Comprehensive Mathematics Plan

Kindergarten through 12th Grade

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Idaho State Board of Education

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SECTION I:

INTRODUCTION

IDAHO'S MATH INITIATIVE & THE COMPREHENSIVE MATHEMATICS PLAN

The Goal of Idaho's Math Initiative

The Idaho Math Initiative was established in 2008 in recognition that "mathematical skills are increasingly important to the future academic and career success of students" and improvements in math outcomes are necessary to meet the needs of Idaho's economy.[1] This document aims to expand and modernize the Math Initiative with a renewed focus on a single goal: creating systems and supports to ensure all Idaho students receive high quality math instruction and develop mathematical thinking and proficiency that empowers their future success. The Math Initiative's success will be evidenced by continued growth in meeting the following performance targets:

- The Idaho Consolidated State Plan long-term academic achievement goals for Mathematics (Idaho Standards Achievement Test- ISAT) ; and
- the State Board of Education's Strategic Plan Performance Measures for Mathematics.

Idaho's Math Initiative: Foundational Frameworks

To support the success of Idaho's Math Initiative, the State Board of Education and State Department of Education have identified specific frameworks that are foundational to our work. Together, the Idaho Comprehensive Mathematics Plan and the Idaho Mathematics Instructional Guide are designed to set a vision and direction for the Math Initiative. These documents are complementary and intended to build alignment across our efforts to improve math instruction and student outcomes. Each of the documents has a distinct purpose and intended audience:

Document	Audience(s)	Focus	Purpose
Idaho Comprehensive Mathematics Plan	All stakeholders: state policymakers, state agencies, districts, schools, classrooms, parents/guardians, and the community	Policy & Systems	Align state, district, and local efforts in support of Idaho's Math Initiative.
Idaho Mathematics Instructional Guide	Educators: District and school leaders, instructional coaches, classroom teachers, and paraprofessionals	School-level Instruction & Interventions	Provide clear guidance on the state's expectations for high quality math instruction and interventions.

The Idaho Mathematics Instructional Guide describes the evidence-based teaching strategies in the Idaho Mathematics Instructional Framework. These strategies support students in developing mathematical proficiency. Idaho has adopted the following definition of mathematical proficiency:

> Mathematical proficiency is the ability to productively solve problems through demonstration of five interwoven and interdependent capacities: conceptual understanding, procedural fluency, strategic competence, adaptive reasoning,

[1] Idaho Code Section 33-1627

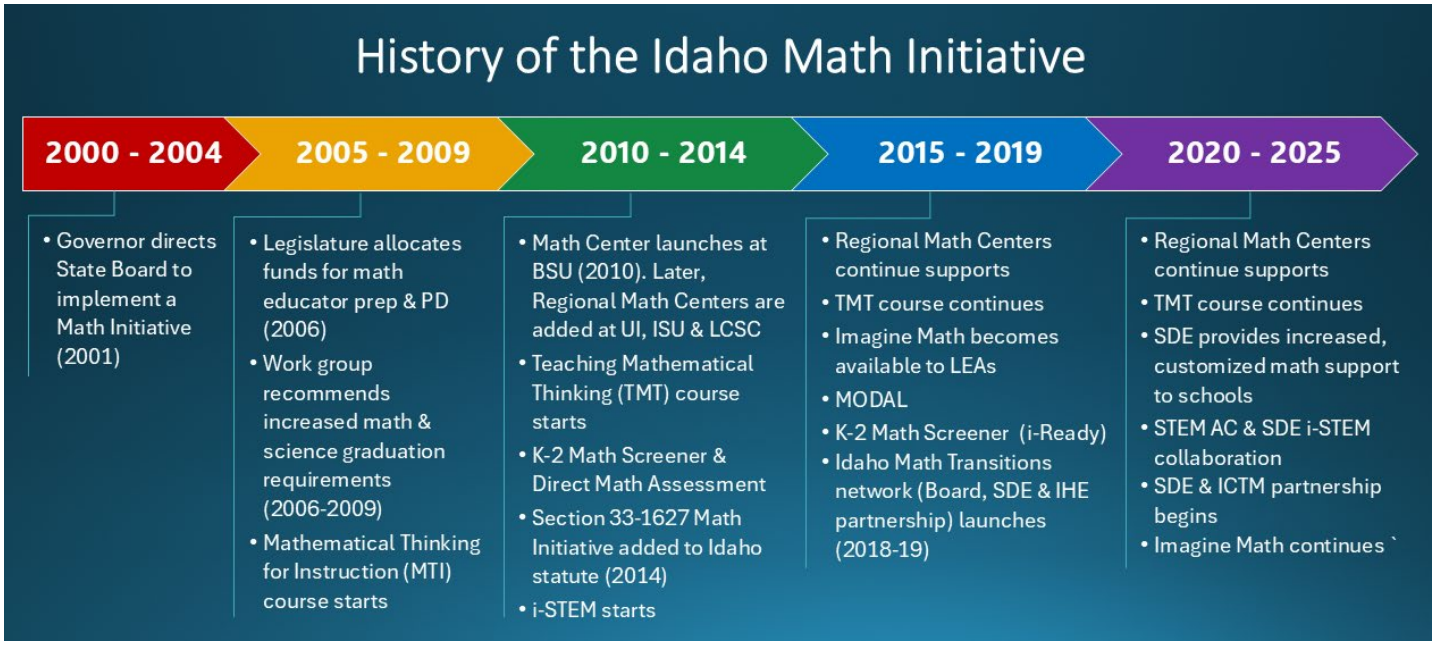
and productive disposition. [2] Students demonstrate their mathematical proficiency by mastering the Idaho State Content Standards in Mathematics.

The mathematics capacities established by the National Research Council as the 5 Mathematical Proficiencies are referred to in this document as strands of the Idaho Math Rope, and are described in detail in *Section II: Developing Mathematical Thinking and Proficiency*. Additionally, while we recognize that "mathematics" is the proper academic terminology, to support concise descriptions and ease of reading, we will be using the terms mathematics and math as direct synonyms in our documents.

Where We Are Now

The Idaho Comprehensive Mathematics Plan represents the culmination of work completed by state agencies, partnering universities and contractors, and advisory groups over the past twenty five years. Our current efforts to improve students' mathematical thinking and proficiency are built upon efforts that began in 2001 and have continued to increase and expand, with particular emphasis given in the last five years as we experienced and came out of the pandemic. The Comprehensive Mathematics Plan and Mathematics Instructional Guide are designed to consolidate the work that has been done, build upon it, and push it into a new phase where all stakeholders push together with a greater intensity. To ensure our plan and efforts remain current and relevant, the State Board of Education has committed to reviewing and updating the Comprehensive Mathematics Plan every five years.

The timeline below represents the history of Idaho's Math Initiative. This timeline highlights the most impactful events, but does not include every action taken.



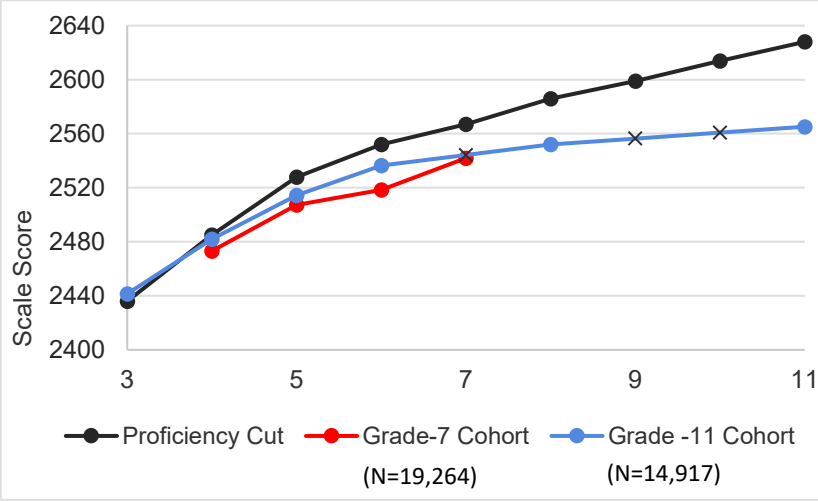
[2] National Research Council, 2001

Need for Focus on Mathematical Teaching and Learning

As demonstrated in *Section IV: Data*, Idaho's current outcomes reveal systemic challenges that must be addressed to ensure all K-12 students acquire the mathematical thinking and proficiency needed to prepare them for college and career success.

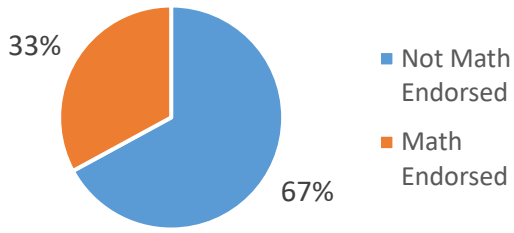
Several data reviews have revealed a troubling trend – as Idaho students progress through our public education system, the percentage scoring proficient in math decreases. Figure 1 illustrates this pattern by comparing the average ISAT Math scale scores of the 2024 Grade 7 and Grade 11 cohorts to the proficiency cut scores by grade. As students move into upper grades, the average scale score continues to diverge from the proficiency cut, indicating that increasing numbers of students are struggling to meet grade level expectations each year.

Figure 1: ISAT Math Average Scale Score vs. Proficiency Cut, by Cohort



This persistent decline underscores the importance of core instruction grounded in evidence-based instructional strategies. Effective core instruction provided by well-prepared teachers is critical for students to develop strong foundational math skills and engage in deeper mathematical thinking. Despite the need for teachers to have specialized math expertise, credentialing data reveals that the majority of teachers providing instruction in grades 6 through 8 are doing so with a K-8 generalist certificate and no mathematics endorsement.

Figure 2: Endorsements of Grade 6-8 Math Teachers



The impacts of the pandemic on student learning remain evident. Even when groups of students have proficiency rates near pre-pandemic levels, a greater proportion of those not proficient are scoring Below Basic – the lowest category – than prior to the pandemic. This shift highlights an urgent need for sustained mathematics support as students progress into higher grades. Unfortunately, the funding available to districts and schools has not kept pace with this growing need. We must renew and expand our efforts to improve mathematics teaching and learning for all students, with an emphasis on interventions for students in need of individualized support. Our goals and next steps are outlined in *Section III: Essential Elements*.

SECTION II:

DEVELOPING MATHEMATICAL THINKING AND PROFICIENCY

Purpose of This Section

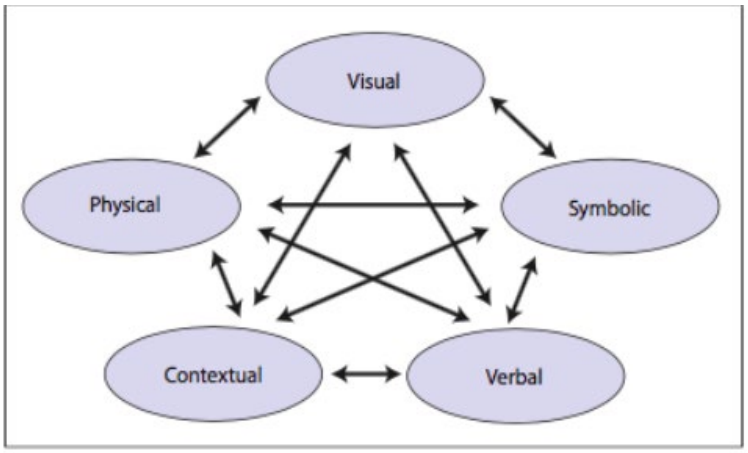
Mathematical thinking and proficiency develop over time, beginning in early childhood and continuing throughout a students' educational journey.

This section grounds the meaning of mathematical proficiency in the Idaho Math Rope and the Idaho Standards for Mathematical Practice. It also provides a high level overview of the typical learning progression of mathematical concepts as students prepare for and move through the K-12 educational system.

THE DEVELOPMENT OF MATHEMATICAL THINKING AND PROFICIENCY

What is Mathematics?

Mathematics is a "way of knowing" that includes reasoning processes and the ability to solve problems.[3] Students can use mathematical models and justifications to understand, question, and critique the world around us.[4]

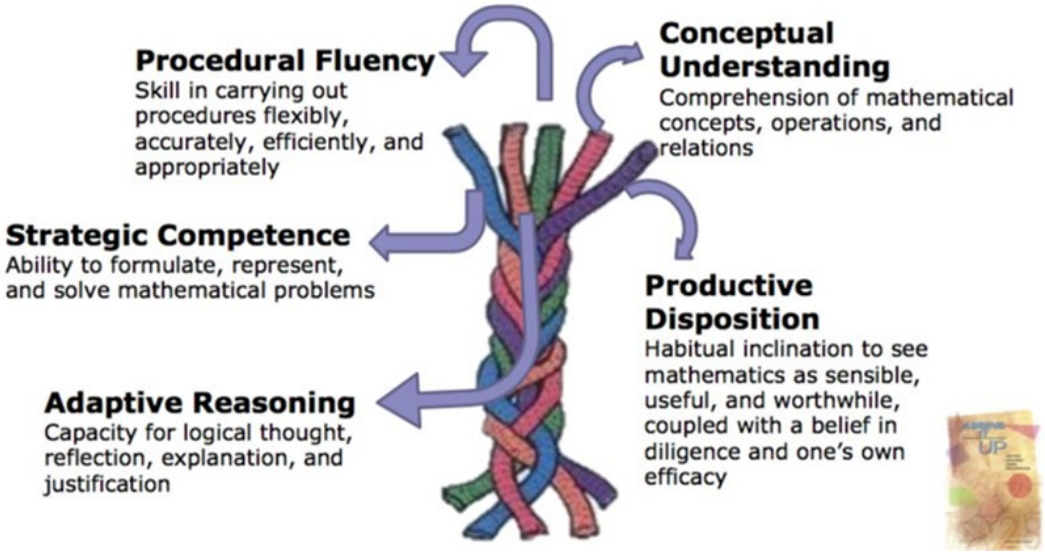


Visual, symbolic, verbal, contextual and physical representations serve as essential tools for students to process, communicate, and connect mathematical ideas.

