

Landscape of K-12 Math Education in California

Assembly Education Committee – Informational hearing
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ASSETS & ASPIRATIONS | Most students recognize the value of math



sample: nearly 90,000 high school students across 14 U.S. states (2022–2023)

Nearly **3 in 5** high school students across the nation agree that it is **important** for everyone to **learn math**.

7 in 10 students have, at some point, considered themselves a **math person** — and those who develop that identity typically form it in elementary school.



sample: 434 middle and high school U.S. students (grades 5–12)

MATH OUTCOMES | California has made little statewide progress in math

Too few students—especially students who are Black, learning English, or have disabilities—are being supported to meet grade-level math standards.

In California,

Only **1 in 5** Black students



Only **1 in 8** students with disabilities



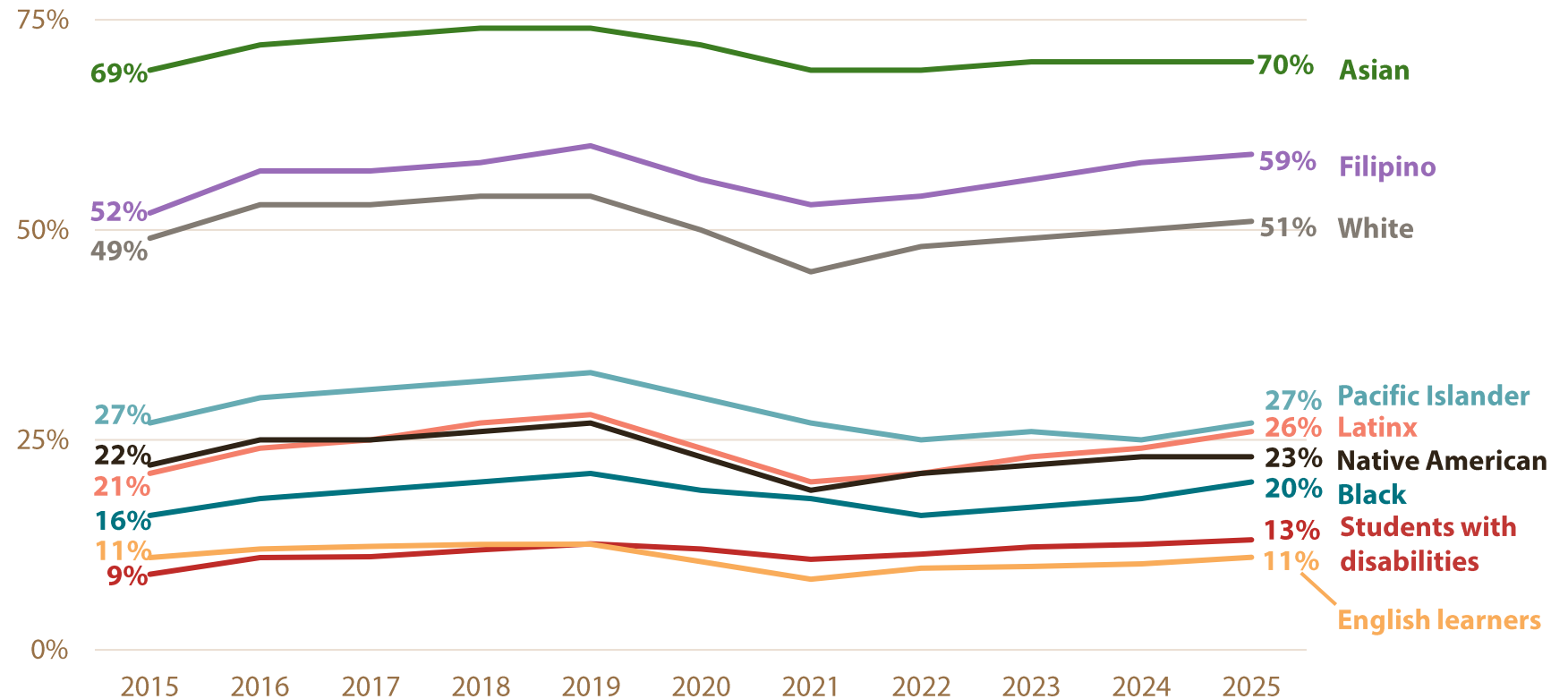
and

Only **1 in 9** students learning English



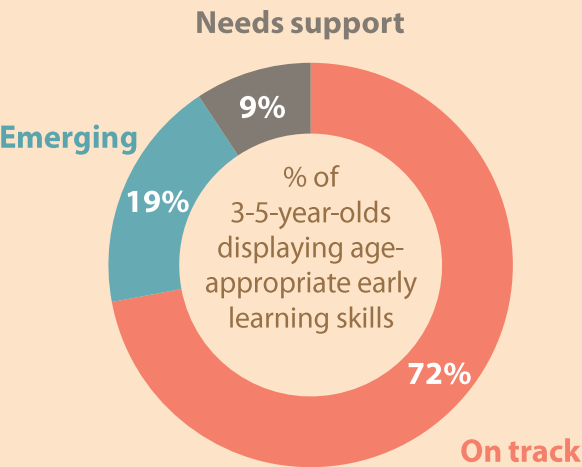
were supported to reach math proficiency in 2025

Percentage of California students supported to meet or exceed grade level math standards, by race (2015 to 2025)



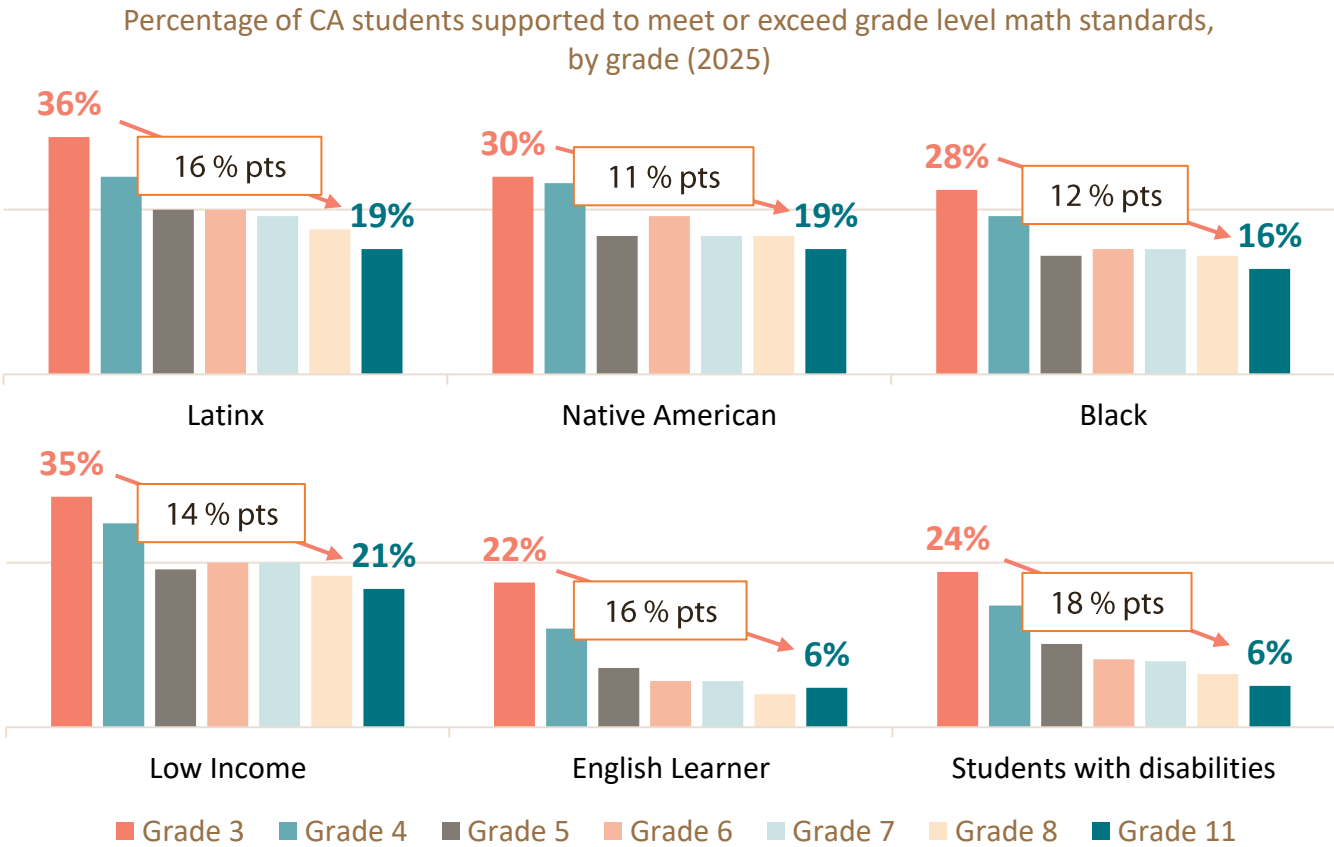
MATH OUTCOMES | Early math matters for success in later grades

