

S. 737

One Hundred Sixteenth Congress of the United States of America

AT THE FIRST SESSION

*Begun and held at the City of Washington on Thursday,
the third day of January, two thousand and nineteen*

An Act

To direct the National Science Foundation to support STEM education research
focused on early childhood.

*Be it enacted by the Senate and House of Representatives of
the United States of America in Congress assembled,*

SECTION 1. SHORT TITLE.

This Act may be cited as the “Building Blocks of STEM Act”.

SEC. 2. FINDINGS.

Congress finds the following:

(1) The National Science Foundation is a large investor in STEM education and plays a key role in setting research and policy agendas.

(2) While studies have found that children who engage in scientific activities from an early age develop positive attitudes toward science and are more likely to pursue STEM expertise and careers later on, the majority of current research focuses on increasing STEM opportunities for middle school-aged children and older.

(3) Women remain widely underrepresented in the STEM workforce, and this disparity extends down through all levels of education.

SEC. 3. SUPPORTING EARLY CHILDHOOD AND ELEMENTARY STEM EDUCATION RESEARCH.

In awarding grants under the Discovery Research PreK–12 program, the Director of the National Science Foundation shall consider the age distribution of a STEM education research and development project to improve the focus of research and development on elementary and prekindergarten education.

SEC. 4. SUPPORTING FEMALE STUDENTS IN PREKINDERGARTEN THROUGH ELEMENTARY SCHOOL IN STEM EDUCATION.

Section 305(d) of the American Innovation and Competitiveness Act (42 U.S.C. 1862s–5(d)) is amended by adding at the end the following:

“(3) RESEARCH.—As a component of improving participation of women in STEM fields, research funded by a grant under this subsection may include research on—

“(A) the role of teacher training and professional development, including effective incentive structures to encourage teachers to participate in such training and professional development, in encouraging or discouraging female students in prekindergarten through elementary school from participating in STEM activities;

“(B) the role of teachers in shaping perceptions of STEM in female students in prekindergarten through elementary school and discouraging such students from participating in STEM activities;

“(C) the role of other facets of the learning environment on the willingness of female students in prekindergarten through elementary school to participate in STEM activities, including learning materials and textbooks, seating arrangements, use of media and technology, classroom culture, and composition of students during group work;

“(D) the role of parents and other caregivers in encouraging or discouraging female students in prekindergarten through elementary school from participating in STEM activities;

“(E) the types of STEM activities that encourage greater participation by female students in prekindergarten through elementary school;

“(F) the role of mentorship and best practices in finding and utilizing mentors; and

“(G) the role of informal and after-school STEM learning opportunities on the perception of and participation in STEM activities of female students in prekindergarten through elementary school.”.

SEC. 5. SUPPORTING FEMALE STUDENTS IN PREKINDERGARTEN THROUGH ELEMENTARY SCHOOL IN COMPUTER SCIENCE EDUCATION.

Section 310(b) of the American Innovation and Competitiveness Act (42 U.S.C. 1862s–7(b)) is amended by adding at the end the following:

“(3) USES OF FUNDS.—The tools and models described in paragraph (2)(C) may include—

“(A) offering training and professional development programs, including summer or academic year institutes or workshops, designed to strengthen the capabilities of prekindergarten and elementary school teachers and to familiarize such teachers with the role of bias against female students in the classroom;

“(B) offering innovative pre-service and in-service programs that instruct teachers on female-inclusive practices for teaching computing concepts;

“(C) developing distance learning programs for teachers or students, including developing curricular materials, play-based computing activities, and other resources for the in-service professional development of teachers that are made available to teachers through the Internet;

“(D) developing or adapting prekindergarten and elementary school computer science curricular materials that incorporate contemporary research on the science of learning, particularly with respect to female inclusion;

“(E) developing and offering female-inclusive computer science enrichment programs for students, including after-school and summer programs;

“(F) providing mentors for female students in prekindergarten through elementary school to support such students in participating in computer science activities;

“(G) engaging female students in prekindergarten through elementary school, and their guardians (if such communication takes place on school premises during otherwise-scheduled conferences or formal conversations between teachers and guardians) about—

“(i) the difficulties faced by female students with regard to maintaining an interest in participating in computer science activities; and

“(ii) the potential positive career benefits of engaging in such activities;

“(H) acquainting female students in prekindergarten through elementary school with careers in computer science and encouraging such students to consider careers in the computer science field; and

“(I) developing tools to evaluate activities conducted under this subsection, including reports for evaluating the effectiveness of activities under this section.”.

Speaker of the House of Representatives.

*Vice President of the United States and
President of the Senate.*