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OFFICE OF THE DEPUTY SUPERINTENDENT

October 4, 2023

TO: The Honorable William Arakaki
Chairperson, Student Achievement Committee

FROM: Heidi Armstrong
Deputy Superintendent

SUBJECT: Presentation on Strategic Plan, Desired Outcome 1.1.3. "All students are proficient in mathematics by the end of eighth grade, and those who are not proficient receive necessary and timely support to become proficient."

1. EXECUTIVE SUMMARY

- The Hawaiʻi State Department of Education (Department) recognizes the critical importance of mathematics that impacts quality of life for citizens of Hawaiʻi and our nation. At present, however, Smarter Balanced Assessments indicate that less than one-third of our eighth grade students in Hawaiʻi are demonstrating grade-level mathematics proficiency. It is important to note that early math knowledge and skill predicts later math achievement through age 15. In addition, meeting proficiency in fifth and sixth grade mathematics and English Language Arts (ELA) correlates with meeting benchmarks on assessment in later grades. Also, eighth grade mathematics is foundational to success in Algebra 1, which is generally the first high school math course taken for credit, required for graduation, and a gateway to future mathematics courses that prepare students for all post-secondary plans including college, career, and community.

- School Year (SY) 2021-22 Smarter Balanced Assessments indicate that less than one-third of the eighth grade students in Hawaiʻi are demonstrating grade-level mathematics proficiency.

- The Department recognizes that intentional changes are needed in mathematics education to raise achievement. To address the critical need for raising eighth grade proficiency and beyond, the Department is focusing on three areas: (1) Viable Quality Mathematics Curriculum; (2) Evidence-based High-impact Math Instructional Strategies; and (3) Student Data for Monitoring Progress. These focus areas span all the kindergarten to grade 12 spectrum and are priorities for all grade levels. Desired Outcome 1.1.3 identifies proficiency at eighth grade because it is a pivotal year, and a critical transition point for student future success in math.

- While there are several major initiatives and strategies relating to eighth grade math proficiency efforts, this presentation will highlight the Math Innovation Initiative that hones in on middle level mathematics, and the Hawai‘i Math Teacher Leader Collaborative (TLC) to strengthen elementary and middle level mathematics teachers' conceptual math expertise around rigorous content and evidence-based high impact instructional practices.

- The national and local shortage of mathematics teachers continues to be a challenge as the Department prioritizes raising math achievement. This is a shared responsibility that needs to continue to be worked on with the Office of Talent Management, higher education institutes, and other relevant partners.

2. DESCRIPTION

Presentation on the Department's math efforts related to the 2023-2029 Strategic Plan Phase II Implementation Plan, Goal 1: High Quality Learning for All, Desired Outcome 1.1.3: All students are proficient in mathematics by the end of eighth grade, and those who are not proficient receive necessary and timely support to become proficient (Attachment A).

3. PRESENTATION

The Department acknowledges the vital significance of mathematics proficiency and its profound influence on the well-being of the citizens in our communities. All students deserve experiencing on-grade level mathematics content through equitable teaching practices that spark inquiry, cultivate productive mindsets, continuously invite, connect, and challenge students in rich and supportive learning environments at all grade levels. Students need stronger foundational mathematics experiences in grades elementary and middle levels in order to increase the number of students who are proficient in math by eighth grade. Early math knowledge and skill is an important predictor of not just math

achievement, but also success in reading and science.[1] In addition, student math growth in grades K and 1 is found to be a predictor of not only grade 3 math achievement, but of age 15 math achievement as well.[2] It is important to note that students who perform well in eighth grade mathematics develop a strong foundation to be successful in Algebra I, which is a gateway to future mathematics courses that prepare students for all post-secondary plans, including college and careers in science, technology, engineering, or math. Algebra I is generally the first mathematics course taken for high school credit, and is required for graduation.

It is vital to pay attention to these key transition points in our students' mathematics education. Also to note, recovery efforts from the COVID-19 pandemic have revealed that traditional remediation does not work. The learning acceleration strategy of "just-in-time teaching" ensures more students spend more time on the work of the grade. Students of color who experienced this learning acceleration strategy accessed nearly 50% more grade-level lessons than remediated classrooms.[3] The SY 2021-22 Smarter Balanced Assessments indicate that less than one-third of the eighth grade students in Hawai‘i are demonstrating grade-level mathematics proficiency. Efforts to raise mathematics achievement at every grade level is a very high priority for the Department.

Relationship of Desired Outcome and Student Learning

The Department will concentrate mathematics education efforts through the tri-level system of the state, complex area, and school to increase the number of students proficient in mathematics from elementary through middle school so that students will be proficient by the end of eighth grade.

The Department has developed the following Theory of Action to frame its work towards Desired Outcome 1.1.3.

> When **we…** strengthen elementary and middle level mathematics teachers' conceptual math expertise around rigorous content and evidence-based high

[1] Claessens, Amy and Engel, Mimi. 2013. *How Important Is Where You Start? Early Mathematics Knowledge and Later School Success.* Teachers College Record. https://eric.ed.gov/?id=EJ1020177

[2] Watts, Tyler W.; Duncan, Greg J.; Siegler, Robert S.; Davis-Kean, Pamela E. 2014. *The Groove of Growth: How Early Gains in Math Ability Influence Adolescent Achievement.* Society for Research on Educational Effectiveness *https://eric.ed.gov/?id=ED562825*

[3] The New Teacher Project. May 2021.*Accelerate, Don't Remediate: New Evidence from the Elementary Math Classrooms*. *bit.ly/3Pr6XsL*

impact instructional practices, **and** provide a viable quality math curriculum **and** monitor progress using student data,

Then… we will strengthen math foundational and conceptual learning at each grade level to increase on grade level student performance in grades K-7,

So **that**… students will be proficient in mathematics by the end of eighth grade which is a pivotal year

via **these initiatives**… High-quality standards; viable quality curriculum; evidence-based high-impact math instructional strategies; student data for monitoring progress

as **measured by** performance measure: Percent of eighth grade students meeting grade level proficiency on the Smarter Balanced Assessment. Additional measures include school-based universal screener and classroom data.

Improving student achievement in mathematics across grades K-12 requires a coherent set of learning expectations within and across grade levels. The focus areas for each grade level have been identified to support students to gain strong foundations with a balance of conceptual understanding, procedural skill and fluency, and the ability to apply mathematics to solve problems and make sense of the world. Equally important as content standards are the standards for mathematical practice and developing a growth mindset and a positive mathematical identity.

Three key focus areas for this work are described below.

The first key focus area, **Viable Quality Math Curriculum**, sets a common expectation for quality mathematics curriculum in the Department. By SY 2024-25, all schools are expected to have a viable quality math curriculum which aligns to the current Hawai‘i Core State Standards. This is important because the standards are the core of a comprehensive instructional program, and research demonstrates the importance of having a high quality curriculum to influence student achievement. Instructional materials influences instructional decisions

and actions, which in turn influences learning.[4] The State Math Task Force[5] also realized the importance of this focus and is among the recommendations.

