

116TH CONGRESS
1ST SESSION

S. 737

AN ACT

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

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE.**

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

4 **SEC. 2. FINDINGS.**

5 Congress finds the following:

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

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

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

19 **SEC. 3. SUPPORTING EARLY CHILDHOOD AND ELEMEN-**
20 **TARY STEM EDUCATION RESEARCH.**

21 In awarding grants under the Discovery Research
22 PreK–12 program, the Director of the National Science
23 Foundation shall consider the age distribution of a STEM
24 education research and development project to improve the
25 focus of research and development on elementary and pre-
26 kindergarten education.

1 **SEC. 4. SUPPORTING FEMALE STUDENTS IN PREKINDER-**
2 **GARTEN THROUGH ELEMENTARY SCHOOL IN**
3 **STEM EDUCATION.**

4 Section 305(d) of the American Innovation and Com-
5 petitiveness Act (42 U.S.C. 1862s-5(d)) is amended by
6 adding at the end the following:

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

11 “(A) the role of teacher training and pro-
12 fessional development, including effective incen-
13 tive structures to encourage teachers to partici-
14 pate in such training and professional develop-
15 ment, in encouraging or discouraging female
16 students in prekindergarten through elementary
17 school from participating in STEM activities;

18 “(B) the role of teachers in shaping per-
19 ceptions of STEM in female students in pre-
20 kindergarten through elementary school and
21 discouraging such students from participating
22 in STEM activities;

23 “(C) the role of other facets of the learn-
24 ing environment on the willingness of female
25 students in prekindergarten through elementary
26 school to participate in STEM activities, includ-

1 ing learning materials and textbooks, seating
 2 arrangements, use of media and technology,
 3 classroom culture, and composition of students
 4 during group work;

5 “(D) the role of parents and other care-
 6 givers in encouraging or discouraging female
 7 students in prekindergarten through elementary
 8 school from participating in STEM activities;

9 “(E) the types of STEM activities that en-
 10 courage greater participation by female stu-
 11 dents in prekindergarten through elementary
 12 school;

13 “(F) the role of mentorship and best prac-
 14 tices in finding and utilizing mentors; and

15 “(G) the role of informal and after-school
 16 STEM learning opportunities on the perception
 17 of and participation in STEM activities of fe-
 18 male students in prekindergarten through ele-
 19 mentary school.”.

20 **SEC. 5. SUPPORTING FEMALE STUDENTS IN PREKINDER-**
 21 **GARTEN THROUGH ELEMENTARY SCHOOL IN**
 22 **COMPUTER SCIENCE EDUCATION.**

23 Section 310(b) of the American Innovation and Com-
 24 petitiveness Act (42 U.S.C. 1862s-7(b)) is amended by
 25 adding at the end the following:

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

3 “(A) offering training and professional de-
4 velopment programs, including summer or aca-
5 demic year institutes or workshops, designed to
6 strengthen the capabilities of prekindergarten
7 and elementary school teachers and to famil-
8 iarize such teachers with the role of bias
9 against female students in the classroom;

10 “(B) offering innovative pre-service and in-
11 service programs that instruct teachers on fe-
12 male-inclusive practices for teaching computing
13 concepts;

14 “(C) developing distance learning pro-
15 grams for teachers or students, including devel-
16 oping curricular materials, play-based com-
17 puting activities, and other resources for the in-
18 service professional development of teachers
19 that are made available to teachers through the
20 Internet;

21 “(D) developing or adapting prekindergarten
22 and elementary school computer science
23 curricular materials that incorporate contem-
24 porary research on the science of learning, par-
25 ticularly with respect to female inclusion;

1 “(E) developing and offering female-inclu-
2 sive computer science enrichment programs for
3 students, including after-school and summer
4 programs;

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

9 “(G) engaging female students in pre-
10 kindergarten through elementary school, and
11 their guardians (if such communication takes
12 place on school premises during otherwise-
13 scheduled conferences or formal conversations
14 between teachers and guardians) about—

15 “(i) the difficulties faced by female
16 students with regard to maintaining an in-
17 terest in participating in computer science
18 activities; and

19 “(ii) the potential positive career ben-
20 efits of engaging in such activities;

21 “(H) acquainting female students in pre-
22 kindergarten through elementary school with
23 careers in computer science and encouraging
24 such students to consider careers in the com-
25 puter science field; and

1 “(I) developing tools to evaluate activities
2 conducted under this subsection, including re-
3 ports for evaluating the effectiveness of activi-
4 ties under this section.”.

Passed the Senate September 26, 2019.

Attest:

Secretary.

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