GET MORE MATH ESSA EVIDENCE PACKET

Get More Math
Breaks the Forgetting Cycle!

Effective Spiral Review

- More instruction time with automatic spiral math practice
- Concept mastery and long-term retention
- Grades 3 up to Algebra I & II, Geometry & Integrated Math
- Individualized cumulative practice
- Real-time data diagnoses for individuals and classes

Online math practice to target current skills. Spiral review to ensure long-term retention.

Targeted Skills

Students practice skills targeted by the teacher for focused practice assignments. Those skills automatically build a student's Spiral Review exercise, for individualized and prioritized, spiral math practice.

Colors are used to communicate proficiency levels. $ symbols are used to prioritize which skills each student should be practicing.

Students are **required to correct mistakes** early and earn game credits for multiple correct answers on the first attempt. Game credits can be spent for brief 90 second 'brain breaks.'

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UNDERSTANDING
ESSA Evidence

Evidence guidelines under the Every Student Succeeds Act (ESSA) are designed to ensure that states, districts, and schools can identify programs, practices, products, and policies that work across various populations.

The Every Student Succeed Act (ESSA) requires education programs to provide evidence of effectiveness and impact in order to be federally supported. The Department of Education's Office of Educational Technology provides standards to assess the varying levels of strength of research for education products.

The categories for ESSA Evidence are: strong, moderate, and promising evidence of effectiveness, or demonstrates a rationale to be effective.

This product meets the requirements for Level 3: Promising

- ✅ In correlational design, students who used the program are compared to normed referenced samples or other group averages for comparison.

- ✅ Multiple studies with the proper design and implementation with at least two teachers and 30 students per group

- ✅ Study uses a form of a program that could be replicated

- ✅ Statistical controls through covariates

- ✅ At least one statistically significant, positive finding

"Educators and researchers continue to uncover important insights about how people learn. Digital Promise's Research-Based Design Product Certification recognizes the edtech products that incorporate research about learning into their design and development. Congratulations to MindPlay for demonstrating that research informs product design!"

– Christina Luke Luna, Chief Learning Officer, Digital Promise

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**Learning Experience Design (LXD)
Research & Consulting**
A division of Charles River Media, Inc.

How Get More Math Breaks the Math Forgetting Cycle

Success in mathematics requires not just understanding of concepts, but also regular practice. Educators often face the challenge of finding effective ways to reinforce mathematical concepts and ensure long-term retention. Enter retrieval practice–a scientifically proven method to enhance the way learners learn and make learning stick.

Get More Math is a powerful and innovative tool that aims to revolutionize math education by breaking the math forgetting cycle, the concept that we lose information over time if we don't try to retain it (Wittman, 2018). With targeted practice that combines new material with spiral review, students are achieving enhanced long-term retention of math skills. Research has shown that if learners spread out their study of a topic, returning to it periodically over time, they remember it better (Brown et al., 2014).

Even the most experienced math teachers have students who ace unit tests, but later struggle with the same content on the final exam, or have a hard time grasping more advanced concepts because they have forgotten previous foundational learning.

> If it seems like math skills and concepts go in one ear, then out the other, it may be time to incorporate daily spiral review. Get More Math makes it brain-friendly with interleaved, spaced retrieval.
>
> *Josh Britton*
> *Founder and CEO,*
> *Get More Math*

With Get More Math, as teachers choose the types of problems they want students to practice and master, the program integrates a daily spiral review of previously learned concepts to ensure long-term retention. The teacher remains the primary driver of instruction, and can continue to ensure that all students have the opportunity to master grade-level standards. As a result, students won't be "stuck" in a cycle of working on standards below their grade level, which can actually hurt students and exacerbate racial inequities. (TNTP, 2021). Get More Math allows for learning acceleration, as the teacher can start with grade level content, strategically building in lower grade level concepts when students might need them to master grade level work (TNTP, 2021).