Early math skills are one of the strongest predictors of later academic success.



And yet, many children enter kindergarten without these critical skills. **28%** of California's 3- to 5-year-olds were **"off track"** in both early literacy and **math skills** in 2022.

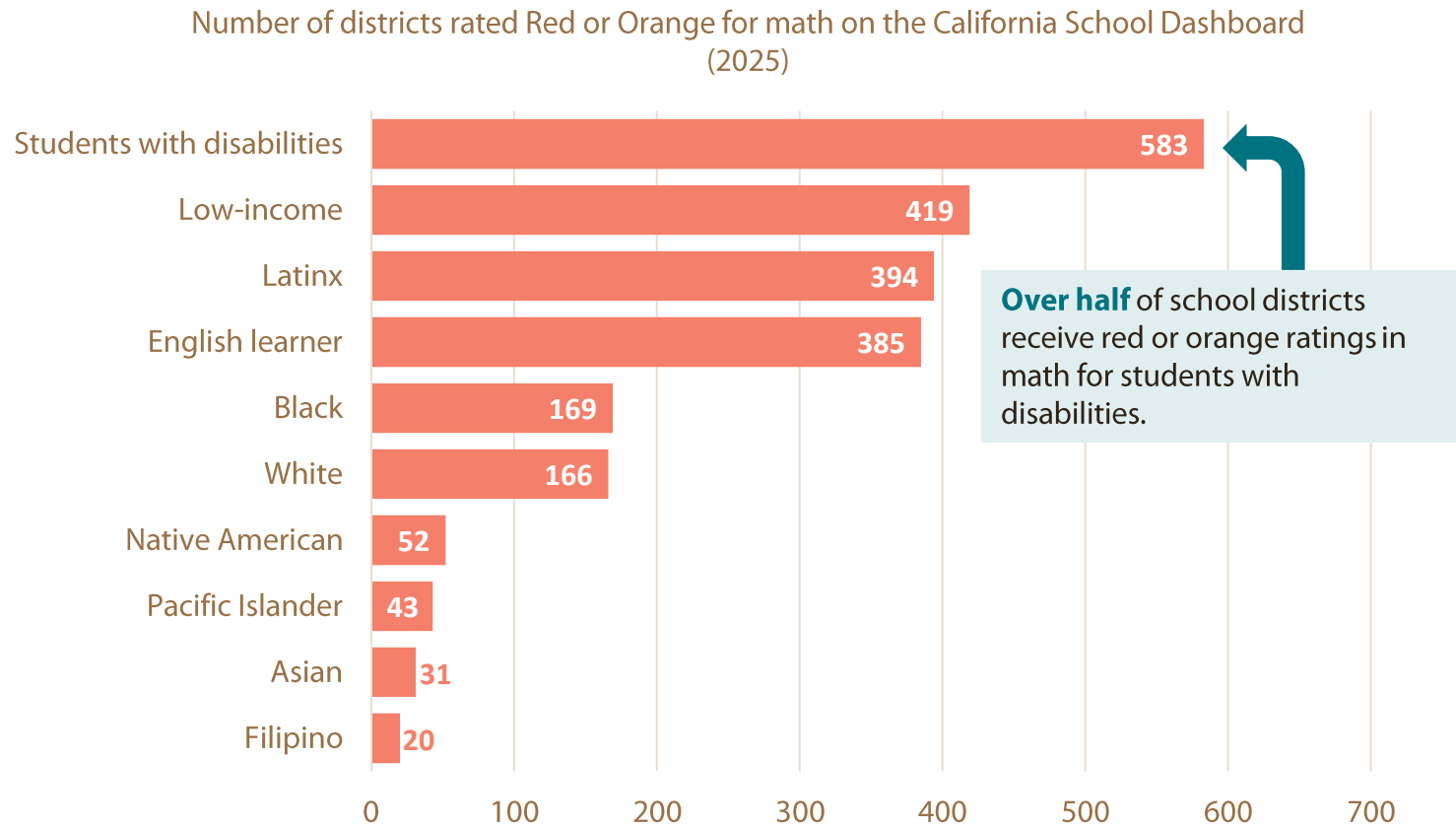
Math skills build on each other, so students who start behind often struggle to catch up.