The second key focus area, implementation of **evidence-based high-impact math instructional strategies** includes, but are not limited to, the major initiatives of the: Mathematics Innovation; Elementary and Secondary School Emergency Relief (ESSER) III Math Professional Development subgrant opportunity; the Math Teacher Leader Collaborative; and Virtual State Elementary Math Camps for grades 1-3. Each of these initiatives focuses on establishing sustainable systems and structures for professional learning and implementation grounded in key mathematical understandings, instructional strategies, and evidence-based practices such as the What Works Clearinghouse practice guide, *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades.*[6] This also aligns to the State Math Task Force recommendation of ensuring that all students have access to high-quality instruction.

The third key focus area, **Use of Student Data for Monitoring Progress**, includes the major initiative of universal screeners to gauge where students are in their eighth grade mathematics proficiency, determine effective interventions through diagnostic assessment, monitor progress, and make instructional decisions to provide necessary and timely supports. When students demonstrate mathematics proficiency on universal screeners from grades K-7, they are more likely to meet mathematics proficiency by the end of eighth grade. This is important because long-term school success is predicted by early mathematics achievement, and quality core instruction alongside early intervention is highly effective for mitigating potential mathematical difficulties. This aligns to the State Math Task Force recommendation to enhance data supports as well as to transform the role of assessment to inform instructional decisions.

Performance Measures

The Smarter Balanced Assessment for eighth grade shows that, based on available full year proficiency data from SY 2018-19 to SY 2021-22, almost one-third of the eighth grade students are proficient by the end of eighth grade.

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[4] Chingos, M., Whitehurst,G. (2012). Choosing Blindly: Instructional Materials, Teacher Effectiveness, and the Common Core. Retrieved from Brown Center on Education Policy at Brookings: *bit.ly/3RslfMj, bit.ly/3Zp1cQF*

[5] Hawaii State Math Task Force Report. 2022. Hawai'i State Department of Education. *bit.ly/3RslfMj*

[6] *https://ies.ed.gov/ncee/wwc/PracticeGuide/26*

Further disaggregation of the Smarter Balanced Assessment shows that students from various subgroups demonstrate differing mathematics outcomes in eighth grade. Of particular concern are students in special education, the large majority of whom are not yet meeting proficiency and therefore require intensive, sustained interventions. Students in the disadvantaged, high needs, and English Learner subgroups also require further support and intervention. The data for race/ethnicity shows an achievement gap that has persisted over the years for the Native Hawaiian and Pacific Islander subgroups which is an area of high concern. Overall, the data shows a general pattern of a dip during SY 2020-21, followed by an increase of proficient mathematics scores in SY 2021-22; however, the scores did not meet the pre-pandemic level in SY 2018-19.

The purpose of universal screeners is for schools and teachers to identify students who may be at risk for learning mathematics, and provide timely support and intervention for those students who may need it. SY 2022-23 universal screener data show that there was an increase of students performing at or above grade level from the fall (26%) to spring (35%) and a decrease of two or more grade levels below from fall (43%) to spring (37%). While the data shows some growth, more work is needed to ensure all students are performing at grade level.

Major Initiatives

The following are the Department's major initiatives, strategies and next steps:

1. Viable Quality Mathematics Curriculum in All Schools by SY 2024-25
   Implementation of a viable, quality K-8 Math comprehensive instructional program in all elementary and middle schools by SY 2024-25. The impacts of using a comprehensive, standards-driven curriculum are significant, with students benefiting strongly when schools implement common, comprehensive instructional materials[7]. A 2016 Rand study[8] found that when teachers do not have access to quality instructional materials, they hunt for them online - often leading to inconsistent quality that disproportionately impacts low income students and students of color. To ensure the quality and continuity of students' core instructional experiences, the Department aims for all schools to implement a comprehensive instructional program that focuses on all or nearly all of the mathematics content standards including the

[7] Steiner, D. 2017. Curriculum research: What we know and where we need to go. *Standards Works*

[8] Opfer, V. D., Kaufman, J. H., & Thompson, L. E. 2016. Implementation of K–12 state standards for mathematics and English language arts and literacy. *Santa Monica, CA: RAND*.

Standards for Mathematical Practices. Quality instructional materials in mathematics provide coherence of the big ideas in mathematics both within and across grades, and are rigorous as defined by a balance between conceptual understanding, procedural skill and fluency, and application appropriate to the grade level standards. Quality instructional materials also reflect research-based instructional strategies, support for teachers, as well as for the various learning needs of students. Schools should also prioritize instructional programs that demonstrate evidence of student achievement and growth.

The Department has developed a curated, annotated list of comprehensive mathematics instructional programs that are highly rated (All Green) on EdReports, a reputable national non-profit curriculum reviewer. The purpose of this list is to support school sites in ensuring that their comprehensive instructional programs are of sufficient rigor and quality.

In addition, the Department has created a streamlined process for the selection and review of comprehensive curriculum that may not be on the curated list, or curriculum that is teacher-developed, to align with the Department's Curriculum Management System and Instructional Materials Approval Process. Training has been made available by the Office of Curriculum and Instructional Design (OCID) for any complex area and school on the selection and approval process of a comprehensive instructional program.

Next steps for this initiative:

- OCID will have recordings available for Department employees of the training conducted on the selection and approval process of a comprehensive instructional program;
- Modules will be provided for guidance on selecting a viable quality curriculum with consideration for particular school needs; and
- OCID will maintain the curriculum inventory list of school mathematics core programs.

2. Mathematics Standards Review

   As part of the Curriculum Management System, the Department has identified a timeline for standards revision for all content areas. Mathematics will begin their standards review this school year, SY 2023-24, with the goal of having the revised standards ready for Board approval in SY 2025-26. The revision process will coincide with the work of the Hawai‘i Math Pathways Initiative to ensure math readiness of students as they transition from elementary,

through middle, and into high school in preparation for college, career, workforce, and community.

Next steps for this initiative include:

- Establish an advisory group and a workgroup to begin the process of standards review and revision.

3. Mathematics Innovation

The Mathematics Innovation (MI) initiative is being launched in response to the Department's priority focus on secondary level mathematics. Student achievement data on the Smarter Balanced Assessments and the National Assessment for Educational Progress assessments, along with data regarding students' post-secondary pursuits, indicate a need to transform practices, and to modify and create policies and organizational structures to better serve the needs of students and teachers in mathematics. The MI initiative aims to increase teachers' collective efficacy and improve student achievement and mathematical identity and agency in secondary mathematics through three strategies:

- Provide ongoing professional learning support that is grounded in teacher practice for school-level teams of grades 6-12 teachers of mathematics at identified schools.
- Coordinate with middle and high schools to offer 3-4 week summer math camps targeting incoming eighth and ninth graders that engage students in impactful learning experiences that will accelerate student readiness to access and achieve grade-level learning expectations and to develop expertise with important mathematical practices and habits of mind. Running concurrently with the summer math camps, professional development summer institutes will also be offered for teachers to increase their expertise with effective instructional strategies and lesson design that they will be able to implement during the school year. During the summer institutes, teachers will have opportunities to observe students engaged in the summer math camps, then collaboratively reflect on implications for instruction and plan for implementation.
- Develop and provide professional development on resources and instructional practices for grades K-12 teachers on important mathematical big ideas at targeted grade levels.

