

AMENDMENT TO H.R. 3397
OFFERED BY MRS. COMSTOCK OF VIRGINIA

Strike all after the enacting clause and insert the following:

1 SECTION 1. SHORT TITLE.

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

4 SEC. 2. FINDINGS.

5 The Congress finds the following:

6 (1) The National Science Foundation has made
7 the largest financial investment in STEM education
8 of all Federal agencies, and plays a very powerful
9 role in helping to set research and policy agendas.

10 (2) Studies have found that children who en-
11 gage in scientific activities from an early age develop
12 positive attitudes toward science and are more likely
13 to pursue STEM expertise and careers later on.

14 (3) However, the majority of current research
15 focuses on increasing STEM opportunities for stu-
16 dents in middle school and older.

17 (4) Women remain widely underrepresented in
18 the STEM workforce and this gender disparity ex-
19 tends down through all levels of education. Strategic

1 funding of programs is needed in order to under-
2 stand and address the root cause of this gap.

3 **SEC. 3. DEFINITIONS.**

4 In this Act:

5 (1) DIRECTOR.—The term “Director” means
6 the Director of the National Science Foundation.

7 (2) EARLY CHILDHOOD.—The term “early
8 childhood” applies to children from birth through
9 the age of 10.

10 (3) INSTITUTION OF HIGHER EDUCATION.—The
11 term “institution of higher education” has the
12 meaning given the term in section 101(a) of the
13 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

14 (4) LOCAL EDUCATIONAL AGENCY.—The term
15 “local educational agency” has the meaning given
16 the term in section 8101 of the Elementary and Sec-
17 ondary Education Act of 1965 (20 USC 7801), ex-
18 cept that such term also includes preschools, after-
19 school programs, and summer programs.

20 (5) STEM.—The term “STEM” has the mean-
21 ing given the term in section 2 of the America COM-
22 PETES Reauthorization Act of 2010 (42 U.S.C.
23 6621 note).

1 (6) YOUNG GIRLS.—The term “young girls”
2 means female individuals who have not attained the
3 age of 11.

4 **SEC. 4. SUPPORTING STEM RESEARCH ON EARLY CHILD-**
5 **HOOD.**

6 In awarding grants under the Discovery Research
7 PreK–12 program, the Director shall consider age dis-
8 tribution in order to more equitably allocate funding for
9 research studies with a focus on early childhood.

10 **SEC. 5. SUPPORTING GIRLS IN STEM EDUCATION AND COM-**
11 **PUTER SCIENCE.**

12 (a) RESEARCH GRANTS.—

13 (1) IN GENERAL.—The Director shall award
14 grants, on a competitive basis, to institutions of
15 higher education or nonprofit organizations (or con-
16 sortia of such institutions or organizations), to accel-
17 erate research efforts to increase understanding of
18 the factors that contribute to the participation of
19 young girls in STEM activities.

20 (2) RESEARCH AREAS.—Research areas funded
21 by a grant under this subsection may include—

22 (A) the role of teacher training and profes-
23 sional development, including effective incentive
24 structures to encourage teachers to participate
25 in such training and professional development,

1 in encouraging or discouraging young girls from
2 participating in STEM activities;

3 (B) the role of teachers in shaping young
4 girls' perceptions of STEM and discouraging
5 such girls from participating in STEM activi-
6 ties;

7 (C) the role of other facets of the learning
8 environment on the willingness of young girls to
9 participate in STEM activities, including learn-
10 ing materials and textbooks, classroom decora-
11 tions, seating arrangements, use of media and
12 technology, classroom culture, and gender com-
13 position of students during group work;

14 (D) the role of parents and other care-
15 givers in encouraging or discouraging young
16 girls from participating in STEM activities;

17 (E) the types of STEM activities that elicit
18 greater participation by young girls;

19 (F) the role of mentorship and best prac-
20 tices in finding and utilizing mentors;

21 (G) the role of informal and out-of-school
22 STEM learning opportunities on girls' percep-
23 tion of and participation in STEM activities;
24 and

1 (H) any other activity the Director deter-
2 mines will accomplish the goals of this sub-
3 section.

4 (3) GRANT RECIPIENT REPORT.—An entity
5 awarded a grant under this subsection shall report
6 to the Director, at such time and in such manner as
7 the Director may require, on the activities carried
8 out and materials developed using such grant funds.

9 (b) DEVELOPMENT AND TESTING OF SCALABLE
10 MODELS FOR INCREASED ENGAGEMENT.—

11 (1) IN GENERAL.—The Director shall award
12 grants, on a competitive basis, to institutions of
13 higher education or nonprofit organizations (or con-
14 sortia of such institutions or organizations), to de-
15 velop and evaluate interventions in pre-K and ele-
16 mentary school classrooms that increase participa-
17 tion of young girls in computer science activities.

18 (2) PARTNERSHIPS.—In order to be eligible to
19 receive a grant under this subsection, an institute of
20 higher education, nonprofit organization, or consor-
21 tium, shall enter into a partnership with one or more
22 local educational agency or State in carrying out the
23 activities funded by such grant.

