Annual Report

ALABAMA STATE DEPARTMENT OF EDUCATION

Alabama Numeracy Act

Prepared for:
Governor
Lieutenant Governor
SBOE
Senate Pro Tempore
Speaker of the House of Representatives
Director of OMI

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This document was developed by the Office of Mathematics Improvement as required by the *Alabama Numeracy Act*.

Introduction

The *Alabama Numeracy Act* (ANA) was enacted in 2022 to improve mathematics proficiency of public school K-5 grade students and ensure that those students are proficient in mathematics at or above grade level by the end of fifth grade by monitoring the progression of each student from one grade to another by his or her proficiency in mathematics. The ANA requires that, beginning in the 2023-2024 school year, annually on or before September 30, each local education agency (LEA) submits a report to the department with ten different metrics (ANA Section 8, p. 32-34). Metrics 2, 8, and 10 have no data for the 2023-2024 school year, and are displayed on one page with supporting details.

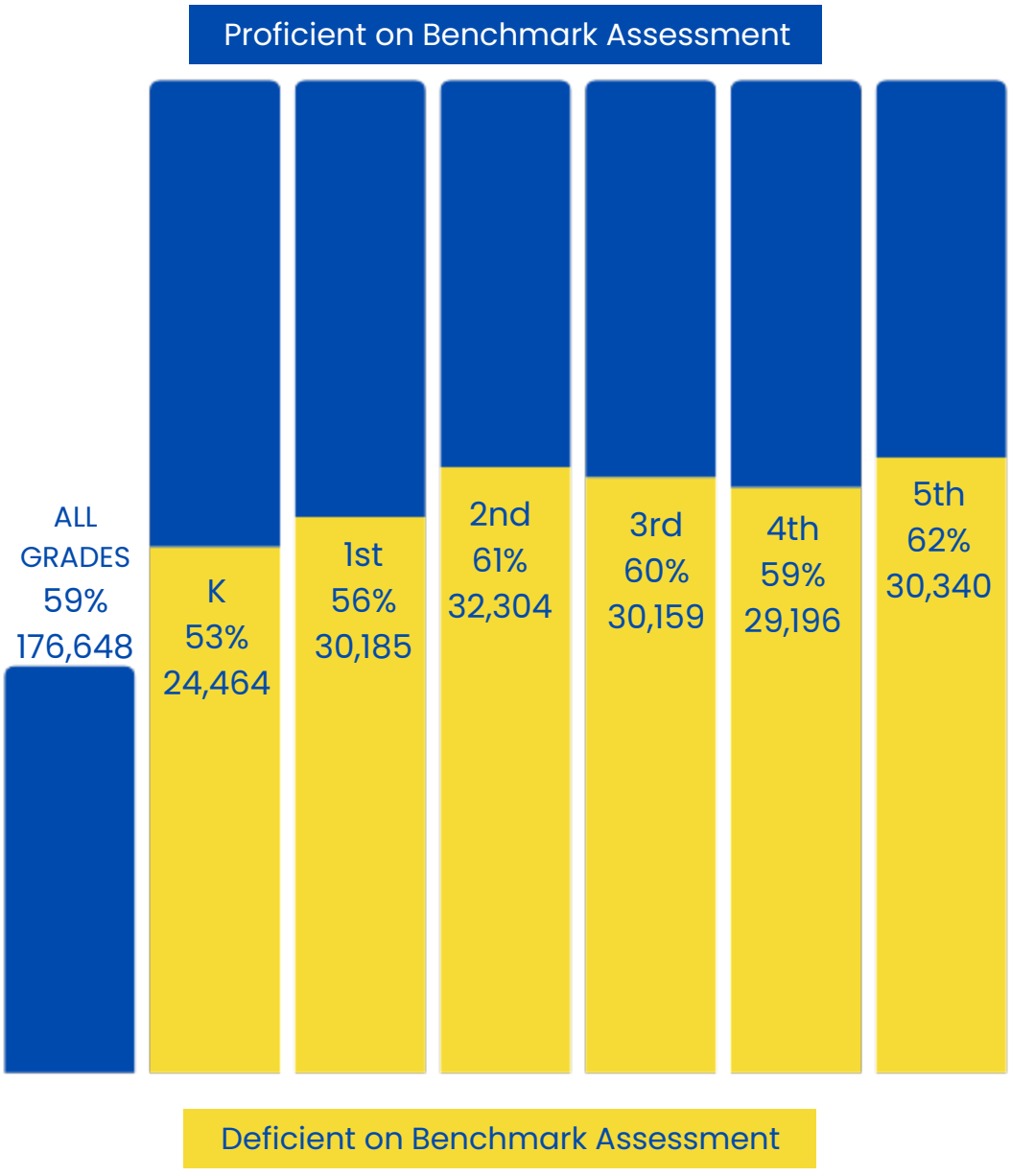
1. By grade, the number and percentage of all K-5 students identified with a mathematics deficiency on an Elementary Mathematics Task Force recommended mathematics assessment.
2. By grade, the number and percentage of students screened for dyscalculia characteristics, the number and percentage of students identified as demonstrating the characteristics of dyscalculia and receiving dyscalculia specific intervention, and the name of the dyscalculia specific intervention being provided.
3. By grade, the number and percentage of all K-5 students performing on grade level or above grade level; which is defined as scoring level 3 or level 4 on the Alabama Comprehensive Assessment Program, or any derivation thereof.
4. The number and percentage of students starting fifth grade with a mathematics score below grade level; which is defined as scoring level 1 or level 2 on the Alabama Comprehensive Assessment Program, or any derivation thereof.
5. The number and percentage of fifth grade students who started third grade with a mathematics deficiency and completed fifth grade on grade level; which is defined as scoring level 3 or level 4 on the Alabama Comprehensive Assessment Program or any derivation thereof.
6. By grade, the number and percentage of eligible students in grades four and five who attended the Alabama Summer Mathematics Achievement Program in full support schools, that included intensive mathematics instruction.
7. By grade, the number and percentage of all students retained in grades K-5 based on mathematics deficiencies.
8. By school, the number of teachers who have earned the K-5 mathematics coach endorsement.
9. By school, the number and percentage of incoming students in grades one and two identified as having a mathematics deficiency.
10. By school the number and percentage of incoming students in grades four and five identifies as having a fractional reasoning deficiency.