California sees steep declines in math proficiency from elementary through high school.

LEARNING | Most districts are identified for needing assistance to improve math outcomes

3 in 4 districts have at least one student group – most often students who are low-income, Latinx, English learners, or have disabilities – rated Red or Orange for math on California's statewide accountability system.



What do Red and Orange ratings mean for math?

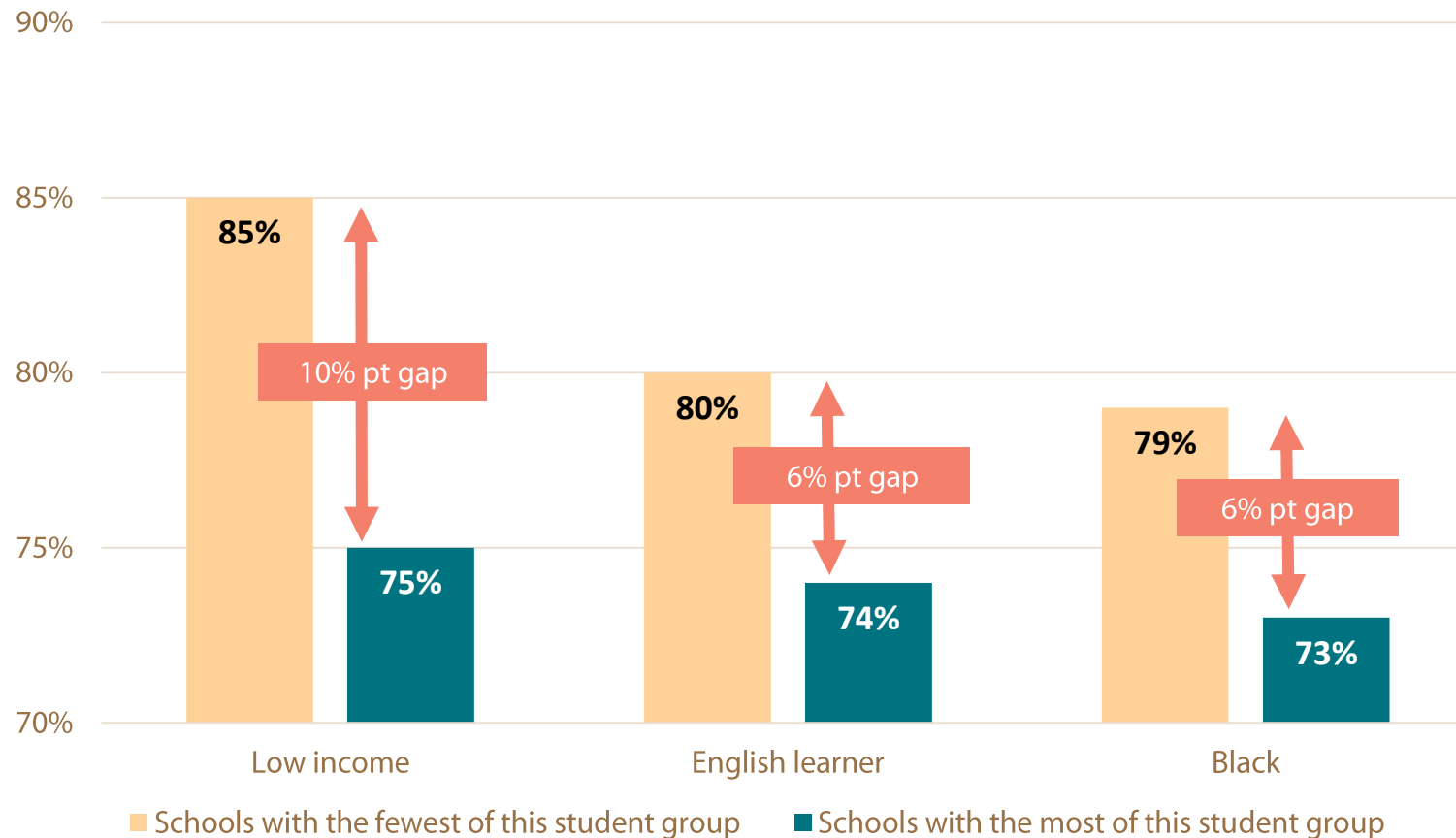
The **California School Dashboard** uses color-coded performance levels based on current results and year-to-year progress. **Red and Orange** indicate the greatest need for improvement and trigger **differentiated assistance** through the State System of Support.