24 (3) USES OF FUNDS.—Grants awarded under
25 this subsection shall be used for activities that draw

1 upon the expertise of the partner entities described
2 in paragraph (2) to increase participation of young
3 girls in computer science activities, including—

4 (A) offering training and professional de-
5 velopment programs, including summer or aca-
6 demic year institutes or workshops, designed to
7 strengthen the capabilities of pre-K and elemen-
8 tary school teachers and to familiarize such
9 teachers with the role of gender bias in the
10 classroom;

11 (B) offering innovative preservice and in-
12 service programs that instruct teachers on gen-
13 der-inclusive practices for teaching computing
14 concepts;

15 (C) developing distance learning programs
16 for teachers or students, including developing
17 curricular materials, play-based computing ac-
18 tivities, and other resources for the in-service
19 professional development of teachers that are
20 made available to teachers through the Inter-
21 net;

22 (D) developing a cadre of master teachers
23 who will promote reform and the adoption of
24 gender-inclusive practices in teaching computer
25 science concepts in early childhood education;

1 (E) developing tools to evaluate activities
2 conducted under this subsection;

3 (F) developing or adapting pre-K and ele-
4 mentary school computer science curricular ma-
5 terials that incorporate contemporary research
6 on the science of learning, particularly with re-
7 spect to gender inclusion;

8 (G) developing and offering gender-inclu-
9 sive computer science enrichment programs for
10 students, including after-school and summer
11 programs;

12 (H) providing mentors for girls in person
13 and through the Internet to support such girls
14 in participating in computer science activities;

15 (I) engaging parents of girls about the dif-
16 ficulties faced by girls to maintain an interest
17 and desire to participate in computer science
18 activities, and enlisting the help of parents in
19 overcoming these difficulties;

20 (J) acquainting girls with careers in com-
21 puter science and encouraging girls to consider
22 careers in such field; and

23 (K) any other activities the Director deter-
24 mines will accomplish the goals of this sub-
25 section.

1 (4) GRANT RECIPIENT REPORT.—An entity
2 awarded a grant under this subsection shall report
3 to the Director, at such time and in such manner as
4 the Director may require, on the activities carried
5 out, materials developed using such grant funds, and
6 the outcomes for students served by such grant.

7 (5) EVALUATION REQUIRED.—Not later than 4
8 years after the date of enactment of this Act, the
9 Director shall evaluate the grant program under this
10 subsection. At a minimum, such evaluation shall—

11 (A) use a common set of benchmarks and
12 assessment tools to identify best practices and
13 materials developed and demonstrated by the
14 partnerships described in paragraph (2); and

15 (B) to the extent practicable, compare the
16 effectiveness of practices and materials devel-
17 oped and demonstrated by such partnerships
18 with those of partnerships funded by other local
19 or State government or Federal Government
20 programs.

21 (6) DISSEMINATION OF RESULTS.—

22 (A) EVALUATION RESULTS.—The Director
23 shall make publicly available free of charge on
24 an Internet website and shall submit to Con-

1 gress the results of the evaluation required
2 under paragraph (5).

3 (B) MATERIALS.—The Director shall en-
4 sure that materials developed under a program
5 funded by a grant under this subsection, that
6 are demonstrated to be effective in achieving
7 the goals of this subsection (as determined by
8 the Director), are made publicly available free
9 of charge on an Internet website, including
10 through an arrangement with an outside entity.

11 (7) ANNUAL MEETING.—The Director may con-
12 vene an annual meeting of the partnerships partici-
13 pating in a program funded by a grant under this
14 subsection, for the purpose of fostering greater na-
15 tional collaboration.

16 (8) TECHNICAL ASSISTANCE.—At the request of
17 a partnership seeking a grant under this subsection,
18 the Director shall provide the partnership with tech-
19 nical assistance in meeting any requirement of this
20 subsection.

21 **SEC. 6. COMPUTER SCIENCE IN THE ROBERT NOYCE**
22 **TEACHER SCHOLARSHIP PROGRAM.**

23 Section 10 of the National Science Foundation Au-
24 thorization Act of 2002 (42 U.S.C. 1862n–1) is amend-
25 ed—

1 (1) by striking “and mathematics” each place it
2 appears and inserting “mathematics, informatics,
3 and computer science”;

4 (2) in subsection (a)(3)(B), by striking “or
5 mathematics” and inserting “mathematics,
6 informatics, and computer science”;

7 (3) in subsections (b)(1)(D)(i), (c)(1)(A),
8 (d)(1), and (i)(7), by striking “or mathematics”
9 each place it appears and inserting “mathematics,
10 informatics, or computer science”; and

11 (4) in subsection (i)(5), by striking “or mathe-
12 matics” and inserting “mathematics, or computer
13 science”.



115TH CONGRESS
1ST SESSION

H. R. 3397

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

IN THE HOUSE OF REPRESENTATIVES

JULY 25, 2017

Ms. ROSEN (for herself, Mr. KNIGHT, Mr. EVANS, Mr. MEEKS, Mr. TONKO, Ms. HANABUSA, Mr. BEYER, Ms. ESTY of Connecticut, Mr. CRIST, Ms. SLAUGHTER, and Mr. SOTO) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

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,*

3 **SECTION 1. SHORT TITLE.**

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

6 **SEC. 2. FINDINGS.**

7 The Congress finds the following:

8 (1) The National Science Foundation has made
9 the largest financial investment in STEM education

1 of all Federal agencies, and plays a very powerful
2 role in helping to set research and policy agendas.

3 (2) Studies have found that children who en-
4 gage in scientific activities from an early age develop
5 positive attitudes toward science and are more likely
6 to pursue STEM expertise and careers later on.

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8 focuses on increasing STEM opportunities for stu-
9 dents in middle school and older.

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11 the STEM workforce and this gender disparity ex-
12 tends down through all levels of education. Strategic
13 funding of programs is needed in order to under-
14 stand and address the root cause of this gap.

15 **SEC. 3. DEFINITIONS.**

16 In this Act:

17 (1) EARLY CHILDHOOD.—The term “early
18 childhood” applies to children from birth through
19 the age of 10.

20 (2) STEM.—The terms “STEM” means
21 science, technology, engineering, and mathematics,
22 including computer science.

1 **SEC. 4. SUPPORTING STEM RESEARCH ON EARLY CHILD-**
2 **HOOD.**

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4 PreK–12 program, the Director of the National Science
5 Foundation shall consider age distribution in order to
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