an inch deep as fast as possible, leaving learning unfinished for 6th Grade content.
- Widened unfinished learning for grade 7

Let's Debrief: Damien

Damien attends Greenbrier Elementary School

CHAT "ALL PANELISTS AND ATTENDEES"

What do you notice and wonder about how the school's approach will impact Damien's experience with math?

Aligned Approach

Damien attends Greenbrier Elementary School

FOCUSED ON INTEGRATION

- Built positive culture and social-emotional skills
- Identified unfinished learning with timely and relevant diagnostics
- Planned just in time instruction to address unfinished learning connected to grade level content
- Intervention time utilized as another way to address unfinished learning
- Prioritized major work and planned for unfinished learning
- Better prepared to access 5th Grade content

The Premise of Damien's Story

- Focus on the major work of the grade
  - Embed supporting/additional work where necessary
- Trace coherence of standards across grade-levels to identify opportunities to address unfinished learning from previous grade ***within*** current/upcoming grade
- Bonus: Use summer learning recovery

NE's Math Instructional Shifts

1) **Focus:** Focus strongly where the Standards focus.
2) **Coherence:** Think across grades and link to major topics within grades.
3) **Rigor:** In major topics, pursue conceptual understanding, procedural skill and fluency, and application.

The question is…

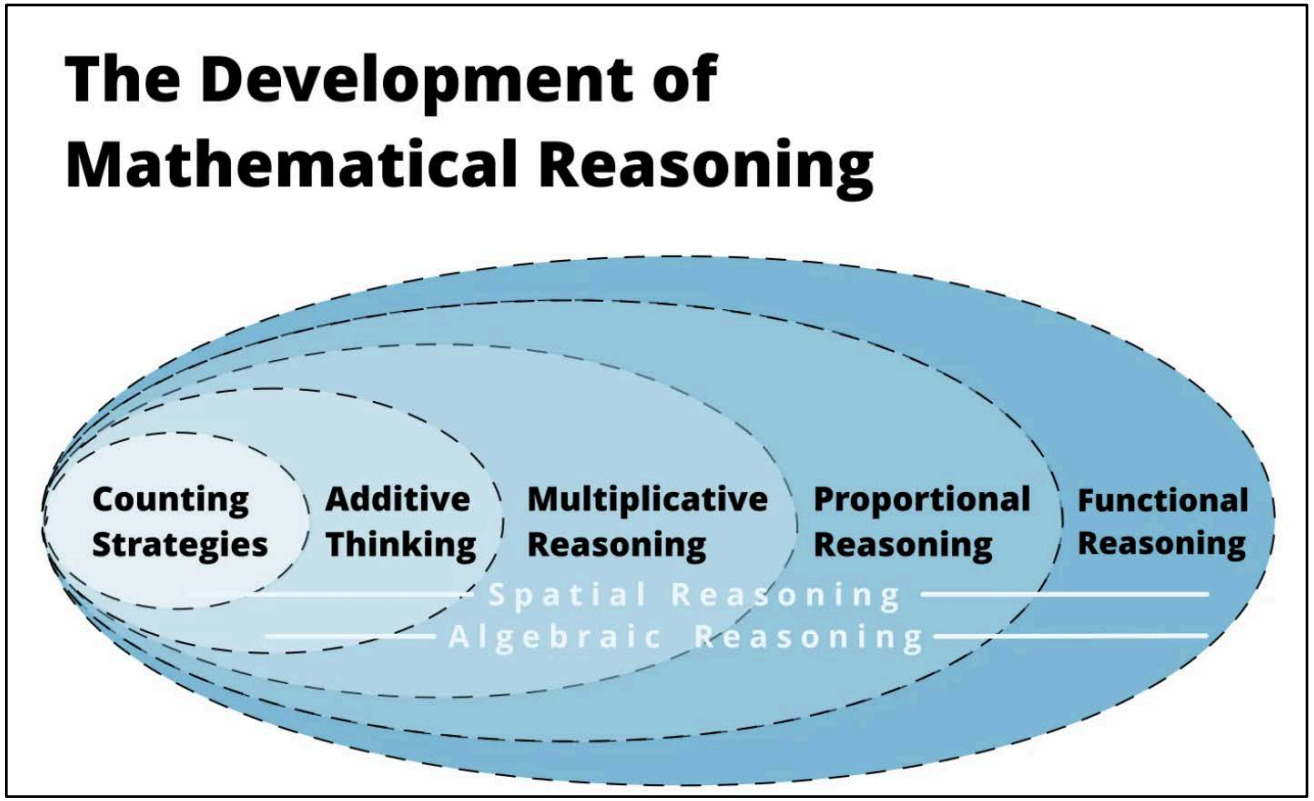
How do we address unfinished learning in an equitable and shifts-aligned way?