These patterns point to persistent inequities in access to high-quality math learning opportunities across the state.

INSTRUCTION | Inequitable access to fully prepared teachers limits student opportunity

Students experience the largest learning gains when taught by **fully prepared teachers**, yet Black, low-income, and English learner students have **limited access** to fully prepared math teachers.

Percentage of math classes taught by fully prepared teachers in California schools, by school concentration of Black, Low income, and English learner students (2024)



Across California, **only 77% of math classes are taught by fully prepared teachers** – meaning teachers who are fully credentialed and properly assigned to teach the subjects, students, and grade levels to which they are assigned.

In schools with a **high concentration** of **low-income students**, only **75% of math classes** are taught by fully prepared and properly placed teachers, compared to **85%** in schools with a **low concentration** of low-income students.

INSTRUCTION | Access to high-quality professional learning is uneven and insufficient

Although high-quality **professional learning (PL)** and **coaching** are effective strategies for improving instruction and student outcomes, many California teachers lack access to useful and sustained support.

In a survey of over 200 California math teachers,



63% of elementary and **42%** of middle and high school math teachers found their PL opportunities **useful for improving instruction.**



60% overall reported that their math PL **aligns well with their curriculum materials.**



57% overall agreed that they have adequate time to **collaborate with other teachers** and that this collaboration is helpful to them.



Only **25%** overall reported receiving **individual coaching** from their districts that is helpful to them.

With only 6% of California's elementary teacher preparation programs providing adequate instructional time in math content and pedagogy, in-service professional learning carries a large – and currently unmet – burden.

Additional Analysis

LEARNING | Students want meaningful, relevant, and empowering math learning experiences

Most U.S. high school students express **determination and belief** in their math ability, though many lack **supportive conditions** to fully engage.

70%

agree they can be good at math if they work hard.

61%

often or always keep trying in math when the work gets hard.

47%

say they work on interesting problems in their math class.

