Improving Student Academic Outcomes: Aligning Standards, Instruction, & Assessment

Montana Education Interim Committee - January 2026

Presented by: Dr. Julie Murgel & Marie Judisch

Report Summary

- **Improving math outcomes** requires system-wide coherence.
- **Early numeracy** is the foundation for long-term success.
- A Montana **Math Skills Map** will make learning progressions visible.
- High-Quality Instructional Materials(**HQIM)** provide the bridge between standards, skills development, and classroom instruction.
- The **MHIT/EIR** grant accelerates and evaluates work being done in Early Literacy Targeted Interventions.

Probing Questions

- How can Montana continue to support **early numeracy and foundational literacy** as *prevention* strategies to reduce remediation and improve long-term outcomes?
- What role should the state play in helping districts access **high-quality instructional materials** and **professional learning** while preserving local control?
- How can investment in **through-year assessment** be leveraged to guide policy, target resources, and improve student outcomes across Montana?
- How can findings from Montana High-Impact Tutoring/Education, Innovation, and Research Grant inform future policy and funding decisions?
- How can Montana ensure that improvements in student outcomes are sustained and scaled, particularly in rural and high-need communities?

Strong Foundations

Early Numeracy in Montana

- Montana's updated mathematics standards provide a strong foundation for student learning
- Aligned to developmentally appropriate learning progressions to prevent gaps over time
- Build toward college- and career-ready expectations
- Emphasize:
  - Conceptual understanding
  - Procedural fluency
  - Application and reasoning

Early Numeracy

Early Numeracy as the Pathway to Algebra Readiness

- Early numeracy is foundational to all later mathematics learning, including algebra
- Research shows early skill gaps compound and are harder to remediate later
  Montana's focus on early numeracy includes:
  - Revised early-grade math standards centered on numeracy
  - Intentional sequencing of skills to support mastery
  - ETI-supported initiatives emphasizing early skill development
- Strong early number sense reduces remediation and improves long-term outcomes

Montana Math Skills Map

Making Learning Progressions Visible

Montana is developing a Math Skills Map to clarify learning progressions and support algebra readiness through aligned instruction and assessment. Unlike math standards, which describe what students should know at each grade level, a skills map organizes those standards into a **coherent sequence of skills.** It highlights prerequisite knowledge and makes learning progressions explicit.helping educators:

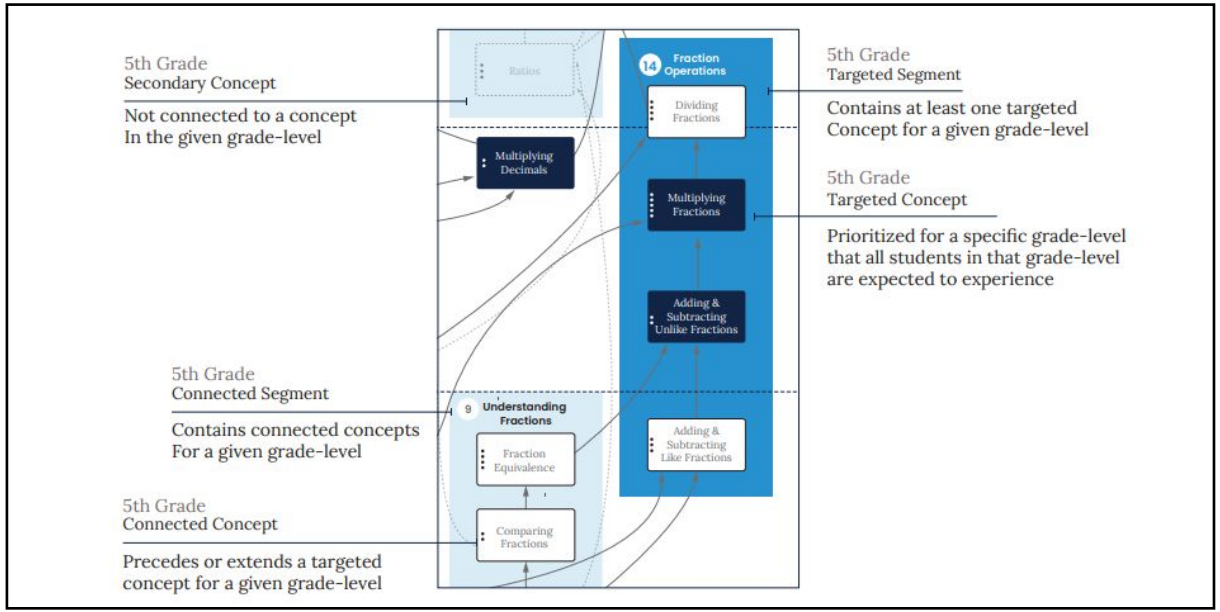
What Is a Math Skills Map and Why Does It Matter?