Session Agenda:

Topic	Length
Getting Started	10 minutes
The What: Considerations for Math Unfinished Learning	15 minutes
The How: Four Key Actions for Math Integration	20 minutes
Common Pitfalls & Recommendations	5 minutes
Next Steps & Looking Ahead	10 minutes

Baking Mathematical Understanding

What is Unfinished Learning?



- Opportunities to complete mastery of a skill, topic, or idea expected in foundational standards.

Nature of Unfinished Learning

Procedural

- Understands the mathematics behind the procedure
- Fluency not yet developed
  - Accuracy
  - Efficiency
  - Flexibility
  - Strategic Selection

Conceptual

- Lacking prerequisite knowledge needed to access a grade level lesson or task
- Misconceptions
- Incomplete Understanding

Procedural Unfinished Learning

Example:

4th Grade student not yet fluent with **basic multiplication facts** (MA 3.1.2.g) may need more support and time to **divide multi-digit numbers** (MA 4.1.2.c).

Conceptual Unfinished Learning

Example:

7th grade student needs to understand **the concept of a ratio** (MA 6.1.1.e) in order to **analyze proportional relationships** and use them to **solve real-world and mathematical problems** (MA 7.2.3)

What does this mean for my role?

- Support teachers in identifying missed/unfinished learning
- Support teachers with ensuring unfinished learning is addressed both conceptually and procedurally
- Ensure teachers have sufficient time to plan (both vertically and within grade)

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Which best describes your situation this spring?

1. Consistent remote learning → teachers continued and mostly finished teaching this year's curriculum

2. Kept students engaged in some learning during school closures → couldn't continue teaching all this year's curriculum

3. We were unable to continue any teaching and learning

Progressions across Grade Levels

Staircase to Algebra

1st grade

MA 1.2.2: Students will apply the operational properties when adding and subtracting

3rd grade

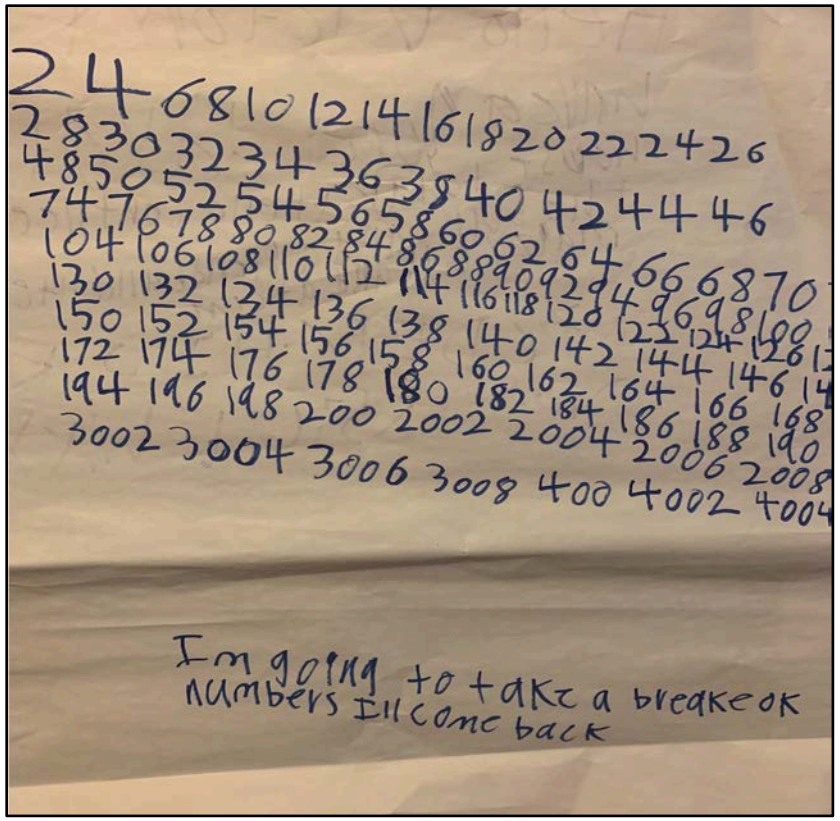
MA 3.2.2: Students will apply the operational properties when multiplying and dividing