On or before November 1, annually, the State Superintendent of Education shall compile the information received from LEAs into a state level summary which can be found here; 2024 marks the inaugural state level summary of the ten metrics listed above.

With a new law in place, LEAs have worked diligently to ensure their data are accurate and submitted on or before September 30, 2024. As with any large data set, the potential exists for error. This document represents a good faith effort to report, as accurately as possible, data from each of the 843 schools providing instruction for students in Grades K-5 during the 2023-2024 school year.

Deficiency on End of Year Mathematics Benchmark Assessment

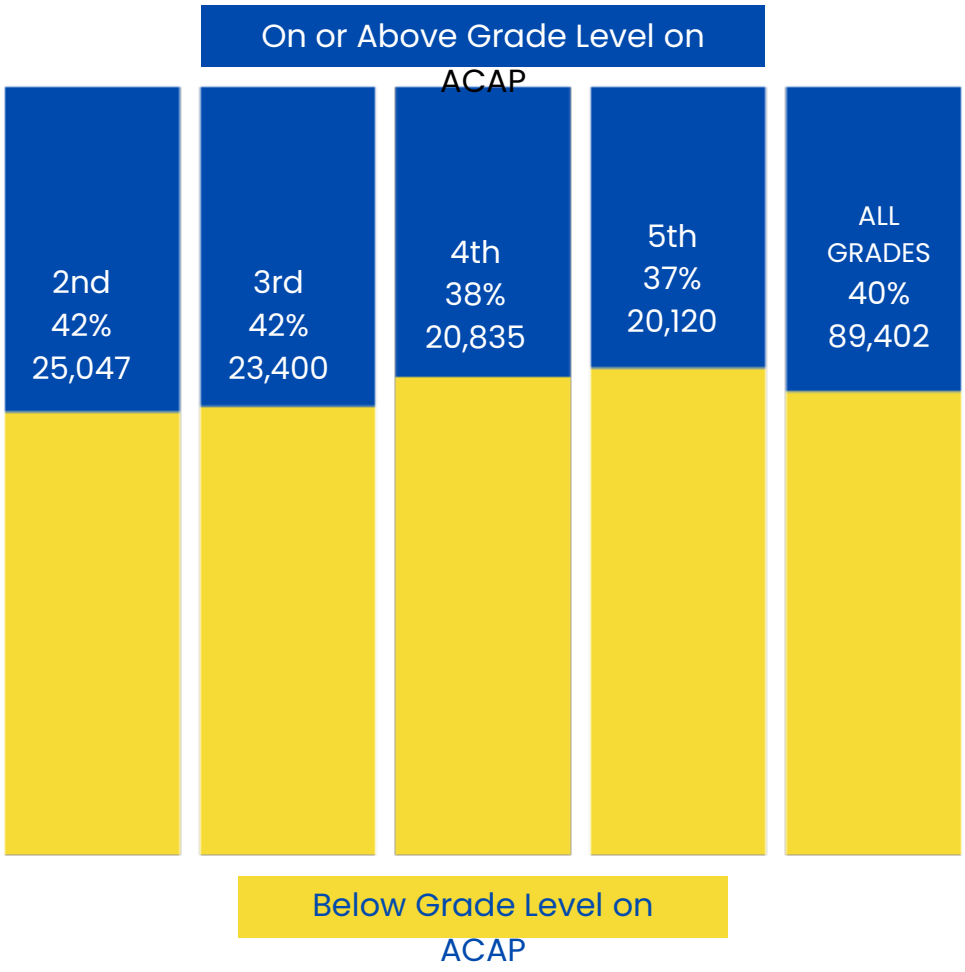
By grade, the number and percentage of all K-5 students identified with a mathematics deficiency on an Elementary Mathematics Task Force recommended mathematics assessment .



