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ResearchBRIEF
Youth Community Connections
Minnesota's Statewide Afterschool Alliance

Building STEM Knowledge and Skills Afterschool

Science, technology, engineering, and math (STEM) learning are supported by after school opportunities.

Science, technology, engineering, and math (also known as STEM) knowledge and skills are seen as increasingly vital to an individual's success in the global workplace. Youth who participate in afterschool programming with STEM components can increase their prospects of success in school and the workforce.

OPPORTUNITY FOR IMPROVEMENT

The United States has a profound opportunity for improvement in their students' test scores and in their standing in worldwide achievement.

- ◆ Roughly a third of fourth- and eighth-grade students across the country reached or exceeded proficiency in science and math achievement tests
- ◆ Only 18% of twelfth-grade students across the country reached or exceeded proficiency in science achievement tests
- ◆ The US ranks low in science and lower in math test scores among developed countries worldwide
- ◆ The US has the fourth-largest gap between high- and low-income students' test scores among developed countries
- ◆ Youth need opportunities to experience math and science in fun ways. Nearly half of students report they do not want jobs that require a lot of math or science.
- ◆ By the time students reach secondary school, they report less self-confidence and interest in math and science

THE ROLE OF AFTERSCHOOL

Afterschool programs are proven to enable participants to improve their teamwork, collaboration, communication, and problem-solving skills, all of which are essential to STEM learning. Afterschool programs provide students the opportunity to engage in hands-on, experiential activities that require planning, investigation, sense-making, and communication.

- ◆ Afterschool provides students with additional opportunities that are limited by the school day schedule and by teachers' need for support in science education
- ◆ Afterschool programs incorporating STEM activities help close the achievement gap by offering disadvantaged youth the chance to gain math and science skills and knowledge needed in the classroom
- ◆ Students who participate in STEM programs report increased confidence in their math and science skills and say they're more likely to consider careers in STEM fields
- ◆ Evaluations of afterschool STEM programs have found significant increases in participants' science, writing, and reading test scores
- ◆ According to a 2006 poll, 81% of Americans support expanding afterschool programs as a means to increasing students' performance in math and science, even if per-pupil expenditures would increase substantially as a result

AFTERSCHOOL AND STEM IN MINNESOTA

- ◆ 2008 ACT test scores indicate that 56% of Minnesota students taking the test are college-ready in math and only 40% are college-ready in science
- ◆ In 2006, Minnesota government, business, non-profit, and education leaders held a summit meeting to discuss the creation of a state plan for career development in STEM, including connections between afterschool and STEM, stating that there is strong potential for increasing students' STEM achievement through their participation in afterschool programs
- ◆ Innovative Minnesota afterschool programs that successfully incorporate STEM knowledge and skills are gaining recognition from national organizations