5th grade

6th grade

MA 6.2.2: Students will apply the operational properties when evaluating expressions and solving expressions, equations, and inequalities

Addressing Unfinished Learning in Math



"Much unfinished learning from earlier grades can be managed best inside grade level work when the progressions are used to understand student thinking."
--Phil Daro, Bill McCallum, Jason Zimba

4 Key Actions for Addressing Unfinished Learning

DETERMINE MISSED/ UNFINISHED LEARNING.

TRACE THE MATH.

PLAN TO ADDRESS.

ADJUST PACING.

Two Phases

- **Summer Vertical Planning:** Determine missed content (which standards did we not teach this spring?)

- **Unit Study/Preparation:** Administer diagnostic assessments before each unit to determine students' current understanding of key prerequisite standards

Missed Learning Tracker

GRADE 3 MISSED LEARNING TRACKER						
Missed Learning	Missed Major Work	Missed Supporting Work	Missed Additional Work	Number of Missed Lessons	Where to Address Missed Learning within Grade 4	Adjusted Pacing
M5- Topic D (L17-18), Topic E Equivalent Fractions, Topic F Comparing Fractions	MA 3.1.1.d MA 3.1.1.e MA 3.1.1.f MA 3.1.1.i			13		
M6- Collecting & Displaying Data		MA 3.4.1.a-c MA 3.2.2.a MA 3.2.1.a		9		
M7- Geometry & Measurement Word Problems	MA 3.1.3.c MA 3.1.4.a		MA 3.2.5.a	18		

Two Phases

- **Summer Vertical Planning:** Determine missed content (which standards did we not teach this spring?)

- **Unit Study/Preparation:** Administer diagnostic assessments before each unit to determine students' current understanding of key prerequisite standards

Diagnose

Administer a diagnostic assessment at least two weeks in advance that helps understand students' current levels of proficiency on key prerequisite standards for their upcoming unit.

Diagnostic Resources

Tier1 Curriculum

Louisiana Remediation Guides (K-5)
Engage NY Remediation Tools (4-8)

Achieve the Core
Mini-Assessments

Formative Assessment Probes & Tasks

4 Key Actions for Addressing Unfinished Learning

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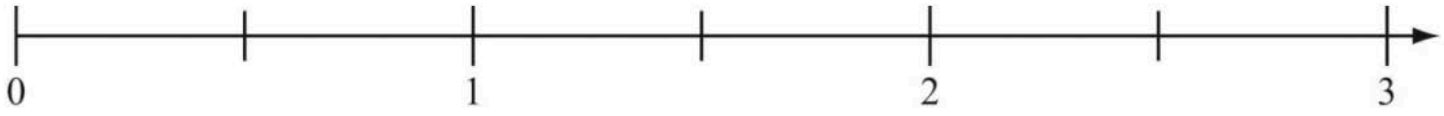
For Example

MA 4.1.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.