When students regularly engage in representing their thinking in multiple ways and making connections across those representations, they build deeper conceptual understanding and strengthen their ability to solve complex problems.[5]

THE IDAHO MATH ROPE[6]

In *Adding It Up*, the National Research Council advocates for viewing mathematical proficiency as five interwoven and interdependent strands. Within our Math Initiative documents, we are adopting the 5 Strands of Mathematical Proficiency as the Idaho Math Rope.

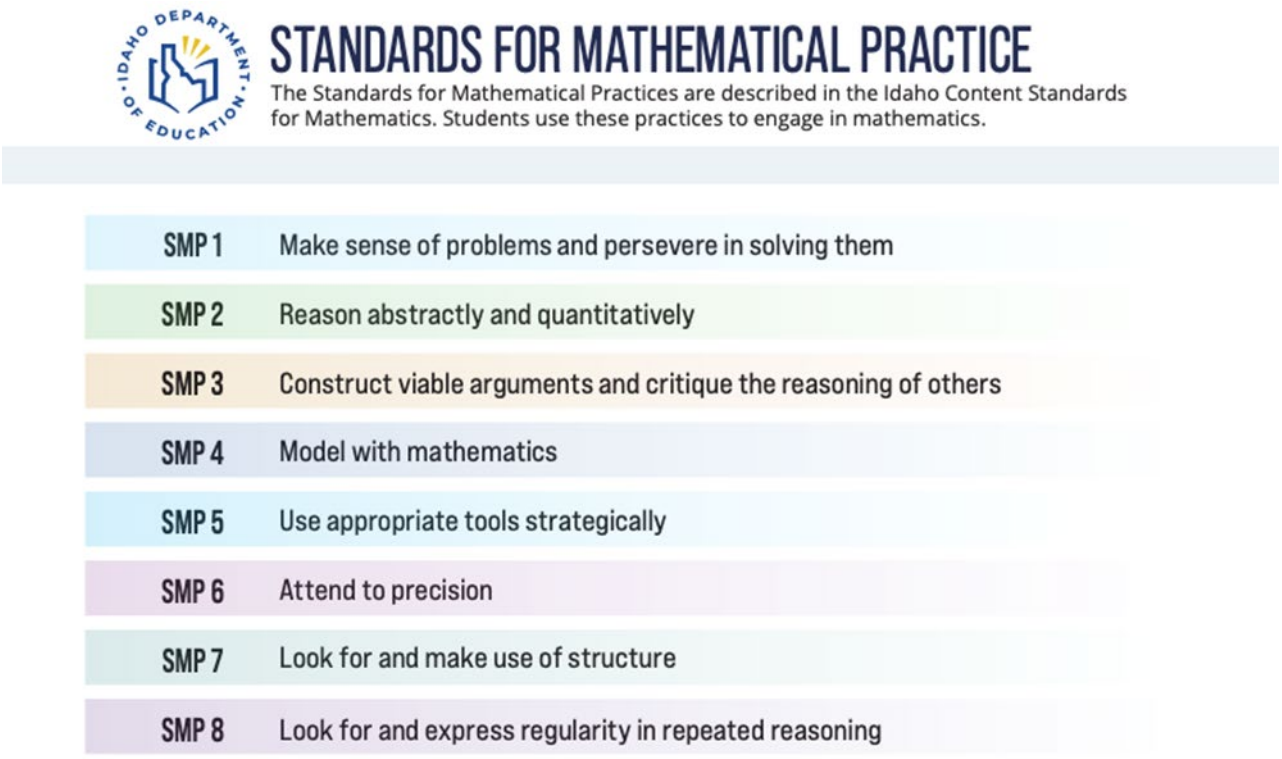


[3] Idaho State Board of Education, 2021
[4] National Council of Teachers of Mathematics, 2020
[5] National Council of Teachers of Mathematics, 2014
[6] National Research Council, 2001

Like Scarborough's Reading Rope, which shows how multiple strands work together for reading proficiency, mathematics learning also involves interwoven strands. But unlike reading, mathematical proficiency is not about a fixed sequence of skills— it's about developing flexible, connected understanding. A deep mathematical understanding allows learners to connect pieces of knowledge and use these connections to productively solve problems. In depth descriptions of each strand of the Idaho Math Rope along with recommended teacher and student actions are provided in the Idaho Mathematics Instructional Guide.

IDAHO STANDARDS FOR MATHEMATICAL PRACTICE FOR STUDENTS[7]

The strands of the Idaho Math Rope are reflected in Idaho's K-12 Content Standards for Mathematics, which specifies what students are expected to know and be able to do at each grade level. The Idaho Standards for Mathematical Practice are a complement to, not separate from, the content standards. The Idaho Standards for Mathematical Practice guide *how* students learn to think about, approach, and apply mathematical concepts, while the Idaho Content Standards for Mathematics guide *which* math concepts students learn in specific grades.



The Standards for Mathematical Practice describe the eight actions students demonstrate as they develop deep understandings of mathematical concepts.[8] Clear explanations of the Idaho Standards for Mathematical Practice, tailored for each grade level from K-8 and high school, are provided in the Idaho Content Standards for Mathematics.

[7] Adopted from National Council of Teachers of Mathematics, 2014
[8] National Council of Teachers of Mathematics, 2014; National Council of Teachers of Mathematics, 2000

PROGRESSION OF CONCEPTS

Learning mathematics begins at an early age with understanding basic patterns, differences, and the ability to communicate about mathematics.[9] Children work with math in a tangible way through touching objects and using age appropriate vocabulary to explain understanding, which lays a foundation for math learning through their school years.[10]

The table below outlines math skills and knowledge typical for students based on their age or grade range. This information is not meant to represent or be used as academic content standards. Educators should deliver instruction based on the Idaho Early Learning Guidelines (for Birth to Age 4) and the Idaho Content Standards for Mathematics (for K-12).

<table>
<tr><th colspan="2">Math Concept and Skills Development</th></tr>
<tr><td colspan="2">Birth to Age 4</td></tr>
<tr><td colspan="2">• Counts out loud to 10
• Recognizes numerals 0 to 10
• Begins to count to 20
• Counts objects by touching one object at a time
• Recognizes and creates groups of two, three, four, or five objects.
• Sorts similar items (e.g. blue toys and red toys)
• Identifies, names, and draws shapes (e.g. circle, triangle, square, and rectangle)
• Uses comparative words (e.g. more / less, bigger/smaller, longer/shorter, heavier/lighter
• Recognizes and creates simple patterns</td></tr>
<tr><td colspan="2">Kindergarten through High School</td></tr>
<tr><td>Arithmetic
Focused on adding, subtracting, multiplying and dividing</td><td>Progression:
• Grades K - 2: Counting, adding small numbers, understanding what numbers, addition, and subtraction mean.
• Grades 3 - 5: Working with larger numbers, learning about the meaning of multiplication and division, fractions, and decimals.
• Grade 6 - High School: Using arithmetic with negative numbers, square roots, and percentages in real-world situations.
🛠 Why It Matters: Strong arithmetic skills are foundational for all areas of math.</td></tr>
<tr><td>Algebra
Teaches us to find unknown values and make conjectures and generalizations.</td><td>Progression:
• Grades K - 5: Recognizing patterns, understanding equal signs, using simple equations like 3 + ___ = 7.
• Grades 6 - 8: Learning about variables (x, y), solving equations (2x + 5 = 11), and working with proportions.
• High School: Graphing equations, working with polynomials, and understanding functions.
🛠 Why It Matters: Algebra is the foundation for advanced math and is used in everything from budgeting to computer science.</td></tr>
</table>

[9] NAEYC & NCTM, 2010
[10] Baroody, 2004; Ginsburg, Lee & Boyd, 2008; Clements & Sarama, 2009

Geometry The study of shapes, angles, and how objects fit together.	Progression: • Grades K - 2: Recognizing basic shapes; understanding bigger / smaller. • Grades 3 - 5: Measuring angles, exploring symmetry, working with 3D shapes. • Grade 6 - High School: Using formulas to find areas and volumes, working with transformations, and proving theorems. 🛠 Why It Matters: Geometry is key for engineering, art, and architecture.
Measurement Focused on determining size, weight, time, and temperature.	Progression: • Grades K - 2: Comparing sizes, learning to tell time, using a ruler. • Grades 3 - 5: Converting between units (inches to feet, minutes to hours), measuring area and volume. • Grade 6 - High School: Using formulas for speed, density, and complex measurements like surface area. 🛠 Why It Matters: Measurement is a life skill used in cooking, construction, and everyday problem-solving.
Data Analysis Helps us organize and interpret information through charts and graphs.	Progression: • Grades K - 2: Sorting objects, making simple bar graphs. • Grades 3 - 5: Reading and creating graphs, understanding averages. • Grade 6 - High School: Using spreadsheets, analyzing trends, and making predictions. 🛠 Why It Matters: Data skills are critical for decision-making in business, healthcare, and technology.
Statistics Helps us analyze data, find patterns, and make informed decisions.	Progression: • Grades K - 5: Collecting and organizing simple data, understanding averages. • Grade 6 - High School: Learning about surveys, interpreting data, and using statistical formulas. 🛠 Why It Matters: Statistics are used in polls, medical studies, and business forecasting.
Probability The math of predicting outcomes and understanding risk.	Progression: • Grades K - 2: Talking about "likely" vs. "unlikely" (e.g., Will it snow in July?). • Grades 3- 5: Learning simple probability (rolling dice, flipping coins). • Middle–High School: Calculating probabilities in real-world situations (weather forecasts, sports odds). 🛠 Why It Matters: Probability is used in everyday decisions, from playing games to buying insurance.
Calculus Used to study motion, growth, and change over time.	Progression: • Grades K - 8: Building the foundation through algebra and functions. • High School: Learning about rates of change, slopes, and areas under curves. 🛠 Why It Matters: Calculus is essential for careers in science, engineering, economics, and medicine.
Number Theory Explores number patterns, prime numbers, and divisibility.	Progression: • Grades K - 5: Learning about odd/even numbers and factors. • Grade 6 - High School: Exploring prime numbers, divisibility rules, and modular arithmetic. 🛠 Why It Matters: Number theory is the foundation of cryptography (used in cybersecurity and digital banking).

SECTION III:

ESSENTIAL ELEMENTS

Purpose of This Section

This section outlines our state's goals for improving mathematical teaching and learning and the next steps Idaho education stakeholders (state, districts, schools, higher education, the community, and home) must corporately and individually take to ensure the goals can be met. The goals and next steps for implementation are categorized into four Essential Elements:

1. Collaborative Leadership
2. Developing Professional Educators
3. Assessment and Data
4. Effective Instruction and Interventions

OVERVIEW

Essential Elements of the Idaho Comprehensive Mathematics Plan

Collaborative Leadership

Effective leaders are critical for successful and sustainable implementation of initiatives to improve mathematics teaching and learning. Collaborative leaders provide strategic guidance, support data-based decision making and distribution of resources, and encourage partnerships for sharing knowledge and best practices.

Developing Professional Educators

Training high-quality educators (including administrators, teachers, and paraprofessionals) is vital for student success. This requires a strategic, long-term approach that connects and aligns pre-service preparation, onboarding and mentoring, and ongoing professional development. An innovative, clear, and shared focus must be integrated to prepare all educators to effectively implement evidence-based instructional practices.

Assessment and Data

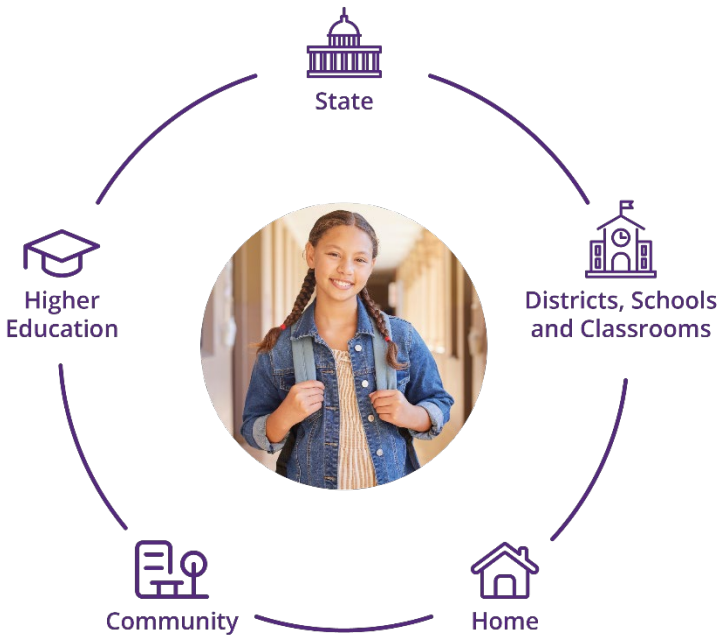
A balanced assessment system is essential for all stakeholders to understand student performance and improve math outcomes. Data-based decision-making should occur at every level. Statewide summative assessments inform policymakers and educators about system effectiveness and resource allocation, while interim and formative assessments help educators plan instruction and interventions to meet the unique needs of all students.

Effective Instruction and Interventions

Exceptional teaching inspires engaged and deep learning. Effective instruction is rooted in implementation of the Idaho Standards for Mathematical Practice for Students in alignment with the Idaho Mathematics Academic Content Standards. When teachers implement evidence-based instructional practices, students at all skill levels benefit. Student outcomes are improved through well-established systems of support for English learners, students with disabilities, and those struggling to develop grade-level math skills.

Organization of the Comprehensive Mathematics Plan

Improving mathematics outcomes is not just the responsibility of schools or classroom teachers; it takes a statewide effort. All stakeholders involved in supporting students must understand their role and ability to contribute to the larger picture, while recognizing that none are in it alone.