During the 2023-2024 school year, these vendors were approved for use: Amplify (mCLASS), Curriculum Associates (i-Ready), and Renaissance (STAR Math and STAR CBM).

On or Above Grade Level on ACAP

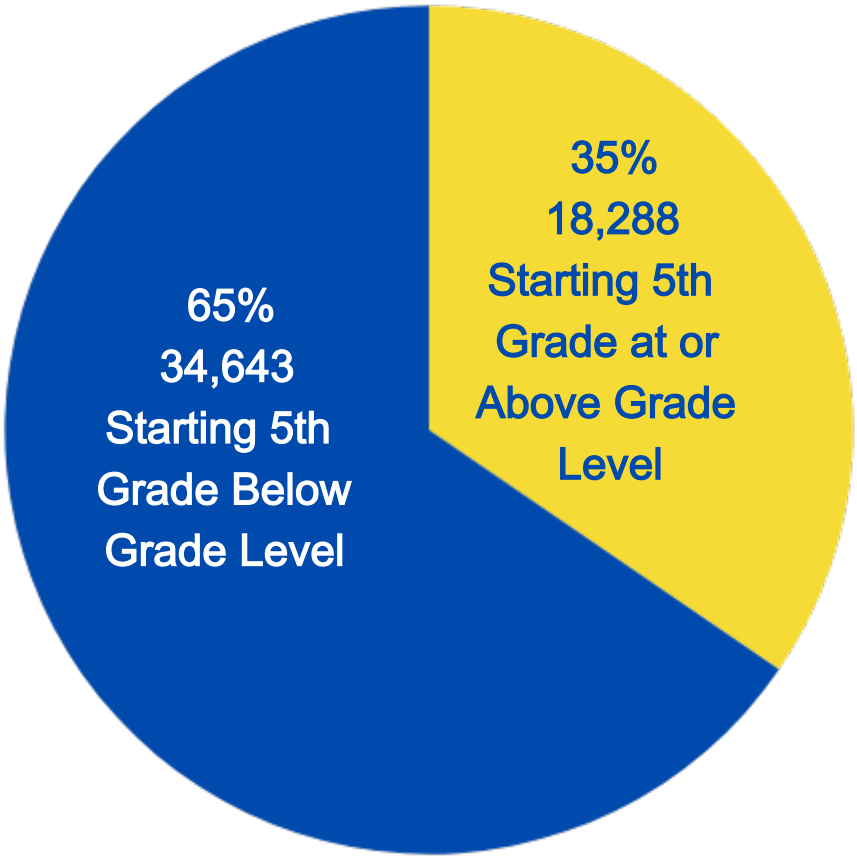
By grade, the number and percentage of all K -5 students performing on grade level or above grade level; which is defined as scoring level 3 or level 4 on the Alabama Comprehensive Assessment Program, or any derivation thereof.



Although ANA requests ACAP data for all K-5 students, this report captures students in grades 2-5 scoring at level 3 or level 4 on ACAP because students in grades K-1 do not take this assessment.