MA 4.1.1.i
Generate and explain equivalent fractions by multiplying by an equivalent fraction of 1

a. Place a point at $\frac{5}{4}$ on the number line diagram below.



b. Write a fraction equivalent to $\frac{5}{4}$. Your fraction must have a denominator of 12. Use words or a diagram to show that your fraction is equivalent to $\frac{5}{4}$.

Trace the Standards

MA.4.1.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.

MA 4.1.1.i: Generate and explain equivalent fractions by multiplying by an equivalent fraction of 1.

MA.3.1.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers and simple fractions within the base-ten number system.

MA 3.1.1.d: Represent and understand a fraction as a number on a number line.
MA 3.1.1.e: Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.
MA 3.1.1.f: Show and identify equivalent fractions using visual representations including pictures, manipulatives and number lines
MA 3.1.1.i: Compare and order fractions having the same numerators or denominators using visual representations, comparison symbols, and verbal reasoning.

Prerequisite Standards

MA.4.1.1 Nu
fractions and
ships among

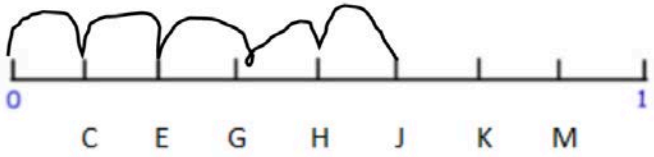
MA 4.1.1.i: Ger

MA.3.1.1 Nu
whole number
ships among

MA 3.1.1.d: Re
MA 3.1.1.e: Exp
MA 3.1.1.f: Sho
and number li
MA 3.1.1.i: Co
representation
e numbers.
anipulatives

Student Work Sample #2

Use the number line diagram below to answer questions 7 and 8.



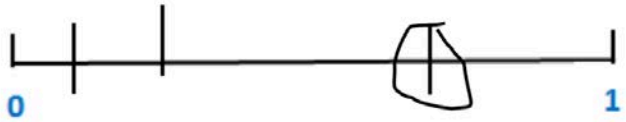
7. Which fraction would best represent the location of J on the number line? Explain your thinking.

$\frac{5}{8}$ because I counted 5 jumps.

8. What fraction represents the distance from Letter H to Letter K on the number line? Explain your thinking.

$\frac{4}{8}$, $\frac{5}{8}$ and $\frac{6}{8}$

9. Represent $\frac{3}{4}$ on the number line below. Explain your thinking.



There are four total parts and I circld the third part.

MA 3.1.1.d

MA 3.1.1.e

MA 3.1.1.f

Addressing Unfinished Learning

DETERMINE MISSED/ UNFINISHED LEARNING.

TRACE THE MATH.

PLAN TO ADDRESS.

ADJUST PACING.

Plan to Address

GRADE 3 MISSED LEARNING TRACKER						
Missed Learning	**Missed Major Work**	**Missed Supporting Work**	**Missed Additional Work**	**Number of Missed Lessons**	**Where to Address Missed Learning within Grade 4**	**Adjusted Pacing**
M5- Topic D (L17-18), Topic E Equivalent Fractions, Topic F Comparing Fractions	MA 3.1.1.d MA 3.1.1.e MA 3.1.1.f MA 3.1.1.i			13	GR 4 Module 5 Fraction Equivalence, Ordering, and Operations	
M6- Collecting & Displaying Data		MA 3.4.1.a-c MA 3.2.2.a MA 3.2.1.a		9		
M7- Geometry & Measurement Word Problems	MA 3.1.3.c MA 3.1.4.a		MA 3.2.5.a	18		

First: Start at the Unit Level

Overview of Module Topics and Lesson Objectives

Standards	Topics and Objectives		Days
4.NF.3b **4.NF.4a** 4.NF.3a	A	**Decomposition and Fraction Equivalence** Lessons 1–2: Decompose fractions as a sum of unit fractions using tape diagrams. Lesson 3: Decompose non-unit fractions and represent them as a whole number times a unit fraction using tape diagrams.	6
		number line, and relate that to the use of multiplication and division.	
4.NF.2	C	**Fraction Comparison** Lessons 12–13: Reason using benchmarks to compare two fractions on the number line. Lessons 14–15: Find common units or number of units to compare two fractions.	4

For the Nebraska Department of Education

Comparison of the Nebraska Mathematics Standards to the Common Core State Standards for the Mathematics, Grades K–12

4 Key Actions for Addressing Unfinished Learning

DETERMINE MISSED/ UNFINISHED LEARNING.

