

116TH CONGRESS  
1ST SESSION

# S. 737

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## 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-

ing 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 PREKINDER-  
GARTEN 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:

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 prekind-  
22 garten 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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