The Comprehensive Mathematics Plan highlights the responsibilities each stakeholder group has in promoting the goals of the Essential Elements. While next step actions are identified for specific groups, they should be viewed as interconnected–together they reflect a strategic approach to improving math outcomes in our state. **Thoughtful implementation decisions will require consideration of both the interrelated nature of the actions and the resources available to carry out the work, including federal, state, and local funding.**

State: Policymakers including the Governor, legislature, Superintendent of Public Instruction, State Board of Education (the Board), State Department of Education (the Department), Division of Career Technical Education and other state agencies involved in education-related work

Districts, Schools, and Classrooms: All district and school employees and contractors who work to support students, including superintendents, principals, instructional coaches, educators, paraprofessionals, counselors, contractors, and other school staff

Higher Education: Idaho's public and private institutions of higher learning, including community colleges, universities, and career-technical and certificate programs

Community and Home: Parents/guardians, libraries, early learning providers (preschools and daycares), out-of-school time program providers, healthcare providers, nonprofits, businesses, and community agencies

COLLABORATIVE LEADERSHIP

Effective leadership is essential for successful implementation of sustainable initiatives to improve math instruction and learning. Our ability to improve mathematics outcomes will be deeply impacted by the culture we create around education.

Collaborative leaders maintain a culture of shared responsibility and respect for new ideas. When we leverage diverse perspectives and joint problem-solving, we expand our capacity to address complex issues. When we are working to improve student outcomes, we must ensure that all voices are valued, from state policymakers to students.

Just as it is easy for silos to emerge within individual organizations, it is common for decisions to be made by our various stakeholder groups with little to no communication or input from other parties. When we break down these divisions and focus on joint accountability, we can cultivate a set of common values and practices- a whole systems view- that will guide our efforts to improve math teaching and learning over time.

COLLABORATIVE LEADERSHIP		
GOAL 1		Communication and partnerships are developed at the local, regional, and statewide levels that result in effective collaboration amongst entities.
Group Responsible		**Next Steps**
STATE	**Governor & Legislature**	➢ Support funding for math initiatives aligned to the Idaho Comprehensive Mathematics Plan and the Idaho Mathematics Instructional Guide.
	Board & Department	➢ Facilitate collaboration amongst entities, including consistent communication and regular convenings of advisory groups to identify effective strategies for improving math outcomes. ➢ Collaborate with the Regional Math Centers to identify a structure and funding that provides long-term sustainability.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Engage in the sharing of best practices through regional partnerships and collaboration. ➢ Emphasize the development of schools with a strong culture of collaboration around the importance of math and establishing a strong "why" for students.
HIGHER EDUCATION	**Higher Education Leaders**	➢ Collaborate with the state, districts, and schools to support the implementation of the Comprehensive Mathematics Plan.
	Educator Preparation Programs	➢ Ensure that administrator preparation programs include content on the importance and impact of collaborative school culture.
COMMUNITY & HOME	**Parents & Guardians**	➢ Engage as active partners with their schools and their children, including recognizing shared responsibility for achieving learning outcomes. ➢ Work to dispel the myth of being "bad at math" and emphasize a productive disposition and growth mindset.
	Community Partners	➢ Collaborate with districts and schools to provide math-focused activities that offer parents/guardians an active way to learn, support, and engage in their children's learning (math nights, STEM camps).

GOAL 2		All education entities work together to make strategic decisions and develop statewide and regional strategies that maximize funding, resources, and student achievement outcomes.
Group Responsible		**Next Steps**
STATE	**Board**	➢ Provides leadership to support evidence-based math initiatives, including forming useful policies and rules, advocating for statutory changes, and facilitating collaboration amongst entities.
	Department	➢ Supports funding to expand regional math supports, emphasizing professional development with effectiveness evidence. ➢ Incorporates training for district and school leaders on how to establish and monitor local district and school math plans.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Create and implement local math plans to improve outcomes and provide professional development to support the plan (with PD aligned to the Comprehensive Mathematics Plan and the Mathematics Instructional Guide). ➢ Support infrastructural modifications aligned to the Comprehensive Mathematics Plan, such as sufficient time for PLCs and other educator collaboration. ➢ Leverage data to allocate resources and develop budgets to ensure math instruction is effective and aligned to the goals the LEA established in their plan to improve mathematical outcomes.
HIGHER EDUCATION	**Higher Education Leaders**	➢ Re-examine how course requirements are established for educator preparation programs.
	Educator Preparation Programs	➢ Participate in efforts to align the strategies, research, and assessment practices taught during educator preparation with those implemented by practicing educators and ensure all implement the Idaho Instructional Framework as outlined in the Mathematics Instructional Guide.
COMMUNITY & HOME	**Parents & Guardians**	➢ Support the development and implementation of their district or school Math Plan and related activities.
	Community Partners	➢ Collaborate with state agencies to expand existing school readiness efforts statewide by building families' knowledge about the importance of engaging in activities that promote early math skills development from birth to age 5.

DEVELOPING PROFESSIONAL EDUCATORS

Mathematics educators need to continually develop their math teaching knowledge and skills throughout their careers. Effective teaching is supported by a well-developed understanding of content, pedagogy, curriculum, and student thinking.[11] The experiences teachers have in the classroom can support general instructional practices, but specialized math content knowledge must be explicitly studied and extends beyond knowledge gained from classroom experiences.[12]

As described in *Section II: Developing Mathematical Thinking and Proficiency*, effective mathematics instruction requires a balanced approach that supports students in developing procedural fluency, conceptual understanding, and mathematical reasoning simultaneously.[13] Students need to develop these components in unison from the earliest years, with a strong emphasis on conceptual understanding. However, many current educators experienced math instruction that heavily emphasized procedural fluency (under the assumption that mastering procedures is necessary to develop conceptual understanding) which limits their ability to effectively support students.

Therefore, effective professional learning must address multiple dimensions of teacher growth. It must support educators in deepening their understanding of essential mathematical concepts, equip them with strategies to meaningfully develop these understandings in students, and ensure they have the procedural and conceptual fluency and flexibility needed to apply mathematical knowledge in diverse contexts.

Supporting Mathematics Educators' Professional Learning

To support mathematics educators in their professional learning, they should be provided with professional development (PD) that aligns with the following key features[14]:

1. **Content Focus:** PD activities that focus on math content and how to use evidence-based practices to support students' learning[15], such as:
    - Cognitively Guided Instruction
    - Professional Noticing
    - 5 Practices for Orchestrating Productive Mathematics Discussions
    - Cognitively Demanding Tasks
2. **Active learning**: PD experiences that provide direct participation with evidence-based practices. For example, observing expert teachers, interactive feedback and discussion, and reviewing student work.

[11] Shulman, 1987
[12] Ball et al., 2008
[13] National Research Council, 2001
[14] Desimone, 2009; Desimone & Pak, 2017
[15] Carpenter et al., 1996; Jacobs et al., 2010; Smith & Stein, 2011; Smith & Stein, 1998

3. **Coherence:** PD that aligns across content and activities, consistent with: school curriculum and goals, educator knowledge and beliefs, the needs of students, and school, district, and state reforms and policies.
4. **Duration:** PD activities of a sufficient duration, including both span of time over which the activity is spread (e.g., one day or one semester) and the number of hours spent engaging in the activity. Research suggests that activities should include a minimum of 20 hours spread over a semester to provide support to educators that results in improved instructional practices.
5. **Collective participation:** PD activities support an interactive learning community where groups of educators from the same grade, subject, or school can collaborate and build a shared understanding.

Professional development experiences should focus on topics designed to equip educators with the knowledge and practices needed to deliver effective mathematics instruction, including: interventions, assessments, evidence-based classroom practices, analyzing student thinking, shifting to a learning-oriented mindset, and Mathematical Knowledge for Teaching (MKT).

Educator Preparation Differences

While educators demonstrate math content knowledge through an assessment to obtain certification, content and pedagogy coursework requirements vary based on certification path. Mathematics educators benefit from intensive professional development in their early years of teaching, and those from alternative routes may need higher levels of support.

Math Educator Preparation Coursework Requirements, by Certification Path		
Alternative Certification (Non-Traditional Programs)	**Traditional Preparation Program (ID public higher education institutions)**	**Teacher Leader - Mathematics**
Varies across programs, but often only includes: • 3-credit Teaching Mathematical Thinking (TMT) course as their mathematics-specific preparation.	Varies across institutions, but generally includes: • K-8 Endorsement, including 6 credits of math content and 3 credits of K-8 math pedagogy. • Math Endorsement for 5-9 or 6-12, including 20 or more credits of math content, including coursework in secondary methods of teaching mathematics.	Varies across institutions, but generally requires: • 20 or more additional credits beyond undergraduate preparation. • Strong focus on mathematics content and pedagogy.

Preparation programs should include aligning program outcomes to effective standards in the field of mathematics education, such as: Standards for Preparing Teachers of Mathematics[16] and Principles and Standards for School Mathematics.[17]

[16] Association of Mathematics Teacher Educators, 2020
[17] National Council of Teachers of Mathematics, 2000

DEVELOPING PROFESSIONAL EDUCATORS		
GOAL 1		Develop and implement a systematic approach to building educators' knowledge and skills through educator preparation grounded in research on effective mathematics instruction.
Group Responsible		**Next Steps**
STATE	**Board**	➢ Requires educator preparation program (EPPs) to provide evidence of the integration of evidence-based mathematics instruction (aligned to the Mathematics Instructional Guide) into coursework during the program approval and review process.
	Board & Department	➢ Collaborate with EPPs to review integration of math content into educator preparation including appropriate ways for educators to demonstrate math content and pedagogy knowledge.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Work with EPPs to develop systems and structures to ensure all candidates' field experiences are valuable and effective learning opportunities.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Ensure course content for math instruction is grounded in research and is aligned to the Mathematics Instructional Guide. ➢ Prepare teacher candidates to meet the needs of all learners, including English Learners and those with learning difficulties. ➢ Provide teacher candidates with effective clinical, field study, and student teaching opportunities early and often.
GOAL 2		Leverage certification policies to ensure K-12 math educators develop and sustain strong knowledge and pedagogical expertise grounded in current research on effective mathematics teaching and aligned with the Idaho Mathematics Instructional Guide.
Group Responsible		**Next Steps**
STATE	**Board**	➢ Adjust recertification expectations to require professional learning in math content and pedagogy (e.g., coursework, micro-credentials, or state-approved PD hours) for school-level administrators and teachers in K-12 math placements. ➢ Encourage K-12 educators from other content areas that include embedded math (e.g. science, CTE, etc.) to participate in PD on math content and pedagogy.
	Department	➢ Collaborates with regional math supports and districts to deliver recertification-eligible, job-embedded PD in math content and pedagogy, including learning communities, micro-credentials, and leadership development.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Provide sustained, job-embedded math professional development aligned with recertification requirements and tailored to different grade bands. ➢ Train educators on how to implement evidence-based instructional practices and provide math interventions in alignment to the Mathematics Instructional Guide. ➢ Equip educators to address the needs of all students, including English Learners and those with learning difficulties.
HIGHER EDUCATION	**Institutions of Higher Education**	➢ Offer graduate certificates or coursework in mathematical knowledge for teaching (MKT) that are eligible for recertification credit and responsive to current classroom demands.

GOAL 3		Ensure educators entering the profession through non-traditional pathways (alternative or emergency certification) receive targeted, mathematics-specific supports to build instructional expertise, confidence, and retention.
Group Responsible		**Next Steps**
STATE	**Board**	➢ Continues to require teachers prepared out of state or through non-traditional routes to complete the Teaching Mathematical Thinking for Instruction course.
	Board & Department	➢ Develop and fund a statewide induction framework for alternatively-certified educators that includes content-focused mentoring and instructional coaching.
	Department	➢ In partnership with regional math supports, implement tailored professional learning cohorts or induction programs specifically for non-traditional pathway teachers, with a focus on content, pedagogy, and classroom routines. ➢ Partner with the Division of Career Technical Education (CTE) to provide cross-training for CTE educators on integrating effective math instruction aligned to industry applications.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Provide alternatively-certified teachers with a math mentor and job-embedded, grade-specific tailored professional development.
HIGHER EDUCATION	**Higher Education Leaders**	➢ Create flexible, practice-embedded coursework or certificate programs that build MKT and are accessible to teachers working full-time on emergency or alternative credentials.
GOAL 4		Ensure all K–12 math educators have Individual Professional Learning Plans (IPLPs) that include meaningful, mathematics-specific goals aligned with student learning needs and state standards.
Group Responsible		**Next Steps**
STATE	**Board**	➢ Incorporates a requirement for math educators' IPLPs to include at least one mathematics-specific goal, informed by student data and aligned with Idaho Content Standards for Mathematics.
	Department	➢ In partnership with regional math supports, provide model IPLP templates and host regional workshops that help in-service educators craft math-specific goals tied to instructional priorities and student learning outcomes.
DISTRICTS, SCHOOLS & CLASSROOMS	**District Leaders**	➢ Provide training and guidance for administrators on how to support educators in setting math-focused IPLP goals that are both ambitious and instructionally relevant.
	School Leaders & Educators	➢ Invite parents to contribute insights into their child's math learning needs; use information to set informed IPLP goals.
HIGHER EDUCATION	**Higher Education Leaders**	➢ Integrate IPLP development and reflective practice into educator preparation coursework and student teaching experiences, with an emphasis on using data-based goal setting.
COMMUNITY AND HOME	**Parents & Guardians**	➢ Engage as partners in their children's education, providing insights into their child's math learning needs.