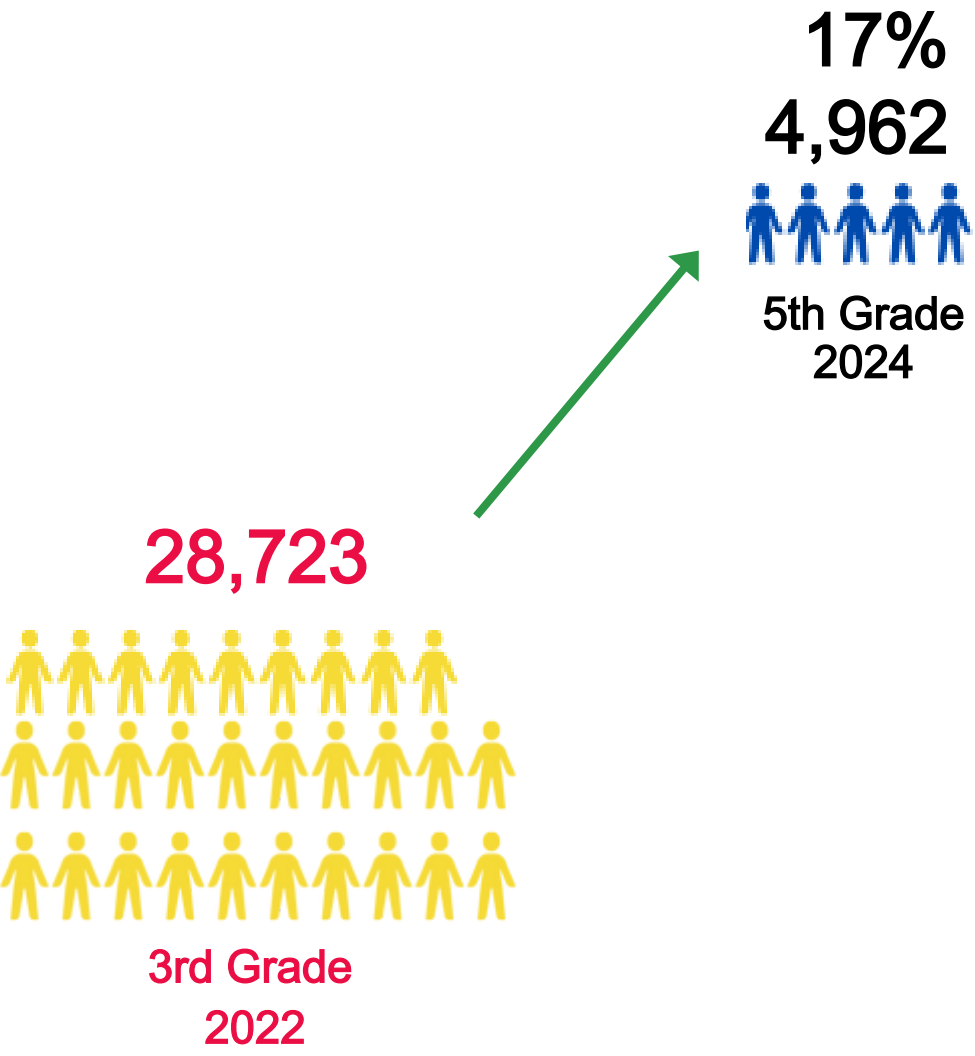
5th Graders Starting 2023-2024 Below Grade Level

The number and percentage of students starting fifth grade with a mathematics score below grade level; which is defined as scoring level 1 or level 2 on the Alabama Comprehensive Assessment Program, or any derivation thereof.