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Adjust Pacing

GRADE 3 MISSED LEARNING TRACKER						
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M5- Topic D (L17-18), Topic E Equivalent Fractions, Topic F Comparing Fractions	MA 3.1.1.d MA 3.1.1.e MA 3.1.1.f MA 3.1.1.i			13	Address 3.1.1.e in Gr 4 M5 before and within Topic A Address 3.1.1.f in Gr 4 M5 before and within Topic A Address 3.1.1.d in Gr 4 M5 before and within Topic C Address 3.1.1.i in Gr 4 M5 before and within Topic C	

Adjust Pacing

Strategic Use of Time

Instructional Block Time

Scope & Sequence

Adjust Pacing

GRADE 3 MISSED LEARNING TRACKER						
Missed Learning	**Missed Major Work**	**Missed Supporting Work**	**Missed Additional Work**	**Number of Missed Lessons**	**Where to Address Missed Learning within Grade 4**	**Adjusted Pacing**
M5- Topic D (L17-18), Topic E Equivalent Fractions, Topic F Comparing Fractions	MA 3.1.1.d MA 3.1.1.e MA 3.1.1.f MA 3.1.1.i			13	Address 3.1.1.e in Gr 4 M5 before and within Topic A Address 3.1.1.f in Gr 4 M5 before and within Topic A Address 3.1.1.d in Gr 4 M5 before and within Topic C Address 3.1.1.i in Gr 4 M5 before and within Topic C	Use the 7 flex days from Gr 4 M5 Use intervention block to address unfinished learning in small groups based on diagnostic Skip lessons 20, 21, and 41 in Gr 4 M5. **These lessons are not essential and go beyond 4th grade standard.*

Grade 5 Example

MA 5.1.2 Operations: Students will demonstrate the meaning of operations and compute accurately with whole numbers, fractions, and decimals.

MA 5.1.2.g: Add, subtract, multiply, and divide decimals to the hundredths using concrete models or drawings and strategies based on place value, properties of operations and/or relationships between operations.

MA.4.1.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.

Plan for Missed Content

PLAN FOR ADDRESSING GRADE 4 MISSED LEARNING				
Missed Learning	**Standards**	**Where to Address Missed Learning within Grade 5**	**Essential Lessons**	**Adjusted Pacing**
Decimal Fractions M6	MA 4.1.1a MA 4.1.1.b MA 4.1.1.h	Add mini on-ramp unit before M1 Place Value & Decimal Fractions to address prerequisite major work standards from MA 4.1.1	Use the following lessons from GR 4 M6 L1, L2, L3, L4 Consolidate L5/L6 L9, L10, L11, L12, L13	

Plan for Missed Learning

PLAN FOR ADDRESSING GRADE 4 MISSED LEARNING				
Missed Learning	**Standards**	**Where to Address Missed Learning within Grade 5**	**Essential Lessons**	**Adjusted Pacing**
Decimal Fractions M6	MA 4.1.1a MA 4.1.1.b MA 4.1.1.h	Add mini on-ramp unit before M1 Place Value & Decimal Fractions to address prerequisite major work standards from MA 4.1.1	Use the following lessons from GR 4 M6 L1, L2, L3, L4 Consolidate L5/L6 L9, L10, L11, L12, L13	Add an additional 12 days to M1 Use 3-5 of the flex days from Gr 5 M1 Reduce Topics E & F ***(review topics)*** from Gr 5 M6 (14 days) and move 7-9 days to M1

4 Key Actions for Addressing Unfinished Learning

DETERMINE MISSED/ UNFINISHED LEARNING.

TRACE THE MATH.