A math skills map clearly shows:

- The progression of math skills students are expected to learn
- The essential concepts and prerequisite skills needed to build mastery
- How skills build across grade levels toward long-term proficiency

Montana Math Skills Map

- **Identify essential skills** students must master to build a strong foundation for algebra and long-term math success
- **Focus on prevention rather than remediation**, addressing gaps before they compound
- **Support instructional planning and sequencing**, helping teachers prioritize and pace lessons effectively
- **Align instruction and assessment**, ensuring educators can monitor progress and adjust teaching in real time



High-Quality Instructional Materials

What Are High-Quality Instructional Materials (HQIM)?

The Montana Office of Public Instruction (OPI) has defined HQIM to guide schools in selecting curriculum that improves student outcomes and supports educators.

HQIM are evaluated through four essential lenses:

- **Student-centered and rigorous**, supporting grade-level expectations
- **Culturally and contextually relevant**, reflecting Montana students and communities
- **Flexible and adaptable**, allowing educators to respond to student needs
- **Supported by professional learning**, enabling effective classroom implementation

High-Quality Instructional Materials

Why HQIM Matter

High-quality instructional materials are a key lever for improving mathematics outcomes. The quality of materials directly affects:

- Instructional coherence and consistency across grade levels
- Student access to grade-level content
- Alignment to Montana's math standards and skills map

HQIM as the Bridge

HQIM act as the practical bridge between:

- What students are expected to learn (standards)
- How skills develop over time (skills map)
- How instruction happens daily (classrooms)

Through-Year Assessment

Using Through-Year Assessment to Align Instruction and Skills

- Traditional summative assessments provide accountability but occur after instruction ends
- Results often arrive too late to address learning gaps or misconceptions
- Montana's through-year assessment (TYA), MAST:
  - Provides timely, standards-aligned feedback during instruction
  - Connects assessment to the Math Skills Map and classroom instruction
  - Helps ensure students build foundational skills toward algebra readiness

Through-Year Assessment

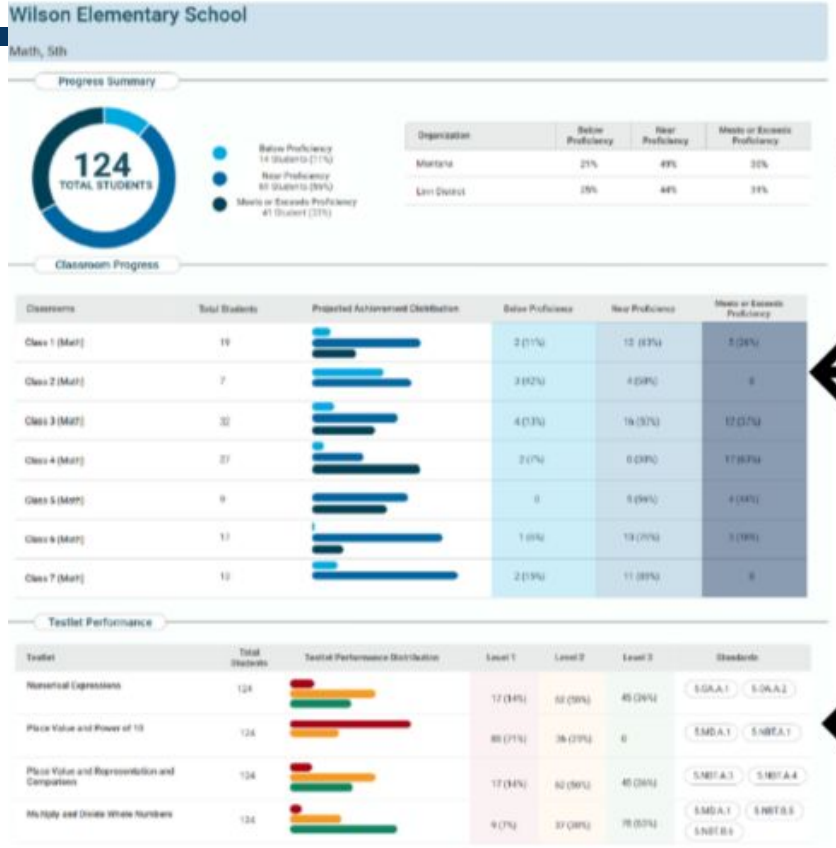
Slide 2: Why Through-Year Assessment Matters