ACAP Growth From 3rd Deficient to 5th On Grade Level

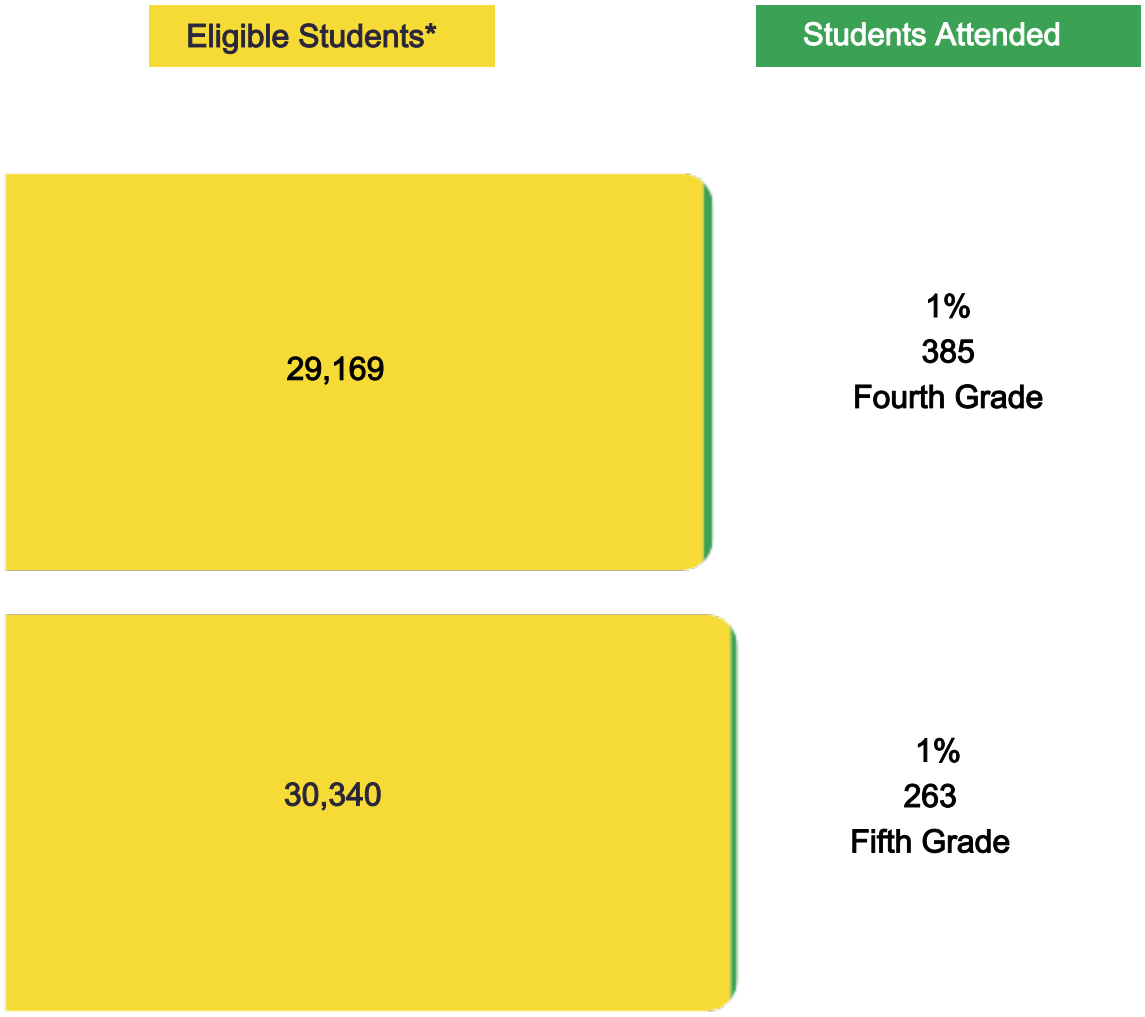
The number and percentage of fifth grade students who started third grade with a mathematics deficiency and completed fifth grade on grade level; which is defined as scoring level 3 or level 4 on the Alabama Comprehensive Assessment Program, or any derivation thereof.



Seventeen percent, or 4,962, of 3rd grade students in 2022 closed the achievement gap and improved their ACAP scores from deficient (level 1 or level 2) to proficient (level 3 or level 4) by the end of 5th grade in 2024.