Enhancing Math Skills through Retrieval Practice

Retrieval practice is attempting to recall information without having that actual information in front of you. As research has shown, if teachers frequently require students to pull concepts from their brains, rather than continually attempting to put concepts into their brains, students will actually learn those concepts better (Karpicke, 2009; McDaniel et al., 2011). In other words, regular retrieval practice makes learning stick far better than re-exposure to the original material does (Brown et al., 2014). By incorporating retrieval practice into math education, students can strengthen their problem-solving abilities, develop critical thinking skills, and build a solid foundation for advanced mathematical concepts.

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Unveiling Student Potential: Data Monitoring as a Catalyst for Growth

To further support retention, Get More Math has introduced numerous data monitoring features. Teachers have the ability to monitor student performance live, view student proficiency for any skill assigned, and discover the average number of days it takes for students to cycle through all skills in Mixed Review. Because student data can show different levels of mastery on different topics and among different students, teachers can tailor their instruction accordingly, including opportunities for enrichment or extension projects (Gleason et al., 2019). By monitoring data consistently, teachers can be aware of which students may be struggling and require additional support or alternative teaching approaches.

> Get More Math handles all of the cumulative review and differentiation of mathematics content that is so difficult for teachers to do on their own so they can focus on developing engaging lessons and connecting with students.
>
> *Chris Rachor*
> *Math Specialist,*
> *Get More Math*

The Power of Automated Differentiation

To further ensure long-term math retention, Get More Math recognizes and accommodates the diverse needs and abilities of students. As abilities and interests vary greatly among students, teachers need to attend to those differences in order to maximize their students' individual potential (Tomlinson, 2000). Our tools provide a way for teachers to easily differentiate practice so that every student is practicing what they need, based on problems and concepts they've struggled with in the past, as well as concepts they haven't reviewed recently. Setting time aside during each class for students to work with Get More Math provides this combination of retrieval practice and individualized support.

In conclusion, mastering mathematics opens doors to countless opportunities. By implementing a well-designed retrieval practice program, we can empower learners to embrace math learning with confidence, nurture critical thinking abilities, and unlock their full potential. With Get More Math's comprehensive math program, students will embark on a transformative journey towards mathematical excellence.

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LXD RESEARCH
ESSA Level 3 Evidence
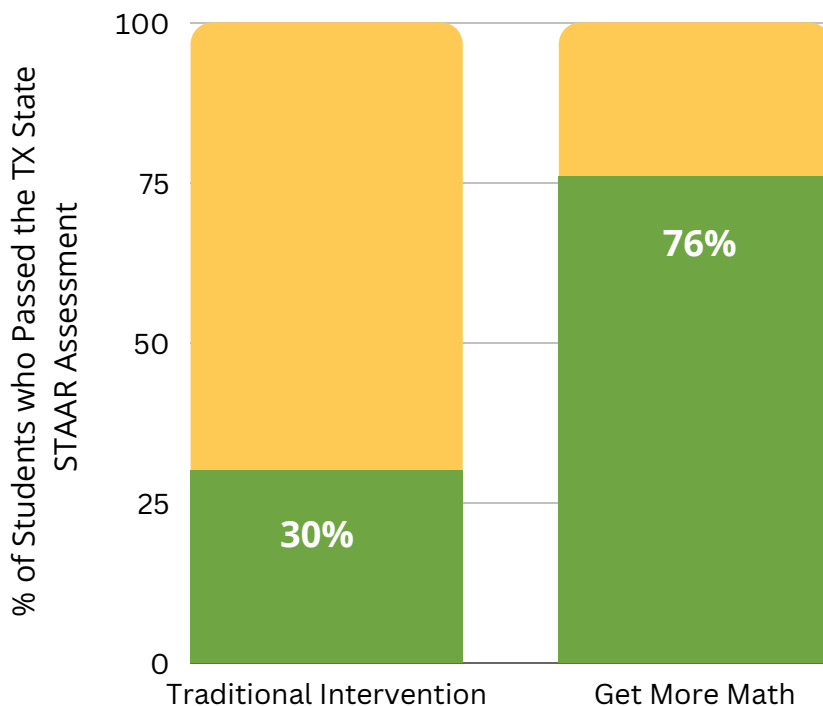
ESSA Level: 3, Promising