GOAL 5		Develop and maintain a comprehensive data system that links math-related educator preparation, licensure, professional learning experiences, and classroom assignment with key student outcomes to inform policy, practice, and targeted support.
Group Responsible		**Next Steps**
STATE	**Board**	➢ Develops a data system that integrates educator preparation, certification, professional learning records (including micro-credentials), and student achievement data.
	Department	➢ In partnership with regional math supports, gather and evaluate data on outcomes of professional development, instructional coaching, and school-based math initiatives.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Support participation in data collection and validation efforts, ensuring schools submit accurate data on math teacher assignments, professional development, and student achievement indicators.
HIGHER EDUCATION	**Higher Education Leaders**	➢ Contribute EPP completer and placement data to the statewide data system and collaborate on analyzing the relationship between preparation and student math outcomes.
COMMUNITY AND HOME	**Parents & Guardians**	➢ Participate in opportunities to learn about data findings and provide feedback on strengthening math education across Idaho.

ASSESSMENT AND DATA

A Balanced Assessment System

A balanced assessment system uses a purposeful combination of assessments to support both instruction and accountability in K–12 mathematics. "Assessment" refers both to tools like tests and quizzes and to the process of gathering and interpreting evidence of student learning.

Purposes of Assessment

Assessments typically serve two purposes:

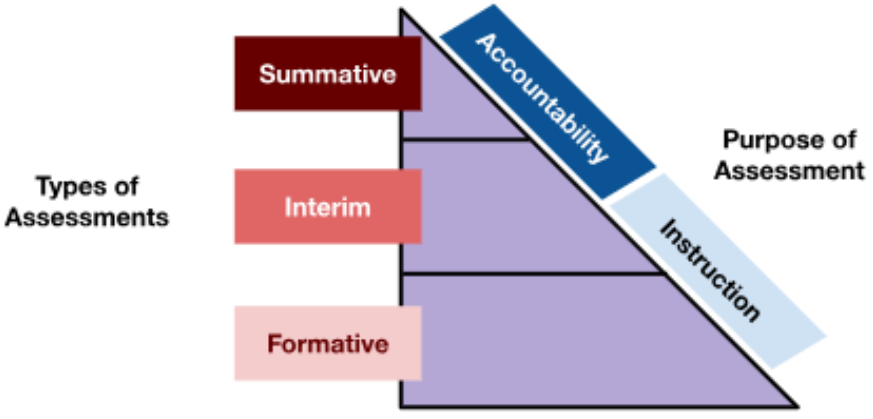
- **Instructional** – to inform teaching and support student learning.
- **Accountability** – to measure student learning for evaluative or reporting purposes.

Understanding the purpose of an assessment is essential. If purpose is unclear or the role of multiple assessments overlaps, leaders should reevaluate their use to protect instructional time.

Types of Assessments[18, 19]

Assessments can be grouped into three main types:

- **Formative assessments** are a part of a planned, ongoing process during instruction to inform teaching. These include observations, class discussions, quizzes, and student self-assessments aimed at checking understanding in real-time.
- **Interim assessments** are given periodically to monitor progress. While often used for accountability, they can support instruction if educators can access and analyze test items aligned to standards.
- **Summative assessments** evaluate learning at a specified endpoint, such as an instructional unit, course, or year (e.g., final exams, state tests). These are typically used for grading and accountability.



Adapted from Perie, Marion, Gong, and Wurtzel (2007) and the Connecticut State Dept of Education.

[18] Evans & Thompson, 2022; Michigan Assessment Consortium, 2024
[19] Image: Perie et al, 2007

Instructional Usefulness

To be instructionally useful, assessments must be embedded in daily instruction and inform real-time decisions. For example, a short activity at the end of a lesson may provide better information about student's learning on a concept than a weekly quiz. A mid-unit quiz can become a learning tool if educators analyze errors and reteach concepts before grading.

When an assessment is intended to result in immediate instructional changes, access to assessment items is crucial. Without seeing test questions or student work, educators cannot effectively interpret results. Educator-created assessments often offer more value than commercial ones by revealing how students think—not just whether they're correct—allowing for more targeted support.

Idaho's Assessment System

Idaho provides a suite of assessments aligned to the state content standards to support both instruction and accountability.

- The Idaho Standards Achievement Test (ISAT) summative assessment in Math is given in grades 3–8 and 11 each spring. The test measures grade-level proficiency and meets federal and state reporting requirements. ISAT Math Data is used by various stakeholders to inform decisions regarding instructional systems and policies.
- Interim Assessments, including comprehensive and shorter block options, are available for educators to incorporate throughout the year. The Idaho assessment system includes both pre-created interim assessments and an item system that allows educators to create their own. These help educators monitor progress and adjust instruction.
- Tools for Teachers, embedded in our state assessment portal, is an online resource that supports daily instruction with formative assessment strategies, lesson plans, and standards-aligned tasks.

ASSESSMENT AND DATA		
GOAL 1		Implement a balanced assessment system aligned with the Idaho Content Standards for Mathematics to generate meaningful math data for instruction, intervention, and evaluation. This includes: • ensuring appropriate use of assessment data • deepening educators' understanding of instructionally useful assessments • integrating assessment into instruction • minimizing administration of unnecessary assessments
Group Responsible		**Next Steps**
STATE	**Board & Department**	➢ Communicate expectations for balanced assessment practices aligned to the Content Standards for Mathematics, including reducing or eliminating redundant or low-value testing. ➢ Ensure access to high-quality math assessment tools and formative resources.
	Department	➢ Maintains a list of available early math screeners and progress monitoring assessments. ➢ In partnership with regional math supports, offer in-service educators job-embedded professional development around high-impact math assessment practices. ➢ Work with PD providers to develop and implement research-practice partnerships to support evaluation of district and school assessment systems and practices.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Conduct audits of current math assessment practices to identify gaps and eliminate unnecessary or duplicative assessments. ➢ Train educators on assessment data interpretation and use with a focus on informing instruction and intervention. ➢ Establish assessment routines that align with curricular goals and support student learning, not just evaluation.
	Educators	➢ Embed formative assessment strategies into daily instruction across all math classrooms. ➢ Support parents/guardians in understanding the tests their children take and how the data can be used to support learning at school and home.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Ensure pre-service and graduate coursework equips educators to analyze student thinking through formative practices rather than relying on traditional math tests.
COMMUNITY AND HOME	**Parents & Guardians**	➢ Engage with their children's student learning data through parent-teacher conferences and student-led discussions. ➢ Support a growth mindset at home by focusing on learning progress rather than test scores alone.

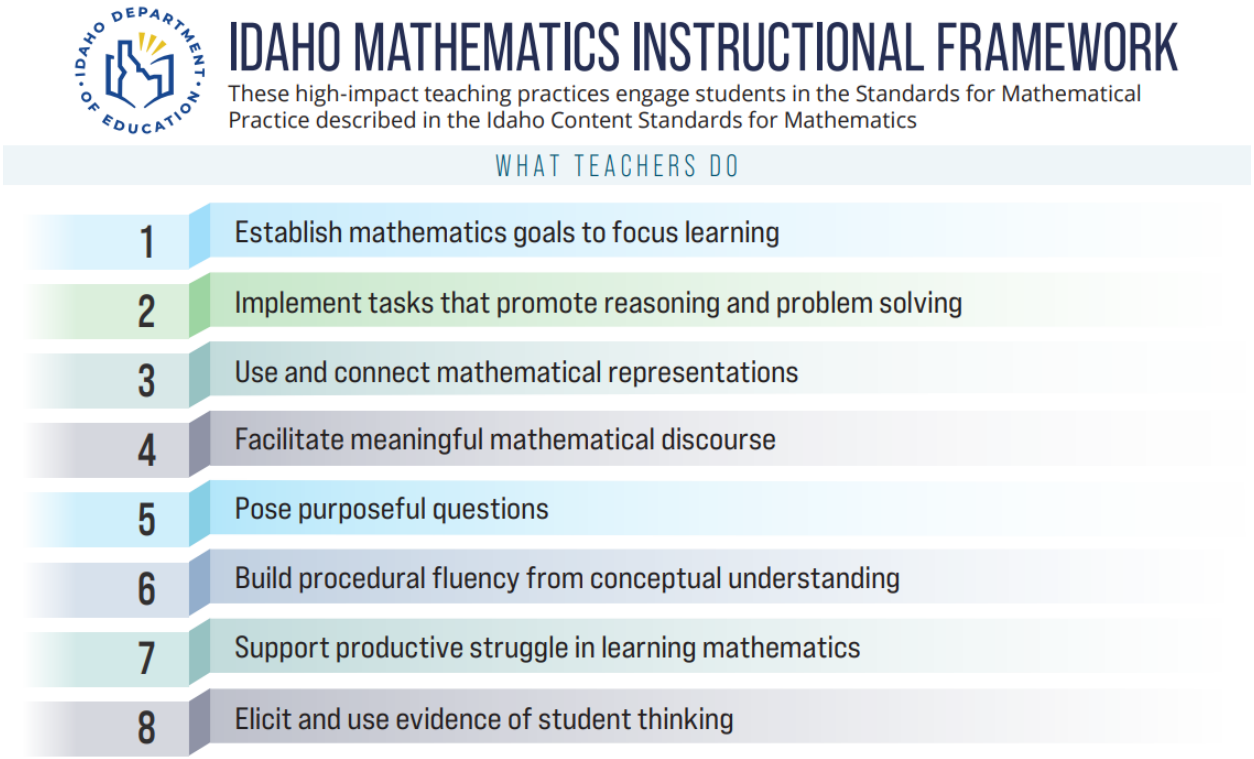
GOAL 2		Educators receive high-quality professional development on math assessment and data use, focusing on instructional usefulness, student engagement in analyzing assessment results, flexible grading practices, and appropriate interpretation and use of assessment data.
Group Responsible		**Next Steps**
STATE	**Governor & Legislature**	➢ Support funding for professional development focused on assessment literacy and instructional use of data.
	Board & Department	➢ Encourage coordination between state agencies and professional development providers (e.g., Regional Math Centers) to align training and reduce duplication.
	Department	➢ Outlines recommendations for flexible, standards-based grading and student-involved assessment practices. ➢ Collaborates with regional math supports and districts to co-design professional learning on using student data to inform instruction and interventions.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Prioritize PD time for training in formative assessment strategies, data interpretation, and student reflection practices.
	Districts	➢ Implement grading policies that allow for reassessment, flexible deadlines, and focus on learning progression rather than point accumulation.
	School Leaders	➢ Create collaborative spaces (e.g., PLCs, data teams) for educators to analyze assessment results and refine instruction.
	Educators	➢ Involve students in interpreting their assessment results to build metacognitive skills and ownership of learning.
HIGHER EDUCATION	**Higher Education Leaders**	➢ Offer educators professional learning opportunities focused on instructional uses of assessment data and equitable grading practices in math classrooms.
	Educator Preparation Programs	➢ Integrate content into educator preparation coursework on differences between various grading approaches and use of data to understand students' knowledge and skills.
GOAL 3		Educators develop expertise in qualitative analysis of student mathematical work to assess mathematical understanding, to inform instruction and improve learning outcomes.
Group Responsible		**Next Steps**
STATE	**Board & Department**	➢ Ensure state-released policy and practice guidance encourages instructional and assessment practices grounded in analysis of student thinking.
	Department	➢ Using a Board-adopted assessment literacy framework, provides professional development and assessment literacy resources that emphasize analyzing student work for evidence of conceptual understanding. ➢ Develops and releases exemplar tasks and annotated student work samples to model qualitative analysis across grade levels. ➢ Gathers and analyzes data from PD providers and districts on educators' implementation of student work analysis and shares promising practices.

DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Guide educators to move beyond correctness toward depth of mathematical thinking.
	School Leaders	➢ Facilitate collaborative analysis of student work during PLCs, grade-level team meetings, or instructional rounds.
	Educators	➢ Use student work protocols to systematically examine and discuss evidence of understanding and misconceptions. ➢ Integrate student voice and analysis of student reasoning into lesson planning and reteaching strategies. ➢ Guide parents/guardians to value students' math reasoning and provide them with tools to facilitate productive math conversations at home.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Incorporate analysis of student mathematical thinking and work into educator preparation and graduate coursework.
COMMUNITY AND HOME	**Parents & Guardians**	➢ Engage their children in reflection conversations at home where students explain their thinking and problem-solving approaches. ➢ Participate in conferences with educators and utilize resources provided by the school to support their children's learning.

EFFECTIVE INSTRUCTION AND INTERVENTIONS

Effective instruction and interventions are critical in supporting students' development of mathematical thinking and proficiency. Educators need to be knowledgeable and able to implement evidence-based instructional and intervention strategies to provide effective support to all students, especially those from diverse backgrounds and those who struggle to develop grade-level skills. As outlined in *Section II: Developing Mathematical Thinking and Proficiency*, Idaho's expectations for student learning in mathematics are grounded in the Idaho Math Rope and the Idaho Standards for Mathematical Practice for Students.

The Idaho Mathematics Instructional Framework[20] for teachers outlines the teaching strategies educators need to implement effectively in their classrooms to promote deep mathematical learning.



Additional guidance for educators on implementing effective mathematics instruction can be found in the Idaho Mathematics Instructional Guide.