- Through-year assessment:
  - Reveals **misconceptions** while learning is still occurring
  - Supports instructional **adjustments** throughout the year
  - Provides **timely** reporting at the student, classroom, and school levels
- MAST reporting includes:
  - Weekly testlet reports
  - In-year progress reports
  - Annual through-year and summative reports
- This approach shifts assessment from a reporting tool to a tool for instructional decision making and improved student outcomes

Testlet Reports	Progress Reports	Through-Year Reports
Student Testlet Report • *Available weekly, Following Thursday after assessment* • *Shared in Kite Parent Portal with connected parents/guardians.* **Student Performance Task Testlet Report** • *Hand Scored, Two weeks after the close of Window 2*	**Student Progress Report** • *Available at the end of Windows 1 and 2*	**Student Through-Year Report** • *2024-2025 available October 16, 2025* • *2025-2026 available TBD*
Classroom Testlet Report • CSV & PDF Reports • *Available Weekly*	**Classroom Progress Report** • *Available at the end of Windows 1 and 2*	**Classroom Through-Year Report** • *2024-2025 available October 16, 2025* • *2025-2026 available TBD*
School Testlet Report • CSV & PDF Reports • *Available after each window*	**School Progress Report** • *Available at the end of Windows 1 and 2*	**School Through-Year Report** • *2024-2025 available October 16, 2025* • *2025-2026 available TBD*
District Testlet Report • *PDF Available after each window* • *CSV Available after last window*	**District Progress Report** • *Available at the end of Windows 1 and 2*	**District Through-Year Report** • *2024-2025 available October 16, 2025* • *2025-2026 available TBD*

PROGRESS REPORTS

School Level



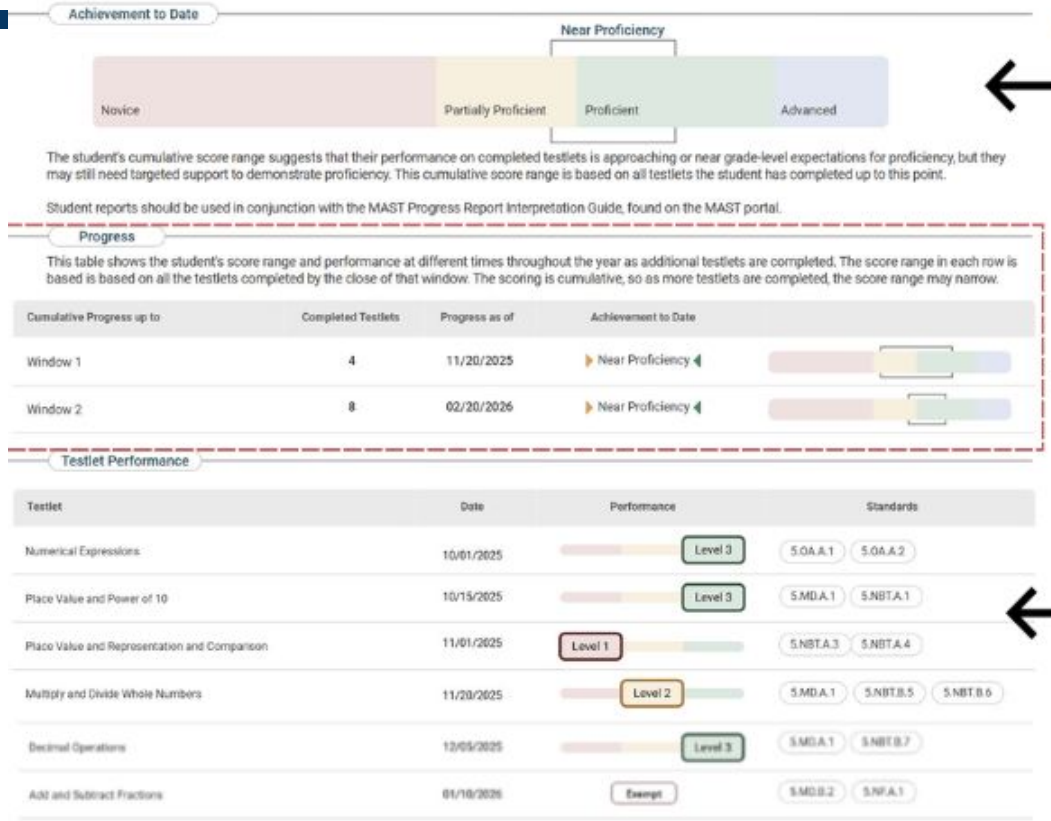
Progress Summary:
The distribution of student achievement to date, based on an estimated range of performance.