Effect Size: 0.96

Grade: Middle School

Test: STAAR

Location: Texas

Population: 26% White, 31% Black, 40% Hispanic, 84% free or reduced lunch

Lufkin Middle School Texas

Data Story

This study, conducted in 2017 at Lufkin Middle School in Texas, focused on eighth-grade students who had yet to meet grade-level performance standards. This cohort analysis qualifies the study as ESSA Level 3. The sample consisted of 73 re-testers who did not meet grade-level performance on the March 2017 STAAR assessment. These students were randomly placed into two groups to receive intervention instruction and practice over the course of approximately six weeks. Both cohorts received similar instruction, but one group utilized Get More Math software while the other group received other interventions traditionally used at the school. Results show that the pass rate of students using Get More Math was 76%, which surpassed the non-Get More Math cohort pass rate of 30%.

Get More Math 8th Graders Outperform Students with Traditional Intervention

Y-axis: % of Students who Passed the TX State STAAR Assessment

- Traditional Intervention: 30%
- Get More Math: 76%

LXD RESEARCH
ESSA Level 3 Evidence

ESSA Level: 3, Promising

Effect Size: 1.06

Grade: High School

Test: Keystone Algebra I Exam

Location: Pennsylvania

Population: 20% Minority, 18% free or reduced lunch

State College High School

Data Story

This study consisted of participants in a pilot implementation of Get More Math beginning in the 2016–2017 school year. This cohort analysis compares student progress before and after Get More Math was introduced, qualifying it as an ESSA Level 3, correlational study. The sample size was 103 in the first year of study. The standardized Keystone Algebra I Exam assessed student performance at the end of each year. After the first round of standardized tests in 2017, 33 out of 103 students achieved proficient or better on the Keystone Exam, which is almost 3 times more than the prior 4 years combined. Using Get More Math meaningfully increased the percentage of students who were Proficient or Advanced on the state exam. Results show that students who used the Get More Math program performed significantly better than students in past years.

Get More Math Shifts Math Proficiency from <5% to over 40%

% of Students Proficient or Advanced on the PA State Exam

2013-2016	4%
2017	32%
2018	43%
2019	41%

Before — 2013-2016

Using Get More Math — 2017, 2018, 2019
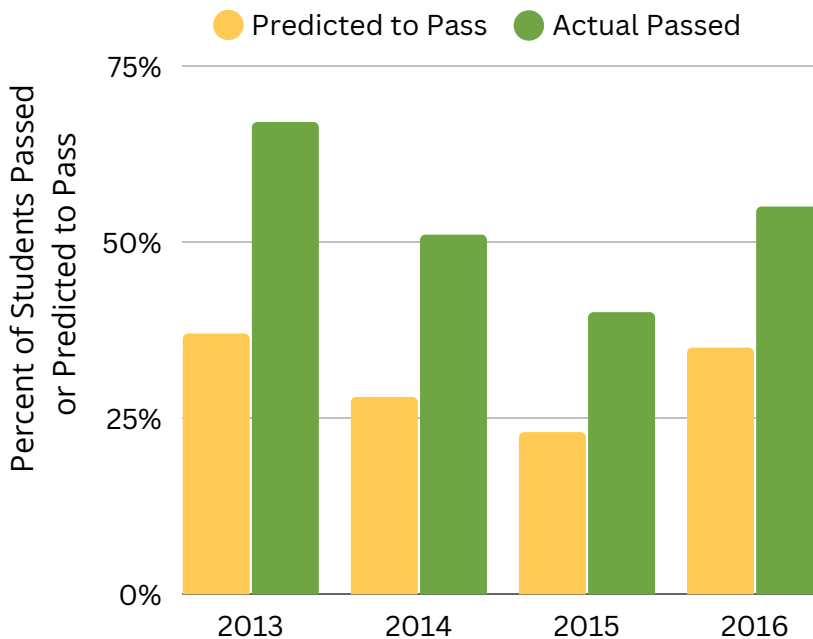
ESSA Level: 3, Promising