[20] Adopted from National Council of Teachers of Mathematics, 2014

EFFECTIVE INSTRUCTION AND INTERVENTIONS		
GOAL 1		Educators provide effective core instruction that builds students' mathematical thinking and proficiency by implementing the teaching practices outlined in the Idaho Mathematics Instructional Framework and the Idaho Mathematics Instructional Guide.
Group Responsible		**Next Steps**
STATE	**Legislature**	➢ Provides funding for districts and charter schools to purchase and implement high-quality, research-aligned curriculum and materials for core mathematics instruction.
	Board	➢ Establishes minimum minutes for math core instruction.
	Board & Department	➢ Support laws, policies, and structures that promote implementation of the Idaho Mathematics Instructional Framework as outlined in the Mathematics Instructional Guide.
	Department	➢ Releases appropriate resources (guides, etc.) aligned to the Comprehensive Mathematics Plan and the Mathematics Instructional Guide. ➢ Provides support to districts for the selection of high quality curricular materials. ➢ Partner with regional math supports to provide practicing educators with professional learning on evidence-based instructional and intervention practices (in alignment with the Mathematics Instructional Guide).
DISTRICTS, SCHOOLS & CLASSROOMS	**District Leaders**	➢ Establish and implement curriculum adoption processes that ensure programs and materials align to the Idaho Content Standards for Mathematics and the Mathematics Instructional Guide.
	District & School Leaders	➢ Understand the Idaho Mathematics Instructional Guide, stay current on research, and demonstrate a willingness to adjust school structures to apply best practices and encourage innovation.
	Educators	➢ Provide systematic, explicit core instruction grounded in the Idaho Instructional Framework for Teachers (as outlined in the Mathematics Instructional Guide) to ensure all students gain grade-level math knowledge and skills. ➢ Inform parents/guardians about how to support their children's mathematical development at home.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Prepare teacher candidates to implement the Idaho Instructional Framework for Teachers in their classrooms to support all students in developing mathematical thinking and mastering the Idaho Content Standards for Mathematics. ➢ Integrate the use of research methods to support administrator and teacher candidates in developing the ability to identify and implement evidence-based teaching practices.
COMMUNITY AND HOME	**Community Partners**	➢ Work with early learning providers to increase use of the Idaho Early Learning Guidelines statewide.

GOAL 2		Develop and implement a coherent system of instruction across grades and support programs to ensure consistency and enhance student learning.
Group Responsible		**Next Steps**
STATE	**Board & Department**	➢ Develop and release guidance to improve consistency and communications related to grade and transcript practices (while still giving flexibility for local decision-making) to support parents/guardians and students in managing transitions.
	Department	➢ In partnership with regional math supports, provides professional development regarding how educators can work together across grades and support programs to provide consistent math supports to individual students.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Implement coherent systems of instruction including consistent curricula and clear learning outcomes that provide consistency for students and educators and maximize learning. ➢ Provide educators with guidance and examples of math integration into other content areas and CTE pathways.
	Educators	➢ Engage in meaningful transition planning within and between grade levels to ensure educators are fully informed of students' current learning status and individual instructional needs.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Prepare teacher candidates to create and use a variety of formative assessment strategies to support instruction. ➢ Ensure administrator and teacher candidate familiarity with the Idaho Content Standards in Mathematics, the Idaho Comprehensive Mathematics Plan, and the Mathematics Instructional Guide.
COMMUNITY AND HOME	**Community Partners**	➢ Build relationships with districts and schools to facilitate sharing of information regarding students and how they learn in order to aid in improved preschool to kindergarten transitions.
GOAL 3		Educators implement a focused, multi-tiered system of supports (MTSS) that identifies and supports struggling and advanced students. • Provide struggling students with targeted interventions aligned to the Idaho Mathematics Instructional Guide. • Offer extension of the standards and enrichment for advanced students.
Group Responsible		**Next Steps**
STATE	**Legislature & Board & Department**	➢ Prioritize funding to districts to support implementation of MTSS for targeted intervention, including evidence-based intervention programs, curricula, and materials.
	Board & Department	➢ Establish guidance on creating school schedules that include focused intervention time (through all grade levels).
	Department	➢ Provides training and an MTSS exemplar for identifying both students with signs of math learning difficulties and advanced students in need of extension. ➢ Expands training on strategies to close math achievement gaps, with a focus on English Learners, students with disabilities, and students from low socioeconomic backgrounds.

DISTRICTS, SCHOOLS & CLASSROOMS	**Districts & Schools**	➢ Implement systems of intervention and extension aligned to grade level standards, based on students' needs, and consistent with evidence-based practices in the Mathematics Instructional Guide.
	District & School Leaders	➢ Provide professional development on designing and providing high-quality mathematics intervention and enrichment.
	Educators	➢ Work with struggling students' parents/guardians to develop individual math intervention plans and monitor for effective implementation. ➢ Inform parents/guardians when their children may benefit from extension/enrichment and involve them in decision-making.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Integrate content regarding effective implementation of MTSS into administrator preparation coursework. ➢ Prepare teacher candidates to provide differentiated instruction and interventions in alignment with the Idaho Mathematics Instructional Framework and Mathematics Instructional Guide.
COMMUNITY AND HOME	**Parents & Guardians**	➢ Collaborate with their children's school and teacher(s) to create intervention or extension plans based on their children's needs.
GOAL 4		Educators across all content areas (including non-math teachers and career technical educators) ensure students receiving special education services are supported through strategically selected accommodations tailored to their specific learning needs, including: • equitable access to high-quality, on-grade-level math instruction; and • inclusion-based instruction alongside grade-level peers (as much as possible).
Group Responsible		**Next Steps**
STATE	**Department**	➢ In partnership with SESTA, provides guidance and training on designing and implementing inclusive math instruction practices aligned to students' individual education plans (IEPs). ➢ In partnership with SESTA and regional math supports, develops and disseminates a toolkit of evidence-based accommodations specific to math learning. ➢ Monitors and reports equity of access and outcomes for students with disabilities in mathematics.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Use data to identify gaps in access to grade-level math instruction. ➢ Provide teachers and paraprofessionals with training on evidence-based math interventions and accommodations in alignment with the Mathematics Instructional Guide. ➢ Ensure IEP teams include mathematics-specific instructional considerations. ➢ Implement co-teaching models and inclusive scheduling practices.
	Educators	➢ Offer opportunities for parents to become educated on their children's rights to inclusive instruction and accommodations.

HIGHER EDUCATION	**Educator Preparation Programs**	➢ Embed inclusive mathematics education strategies into their methods and math education coursework. ➢ Integrate course content on differentiating math instruction and understanding disabilities in math learning. ➢ Partner with districts and schools to offer clinical and practicum experiences in inclusive math classrooms.
COMMUNITY AND HOME	**Parents & Guardians**	➢ Participate in IEP / 504 meetings (as applicable), provide information on their children's interests and needs, and support high expectations for learning and inclusion.
GOAL 5		Educators have a strong understanding of how to provide explicit instruction on mathematical vocabulary in core instruction, connected to the corresponding symbolic notation, to support the learning of all students, including those with language-based disabilities and English Learners.
Group Responsible		**Next Steps**
STATE	**Legislature & Board & Department**	➢ Continue to provide support and resources to districts for English Learner programs.
	Board	➢ Ensures that the English Language Development Standards are appropriate and adopts updates to the standards as necessary.
	Department	➢ Provides professional development on connections between the English Language Development Standards and the Idaho Content Standards for Mathematics.
DISTRICTS, SCHOOLS & CLASSROOMS	**District & School Leaders**	➢ Provide educators with guidance and PD opportunities to expand their understanding of connections between the English Language Development Standards and the Idaho Content Standards for Mathematics. ➢ Provide guidance to classroom educators on recognizing and supporting students' language development processes in the context of mathematical sense making.
	Educators	➢ Provide targeted support to English Learners using knowledge Mathematical Language Routines (MLRs). ➢ Inform parents/guardians of English Learners on how to promote positive math growth mindsets at home.
HIGHER EDUCATION	**Educator Preparation Programs**	➢ Prepare candidates to integrate the English Language Development Standards into their instructional practice. ➢ Ensure teacher candidates are equipped to support English Learners in building a solid foundation of math vocabulary, including mastering vocabulary in their dominant (first) language.
COMMUNITY AND HOME	**Community Partners**	➢ Implement activities focused on reaching English Learners and their families, and promote the development of strong mathematical concepts and procedural skills, including mastering these skills in their dominant (first) language.

SECTION IV:

DATA

Purpose of This Section

This section provides information regarding the endorsements of middle grades math teachers and performance of Idaho students on standardized assessments in mathematics. It includes graphical representations of student performance, as well as brief data analysis.

IDAHO STANDARDS ACHIEVEMENT TEST (ISAT), MATHEMATICS[21]

The Idaho Standards Achievement Test (ISAT) in Mathematics (Math) is administered to students in grades 3-8 and 11 to evaluate students' math knowledge and skills. [22] The ISAT is a criterion-referenced assessment designed to measure students mastery of the Idaho State Content Standards in Mathematics. These tests are administered from March to May of each year to provide annual monitoring of individual, school, district, and state progress. The ISAT Math is comprised of two components: a computer-adaptive test and a performance task. Student scores are reported in four categories: below basic (1), basic (2), proficient (3), and advanced (4).

Student performance on the ISAT Math is reported across multiple levels- individual, class, school, district, and state- and covers various categories, including mathematical concepts and procedures, problem solving and data analysis, and communicating mathematically.

Please note: the ISAT Math graphs display student data from before and after 2020, highlighting the impact of the pandemic, which disrupted instruction and halted assessments.

Some graphs span multiple years, while others, due to space constraints, focus on recent years but include data from the 2018-2019 school year for a pre- and post-pandemic comparison.

Figure 3: ISAT Math, All Students, All Grades, 2015-2024

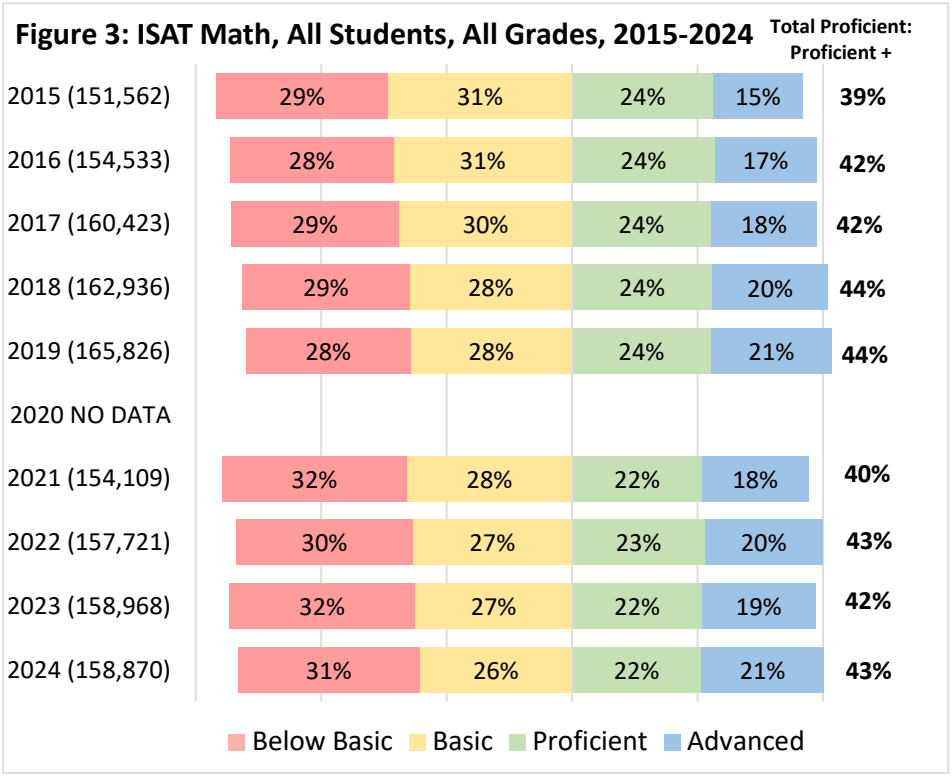


Figure 3 Analysis

- The 2024 ISAT Math proficiency rate for all students (all grades 3-8 and 11) was just 1 percentage point lower in 2024 than 2019.
- The percentage of students scoring in the Below Basic category has been 2 to 4 percentage points higher since the pandemic.

[21] Idaho State Board of Education, Accountability Oversight Committee, 2025

[22] Beginning in School Year 2022-23, high school students are expected to take the ISAT designed for students in grade 11. The majority of Idaho students take the high school ISAT while enrolled in grade 11; however, students may take the Math assessments in 10th grade, or rarely 9th grade, after completing instruction on all high school standards.

Figure 4: ISAT Math, All Students, by Grade

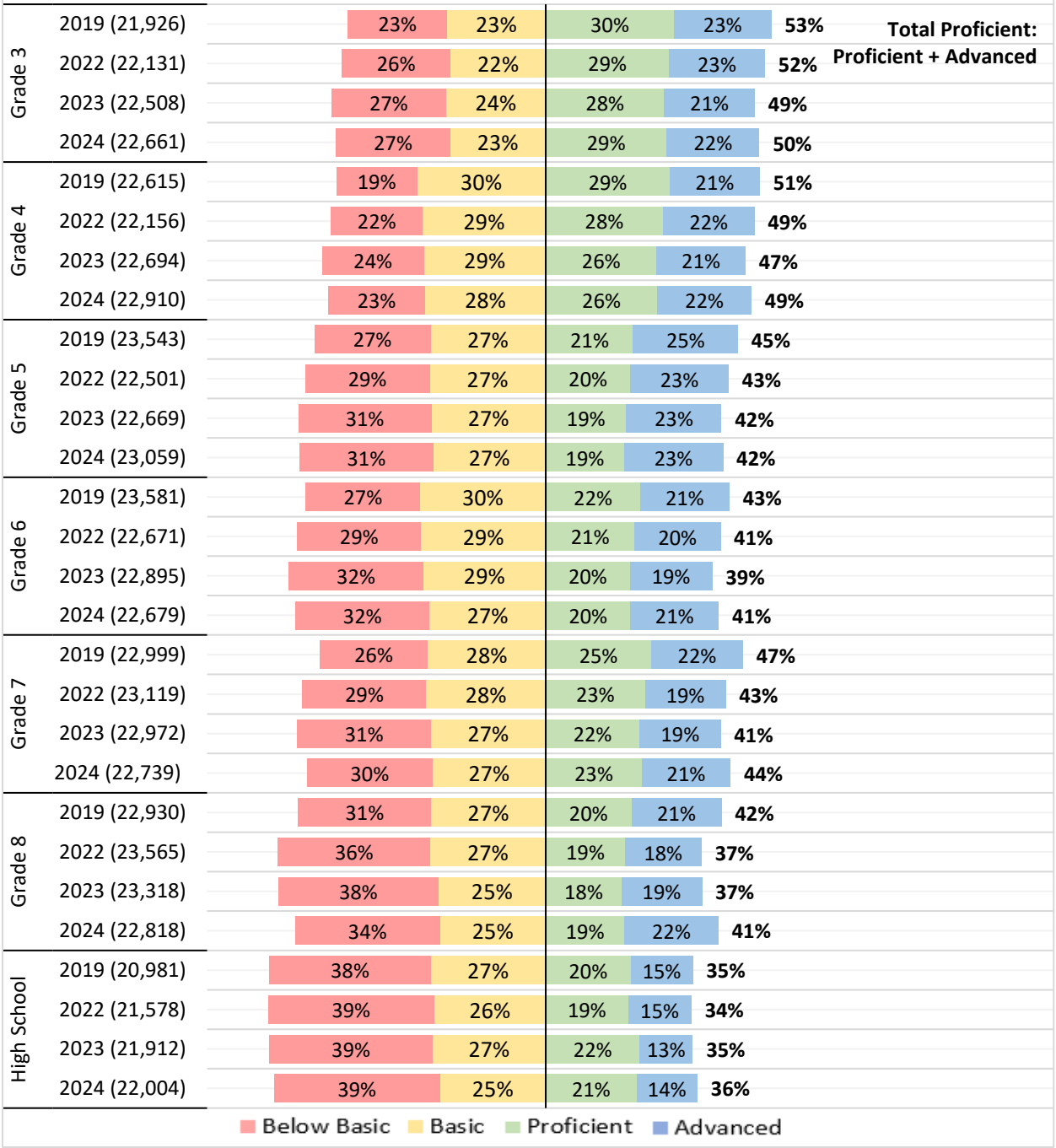


Figure 4 Analysis

- In comparison to 2019 (pre-pandemic), total proficiency rates by grade range from 1 percentage point lower (grade 8 and HS) to 3 points lower (grades 3, 5, 7).
- Idaho's long-term trend (pre- and post- pandemic) demonstrates that the percentage of students who score proficient or advanced is highest for grade 3 and decreases as students matriculate to higher grades.