PLAN TO ADDRESS.

ADJUST PACING.

Key Idea #1

Root responses to unfinished learning in honoring the coherence of the standards.

Key Idea #2

Teachers need access, time and support for collaborative planning (Summer, Unit Study and Lesson Preparation)

What does this mean for my role?

- Stay the course with implementing your High Quality Curriculum
- Schedule time for summer planning in vertical teams
- Train PLC or Common Planning Time Leads
- Determine diagnostic tools/resources.
- Guide teams to trace the progressions of major work
- Ensure time for diagnostics and unit planning

CHAT "ALL PANELISTS AND ATTENDEES"

Sample Action Plan

	Phase II - Steps & Tasks	Timeline	Owner(s)	Notes
Phase II: Planning	**A) Prioritize Content**	**Early to Mid June**	**LT Committee Chair – Math**	*Key Action: Trace the Math*
	1. Leverage standards and curricular guidance to identify the prioritized learning from each grade that is most important for future success in the subject area	June 9-15	LT Committee Chair – Math	- Begin by training Grade Level Team Leads in the 4 key actions - Support Team Leads in Summer meeting planning and provide feedback on their plan - Ensure access to standards, coherence map, and progressions documents - Determine number of Summer meetings (1-3) to complete the work
	2. Select the most critical prerequisite knowledge/skills from previous grades for the prioritized learning of each grade	June 9-15	LT Committee Chair – Math (With support from Grade Level Team Leads)	- Share recording of webinar with Team Leads - Connect with Team Lead from grade below to collaboratively plan vertical team time
	B) Predict Unfinished Learning	**Late June**	LT Committee Chair - Math	*Key Action: Determine Missed/Unfinished Learning*
	1. Determine which of the critical prerequisite knowledge/skills in each grade were not taught due to school closures	June 22-26	LT Committee Chair – Math (With support from Grade Level Team Leads)	- Adapt/Access Missed Learning Tracker (SchoolKit Webinar) and share with Team Leads for use - Have Grade Level Teams complete for their own grade from the spring and share with the grade above them
	2. Use existing SY19-20 student performance data to predict other gaps in the critical prerequisite knowledge/skills	June 22-26	LT Committee Chair – Math	- Gather most recent student performance data to share with Team Leads - Provide guidance on determining any additional needs based on data
	C) Adapt Pacing Guidance	**Late June to early July**	LT Committee Chair – Math	*Key Action: Adjust Pacing*
	1. Locate the prioritized learning in each grade's scope and sequence	June 22-26	Grade Level Team Leads	- Revisit work from A)1&2

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Pitfall #1

- Halting instruction for a broad review

OR

- Expecting teachers to teach all missed content and grade level content

RECOMMENDATION

- Use formative data and identify essential lessons focused on major work to adapt pacing guides/calendars. Then, provide just in time support within each unit.

Pitfall #2

- Pulling resources from several new materials and sources to ensure we can address the unfinished learning.

RECOMMENDATION

- Stay the course with your HQC or HQIM. They are already aligned to the standards and we can pull content from prior grades to support unfinished learning.

Pitfall #3

- Trying to address every gap a student has

RECOMMENDATION

- Prioritize the most essential prerequisite concepts & skills needed for upcoming grade level content

Pitfall #4

- Relying on a computer program alone to support intervention needs disconnected from content in class

RECOMMENDATION

- Facilitate rich learning experiences for students to complete unfinished learning with connected and aligned blended learning programs

Pitfall #5

- Continue with business as usual in grade-level planning

RECOMMENDATION

- Create guidance for teachers to support use of the 4 key actions during Unit Study planning

Pitfall #6

- Assuming lost instruction in Math will be addressed in core Math block

RECOMMENDATION

- Get creative with available time and resources in your schedule: Use intervention time; consider double blocks for math