Prior to the official launch of the MI initiative, the program collaborated with seven schools to offer intensive summer math camps during June and July 2023. The summer 2023 math camps were implemented on a small scale to allow the Department to learn about implementation, and the impact on

teachers and students. The lessons learned from this effort will inform the Department's efforts to significantly increase the number of summer math camps offered across the state. The following are a few highlights of the evaluation of the 2023 summer math camps from student responses to a survey they were asked to complete at the end of the summer math camp:

- 78% of students rated the summer camp as "good" or "awesome" (levels 4 and 5 on a 5-point scale).
- 74% of students felt their confidence in mathematics was either "determined" or "strong" (levels 4 and 5 on a 5-point scale) in comparison to their confidence levels before the math camp.
- In responses to open-ended questions asking students what they learned during the math camp, students mentioned, "it's important to have a growth mindset," "struggle and mistakes is how your brain grows," and "the world has more math than I thought."

The next steps for this initiative will be to coordinate with complex areas and principals to:

- identify middle and high schools to participate in school-level on-going professional learning in collaboration with the Mathematics Innovation program.
- to support 30-40 schools that will offer 3-4 week summer math camps in 2024 (targeting students who will enter eighth and ninth grades in the 2024-25 school year).

4. <u>ESSER III Complex Area Professional Development</u>
The ESSER III Complex Area Math Professional Development is a sub-grant model supporting twelve complex areas with funding for professional development that is intentionally planned for capacity building and sustained implementation of evidence-based high impact instructional strategies. One example is the Farrington-Kaiser-Kalani (FKK) complex area Math Teacher Leader Professional Learning Network (PLN). This two-year, tri-level pilot program involves collaboration with middle and high school educators in the complex area. Its aim is to enhance the capacity of teacher leaders and instructional coaches through ongoing, content-focused professional development and a professional learning network grounded in a continuous improvement model and research-based instructional strategies aligned with the complex area's math initiatives. Plans to scale this model to the FKK complex area elementary schools start next school year. Other subgrant examples include a focus on: math mindsets, number talks, number sense, fluency, building thinking classrooms, curriculum selection, invigorating high school math, or providing math institutes and professional learning series.

Next step for this initiative:

- Plan sharing of ESSER III Complex Area Professional Development Sub-Grants results.

5. Hawai‘i Math Teacher Leader Collaborative

   The Hawai‘i Math TLC is a comprehensive math teacher and math teacher leader development initiative focused on building content and pedagogical knowledge, as well as leadership and coaching skills for equitable mathematics teaching and learning. In partnership with the New Teacher Center, professional learning topics include Optimal Learning Environments, Deep Dives into the Progression of Big Ideas in Mathematics, and Coaching for Equitable Mathematics Teaching and Learning. Each session is followed with opportunities to be coached or to be a coach in the implementation of new learning. Participants in the leadership strand facilitate professional learning for subsequent cohorts, and are part of a team that is envisioned to be activated to support math efforts across the state.

   The Hawai‘i Math TLC was launched in SY 2022-23 with 40 eager participants. Responses from half of the participants in an end-of-year survey showed that these 20 participants, based on self-reporting, had direct influence on over 660 colleagues and over 570 students, indirect influence on over 1,550 colleagues and 31,500 students. Almost all of the respondents reported an improvement in understanding of effective math instructional practices. There was strong feedback on the need to continue to offer opportunities for mathematics teachers and teacher leaders to connect with each other, learn and grow together, and support each other around effective teaching and learning of mathematics.

   Next steps for this initiative:

   - Launch Cohort 2 with Cohort 1 as co-facilitators.
   - Plan sharing of Math Teacher Leader Collaborative results.

6. State Elementary Math Camps

   State Elementary Math Camps take place during fall, spring and summer breaks, specifically for grades 1-3, where the building of mathematical understanding is foundational to future student achievement. Hosted virtually to provide access to students in all parts of our State, the State Virtual Math Camp is a hands-on, interactive opportunity to bridge learning between the academic quarters and build a joy for learning mathematics. Teacher teams consist of seasoned Department teachers partnered with pre-service teachers from UH Manoa. Training includes professional learning around

evidence-based high-impact practices that both the seasoned and pre-service teachers use not only for the math camp, but also impacts teaching practices in their own classroom. Now in its second year, this initiative has expanded to provide training, lessons, and materials to schools and complex areas interested in hosting a virtual or in-person math camp of their own. The Department recognizes that efforts to raise mathematical achievement begin in the early years, and establishing confidence and a positive math mindset is hypothesized to have an enduring impact.

Next steps for this initiative include:

- Plan for possible elementary expansion to include fourth and fifth grade math camps.
- Scale this initiative by continuing to encourage complex areas and schools to host their own virtual or in-person math camp.

7. Universal Screeners

   All schools from kindergarten to 9th grade utilize universal screeners to track student progress, identify at-risk students, and deliver interventions for literacy and math difficulties. Schools have the autonomy to choose their preferred screeners, with iReady being the primary choice for 79.6% of schools and STAR for 15.1% of schools. These universal screeners serve the purpose of monitoring student progress, identifying those performing below proficiency, and subsequently implementing interventions tailored to individual student needs. The Hawai‘i Multi-Tiered Systems of Support (HMTSS) for academics emphasizes ongoing assessment and progress monitoring, data-driven instructional decisions, collaboration with instructional teams, parents, and specialists, as well as the provision of timely interventions. Continuous monitoring helps assess intervention effectiveness and determines whether more extensive interventions or evaluations are necessary to provide appropriate support.

   Next steps for this initiative:

   - Continue to administer universal screeners three times a year to monitor student progress and provide necessary and timely student support.
   - Continue to internally report universal screener complex area fall, winter, and spring data.

Related Initiatives

In addition to the major initiatives and strategies listed above, the following related initiatives and strategies provide additional support to increase the number of students who are proficient in math by the eighth grade.

1. Effective Academic Practices (ESSER Foundational Strategy)

   In its second year, as part of the ESSER Plan, four foundational strategies were identified for statewide implementation, including Effective Academic Practices (EAP). For the first year, formative instruction and extended learning opportunities were a focus, with supporting guidance documents provided for all schools. The formative instruction cycle provides key components of effective daily instruction, including unpacking standards, determining learning goals, defining success criteria, conducting learning activities, eliciting evidence of learning, interpreting evidence, and implementing next steps. This basic cycle applies to all grade levels for effective delivery of instruction and across all content areas, including mathematics instruction in grades K-8.

   Next steps for this initiative:
   - Deliver math or ELA-related content at every convening.
   - Share updates and provide support as requested to complex area EAP leads.

2. Mathematics Resource Library

   The Department develops and curates resources to support implementation of standards-based instruction and evidence-based high impact instruction in mathematics. These include the following in support of efforts for proficiency in mathematics by eighth grade:
   - Share important guiding documents from national organizations.
   - A Priority Instructional Content video library that provides guidance for acceleration of learning as shared by Student Achievement Partners, a national non-profit organization focused on supporting standards implementation for math and ELA.
   - Curated lists of evidence-based practices and rich math tasks.
   - Currently in development: Elementary learning progressions to provide guidance to instructional leaders for at-a-glance mathematics look-fors in the classroom.

   Next steps for this initiative include:
   - Continue to be responsive to the needs of the field.
   - Communicate widely as new resources become available.