Figure 5: ISAT Math, All Grades, by Race-Ethnicity

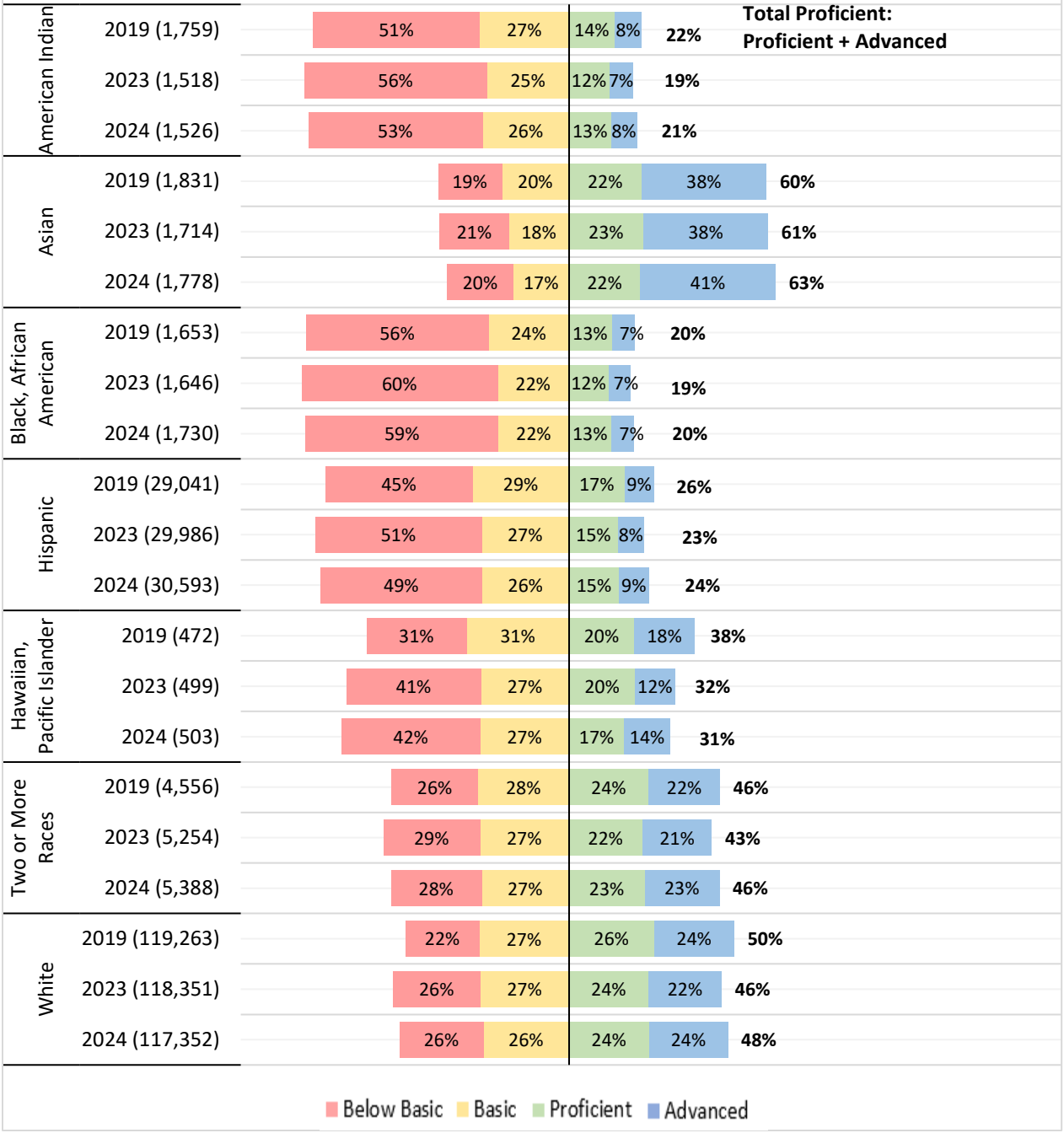


Figure 5 Analysis

- The majority of racial/ethnic subgroups have recovered to within 1 percentage point of their 2019 (pre-pandemic) performance. Exceptions: White, Hawaiian / Pacific Islander, and Hispanic.
- Gaps between racial / ethnic groups remain, with the Asian, White, and Two or More Races groups consistently having higher total proficiency rates than other subgroups.

Figure 6: ISAT Math Performance by Student Group

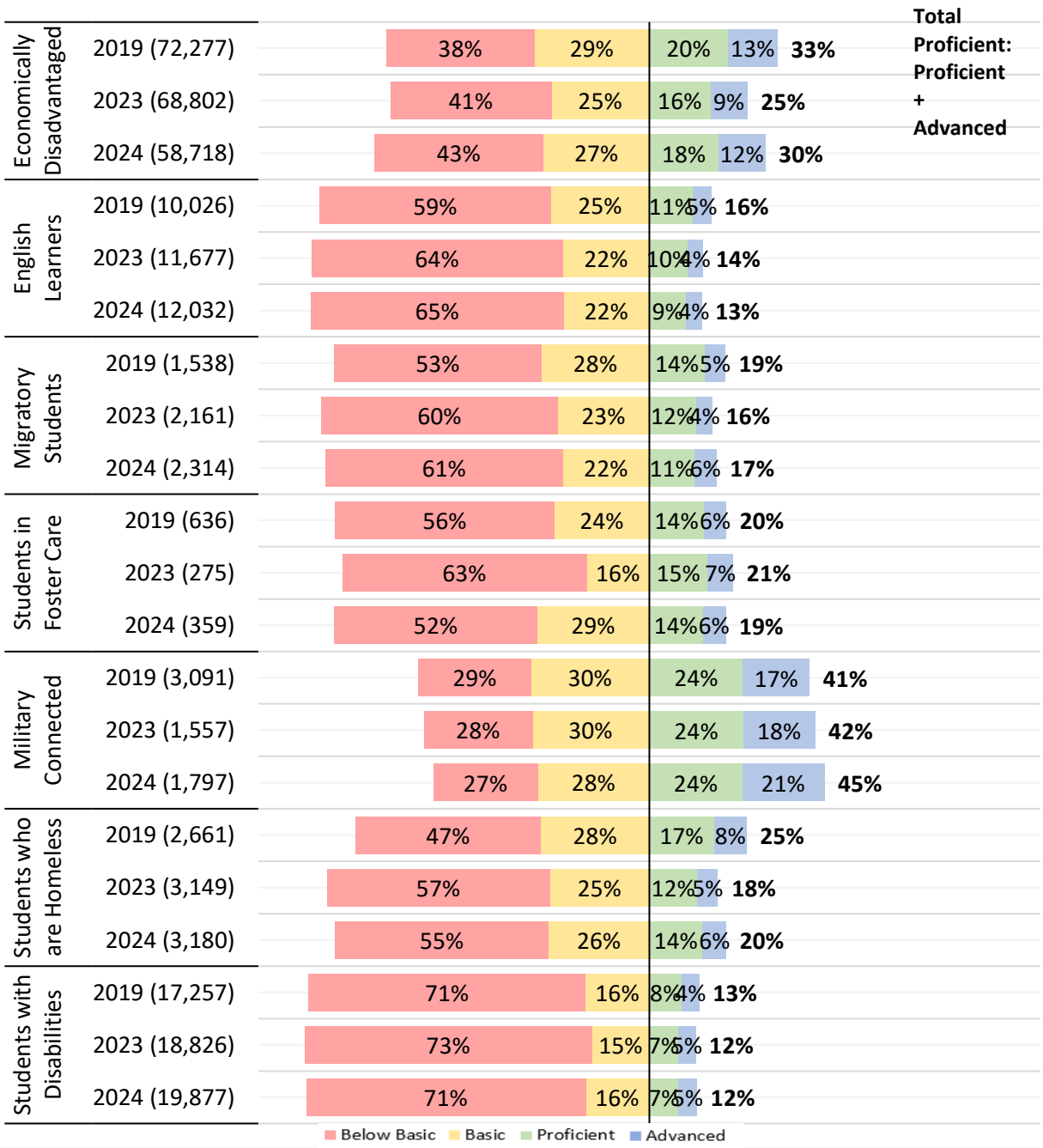


Figure 6 Analysis

- Students identified as economically disadvantaged had a 5 percentage point gain in total proficiency from 2023 to 2024.
- Only Military Connected students had a 2024 total proficiency rate (45%) near or higher than the All Students group (44%).
- Most groups have not recovered from Covid-related proficiency decreases.