46%

feel comfortable asking questions in math class when they do not understand.

sample: nearly 90,000 high school students across 14 U.S. states (2022–2023)

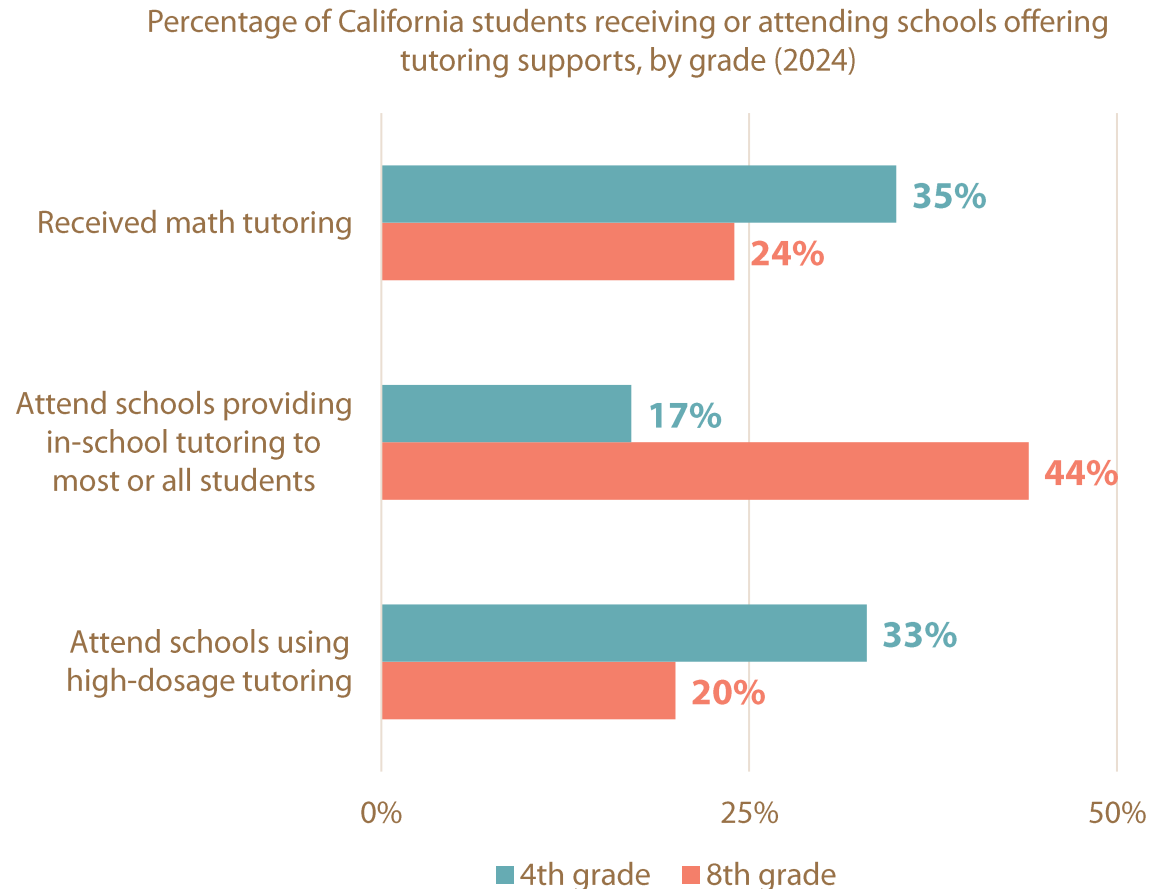
Many students describe wanting "real math" with everyday relevance tied to financial skills, independence, and their future goals.

"Math is important but we're being taught the wrong kind of math."

"Math and high school are difficult. Empathy, understanding, and compassion are what we need to learn."

LEARNING | Tutoring reaches many California students, but not most

High-dosage tutoring is one of the most effective interventions for accelerating math learning, producing gains equivalent to 3-15 months of additional learning. In California, **only a third of fourth graders and **even fewer eighth graders** attend schools that provide high-dosage tutoring.**



What does effective high-dosage tutoring require?



