An Opportunity to Improve Student Math Outcomes Through Strengthening Executive Functioning Skills

The American Institutes for Research® (AIR®) is partnering with EF+Math, a program of the Advanced Education Research and Development Fund (AERDF), to study and refine supplemental programs intended to improve math outcomes for students in Grades 3–8, including Black and Latino students and students of all races experiencing poverty. These programs are designed to improve math outcomes by enhancing students’ understanding of math concepts, building their problem-solving expertise, and strengthening their executive function (EF) skills. EF skills are the core capacities that allow students to manage their attention, thoughts, emotions, and behavior.

WHY EF AND THESE PROGRAMS?

Reports on student learning show that math performance is weaker than in prior years, and equity gaps are widening. Research has found that:

• Strong EF skills are closely associated with strong math performance.
• Students from low-income households with strong EF skills demonstrate similar math performance to their peers from higher-income households.

EF+Math funded teams of researchers and developers to work closely with educators, students, and families to co-design promising math learning approaches that improve math outcomes while meeting student and teacher needs and strengthening EF skills. Initial studies of these programs have demonstrated promise for improving student outcomes.

WHAT IS INVOLVED?

The project will take place during the 2024–25 school year, beginning in fall 2024 and ending in spring 2025. Teachers will use one of the programs (see page 2) selected by their district with their students, provide feedback that will contribute to the continued design and improvement of the program, and complete data collection activities. The study will provide:

• All materials for implementing the program
• Training and ongoing support for teachers
• Opportunities to participate in a district educator advisory board to provide input on the study
• Compensation for time spent in study activities

WHAT ARE THE BENEFITS TO PARTICIPATION?

• Potential to INCREASE STUDENT ACHIEVEMENT and improve students’ overall experience with math by:
  – Using innovative, research-informed materials that have been co-developed, tested, and improved with students and teachers.
  – Participating in teacher professional learning focused on student executive functioning skills, building positive math identity, and math instruction.
• Opportunity to SHAPE THE STUDY DESIGN and look at the data collected to answer key questions about the program and math learning.

WHAT DATA WILL BE COLLECTED?

• Teacher and student perspectives of the program activities
• Student EF skills, experience with math, and math learning
• Teachers’ use of the program, participation in the professional supports, and math instruction
• Student math achievement and demographic data to examine the impact of the program

For more information on the programs, visit https://aerdf.org/programs/ef-math/.

For questions or to express interest, please contact Bobbi Newman (bnewman@air.org) or Toni Smith (tsmith@air.org).

WHO CAN PARTICIPATE?

We are looking to partner with districts serving predominantly Black and Latino students and students of all races experiencing poverty.
Invitation to participate in a Math project

**fraction ball**

**GRADES 4–5**

FRACTION BALL is a series of classroom activities and outdoor games on a custom-painted Fraction Ball court that make meaningful connections between math learning in the classroom and the schoolyard. Fraction Ball provides a playful context for students to engage in embodied rational number learning while strengthening executive function skills.

**GRADES 6–8**

EF+MATH CueThinkEF+ Project, which is a collaborative, inclusive evaluation of CueThinkEF+, a web-based learning approach for problem-solving that is intended to improve math outcomes for students in Grades 6-8. CueThinkEF+ is designed to improve math outcomes by building students’ problem-solving expertise and strengthening their executive function (EF) skills.

**SIGN UP TO LEARN MORE**

We welcome the opportunity to meet with you and discuss how these programs might fit within your district. If you would like to learn more, please complete the brief interest form. A project team member will reach out to schedule a brief information session.