Classroom Progress:
An overview of each classroom's distribution of student achievement to date based on their estimated range of performance.

Testlet Performance:
A summary breakdown of how the school performed on each individual testlet to date. Each testlet shows the performance breakdown by level.

PROGRESS REPORTS

Student Level-Window 2

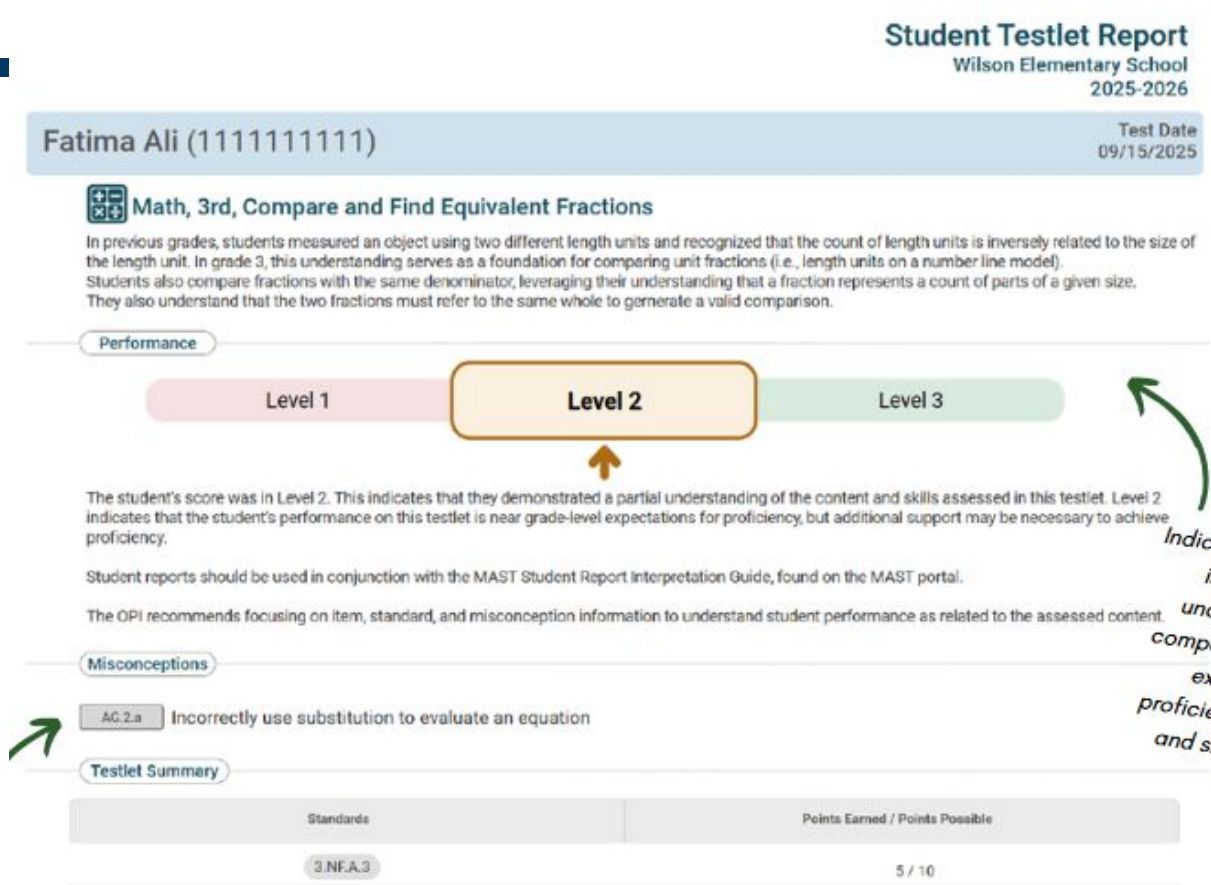


Achievement to Date:
A summary of a student's cumulative achievement range based on all testlets completed in Windows 1 and 2

Progress:
Show both Window 1 and Window 2 progress

Testlet Performance:
Includes all testlets taken up to the current point in the year

STUDENT TESTLET REPORTS – MATH



Student Testlet Report
Wilson Elementary School
2025-2026

Fatima Ali (1111111111)
Test Date
09/15/2025

Math, 3rd, Compare and Find Equivalent Fractions

In previous grades, students measured an object using two different length units and recognized that the count of length units is inversely related to the size of the length unit. In grade 3, this understanding serves as a foundation for comparing unit fractions (i.e., length units on a number line model).
Students also compare fractions with the same denominator, leveraging their understanding that a fraction represents a count of parts of a given size.
They also understand that the two fractions must refer to the same whole to gernerate a valid comparison.

Performance

Level 1 | **Level 2** | Level 3