Eligible Students Attended Summer Math Program

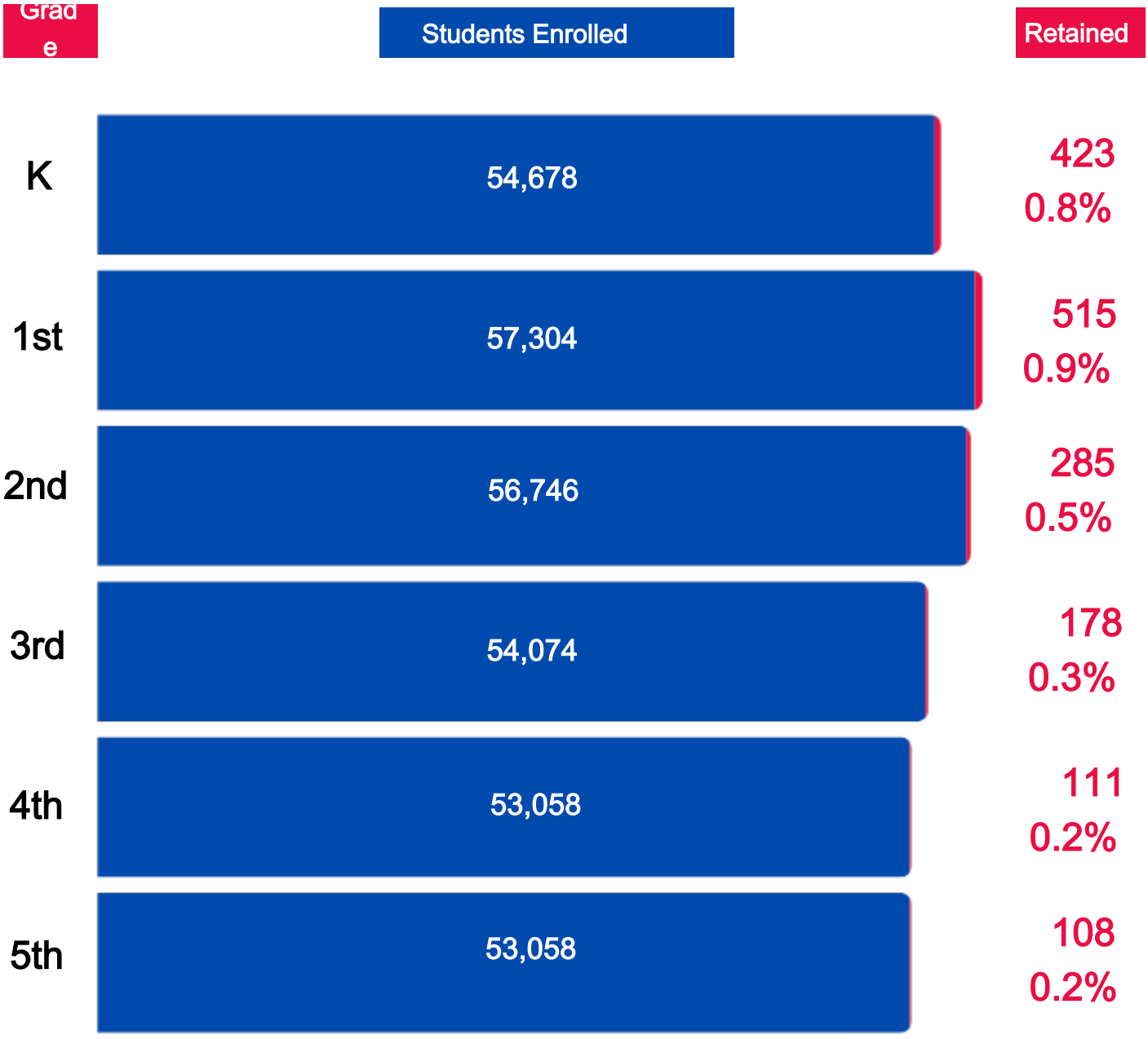
By grade, the number and percentage of eligible students in grades four and five who attended the Alabama Summer Mathematics Achievement Program in full support schools, that included intensive mathematics instruction.



*Students who were identified with a mathematics deficiency on the end of year Formative Benchmark Assessment.

Retained for Math Deficiency

By grade, the number and percentage of all students retained in grades K-5 based on mathematics and other deficiencies .

