

114TH CONGRESS
1ST SESSION

S. 1185

To better integrate STEM education into elementary and secondary instruction and curricula, to encourage high-quality STEM professional development, and to expand current mathematics and science education research to include engineering education.

IN THE SENATE OF THE UNITED STATES

MAY 4, 2015

Mrs. GILLIBRAND (for herself and Mr. HEINRICH) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

A BILL

To better integrate STEM education into elementary and secondary instruction and curricula, to encourage high-quality STEM professional development, and to expand current mathematics and science education research to include engineering education.

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 “Educating Tomorrow’s
5 Engineers Act of 2015”.

1 **TITLE I—AMENDMENTS TO THE**
2 **ELEMENTARY AND SEC-**
3 **ONDARY EDUCATION ACT OF**
4 **1965**

5 **PART A—ENGINEERING STANDARDS AND**
6 **ASSESSMENTS**

7 **SEC. 111. ACADEMIC STANDARDS.**

8 Section 1111(b)(1) of the Elementary and Secondary
9 Education Act of 1965 (20 U.S.C. 6311(b)(1)) is amended
10 by adding at the end the following:

11 “(G) INTEGRATION OF ENGINEERING
12 SKILLS AND PRACTICES INTO SCIENCE STAND-
13 ARDS.—Each State plan may incorporate engi-
14 neering design skills and practices into the
15 science standards required under subparagraph
16 (C).”.

17 **PART B—PROFESSIONAL DEVELOPMENT AND**
18 **INSTRUCTIONAL MATERIALS**

19 **SEC. 121. TEACHER AND PRINCIPAL TRAINING AND RE-**
20 **CRUITING FUND.**

21 (a) STATE USE OF FUNDS.—Section 2113(c) of the
22 Elementary and Secondary Education Act of 1965 (20
23 U.S.C. 6613(c)) is amended by adding at the end the fol-
24 lowing:

1 “(19) Developing and providing professional de-
 2 velopment and instructional materials for STEM
 3 subject areas, including computer science and engi-
 4 neering.”.

5 (b) LOCAL USE OF FUNDS.—Section 2123(a) of the
 6 Elementary and Secondary Education Act of 1965 (20
 7 U.S.C. 6623(a)) is amended—

8 (1) by redesignating paragraph (10) as para-
 9 graph (9); and

10 (2) by adding at the end the following:

11 “(10) Developing and providing professional de-
 12 velopment and instructional materials for STEM
 13 subject areas, including computer science and engi-
 14 neering.”.

15 **SEC. 122. STEM PARTNERSHIPS.**

16 Part B of title II of the Elementary and Secondary
 17 Education Act of 1965 (20 U.S.C. 6661 et seq.) is amend-
 18 ed—

19 (1) in the part heading, by striking “**MATHE-**
 20 **MATICS AND SCIENCE PARTNERSHIPS**” and in-
 21 serting “**STEM PARTNERSHIPS**”;

22 (2) in section 2201—

23 (A) by striking “mathematics and science”
 24 each place the term appears and inserting
 25 “STEM”; and

(B) in subsection (a)(4), by striking “engineering, mathematics, and science” and inserting “STEM”; and
 (3) in section 2202—

(A) in the section heading, by striking “**MATHEMATICS AND SCIENCE**” and inserting “**STEM**”;

(B) in subsection (b)(2)—

(i) in subparagraph (A), by striking “mathematics and science” and inserting “STEM”;

(ii) in subparagraph (B), by striking “student academic achievement in mathematics and science” and inserting “student academic achievement in STEM”; and

(iii) in subparagraph (C), by striking “mathematics and science” and inserting “STEM”;

(C) in subsection (c)—

(i) in each of paragraphs (1) and (2), by striking “mathematics and science” and inserting “STEM”;

(ii) in paragraph (3), in the matter preceding subparagraph (A), by striking

“mathematics and science” each place the term appears and inserting “STEM”;