3. Math Pathways Initiative
   The Math Pathways Coalition, comprising members from the secondary and post-secondary math spaces from the Department, UH 2-year, UH 4-year, and Hawai'i P-20 is aimed at expanding opportunities for students' post secondary aspirations, specifically looking to ensure that the K-12 mathematics we are asking all students to do is relevant to college, career, workforce, and community. The work of defining these math pathways will impact the implementation of standards from K-8, with the goal of building more coherence and relevance in their mathematics experiences of today's world. One consideration involves possibly layering in data literacy standards. Oregon has already revised their K-8 standards to now include a data reasoning strand.

   Next steps for this initiative include:
   - The Math Pathways Coalition is in the process of completing action plans that deliver on the recommendations from the Call to Action white paper that was developed in the first phase of this initiative.

4. On-Demand 24/7 Grade 8 Online Tutoring
   Eighth grade students will all have access to one-to-one tutoring via two-way text or voice through Tutor.com (The Princeton Review) starting in late Fall for SY 2023-24 at no cost to families. The OCID Hawaii Online Course program piloted Tutor.com this summer. The feedback from students was overwhelmingly positive and the data shared with teachers regarding what students asked also helped to inform teachers on what students struggled with and helped guide instruction. Tutors are rigorously vetted and undergo continuous background checks. The tutors actively engage in quality control procedures to make sure their assistance is effective, motivating and empowering. Access to on-demand tutoring is a support for struggling students to access help with mathematics, as well as access tutoring for English language arts, science, history, and other subject areas including computer science. While this tutoring service may be very helpful for struggling students, it is also a powerful support for students taking challenging math courses.

   Next steps for this initiative include:
   - Train teachers and provide access to Tutor.com for eighth grade students.
   - Inform families of this 24/7 tutoring service.
   - Plan on possible expansion of the program for grades 7 and 9 for future years.

Necessary and Timely Support for Students Who Do Not Meet Math Proficiency
For students who do not meet math proficiency, the following are some of the Department strategies to provide necessary and timely support:

- Hawai‘i Multi-Tiered System of Support (HMTSS): Response to Intervention: The HMTSS process is designed to analyze student data in order to determine areas of strength and areas of need. In the specific context of mathematics, the HMTSS process leverages universal screeners first to identify students at-risk for experiencing math difficulties. These students' needs are further analyzed to determine specific interventions and supports required to achieve mathematics proficiency. This can include further diagnostic assessments, classroom-based assessments, or formal evaluation for services, as appropriate for each child. Students are then provided with appropriate interventions, alongside progress monitoring, to remediate difficulties in mathematics.

- School Instructional Decision-Making Teams: School teams play a critical role in facilitating the HMTSS process by analyzing school-level data and making instructional decisions to support students not making adequate progress.

- Tutoring: Provide access for all eighth grade students with 24/7 on demand tutoring as described above.

- The Individuals with Disabilities Education Act (IDEA) American Rescue Plan (ARP) Math Grants: The Office of Student Support Services provided professional development and materials for general education teachers, special education teachers, and educational assistants of students with Individualized Educational Plans (IEPs) utilizing multisensory learning kits (math manipulatives) to implement the Evidence-Based Practice of Concrete-Representational-Abstract (CRA) instructional approach. Training for special education teachers was also provided on the Listening to Learn: Digital Online Assessment. Teachers learned how to utilize this tool to pinpoint strengths and areas for improvement, and next steps for instruction and intervention for students with IEPs. In addition, some complex areas purchased and implemented the evidence-based intervention Read 180 to improve students' proficiency in Math.

- Math PDE3 Course - *Instructional Strategies for Mathematics (K-5) to Increase Access and Engagement:* This three-credit course was designed for teachers of students with IEPs to learn how to implement evidence-based practices, including providing systematic instruction, teaching clear and

concise mathematical language, using CRA, using number lines, and providing deliberate instruction on word problems. These evidence based practices are outlined in the Institute for Education Sciences (IES) What Works Clearinghouse practice guide.

Areas for Focus and Improvement

The following are State-level immediate areas for focus and improvement: (1) Communicate up-to-date information regarding mathematics evidence-based practices, resources, and learning opportunities; (2) Launch the Standards Review process for mathematics standards in SY 2023-24; (3) Provide support around the selection and review process of a Viable Quality Curriculum; (4) Share the ESSER III Complex Area Professional Development Sub-Grant results; (5) Implement innovative structures of providing professional learning; and (6) Explore qualified math teacher recruitment efforts with the Office of Talent Management, Higher Education Institutions, and other relevant community partners. Teacher development, recruitment, and retention play an important role in the success of the Department's efforts to raise student achievement, especially for schools struggling to show performance at their desired levels.

An immediate area of focus and improvement for the complex area level is to ensure schools have a Viable Quality Curriculum for SY 2024-25. This means schools that do not currently have a Viable Quality Curriculum need to select a program this year and follow approval processes if the selection is not on the curated mathematics list provided by the state level. An ongoing area of focus and improvement is to provide support for systematic, evidence-based high impact strategies in mathematics for grades K-8, with an emphasis on the early grades. This can be done in collaboration with the state level.

School-level areas of focus and improvement include: (1) Selecting a Viable Quality Curriculum; (2) Building awareness and capacity, to ensure systematic and effective implementation of evidence-based high impact instructional strategies through professional development and continuous improvement models; (3) Continuing with Universal Screeners and the HMTSS model to provide necessary and timely intervention and support for students who are not meeting proficiency in mathematics.

The Department will continue to assess progress and data, and make necessary adjustments at the state, complex area, and school levels as needed.

What Support Can the Board Provide?
The Department respectfully requests support of the mathematics standards review process beginning SY 2023-24, and if determined revisions are needed, consider the adoption of the revised mathematics standards during SY 2025-26. Another request is consideration to support upcoming mathematics budgetary needs.

Thank you for your continued support of public education.

HA:tu
Attachment: Presentation Slides

c: Office of Curriculum and Instructional Design

HAWAIʻI STATE DEPARTMENT OF EDUCATION

Attachment

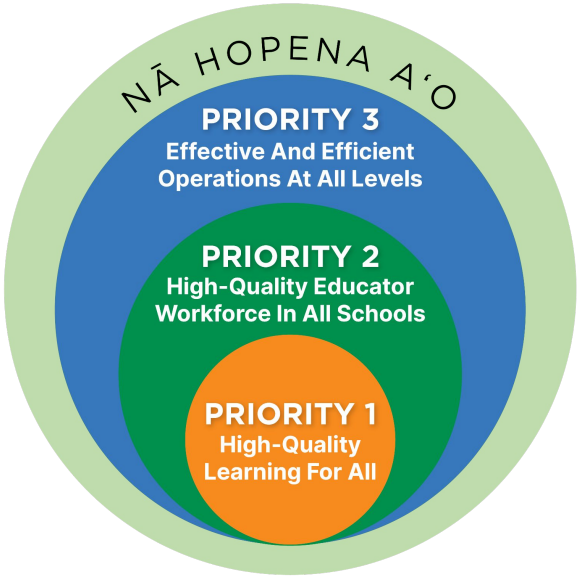
Office of Curriculum and Instructional Design

Presentation on Strategic Plan, Desired Outcome 1.1.3. "All students are proficient in mathematics by the end of eighth grade, and those who are not proficient receive necessary and timely support to become proficient."