Figure 7: ISAT Math Average Scale Score vs. Proficiency Cut, by Cohort

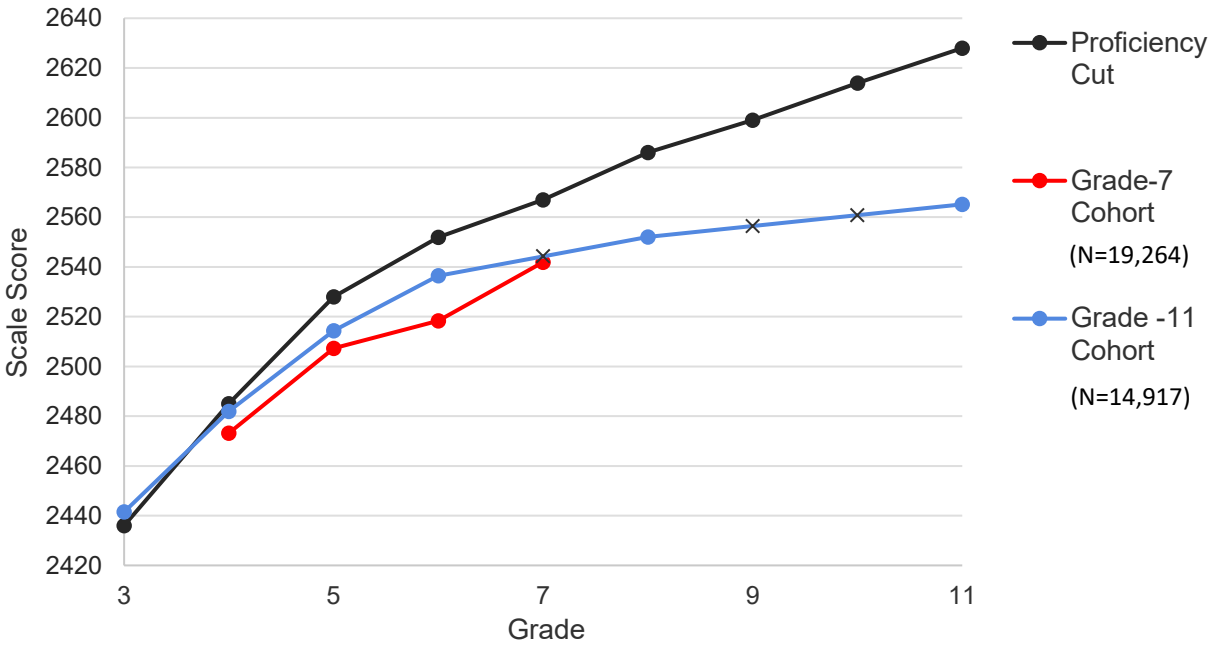


Figure 7 Analysis

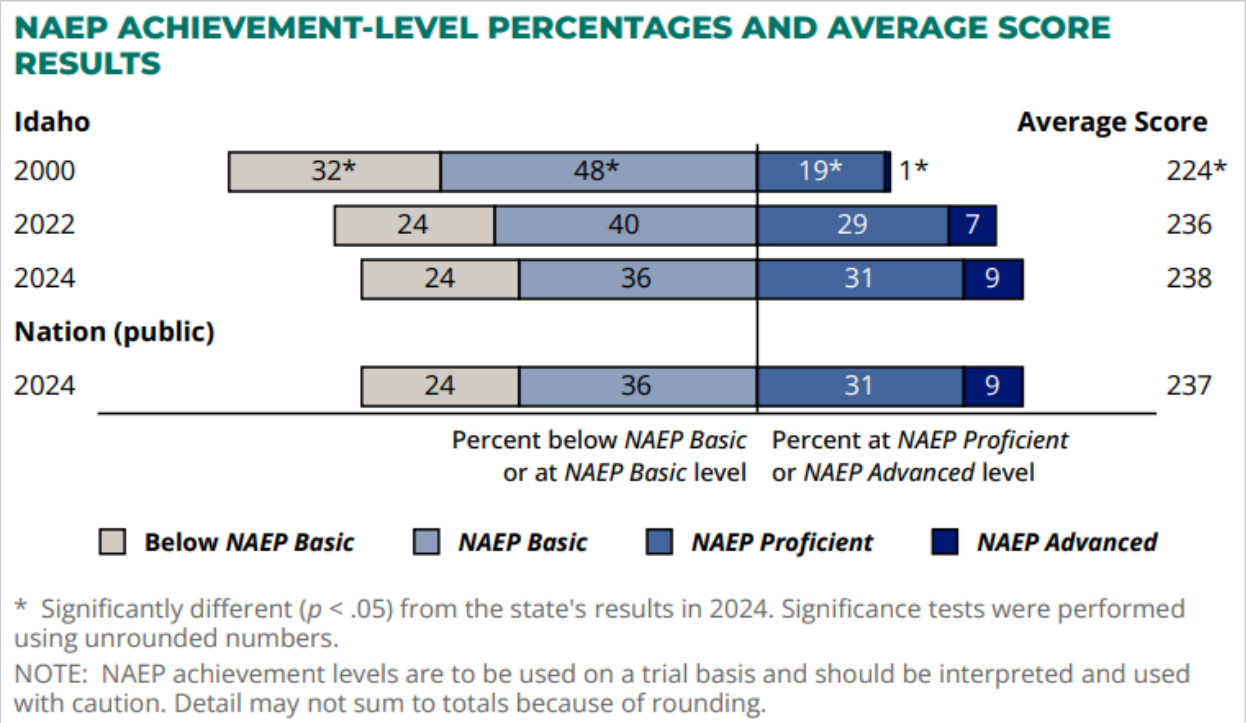
- Figure 5 shows long-term performance of two cohorts of students – those in grade 7 and grade 11 in 2024. This data includes scores from students who remained in their cohort.
- Both cohorts had average scale scores near the proficiency cut score in grade 3 and grade 4. The groups' average scale scores begin falling and flattening as they move through the K-12 system, with the largest difference between average scale score and the proficiency cut occurring in each cohort's highest grade (7 and 11).

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP)[23]

The National Assessment of Educational Progress (NAEP) is administered in grades 4 and 8. The assessment is administered to a randomly-selected sample of students of a wide variety of demographics including those from different racial/ethnic backgrounds, students with disabilities (SD), English learners (EL), and those from economically disadvantaged backgrounds (who qualify for the National School Lunch Program). The NAEP incorporates essential inclusive policies and practices into every aspect of the assessment to ensure an assessment that yields meaningful NAEP results for all students. National data, including comparisons between subgroups of students can be found on the National Assessment Governing Board website.

Grade 4 Mathematics

Figure 8: NAEP Grade 4 Math, Average Scores, Idaho and National, 2000, 2022, 2024



NAEP Grade 4 Math Analysis (Figures 8 - 10)

- Idaho's 2024 Grade 4 NAEP Math performance (Figure 8 above) was the same as national averages and statistically significantly higher than the state's 2000 NAEP performance.
- The long-term Grade 4 NAEP performance trend is provided in Figure 9 (following page). Idaho's performance was highest in 2005 and 2019, and a pandemic impact is apparent.
- Figure 10 (following page) is similar to other Idaho data that demonstrates gaps in performance between racial / ethnic subgroups and based on socioeconomic status.

[23] National Center for Education Statistics, n.d.

Figure 9: NAEP Grade 4 Math, Averages Scores, Idaho and National, 2000-2024

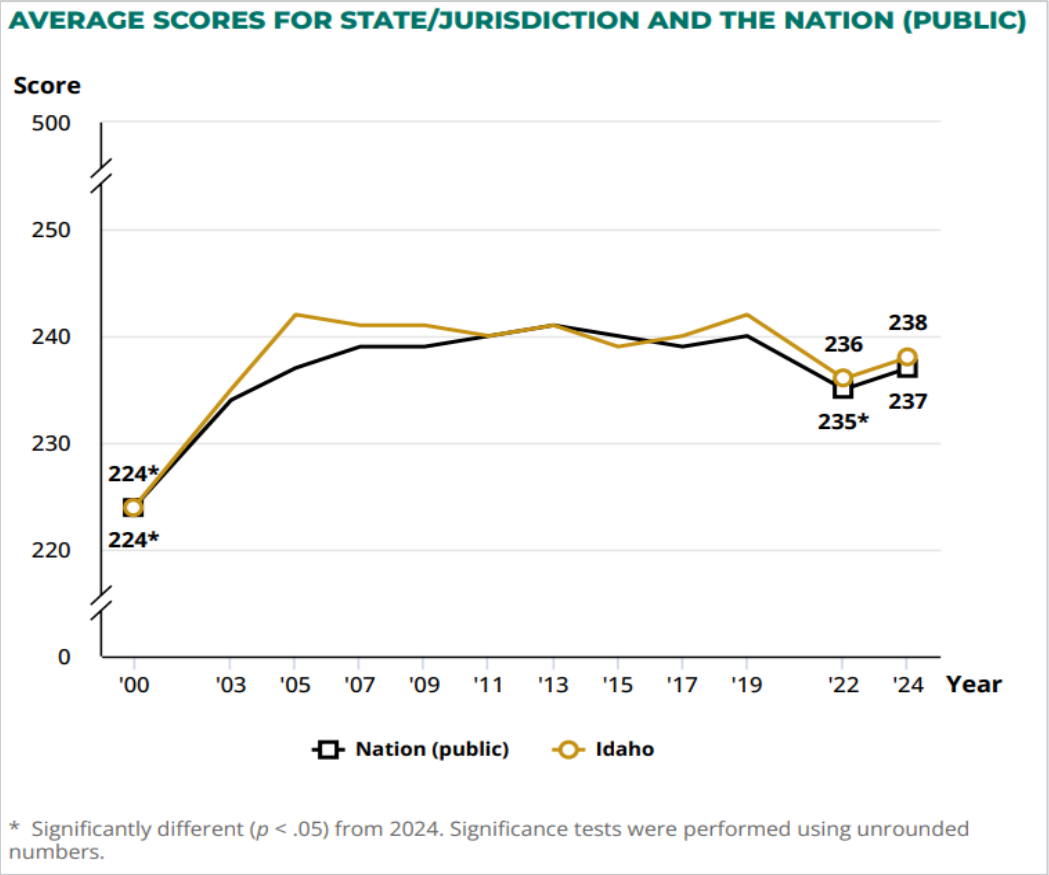


Figure 10: NAEP Grade 4 Math, Averages Scores, Idaho Student Groups, 2024

RESULTS FOR STUDENT GROUPS IN 2024

REPORTING GROUPS	PERCENTAGE OF STUDENTS	AVG. SCORE	PERCENTAGE AT OR ABOVE *NAEP* *BASIC*	*PROFICIENT*	PERCENTAGE AT *NAEP* *ADVANCED*
Race/ethnicity					
American Indian/Alaska Native	1	‡	‡	‡	‡
Asian	1	‡	‡	‡	‡
Black	1	‡	‡	‡	‡
Hispanic	21	223	64	24	3
Native Hawaiian/Pacific Islander	#	‡	‡	‡	‡
Two or More Races	3	244	80	46	17
White	72	243	81	46	11
Gender					
Male	51	242	79	46	12
Female	49	235	74	36	6
Economically disadvantaged status					
Economically disadvantaged	41	226	64	26	4
Not economically disadvantaged	57	248	85	51	13

Rounds to zero.
‡ Reporting standards not met.
NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the Economically Disadvantaged Status is not displayed. Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin.

Grade 8 Mathematics

Figure 11: NAEP Grade 8 Math, Average Scores, Idaho and National, 2000, 2022, 2024

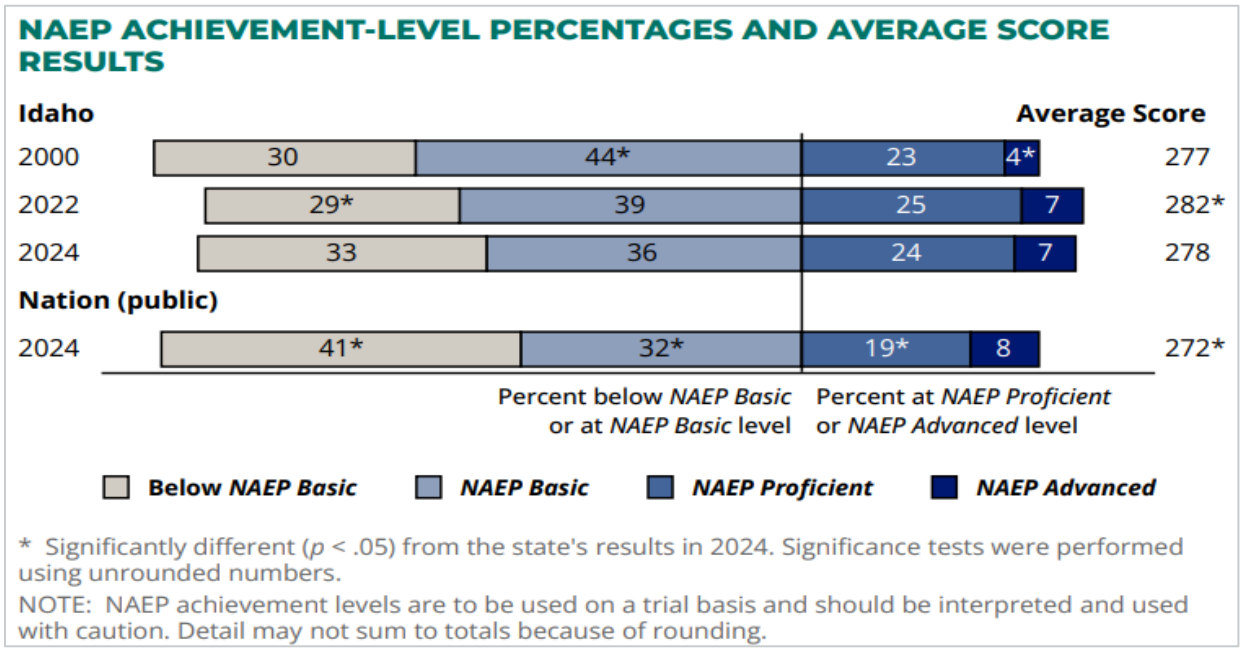


Figure 12: NAEP Grade 8 Math, Averages Scores, Idaho and National, 2000-2024

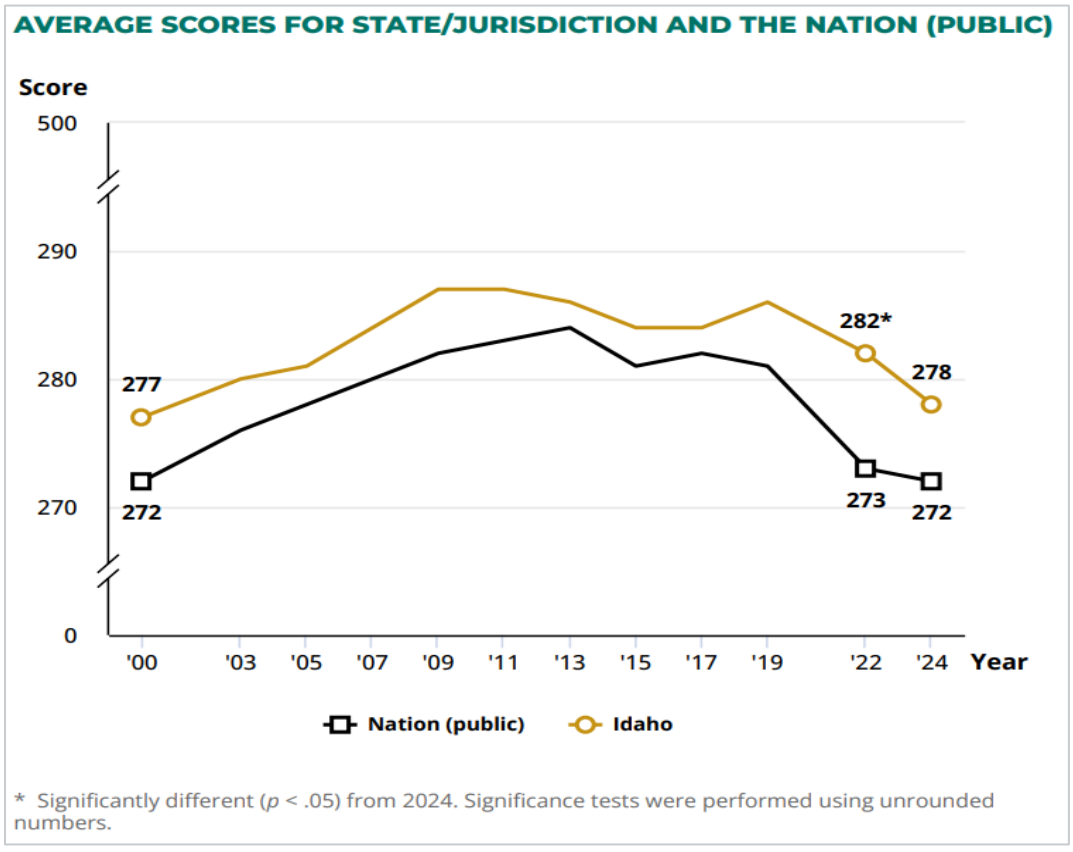


Figure 13: NAEP Grade 8 Math, Averages Scores, Idaho Student Groups, 2024

RESULTS FOR STUDENT GROUPS IN 2024

REPORTING GROUPS	PERCENTAGE OF STUDENTS	AVG. SCORE	PERCENTAGE AT OR ABOVE *NAEP* *BASIC*	PERCENTAGE AT OR ABOVE *NAEP* *PROFICIENT*	PERCENTAGE AT *NAEP* *ADVANCED*
Race/ethnicity					
American Indian/Alaska Native	1	‡	‡	‡	‡
Asian	1	‡	‡	‡	‡
Black	1	‡	‡	‡	‡
Hispanic	20	256	44	13	1
Native Hawaiian/Pacific Islander	#	‡	‡	‡	‡
Two or More Races	3	‡	‡	‡	‡
White	74	284	74	35	8
Gender					
Male	51	279	67	33	8
Female	49	277	66	28	6
Economically disadvantaged status					
Economically disadvantaged	33	261	50	15	2
Not economically disadvantaged	66	287	75	39	10

Rounds to zero.
‡ Reporting standards not met.
NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the Economically Disadvantaged Status is not displayed. Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin.