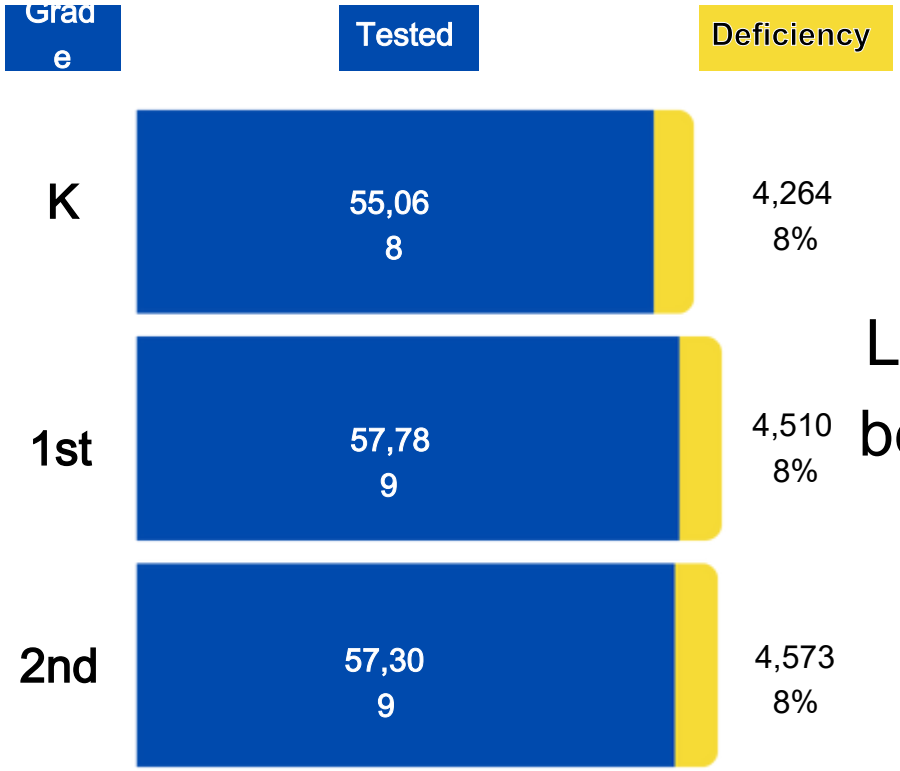


Less than 1% of students per grade level, K-5, were retained for mathematics deficiencies. Many students retained due to mathematics deficiencies were not retained solely for that reason. Instead, when retention was based on multiple factors (e.g., reading, behavior, math), LEAs were asked to document math as a contributing factor in the retention decision.

Incoming K-2 Early Numeracy Deficiency

By school, the number and percentage of incoming students in grades K- 2 are identified as having a mathematics deficiency

Statewide Aggregate



Listing by school can be found in Appendix A.

The Elementary Mathematics Task Force's approved early numeracy screeners list was available in September 2023.

Dyscalculia Screening & Interventions

By grade, the number and percentage of students screened for dyscalculia characteristics, the number and percentage of students identified as demonstrating the characteristics of dyscalculia and receiving dyscalculia specific intervention. and the name of the dyscalculia specific intervention being provided.

The Elementary Mathematics Task Force is in the process of reviewing current dyscalculia research and aligning that information with best practices in intervention to facilitate accurate identification of students who have true disabilities . Therefore, dyscalculia data have not been reported in 2024 .

Math Coach Endorsements by School

By school, the number of teachers who have earned the K-5 mathematics coach endorsement.

The Postsecondary Mathematics Task Force presented standards for the four coaching courses described in ANA to the state board of education and those standards were approved in the fall of 2024 . These data are not reported for 2024 because Alabama colleges and universities are in the process of creating courses for this endorsement .

Fractional Reasoning Deficiency by School

By school the number and percentage of incoming students in grades four and five identified as having a fractional reasoning deficiency.

Fractional Reasoning Screeners are novel assessment tools ; no vendors submitted solutions upon receipt of requests of the Elementary Mathematics Task Force via the RFI process in 2023 . Consequently, there are no data to report for 2024 . Another RFI has been posted and submissions will be reviewed by the Elementary Math Task Force at the end of the year .

Summary

In this inaugural report, a number of conclusions and recommendations are submitted for consideration. Data from two metrics seemed to correlate: since 59% of all students were identified with a mathematics deficiency (p. 4), it could be concluded that approximately 40% of students would have been proficient on ACAP, and that was the case (p. 6).

Achievement gaps for students in grades K-2 were relatively small; only 8% of these students were identified with a math deficiency (p. 9). Those gaps increased over time, since 65% of fifth graders began the year below grade level. Quality instruction provided during math camps should aid in closing achievement gaps, but only approximately 1% of students identified with math deficiencies attended summer camp according to the report on page 7. Seventeen percent of 5th graders closed achievement gaps. This number should increase once a fractional reasoning screener has been identified and administered in grades four and five as directed by ANA, because the resulting data would assist teachers in identifying student needs. Additional recommendations are presented for consideration.