Presented to the
Hawaiʻi State Board of Education Student Achievement Committee
October 4, 2023

Heidi Armstrong, Deputy Superintendent of Academics
Teri Ushijima, Assistant Superintendent, Office of Curriculum and Instructional Design
Dewey Gottlieb, Mathematics Innovation Lead, Office of Strategy, Innovation and Performance
Sean Tajima, Campbell-Kapolei Complex Area Superintendent
Todd Fujimori, Principal, Honouliuli Middle School
Leanna Chew-Beckman, Teacher, Honouliuli Middle School
Amy Santos, Teacher, Honouliuli Middle School

Board of Education Strategic Plan

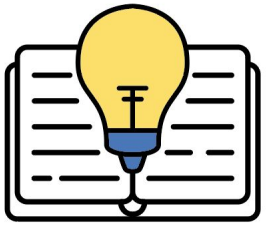


10
Goals

27
Desired Outcomes

Visit
bit.ly/2023-29implementationplan
for more details and to read the full Implementation Plan.

Strategic Plan Implementation Plan



Priority I: High Quality Learning For All

Goal 1.1: All students experience rigorous, high-quality learning that results in equitable outcomes for all learners.

Desired Outcome 1.1.3. All students are proficient in mathematics by the end of eighth grade, and those who are not proficient receive necessary and timely support to become proficient.

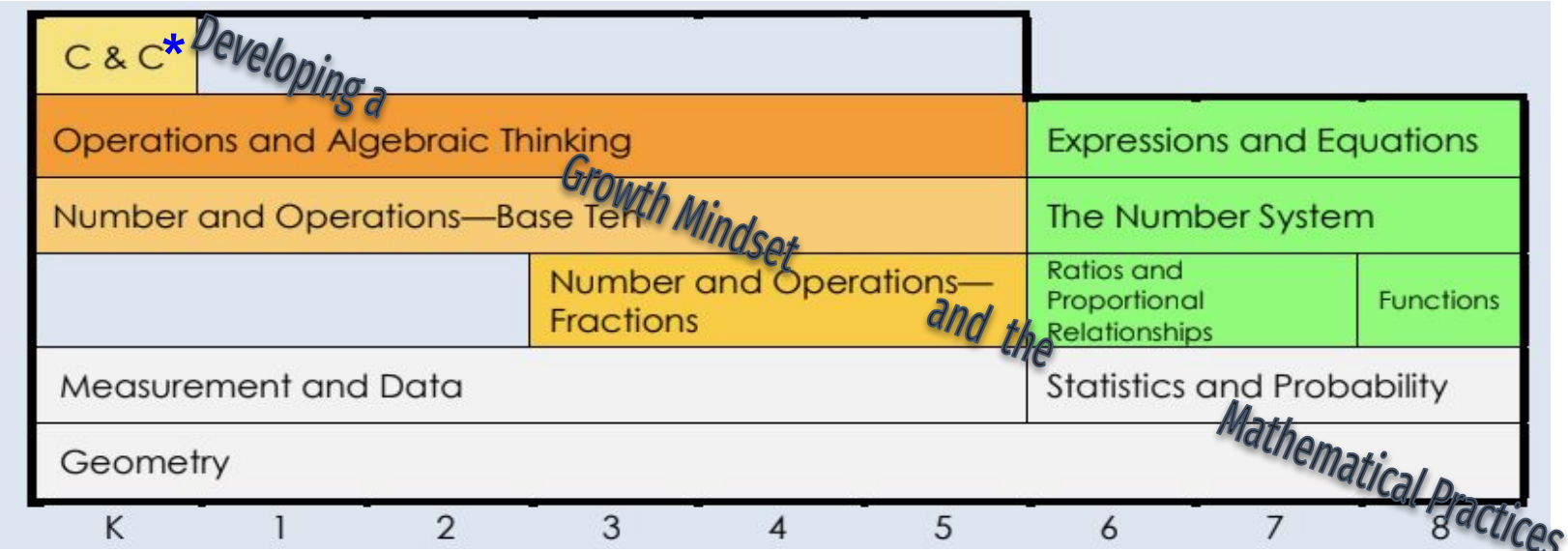
Relationship of Desired Outcome and Student Learning

When we…	Then…	So that…
strengthen elementary and middle level mathematics teachers' conceptual math expertise around rigorous content and evidence-based high impact instructional practices, **and** provide a viable quality math curriculum **and** monitor progress using student data,	we will strengthen math foundational and conceptual learning at each grade level to increase on grade level student performance in grades K-7,	students will be proficient in mathematics by the end of eighth grade which is a pivotal year.

via these initiatives	as measured by
High-Quality Standards; Viable Quality Curriculum; Evidence-Based High-Impact Math Instructional Strategies; Student Data for Monitoring Progress	Performance measure: Percent of grade 8 students meeting grade level proficiency on the Smarter Balanced Assessment.
	Additional measures: School-based universal screener and classroom data.

Progression of Mathematical Big Ideas

Grades K-8



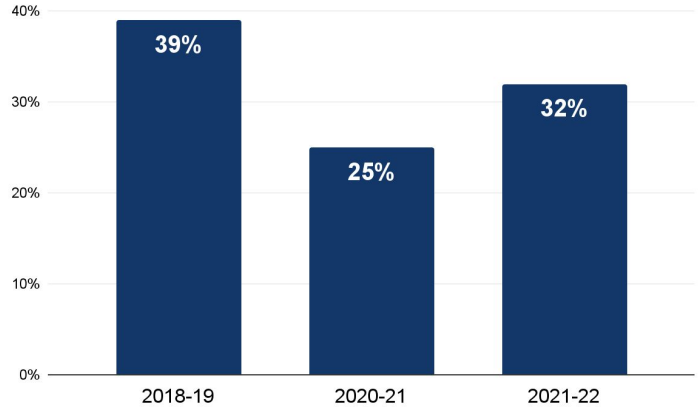
* C & C = Counting and Cardinality (in grade K)

Zimba, J. (2015) *Observations on CCSSM Standards for Mathematical Content: What Content Is Visibly Emphasized?*

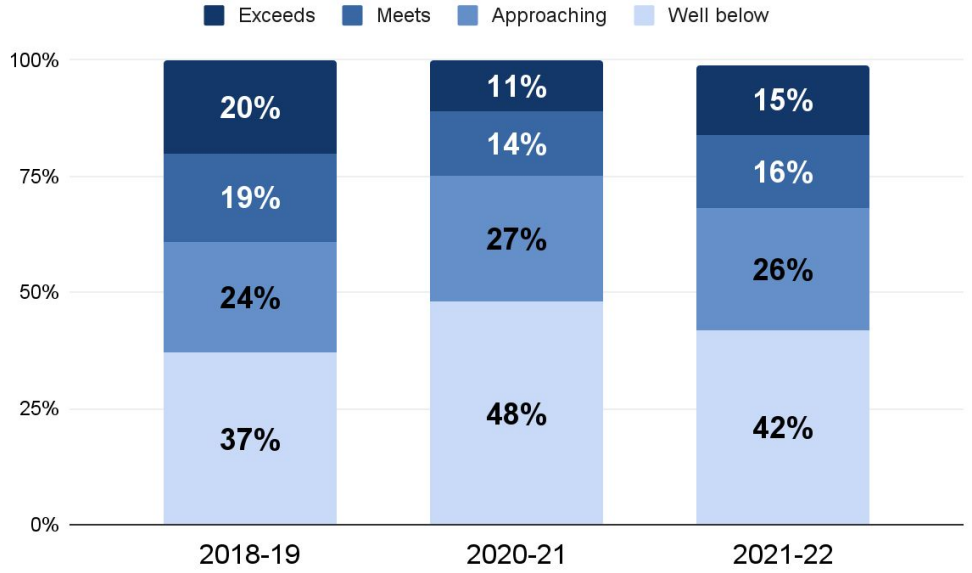
Performance Measures

Grade 8 mathematics Smarter Balanced Assessment results
Full school year, excluding charter schools