One-on-one or small-group tutoring sessions



3 sessions per week, each at least 30 minutes



Sessions held during school hours



Students meet with the same tutor each session



High-quality instructional materials that align with classroom content



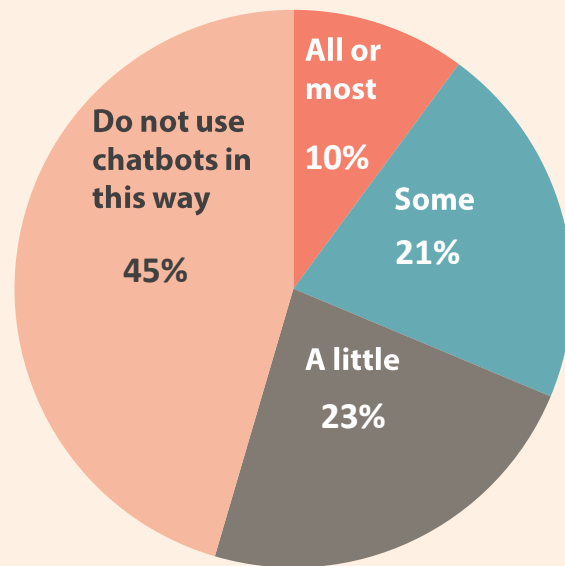
Trained tutors who receive ongoing support and coaching

LEARNING | Artificial intelligence is already changing how students learn

More than half (54%) of students in a national survey reported using artificial intelligence (AI) chatbots to help do some portion of their schoolwork, including for math.

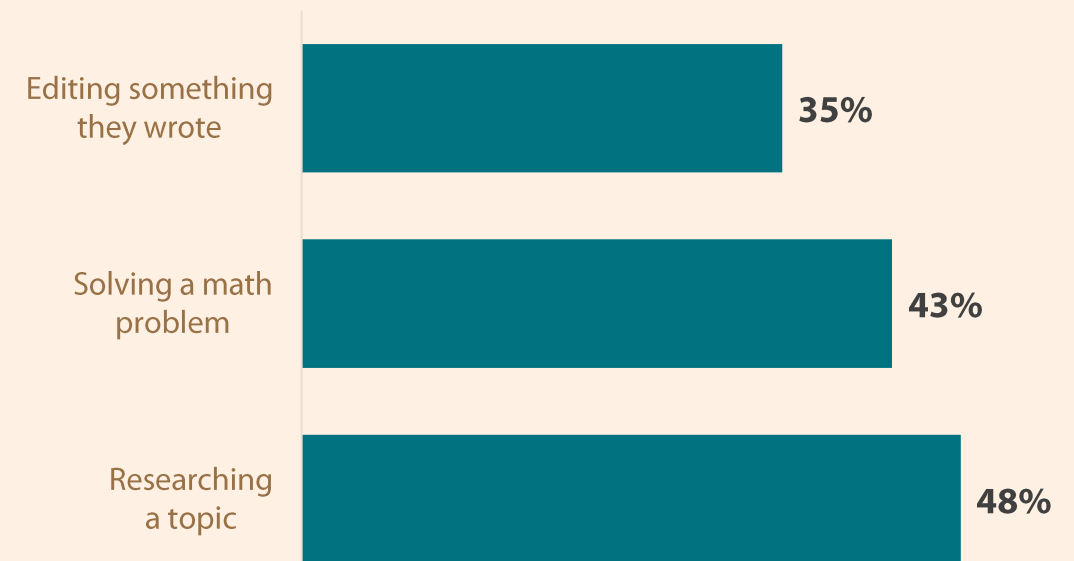
1 in 10 teens say they do **all or most** of their schoolwork with the help of AI chatbots

Percentage of U.S. teens ages 13 to 17 who say they do ___ of their schoolwork with the help of AI chatbots



4 in 10 teens say they turn to chatbots for help with math

Percentage of U.S. teens ages 13 to 17 who say they have ever used AI chatbots to help with ___ for school