Effect Size: 0.98

Grade: High School

Test: Keystone Algebra I Exam

Location: Pennsylvania

Population: 17% Minority, 21% free or reduced lunch
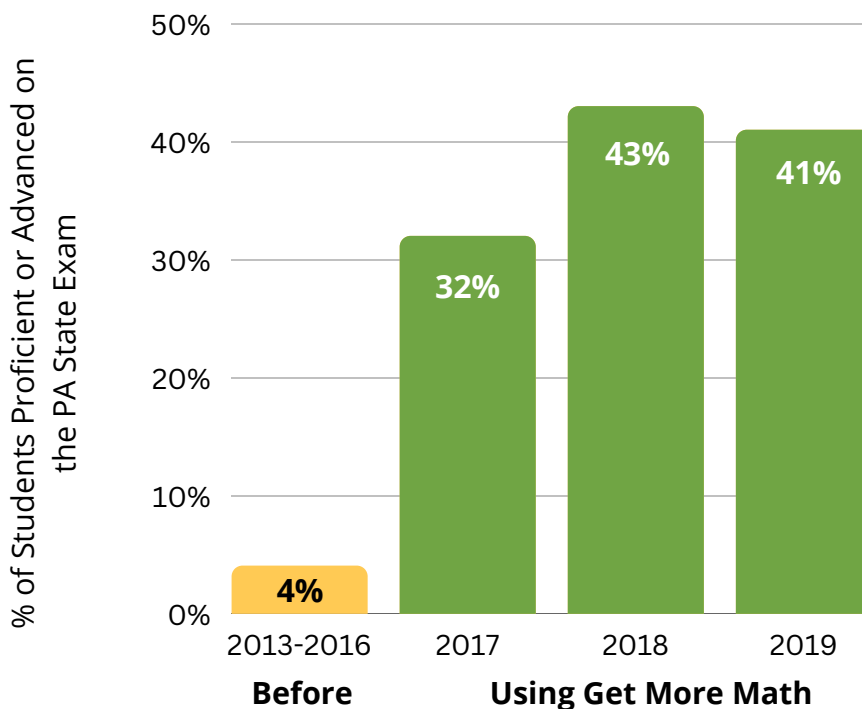
Lampeter-Strasburg High School
Data Story

This study investigates the effectiveness of core instruction for high school students using cohort analysis. The study design meets ESSA Level 3 criteria and consisted of 265 students. Over 3 years, students' Pennsylvania Value-Added Assessment System predicted performance and students' actual Keystone Algebra 1 Exam performance were compared. Study results showed that out of the 265 students, only 123 were predicted to pass. However, with Get More Math, 214 students attained a passing score—73% more than expected. For the remaining students who did not pass, nearly all students exceeded their predicted score.

Get More Math Users Exceed Predicted Performance

Legend: 🟡 Predicted to Pass 🟢 Actual Passed

Y-axis: Percent of Students Passed or Predicted to Pass (0%, 25%, 50%, 75%)

X-axis: 2013, 2014, 2015, 2016

ESSA Level: 3, Promising

Grade: Elementary School

Test: NWEA MAP Growth

Location: California

Population: 66% White, 20% Hispanic, 47% free or reduced lunch
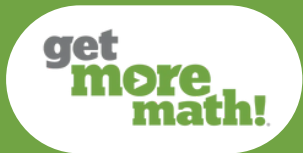
Columbia Elementary School
Data Story