Percent of students proficient



Percentage of students by proficiency level

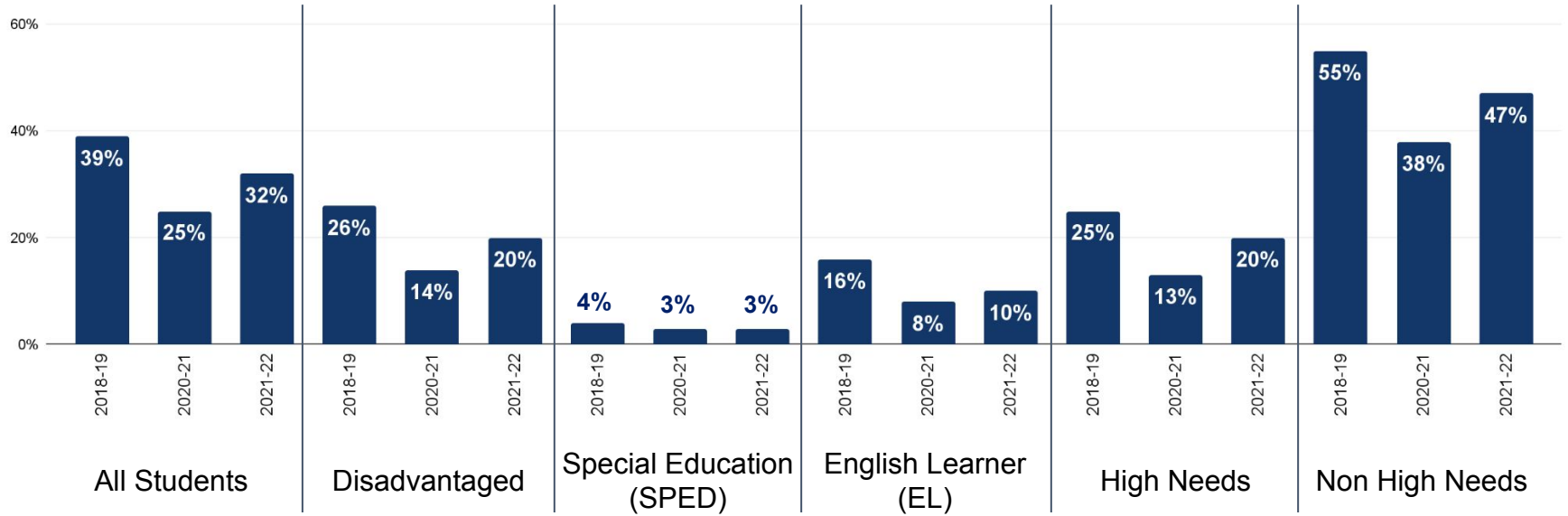


Source: Accountability Data Center (https://adc.hidoe.us/)

Performance Measures

Grade 8 mathematics Smarter Balanced Assessment results
Full school year, by subgroups

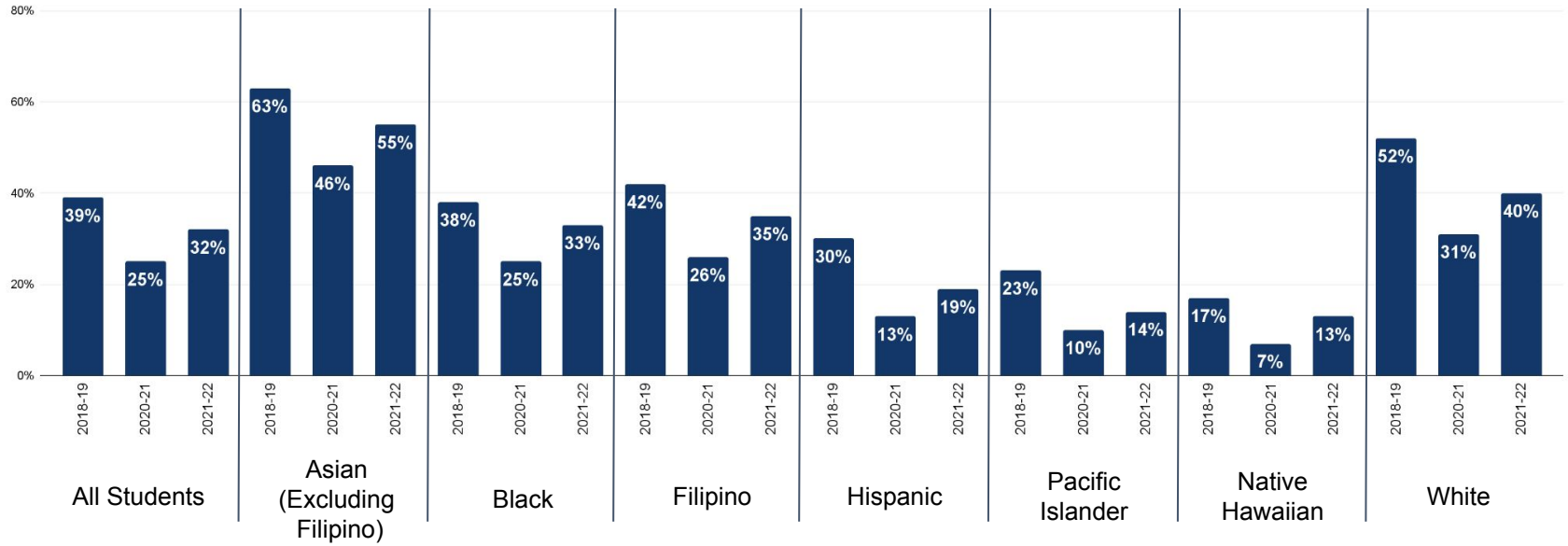
Percent of students proficient



Source: Accountability Data Center (https://adc.hidoe.us/)

Performance Measures

Grade 8 mathematics Smarter Balanced Assessment results
Full school year, by race/ethnicity