The student's score was in Level 2. This indicates that they demonstrated a partial understanding of the content and skills assessed in this testlet. Level 2 indicates that the student's performance on this testlet is near grade-level expectations for proficiency, but additional support may be necessary to achieve proficiency.

Student reports should be used in conjunction with the MAST Student Report Interpretation Guide, found on the MAST portal.

The OPI recommends focusing on item, standard, and misconception information to understand student performance as related to the assessed content.

Misconceptions

AG.2.a Incorrectly use substitution to evaluate an equation

Testlet Summary

Standards	Points Earned / Points Possible
3.NF.A.3	5 / 10

Indication of how student is demonstrating understanding when compared to grade-level expectations for proficiency in the content and skills assessed on testlet.

STUDENT TESTLET REPORTS – MATH

Testlet Summary

Standards	Points Earned / Points Possible
3.NF.A.3	5 / 10

Legend ✓ Correct ✗ Incorrect ○ Did Not Attempt

Question Description		Credit Earned	Standards
1.	This question evaluates students' understanding of sequences and series.	✗	3.NF.A.3
2.	This question evaluates students/ understanding of runding numbers to the nearest ten.	✗	3.NF.A.3
3.	This question addresses students' understanding of basic probability concepts.	✗	3.NF.A.3
4.	This question evaluates students' understanding of coordinate planes and how to plot points.	✓	3.NF.A.3
5.	This question assesses students' understanding of ratios and proportional relationships.	○	3.NF.A.3

CLASSROOM TESTLET REPORTS – MATH

Class 1 (Math)

