



June 8, 2021

Dear State Education Policymaker,

With the passage of the American Rescue Plan Act in March, and looking forward to a widespread return to in-person instruction in the Fall, education leaders are facing an unprecedented array of key decisions affecting teaching and learning, especially with regard to science, technology, engineering, and mathematics (STEM) education.

A high-quality, integrated STEM education encompasses quality standards, innovation, critical thinking, engineering, informal, afterschool and summer learning opportunities, and competitions that all contribute to increasing student achievement in STEM subjects for all students. Even prior to the pandemic, far too many schools were not providing students an integrated STEM curriculum or rigorous and equitable STEM opportunities. And the ravages of COVID-19 only exacerbated this disturbing trend, especially for the students and schools that were already facing the greatest disadvantages.

The [American Rescue Plan Act](#) includes \$123 billion to K-12 education through the Elementary and Secondary School Emergency Relief Fund (ESSER). The ESSER program provides states and districts with the flexibility to utilize recovery funds to address the impact of the coronavirus pandemic on the Nation's students. It also allows states and district to use these funds for any authorized purpose under current federal law (Every Student Succeeds Act, or ESSA).

The decisions being made now about how these funds will be used to prepare our children in STEM will have an enormous impact on your state's economy, America's national security, and our nation's continued leadership in science and technology in a post-pandemic world. The [STEM Education Coalition](#) has worked for many years with education, business, and industry stakeholders gathering extensive input on the needs of STEM stakeholders across our nation and to help make STEM education a priority at the federal, state, and local levels. The goal of the remainder of this letter is to convey to your our recommendations on how best to employ American Rescue Plan Act funds for the betterment of STEM education.

The National Academies of Science, Engineering and Medicines publication [Teaching K-12 Science and Engineering During a Crisis](#) has provided critical information on how schools can respond to pandemic by:

- Supporting Collaborations and Leveraging Partnerships;
- Managing and Modifying the Scope of Content and Curriculum;
- Adjusting Instruction in Changing Environments; and
- Monitoring Learning for Continuous Improvement.

Based on recommendations from this guide, here are some suggestions on how ESSER funds can be used to address STEM-specific needs and examples of how current federal education programs can be used for science and STEM education:

- Fund teacher professional learning services and time, including on formative assessment and curriculum embedded assessment services and time
- Create networks or support the activities of existing networks, e.g. STEM Ecosystems and Hubs,
- Provide funding for 21st Century Community Learning Centers and summer learning instructors and registration Fees
- Provide and fund professional learning/network time for teachers to include grade-level team and vertical articulation (e.g. substitutes, stipends)
- Fund district/school-level positions, science and STEM coordinators, specialists, coaches
- Purchase classroom assessment materials including assessment item banks and supplies for performance assessments
- Purchase digital or physical tools for keeping records of student learning, e.g. digital science notebooks, physical science notebooks
- Purchase curricular materials that are aligned to standards
- Provide supplies and cleaning, goggles, lab coats/aprons, and cleaning or purchase for individual students
- Purchase materials for family learning, e.g. science kits, trade books
- Create more accessible spaces for all students, e.g. workbenches, modular furniture
- Purchase increased number of equipment and supplies to minimize sharing/rotation (e.g. student supply kits)
- Provide technology tools and one-to-one devices
- Provide digital simulations, subscriptions

In addition to these suggestions the American Rescue Plan *provides states and districts with the flexibility to utilize recovery funds for any authorized purpose under current federal law*. Here are some examples of how ESSER funds can be used for current federal title programs that will benefit STEM education.

**Supporting a Well-Rounded STEM Education for All Students:** Unfortunately, the pandemic has short-changed many students of opportunities to experience the wonders of science, technology, engineering, and math, especially in hands on learning environments. ESSA Title IV, Part A (Student Support and Academic Enrichment Grants) provides a pathway for utilizing recovery funds to support a wide range of programs designed to support a well-rounded education for students, create safe and healthy school environments, and improve the use of technology in every school district. To improve instruction and student engagement in STEM, state and district leaders should ensure that relief funding is used to support the wide range of activities that are specifically allowed in the statute to improve STEM teaching and learning, including:

- Expansion of high-quality STEM courses;
- Integration of classroom based, afterschool, and informal STEM instruction including a range of community partners in addition to schools and school districts;

- Increased access to STEM for underserved and at-risk student populations including through community partnerships with youth-serving organizations, science centers and museums, and other informal STEM institutions;
- Support for student participation in STEM nonprofit competitions;
- Providing hands-on learning opportunities in STEM offered by a variety of organizations;
- Integration of other academic subjects, including the arts, into STEM subject programs;
- Creation or enhancement of STEM specialty schools;
- Expansion of environmental education.

**Improving Assessments of STEM Learning:** We encourage you to use ESSER funds and utilize the flexibility of ESSA Title I to create or improve math and science assessments. One central issue that the pandemic has truly brought to the surface is the need for a fresh approach to the role of accountability systems, especially as they relate to math and science teaching and learning. ESSA Title I also provides for the use of federal funding for the development of state assessments that would integrate engineering and technology concepts into science assessments.

**Provide Professional Development for STEM Educators:** Professional learning opportunities are critical to quality teaching. Teachers need on-going training in content and pedagogy that is high quality, meaningful, and sustained. They are making significant shifts in their approach to teaching that includes teaching new science standards; integrating computer science into the curriculum; integrating other academic subjects into STEM; and incorporating engineering practices and informal learning into the classroom. In addition, the majority of elementary teachers do not have science degrees, and many do not feel comfortable teaching science and STEM content and need support and professional learning. This is also the case for staff of youth-serving organizations where limited PD opportunities make it a challenge to deliver high-quality STEM learning experiences in afterschool, summer, and other informal STEM programs. States and districts can use ESSA Title II ((Preparing, Training, and Recruiting High-Quality Teachers, Principals, and Other School Leaders) authority to use recovery funding to provide professional development to educators on STEM content areas and develop STEM leaders and mentors, including by working with a broad range of providers.

**Partnerships with Institutions of Higher Education.** Institutions of higher education can be valuable partners in combatting K-12 STEM learning loss from COVID-19. We recommend use of ESSER funds to establish partnerships with institutions of higher education to support students studying STEM, either through dual enrollment courses or summer tutoring programs. Additionally, partnerships with institutions of higher education could be utilized to help revamp K-12 STEM curriculum post-pandemic through collaboration with education experts at colleges and universities. All of these suggestions are authorized under Title I of ESSA and have the potential to make K-12 STEM education more accessible and understandable for K-12 students.

**Recruitment and Alternative Certification of STEM Educators:** One result of the pandemic is a dramatic downturn in the entry of new STEM teachers into the profession, coupled with significant attrition in the current teaching ranks. States can utilize Title II authority to establish, expand, or improve alternative certification for STEM teachers and provide for differentiated pay and other incentives to recruit and retain teachers in math and science. ESSER funds can be used by states to develop career academies to improve the pipeline of STEM educators.

If you are interested in having further discussions about how your state or district can leverage the federal recovery funding to improve STEM education or how the STEM community can be off assistance to you please contact me at (202) 400-2192 or [jfbrown@stemedcoalition.org](mailto:jfbrown@stemedcoalition.org).

Thank you for your consideration.

Respectfully,

A handwritten signature in black ink that reads "JFB III". The letters are stylized and connected, with a prominent loop for the 'J' and a distinct 'III' at the end.

James Brown  
Executive Director  
STEM Education Coalition