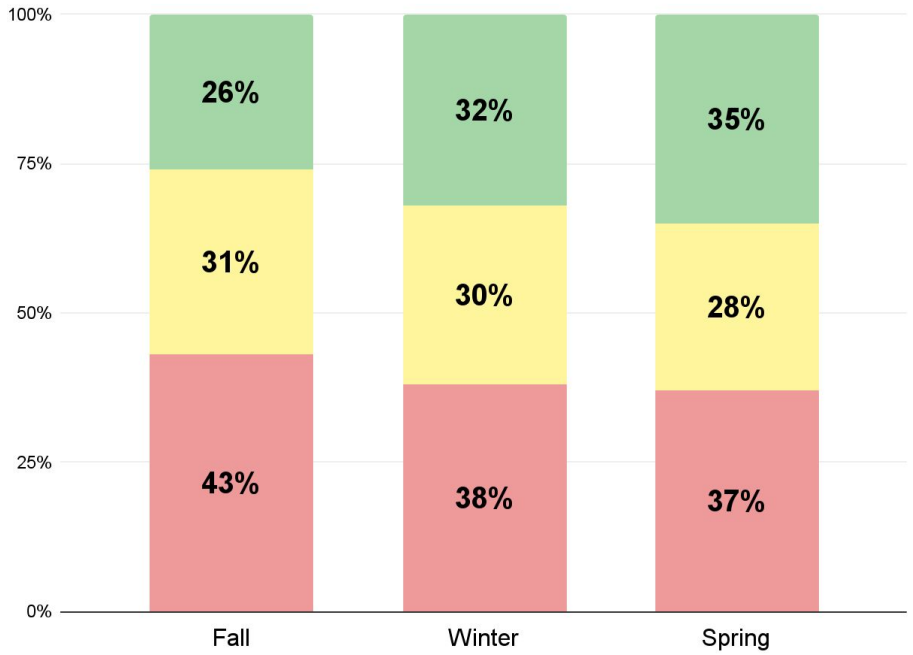
Source: Accountability Data Center (https://adc.hidoe.us/)

Performance Measures

Grade 8 mathematics universal screener data, 2022-23

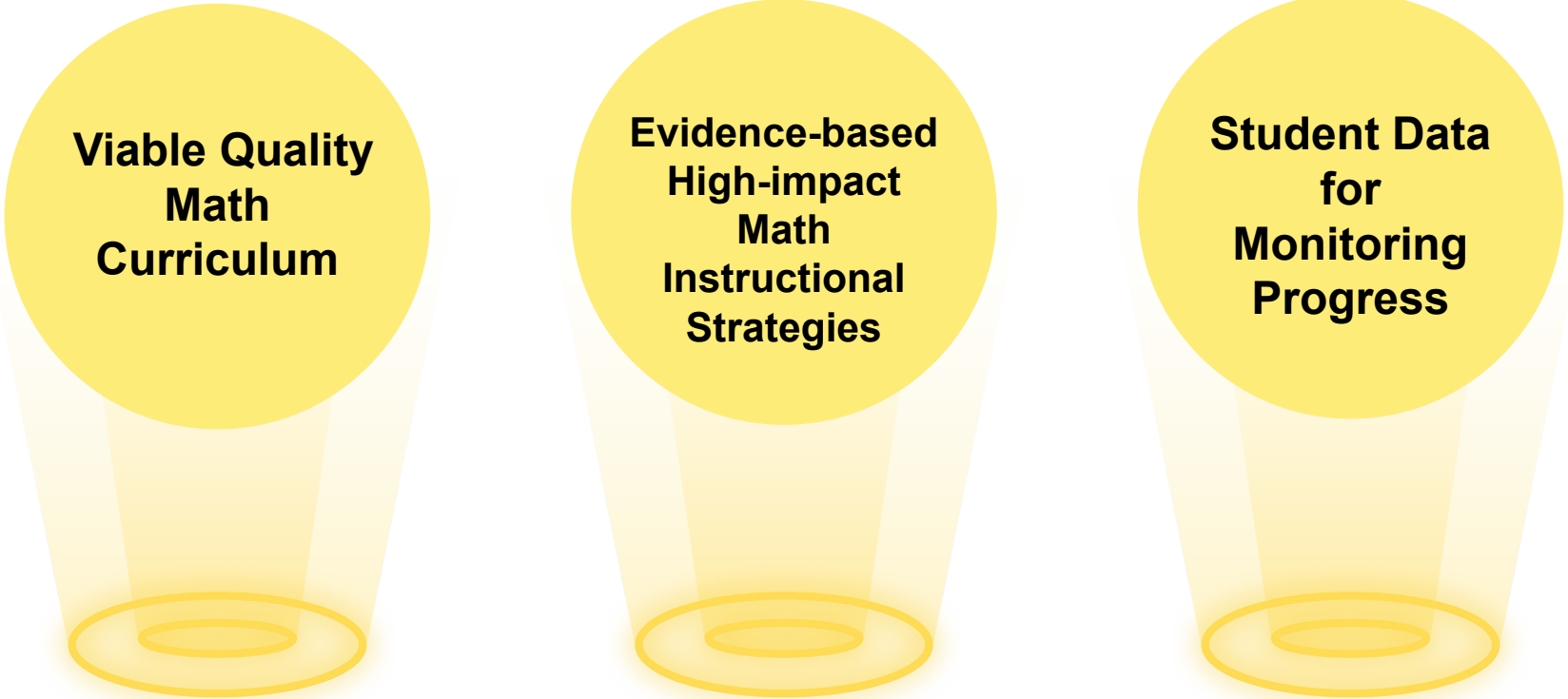
6,237
Students Tested

Sources: iReady, STAR, Galileo, MAP, AIMSWEB



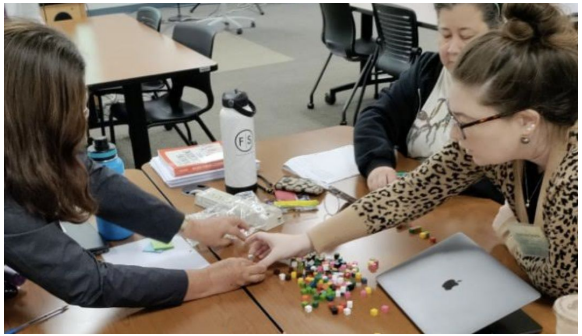
Source: LEI Kūlia System

Three Focus Areas



Major Initiatives

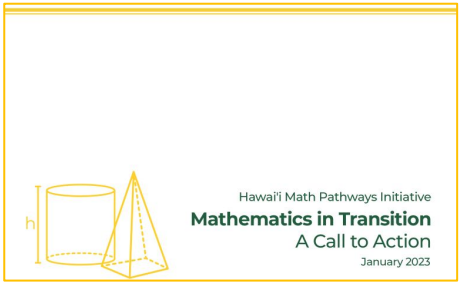
1. Viable Quality Mathematics Curriculum in all schools by school year 2024-25
2. Mathematics Standards Review
3. Mathematics Innovation
4. ESSER III Complex Area Professional Development
5. Hawai‘i Math Teacher Leader Collaborative
6. State Elementary Math Camps
7. Universal Screeners



Hawai‘i Math Teacher Leader Collaborative

Related Initiatives

1. Effective Academic Practices (ESSER Foundational Strategy)
2. Mathematics Resource Library
3. Math Pathways Initiative
4. On-Demand Grade 8 Tutoring



Hawai'i Math Pathways Initiative Call to Action White Paper
https://bit.ly/HIMathPathsCTA23

Math Pathways Initiative

Connections

Key Focus Areas	Major Initiatives	Related Initiatives
Viable Quality Math Curriculum	1. Viable Quality Mathematics Curriculum in all schools by school year 2024-25 2. Mathematics Standards Review	
Evidence-based High-impact Math Instructional strategies	3. Secondary Mathematics Innovation 4. ESSER III Complex Area Professional Development 5. State Elementary Math Camps 6. Hawai‘i Math Teacher Leader Collaborative	1. Effective Academic Practices (ESSER Foundational Strategy) 2. Priority Instructional Content Library 3. Math Pathways Initiative 4. On-Demand 24/7 Grade 8 Tutoring
Student Data for Monitoring Progress	7. Universal Screeners	

Looking Ahead: *Mathematics Innovation*

The Mathematics Innovation (MI) initiative is being launched to advance the Department's efforts to support a statewide focus on secondary mathematics.

