

# Early Math for Future Success



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**M**ore than 40 states and the District of Columbia include college and career readiness in their school accountability systems. Many see readiness as a crucial aspect of our educational system and direct resources toward preparing students for college and careers. But ensuring students' long-term success can't wait until high school or even middle school; it must start much earlier. Perhaps surprisingly to some, high-quality early math experiences in pre-K through the third grade are just as important as early literacy. Yet most children aren't getting high-quality early math.

Here is what pre-K math instruction can look like, in a fictional example of a pre-K classroom using the Building Blocks Curriculum in New York City: Ms. Rosario sits on the rug with the children and introduces a hand-puppet moose named Mr. Mixup. She tells the class that Mr. Mixup has been confusing his shapes, so they have to correct him and explain why he is wrong. Mr. Mixup gestures with one hoof to a rectangle and says: "This is a square." Voices call out, "No-o-o!" and several children raise their hands. Ms. Rosario calls on Jenni: "It's a rectangle!" Mr. Mixup responds, "But this has four sides, so this is a square." Jenni corrects him: "It doesn't have four equal sides. A square has four equal sides."

In this scenario, children are invited to talk about math concepts and explain their thinking. These competencies are much more important than rote memorization.

Unfortunately, this is what children really experience in too many pre-K and kindergarten classrooms: The teacher holds up a picture, and the children say, "square." And, then another, and the children say, "rectangle." The teacher then holds up a worksheet and says they are going to draw

their own shapes. Children do not have math conversations; they don't talk about how a square is also a rectangle and why.

Over the last two decades, researchers have found that early math competencies are potent predictors of later student outcomes in math, reading, and executive functioning (the category of thought that includes recalling information and controlling impulses). Early math skills also predict high school and college graduation rates, underscoring the long-term benefits of focusing on early math education. More recent research from MDRC's Making Pre-K Count study demonstrated that math enrichment in pre-K that continued through kindergarten improved children's third-grade math and English reading and writing test scores. Math enrichment also contributed to lower chronic absenteeism, which is essential for long-term student success.

States across the country have increasingly focused on early literacy, enacting laws that require screening for reading difficulties and aligning classroom instruction with the science of reading. This momentum is now expanding to mathematics education, though more gradually. Florida, for example, has passed new legislation that mirrors reading-intervention models by emphasizing early identification and support for students struggling with math. Other states are taking similar approaches: Alabama now requires evidence-based mathematics instruction and materials. Colorado is emphasizing teacher preparation and professional development. These state actions reflect a growing recognition that early mathematics, like reading, requires systematic, research-informed approaches to teaching.

State education leaders seeking to strengthen early mathematics instruction should adopt two evidence-backed strategies that states like Alabama and Colorado are employing:

- Implementing coaching programs to help pre-K teachers develop effective math teaching strategies. This professional development should focus on age-appropriate instruction.
- Faithfully implementing evidence-based mathematics curricula that are designed for early learners. Any curriculum adopted should align with state developmental standards and provide structured opportunities for hands-on learning.

Research shows that these investments in early mathematics education can improve student outcomes. The combination of skilled instruction and proven curricula creates a strong foundation for children's future mathematical understanding and academic success.