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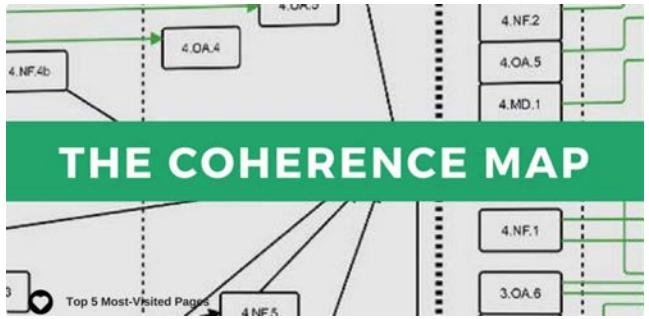
Unfinished Learning Resources



Coherence Map

Progressions Documents

DEPARTMENT of EDUCATION
Louisiana Believes

K-12 Remediation Guides

NEBRASKA INSTRUCTIONAL MATERIALS COLLABORATIVE

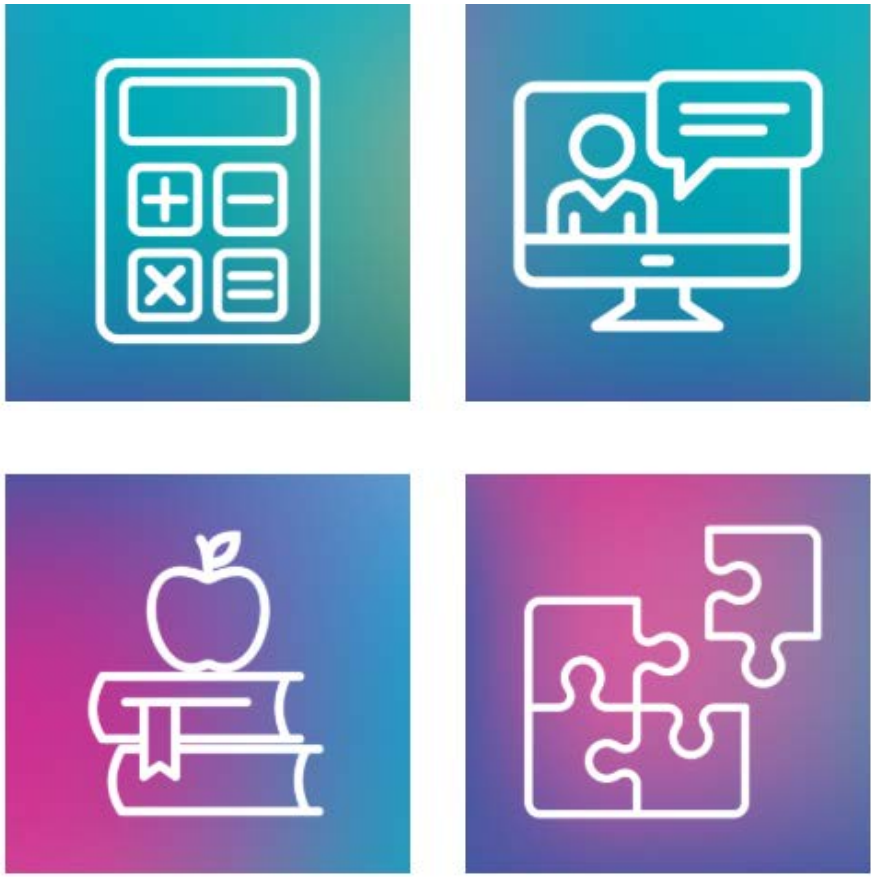
Comparison Document

Coming Soon!

- Available from Student Achievement Partners (next week):
  - Grade-level specific, essential content for literacy and mathematics. (www.achievethecore.org)
- Nebraska-specific academic guidance (mid/late June):
  - Core content and considerations for assessment, instructional materials, and professional learning
  - Will be available on Launch Nebraska.

Upcoming Professional Learning:

- Thursday (4:30 p.m. CST):
  - Summer Learning for Math using Zearn Math
- Archived Sessions available at
  - https://www.launchne.com/professional-learning-and-resources/
-



Feedback Survey

https://tinyurl.com/NDE2Survey


THANK YOU