Goal: Increase teachers' collective efficacy and improve student learning and students' mathematical identity and agency in secondary mathematics.

The MI program plan is composed of three strategies:

- Facilitating ongoing school-level professional learning teams
- Implementing Summer Math Camps targeting students in grades 8 and 9 and Mathematical Mindsets Summer Institutes for teachers
- Developing resources and providing professional learning opportunities that focus on bridging the progression of mathematical big ideas in upper elementary grades to middle grades

Windward District teachers participating in the Mathematical Mindsets Summer Institute create an octahedron from one piece of string.

Progress to Date

Hawai‘i Math Teacher Leader Collaborative

A. Deeper Content Knowledge and Pedagogy Strand

- Optimal learning environment
- Learning progression trajectory
- Deep dive grade bands
- In-field coaching

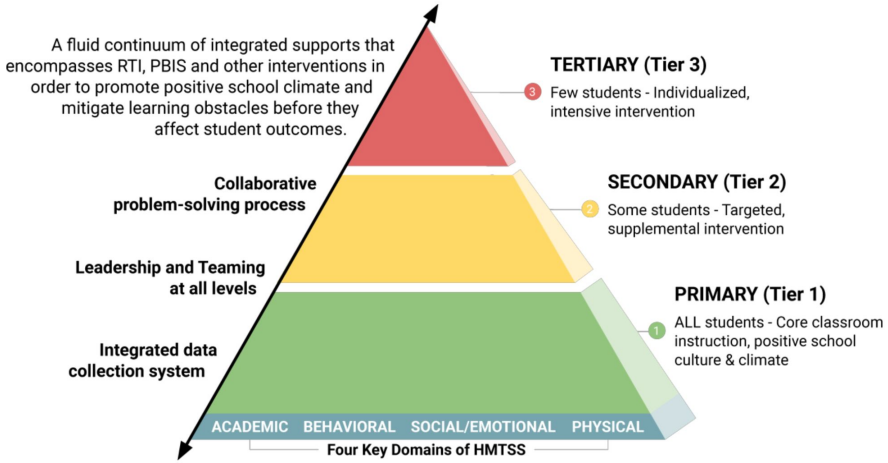
B. Leadership and Coaching Strand

- Planning and supporting future cohorts for deeper content knowledge and pedagogy strand
- Building capacity across the complex areas
- In-field coaching

Hawai‘i Math Teacher Collaborative flyer

Necessary and Timely Support

For Students Who Do Not Meet Math Proficiency



Hawai‘i Multi-Tiered System of Support – Response to Intervention

School instructional decision-making teams

Middle school math camps

On-demand 24/7 grade 8 tutoring

IDEA ARP Math Grants

- Multisensory Learning Manipulative Kits (CRA) and Training (General Education and Special Education)
- Listening to Learn: Interactive Digital Online Assessment
- Read 180 Math Intervention Program

Math PDE3 Course: *Instructional Strategies for Mathematics (K-5) to Increase Access and Engagement*

Areas for Focus and Improvement

State level

- Communicate up-to-date information regarding math education research, evidence-based practices, resources, and learning opportunities
- Launch Standards Review process for math standards in school year 2023-24
- Provide support around the selection and review process of a Viable Quality Curriculum
- Plan sharing of ESSER III Complex Area Professional Development Sub-Grants results
- Implement innovative structures of providing professional learning
- Explore qualified math teacher recruitment efforts with Office of Talent Management and Higher Education Institutions

Complex area level

- Ensure schools have a Viable Quality Curriculum for school year 2024-25
- Support for systematic, evidence-based instructional practices in mathematics

School level

- Select a Viable Quality Curriculum
- Support for systematic, evidence-based instructional practices in mathematics through professional development and continuous improvement models
- Continue with Universal Screeners and Response to Intervention

What Support Can the Board Provide?

- Support of the mathematics standards review process beginning in the 2023-24 school year, and if determined revisions are needed, consider the adoption of the revised mathematics standards during the school year 2025-26
- Consider approving upcoming mathematics budgetary needs

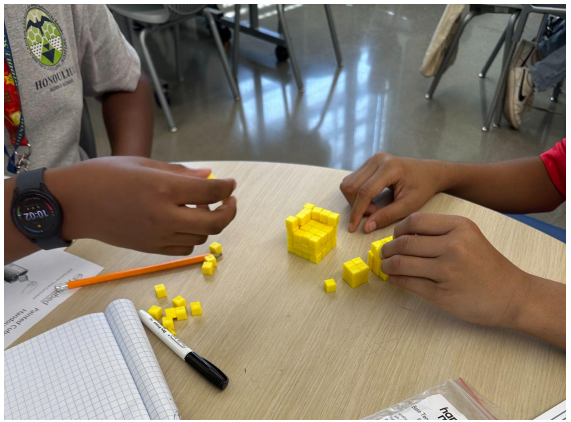
2023 Hawai‘i State Finalists for the Presidential Awards for Math and Science Teaching

State, Complex Area and School Sharing

State Office
Dewey Gottlieb, Mathematics Innovation Lead

Campbell-Kapolei Complex Area
Sean Tajima, Complex Area Superintendent

Honouliuli Middle School
Todd Fujimori, Principal
Leanna Chew-Beckman, Teacher
Amy Santos, Teacher



Students at Honouliuli Middle School build a geometric model and apply algebraic reasoning skills to help them solve a problem involving a painted cube.

Promoting Mathematics Innovation

Summer Math Camps

- Mathematical mindset approach
- Engaging student problem solving tasks
- Professional development summer institutes
- Insights learned from the 2023 summer math camps and its impact on teachers and students
- Next steps: scaling up summer math camps in 2024

Summer math camps flyer

Resources

- Learning Design Resource: *https://learningdesign.hawaiipublicschools.org/*
- State Math Task Force Summary Report: *https://drive.google.com/file/d/1kzYjBphuwm8bqlND6wPGNLG5A_plaf3M/view*
- Math Pathways Initiative Call to Action White Paper: *https://drive.google.com/file/d/1DTwMOmhsBaYdad9l79-de1hJVg8Lg80H/view*
- Priority Instructional Library (K12 Mathematics): *https://docs.google.com/presentation/d/1UsG3CRLdrEuTF6GV7myXkT1g0nKJDjBiell2PzKXzwk/edit#slide=id.p1*
- OCID Math At-A-Glance 1-Pager: *https://docs.google.com/presentation/d/1RvgL3rtxWwgnaWTngiBGxYwzOZOxDwo9n9Izzp1i-Lw/edit#slide=id.g2795ee3a360_0_0*
- State Math Task Force Alignment with Strategic Implementation Plan: *https://docs.google.com/document/d/1y3GRF8wQvoHTvDxd6khnolKoquTrPM8Bt7r9_4VTs2I/*