This study, conducted in 2022 at Columbia Elementary School, would rank as ESSA Tier 3. The study focused on students in grades 6-8 in the core curriculum. The duration of the study was one year and the sample size of 88 consisted of 42 seventh graders and 46 eighth graders. The assessment used was the standardized NWEA MAP Growth. At the end of the study, students using Get More Math performed 22.5% better than average. The average Fall-to-Spring growth for 7th grade Get More Math users on the NWEA MAP benchmark assessment was 36% above the mean, with a MAP School Conditional Growth Index in the 99th percentile. In addition, 8th graders using Get More Math had an average Fall-to-Spring growth of more than 9% above the mean, along with a MAP School Conditional Growth Index in the 76th percentile.
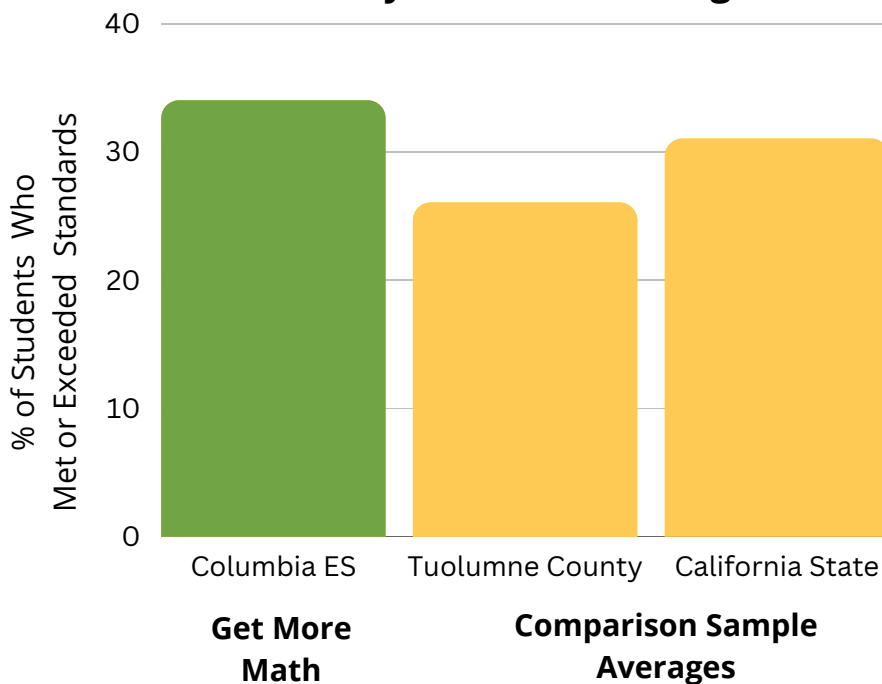
Get More Math School Outperforms County and State Averages

Columbia ES — **Get More Math**

Tuolumne County | California State — **Comparison Sample Averages**

ESSA Level: 3, Promising

Grade: Middle School

Test: Grade 5 Ohio State Exam

Location: Ohio

Population: 94% White students

Coldwater Middle School

Data Story

This study, conducted in 2022 at Coldwater Elementary School in Ohio, would rank as ESSA Level 3. The study focused on 65 fifth-grade students in the core curriculum. The duration of the study was one year and the assessment used was the Grade 5 Ohio State Exam, a standardized test. At the end of the study 100% of students using Get More Math were proficient or better on the exam. Furthermore, the average score of 754 attained by Get More Math users significantly exceeded the average score of 709 for all Ohio state 5th graders tested from 2016 through 2021. In addition, 55% of Coldwater Elementary School 5th graders attained the Advanced level on the 2022 Grade 5 Ohio Exam.
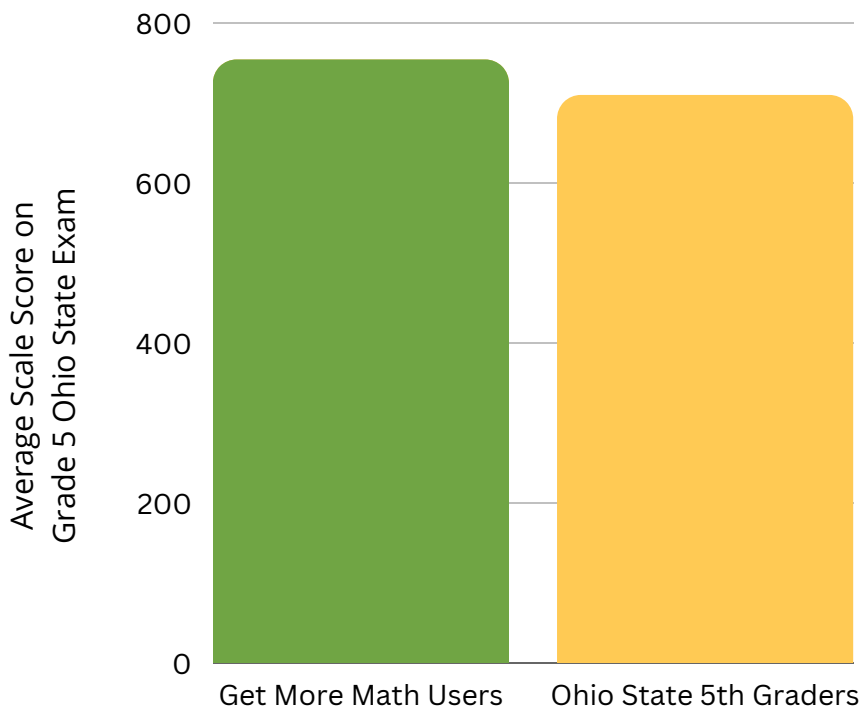
Fifth Graders Using Get More Math Exceed State Average