NAEP Grade 8 Math Analysis (Figures 11 - 13)

- As shown in Figure 11 (previous page), Idaho's Grade 8 2024 NAEP performance was higher than the national averages, but lower than the state's 2022 performance.
- Figure 12 (previous page) shows that Idaho has long outperformed national averages in 8th grade NAEP Math performance, but the pandemic had notable, negative impact.

IDAHO MATH EDUCATOR DATA

The data on the following page provides some information regarding the level of math expertise of Idaho teachers who provided mathematics instruction to middle grades students during the 2024-25 school year. Notably, this data separates teachers by those with mathematics specific endorsements and those without such endorsement.

At this time, Idaho does not track mathematics professional development or graduate level coursework completed that does not result in an endorsement. Thus, state staff and work group members recognize that this analysis does not account for all mathematics specific training completed by teachers. The 2023 Math Work Group and the 2025 Comprehensive Math Plan Work Group have both recommended the state develop a system to track non-endorsement math coursework (perhaps using a micro-credentialing approach).

The data gathered for this review included teachers in mathematics placements with students in grades 6 through 9. Teachers providing instruction to grade 9 in high school settings were removed from the data.

Figure 14: Endorsements of Grade 6-8 Math Teachers

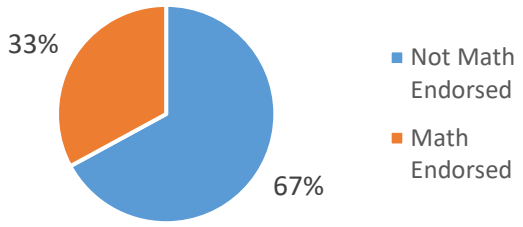


Figure 15: Endorsements of MS & Jr. High Math Teachers

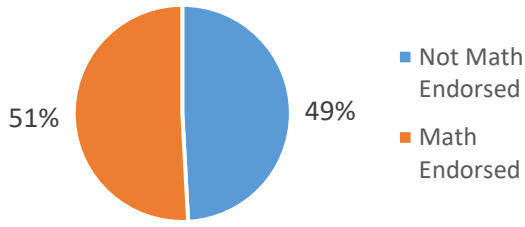
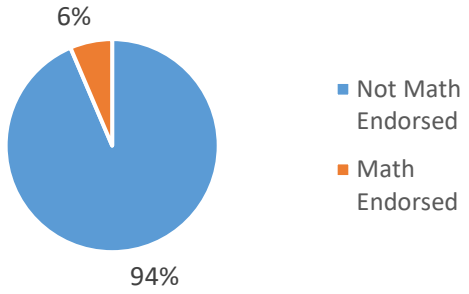


Figure 16: Endorsements of Grade 6 Elementary Teachers



Educator Endorsements Data Analysis (Figures 14 - 16)

- Only 33% of math teachers providing instruction to grades 6 through 8 (in elementary, middle school, and junior high placements) have a math specific endorsement.
- 51% of teachers in middle school and junior high placements have a math endorsement.
- 6% of 6th grade teachers in elementary placements have a math specific endorsement.
- While a figure is not included here, a very high percentage of 9th grade teachers in junior high settings have a math endorsement, as it is required to provide high school mathematics instruction.

SECTION V:

CONCLUSION

COORDINATED ACTION TO ADVANCE MATH OUTCOMES

As technology continues to reshape the global economy, the ability to apply strong mathematical thinking is becoming increasingly essential for Idaho's citizens. Prior to the pandemic, Idaho's math outcomes were gradually but consistently improving. Although elementary math performance is similar to pre-pandemic levels, students whose foundational math instruction was disrupted still require targeted support.

To measurably improve K-12 math outcomes, Idaho must intensify and expand our math initiative, with a focus on improving teaching and learning and delivering effective, individualized interventions to students. This plan must be implemented with an emphasis on removing barriers to student success. We must deepen our efforts to identify and address challenges faced by vulnerable and underserved students, such as English Learners, students receiving special education services, and those facing economic hardship.

The Idaho Comprehensive Mathematics Plan and complementary Mathematics Instructional Guide are designed to set the priorities for the next phase of our K-12 Math Initiative implementation strategy and approach. This call to action requires coordinated efforts from all stakeholders – policymakers, educators, families, and the community. The goals and next steps outlined in this plan require recognition of our shared responsibility and commitment to investing time and resources.

GLOSSARY

Accommodations: Changes in the curriculum, instruction, or testing format or procedures that enable students with disabilities to participate in a way that allows them to demonstrate their abilities rather than disabilities.[24]

Assessment Types- Formative, Interim, Summative[25]

- Formative Assessments: Measures used during instruction as a planned, ongoing process to inform teaching. Can include: observations, class discussions, quizzes, student self-assessments, and other teacher-created metrics.
- Interim Assessments: Measures given periodically to monitor student progress toward learning expectations. Often used for accountability, but can support instruction if educators have access to analyze test items and standards.
- Summative Assessments: Tests designed to evaluate learning at a specified endpoint, such as an instructional unit, course, or year (e.g. final exams, state standardized tests). These are typically used for grading and accountability.

Balanced assessment system: A system of assessments that includes both assessment for learning (formative assessments) and assessment of learning (interim and summative assessments).[26]

Comprehensive data system: A system for collecting data on large groups (i.e. students), typically at a district, state, or federal level. A comprehensive data system encompasses a wide range of data points that can be analyzed for research or evaluative purposes, and may include some or all of the following: student information, staff information, curriculum or instructional data, assessment data, financial data, communication data.[27]

Computer adaptive: An assessment designed using an algorithm that presents questions to students based on their performance on previous questions, allowing for a more precise determination of the student's performance on the assessment.[26]

Core instruction: Instruction routinely provided to all students in a general education setting. This is the foundation of learning that all students receive every year, emphasizing grade level content standards.[28]

[24] Idaho State Department of Education, 2024
[25] Evans & Thompson, 2022; Michigan Assessment Consortium, 2024
[26] Michigan Assessment Consortium, 2024
[27] School Analytix, n.d.
[28] Branching Minds, n.d.

Criterion-referenced vs. Norm-referenced scoring[29]

- Criterion-referenced: Compare a student's score to a pre-established standard based on the content the assessment is measuring. Idaho Example: the Idaho Standards Achievement Test (ISAT), which measures student's knowledge and skills as compared to the Idaho Academic Content Standards
- Norm-referenced: Compare a student's score to other students who took the same test (often across a state or the nation). Idaho Example: The Idaho Reading Indicator (IRI) by Istation (used 2017-18 to 2024-25) compared Idaho students' scores to those of all students who took the Istation across the United States and assigned the student a percentile ranking that then placed them within a scoring category.

Early learning providers: Agencies and individuals that provide preschool, prekindergarten, or daycare services.

English learners (ELs): Students who are unable to communicate fluently or learn effectively in English, who often come from non-English-speaking homes and backgrounds, and who typically require specialized or modified instruction in both the English language and in their academic courses.[30]

Evidence-based (teaching strategies, practices, interventions): Any of a wide number of discrete skills, techniques, or strategies which have been demonstrated through experimental research or large-scale field studies to be effective.[31]

Flexible grading practices: Grading practices that offer educators more flexibility in communicating students' progress toward learning expectations. Also referred to as alternative grading systems or approaches, and can include standards-based grading, specifications grading, contract grading, mastery grading, ungrading / student self-grading, and more.[32]

Growth mindset: A learner's belief that their intelligence can expand and develop with effort and learning.[33]

Inclusion: Providing all students, including those with disabilities, with the opportunity to receive instruction in age-appropriate general education classrooms. Inclusion related practices (inclusive instructional practices, inclusive scheduling, etc.) are intentional decisions and strategies that support inclusion-based instruction for students with disabilities to the highest extent possible.[34]

Job-embedded professional development: Teacher learning that is grounded in day-to-day teaching practice and is designed to enhance teachers' content-specific instructional practices

[29] Assessment Learning Network, 2019
[30] Glossary of Education Reform, n.d.
[31] IRIS Center, n.d.
[32] Mendez-Padilla, 2025; Townsley & Buckmiller, 2020
[33] Dweck, et al, 2014
[34] Francisco et al, 2020

with the intent of improving student learning. It is typically school-day or classroom based and is integrated into the workday, consisting of teachers assessing and finding solutions for authentic and immediate problems of practice as part of continuous improvement.[35]

Onboarding: Is the act of bringing new employees up to speed on the organization's goals, strategies, rules, internal processes, expectations, and culture.[36]

Out-of-school time providers: An agency that provides a supervised program when school is not in session. This can include before- and after- school programs on a school campus or at separate facilities.[37]

Mathematics (math): a "way of knowing" that includes reasoning processes and the ability to solve problems. Students can use mathematical models and justifications to understand, question, and critique the world around us. [38, 39]

Mathematical Language Routines (MLRs): Structured but adaptable formats for amplifying, assessing, and developing students' language in math class. These routines emphasize meaningful and purposeful language use, rather than just getting right answers.[40]

Mathematical Proficiency: The ability to productively solve problems through demonstration of five interwoven and interdependent capacities: conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition. [41] Students demonstrate their mathematical proficiency by mastering the Idaho State Content Standards in Mathematics.

Mathematical proficiency strands of the Idaho Math Rope (as adopted based on the Five Strands of Mathematical Proficiency)[31]:

- Conceptual understanding: Comprehension of mathematical concepts, operations, and relations.
- Procedural fluency: Skill in carrying out procedures flexibly, accurately, efficiently, and appropriately.
- Strategic competence: Ability to formulate, represent, and solve mathematical problems.
- Adaptive reasoning: Capacity for logical thought, reflection, explanation, and justification.
- Productive disposition: Habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy.

[35] Croft et al, 2010
[36] Douglas, 2011
[37] CDC Healthy Schools, n.d.
[38] Idaho State Board of Education, 2021
[39] National Council of Teachers of Mathematics, 2020
[40] Illustrative Mathematics, n.d.
[41] National Research Council, 2001

Mathematical Reasoning: The process of manipulating and analyzing objects, representations, diagrams, symbols, or statements to draw conclusions based on evidence or assumptions.

Multi-tiered system of supports (MTSS): Idaho Multi-Tiered System of Support (MTSS) is a prevention-based framework of team-driven, data-based decision -making for improving outcomes for all students. The five essential components of Idaho's MTSS include; leadership, assessment, data-based decision making, multi-tiered instruction, and family and community engagement.

Pedagogy: The study of optimal frameworks and techniques for teaching and learning, including both the methods teachers use to guide students' learning and the theoretical principals and practical strategies that underpin effective instruction.[42]

Professional learning communities (PLCs): Teacher learning that is grounded in collaborative cycles of inquiry and action research, operating under the assumption that key to improved learning for students is continuous job-embedded learning for educators. Professional learning communities include the cyclical process of gathering evidence of learning, developing strategies based on those conclusions, implementing the strategies, analyzing the impact, and applying new knowledge.[43]

Reflective practice: An intentional process of systematic inquiry through which teachers collect evidence and reflect on and analyze their teaching practice (including planning, teaching methods, behavior management, communication, etc.) with the intention of improving their teaching.[44]

Sustained professional development: Sustained professional development takes place over an extended period of time, rather than as a short, one-time event or workshop. It typically involves multiple touch points and a significant number of hours. Research suggests that teachers need 50 hours or more of professional development in a subject to "improve their skills and their students' learning."[45]

Systematic, explicit instruction: A structured, systematic, and effective methodology for teaching academic skills.[46] Explicit instruction happens when a teacher intentionally covers academic material, scaffolding on previous knowledge and ensuring students grasp new material.

[42] Djoub, 2024
[43] Dufour et al, 2013
[44] Attwell & Millis, 2024; Suphasri & Chinokul, 2021
[45] Darling-Hammond et al, 2009
[46] Archer & Hughes, 2011

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RESOURCES

Resources Linked in the Plan

- Idaho Consolidated State Plan
- Idaho Early Learning Guidelines
- Idaho State Board of Education Strategic Plan
- Idaho State Content Standards

Additional Resources

Mathematics Instructional Resources:

- Idaho State Department of Education - Mathematics
- Idaho Regional Math Centers: Boise State University RMC; Idaho State University RMC; Lewis Clark State College RMC; University of Idaho RMC
- National Council of Teachers of Mathematics
- Center on Multi-tiered System of Supports (MTSS)

Assessment Literacy Resources:

- Michigan Assessment Consortium Assessment Literacy Standards

Data on Idaho districts, schools, and students:

- Idaho Report Card
- National Assessment of Educational Progress (NAEP); NAEP Idaho Profile

Early learning resources:

- Idaho Early Learning Collaboratives
- Idaho Commission for Libraries

Other Resources:

- Idaho State Department of Education - School Improvement & Support
- Idaho Mentor Standards