Tony Sullivan, Teacher 2, Proctor

Math, 3rd, Compare and Find Equivalent Fractions

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Summary Results

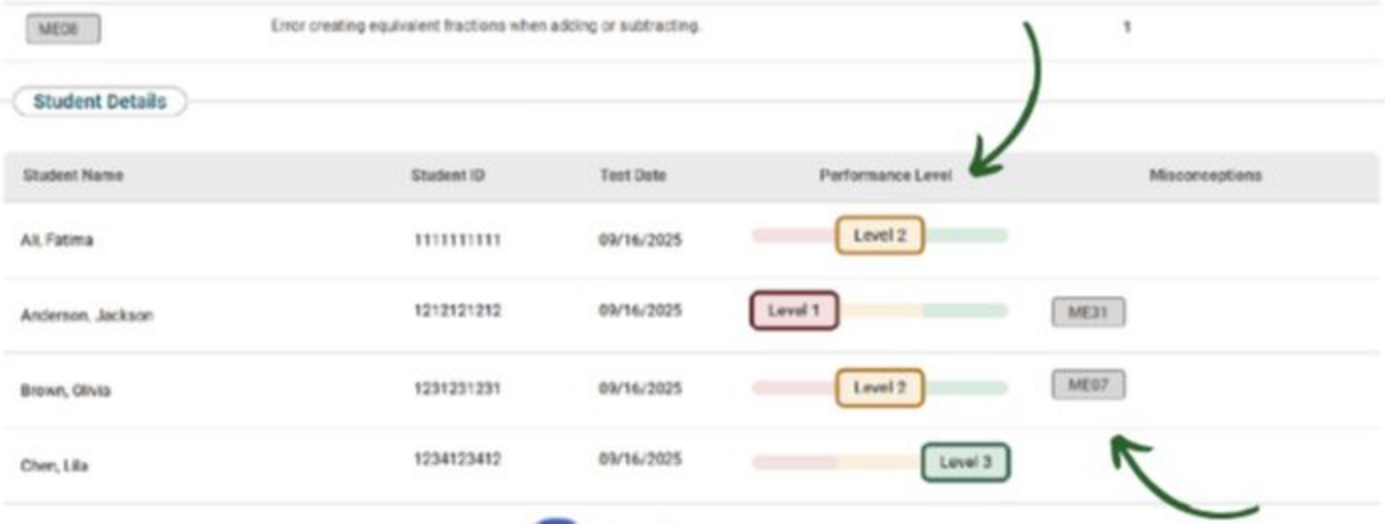
- Level 1: 3 Students (21%)
- Level 2: 4 Student (29%)
- Level 3: 7 Students (50%)

State Standard	Average Percent of Points Earned
5.OA.A.1	65%
5.OA.A.2	35%

Misconceptions

Misconception	Description	# of Students
ME07	Misinterprets ratio as an additive relationship.	3
ME31	Incorrectly interpreted graph.	3
ME06	Student added or subtracted numerators and denominators, instead of finding equivalent fractions.	2
ME08	Error creating equivalent fractions when adding or subtracting.	1

CLASSROOM TESTLET REPORTS – MATH



M-HIT/EIR Grant Award

Purpose and Rationale: Montana High-Impact Tutoring (MHIT)

- Funded through the Education Innovation and Research (EIR) grant
- Builds on the success of Early Targeted Interventions (formerly ELTI), expanded in 2023 to include early numeracy
- Designed to:
  - **Provide live virtual, high-impact tutoring** delivered by certified educators, tailored to individual student literacy needs
  - **Implement evidence-based intensive literacy interventions** aligned to the Science of Reading
  - **Build educator capacity** to deliver strong, explicit literacy instruction
  - **Provide schools with a family engagement toolkit** to support students' literacy development at home
  - **Generate evidence** about effective interventions in Montana contexts

How M-HIT Fits the System

MHIT is not a stand-alone program. It is an investment in system coherence by:

- Supporting educators with aligned professional learning in the **Science of Reading**
- Strengthening connections between **Tier 1 and Tier 2 instruction**
- **Expanding Early Targeted Interventions** implemented by Montana Legislature to include an intentional focus on first through third grade school-based literacy intervention connected to classroom learning.
- Setting up the opportunity to apply for an Expansion EIR grant through documented strong evidence of effectiveness of the program.

Closing

Montana is advancing a prevention-focused approach to student learning

In mathematics, aligned standards, the Math Skills Map, high-quality materials, professional learning, and through-year assessment:

- Build skills over time
- Prioritize early numeracy and algebra readiness
- Provide timely information to address gaps early

In literacy, the MHIT project, funded by the federal EIR grant:

- Aligns Tier 1 instruction, Tier 2 intervention, and assessment
- Builds educator capacity
- Supports high-need students, including rural and tribal communities

Questions & Thank you!

Montana Office of Public Instruction

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