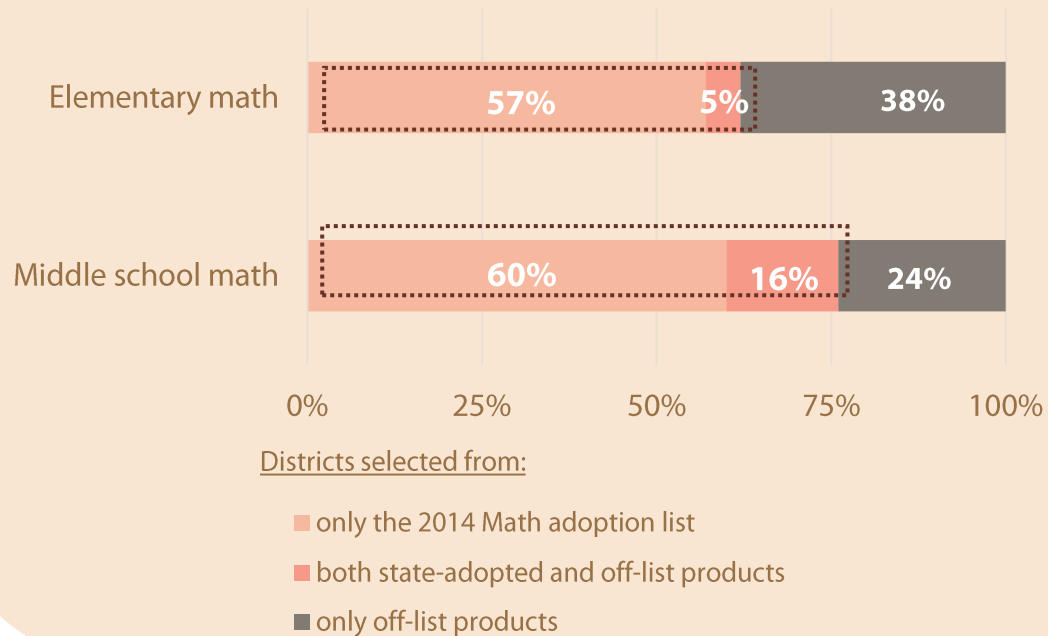
The role of technology, including AI, in teaching and learning is a major consideration for education leaders, educators, families, and students.

INSTRUCTION | More districts are beginning to adopt higher quality materials

Adoption of **high-quality instructional materials (HQIM)** is a critical piece of the puzzle when it comes to improving math teaching and learning. While most California districts still have **outdated products** in place, some districts have already begun making shifts to **higher-quality products**.

For elementary math, **62%** of districts still had products from the 2014 list in place in 2023.

Percentage of California districts by math curricula selection (2020-2023)



In 2024, nearly **half (45%)** of California's districts had a high-quality, aligned K-5 math curriculum product.



What does "high-quality" mean in this context? As defined by the data source, "high-quality" emphasizes alignment to grade-level standards and does not account for equity or cultural responsiveness. This definition is the minimum floor of quality, yet most districts are still not meeting this standard.

INSTRUCTION | Lack of awareness of HQIM creates barriers to meeting students' needs

Math instructional materials often fall short of meeting students' needs.

More than **3 in 5** teachers say materials do not connect math concepts to students' lived experiences or cultures.



Only **half** of teachers say materials help tailor instruction for students learning English.



sample: 156 California math teachers

A lack of awareness, clear definitions, and classroom-level implementation support create barriers to moving **high-quality instructional materials (HQIM)** from policy to practice.

11% of K-12 education leaders in California say they are "very familiar" with the concept of HQIM.

(sample: 97 principals and superintendents)

13% of education leaders in California report that their school or district has an official definition of HQIM.

(sample: 97 principals and superintendents)

38% of California math teachers report relying on district-adopted math materials.

(sample: 216 California math teachers)

Awareness

Definition

Implementation