Logic Model for Get More Math

PROBLEM STATEMENT

Students learn math skills in the short term but forget them by the end of the school year. Students' lack of reinforcement and limited opportunities to practice and apply learned skills leads to "the forgetting cycle." Students who experience this knowledge decay suffer from a lack of transferable math skills to support their learning in future math courses, hindering their overall mathematical development. Get More Math software has been developed to help break the forgetting cycle. Designed for students in grades 3-11, this program provides targeted practice that combines new material with spiraled review. By interleaving new concepts with regular review of previously learned material, Get More Math reinforces knowledge and enhances long-term retention.

RESOURCES

What resources are or could be available?

- Dedicated time for spiraled math practice
- Structured, sequential approach to math instruction
- Expert-developed learning content
- Teacher comfort, belief, and understanding of long term math skill retention in education
- Interactive handouts
- Dashboard for teachers with student progress
- Training documents
- Motivational lesson plans
- Access to a device, such as a laptop
- Access to the internet

STRATEGIES & ACTIVITIES

What will the activities, events, and such be?

- Individualized, spiraled practice, mixed review sessions, and immediate feedback to aid in learning
- Live monitoring lets teachers know what students have completed, where they struggled, and provide real-time support.
- Teachers incorporate Get More Math into the curriculum and support student learning
- Teachers align skills with their curriculum on the topics they need when they need them
- Students correct mistakes early and earn game credits for correct answers
- Teachers set a data-driven daily goal that is relative to each day's workload

OUTPUTS

What are the initial products of these activities?

- The Get More Math experience allows students to engage in individualized retrieval practice, which increases their math skill retention
- Students engage with the materials daily, which helps them to be more prepared for assessments
- The spiraled review increases students' capacity to recall math skills and apply them readily
- Students gain exposure to daily mixed review which supports skill retention
- Students correct their mistakes, leading to increases in proficiency
- Teachers can modify skills students practice to support skill mastery
- Teachers present more interactive lessons
- Students increase their opportunities for retrieval practice

SHORT-TERM AND INTERMEDIATE OUTCOMES

- Students transfer the skills they learn to support success in future mathematics courses
- Students more rapidly develop and deepen their math computation and skill retention
- Students improve their ability to retrieve math concepts and skills and increase confidence in math computation
- Students are less likely to forget the math skills they have learned
- Students are more likely to quickly solve math problems using new and previously learned skills
- Students self-assess progress
- Students develop motivation to complete math problems with accuracy
- Teachers more successfully differentiate instruction for all learners

LONG-TERM OUTCOMES AND IMPACTS

- Students build their math skill capital: their belief in their own ability to demonstrate math competency
- The mathematics knowledge gap between students who have different educational backgrounds is narrowed
- Students are empowered to challenge themselves with higher level math courses and develop a lifelong love of math
- Teachers become stronger in adapting and individualizing instruction to support individual student growth
- Students achieve their desired goals, live to their full potential, and participate in our democratic governance

ASSUMPTIONS

- Administrator allowance of daily mixed review with Get More Math
- Student use of Get More Math is integrated with the in-person math curriculum and is not an isolated experience
- Teachers use Get More Math with fidelity
- Teachers incorporate mixed review daily and continually track student progress

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LXD Research is an independent research firm that specializes in evaluating educational programs to support accelerated learning. Learn more at www.lxdresearch.com

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