- Focus on Instruction - ANA lists 8 expectations for instruction (p. 14-15), which include providing instruction based on conceptual understanding. Additionally, the learning environment shall promote student discourse, questioning, reasoning, and critiquing the reasoning of peers. Research studies have shown (Firmender, et al., 2014; Kosko, 2012) that when students are in math classrooms that are active, critical thinking spaces, their mathematics achievement increases.
- Focus on Intervention - It is imperative that students identified with a math deficiency receive immediate intervention (ANA p. 15). Expectations for intervention include before and after school opportunities with an effective teacher or tutor, incorporating evidence-based practices, and frequently monitoring student progress. These strategies, as well as others listed in ANA (p. 17-18), should provide the support students need to close achievement gaps.
- Common Planning Time - School schedules should ensure that teachers have at least an hour of daily planning time. This time would be used to meet in professional learning communities (PLCs) to analyze student work and plan next instructional steps. Funding for art and music programs would provide opportunities for adults to collaborate during the school day, and improve memory, social skills, reading skills, and academic achievement in students (Art & Music Center, 2019).
- Interventionists - Mathematics coaches have twenty responsibilities listed in the ANA, and all pertain to supporting adults in the school. Closing the achievement gap with students could be accelerated by coupling the positive impact of math coaches on teachers with support for students from math interventionists. These educators would work directly with students providing Tier III instruction, perhaps in before or after school programs.

Summary Continued

- Time for Mathematics - Data (p. 4) indicates that, across the state for grades K-5, 59% of students have been identified with a math deficiency. Therefore, it is imperative that 60 minutes be devoted to Tier I regular classroom instruction for all students (ANA p. 14) and time be set aside for students who need extra intervention through Tier II and Tier II instruction during the school day. Moreover, time shall be devoted to tiered math instruction during extended learning (before and after school), and during summer camps. Embedding K-3 math camp into the K-3 reading camp during the summer (ANA p. 35-36) shall be defined as setting aside a minimum of 60 minutes daily for math instruction during the summer reading camp. Summer math camp in grades 4 and 5 should include 40-70 hours of mathematics instruction based on the severity of student need (ANA p. 36).
- Summer Math Camp Attendance - Encourage LEAs to use data from the middle of the year assessments to compile a list of students to attend summer math camp. Communicate with parents early to make them aware of the potential need for their children to attend summer math camp and to ensure consistent attendance.

Alabama is leading the nation in mathematics instruction through the Numeracy Act. This law is visionary because it is, by nature, comprehensive, addressing issues in elementary and postsecondary education; implications abound for secondary education as well. With the implementation of high quality instructional materials, assessments, and intervention resources, teachers have the tools they need to provide quality instruction for our students. With the incorporation of math coaches in elementary schools, teachers will increase their knowledge of Alabama standards, evidence-based instruction, student learning, and efficacy. With the creation of the math coaching endorsement, educators will confidently apply cutting-edge knowledge of student-centered coaching to support teachers and create improvement plans that will impact the entire school through effective professional learning communities. Moreover, the Office of Mathematics Improvement (OMI) is currently gathering observation data and implementing professional learning for school and district administrators to inform and empower them to make high quality data driven decisions. OMI's motto "better together," leverages years of collective efficacy research indicating that a group creates better outcomes than an individual (Hattie 2023). Alabama's students have a bright mathematical future because we are better together!

References

Art & Music Center. (2019, April 23). 10 reasons why kids need art & music. 2019 4 23 10 Reasons Why Kids Need Art &Music.

Firmender, J. M., Gavin, M. K., & McCoach, D. B. (2014). Examining the Relationship Between Teachers' Instructional Practices and Students' Mathematics Achievement. Journal of Advanced Academics, 25(3), 214-236. https://doi.org/10.1177/1932202X14538032

Hattie, J. (2023). Visible learning, the sequel: A synthesis of over 2,100 meta-analyses relating to achievement. Routledge.

Kosko, Karl W. (2012) "Student Enrollment in Classes with Frequent Mathematical Discussion and Its Longitudinal Effect on Mathematics Achievement," The Mathematics Enthusiast: Vol. 9: No. 1, Article 6.

Appendix A Incoming K -2 Early Numeracy Deficiency

By school, the number and percentage of incoming students in grades K - 2 are identified as having a mathematics deficiency

Table will be added in the final PDF export. In the meantime, click here for the table.