(iii) in paragraph (4)—

(I) in the matter preceding subparagraph (A), by striking “mathematics, engineering, and science majors” and inserting “individuals with a baccalaureate degree in a STEM field”;

(II) in each of subparagraphs (A) and (C), by striking “mathematics, engineering, or science” each place the term appears and inserting “a STEM field”;

(III) in subparagraph (B), by striking “mathematics and science” and inserting “STEM”; and

(IV) in subparagraph (D), by striking “mathematics, engineering, or science backgrounds” and inserting “backgrounds in STEM fields”;

(iv) in paragraph (5), by striking “mathematics and science” each place the term appears and inserting “STEM”;

1 (v) in paragraph (6), by striking
 2 “mathematics and science” and inserting
 3 “STEM”;

4 (vi) in paragraph (7), by striking
 5 “mathematics or science” each place the
 6 term appears and inserting “STEM”;

7 (vii) in paragraph (8)—

8 (I) by striking “mathematics and
 9 science” and inserting “STEM”;

10 (II) by striking “and engineers”
 11 and inserting “engineers, and other
 12 professionals in STEM fields”; and

13 (III) by striking “science and
 14 mathematics” and inserting “STEM”;

15 (viii) in paragraph (9), by striking
 16 “mathematics and science” and inserting
 17 “STEM”; and

18 (ix) in paragraph (10)—

19 (I) by striking “mathematics and
 20 science teachers” and inserting
 21 “STEM teachers”; and

22 (II) by striking “mathematics
 23 and science careers (including engi-
 24 neering and technology)” and insert-
 25 ing “careers in STEM fields”;

1 (D) in subsection (d)(2), by striking
 2 “mathematics and science teaching” and insert-
 3 ing “STEM teaching”; and

4 (E) in subsection (e)(2)—

5 (i) in subparagraph (A), by striking
 6 “mathematics and science” and inserting
 7 “STEM”;

8 (ii) in subparagraph (B), by inserting
 9 “and a strategy for integrating engineering
 10 into the science assessments in accordance
 11 with section 1111(b)(3)” before the semi-
 12 colon at the end; and

13 (iii) in subparagraph (C)—

14 (I) in clause (i), by striking
 15 “mathematics and science” and in-
 16 serting “STEM”;

17 (II) in clause (ii), by striking “in
 18 mathematics, engineering, or the
 19 sciences” and inserting “in a STEM
 20 field”; and

21 (III) in clause (iii)—

22 (aa) by striking “mathe-
 23 matics and science” and inserting
 24 “STEM subjects”; and

1 (bb) by striking “mathe-
 2 matics, engineering, and science”
 3 and inserting “a STEM field”.

4 **PART C—AFTER SCHOOL PROGRAMS**

5 **SEC. 131. 21ST CENTURY LEARNING CENTERS.**

6 Section 4205(a)(2) of the Elementary and Secondary
 7 Education Act of 1965 (20 U.S.C. 7175(a)(2)) is amended
 8 by striking “mathematics and science” and inserting
 9 “STEM”.

10 **PART D—RURAL EDUCATION**

11 **SEC. 141. RURAL AND LOW-INCOME SCHOOL PROGRAM.**

12 Section 6222(a)(2) of the Elementary and Secondary
 13 Education Act of 1965 (20 U.S.C. 7351a(a)(2)) is amend-
 14 ed by inserting “and professional development in the area
 15 of engineering education” before the period at the end.

16 **PART E—GENERAL PROVISIONS**

17 **SEC. 151. DEFINITIONS.**

18 Section 9101 of the Elementary and Secondary Edu-
 19 cation Act of 1965 (20 U.S.C. 7801) is amended—

20 (1) by redesignating paragraphs (42) and (43)
 21 as paragraphs (43) and (44), respectively; and

22 (2) by inserting after paragraph (41) the fol-
 23 lowing:

24 “(42) STEM.—The term ‘STEM’ means—

1 “(A) science, technology, engineering, and
2 mathematics; and

3 “(B) other academic subjects that build on
4 the subjects described in subparagraph (A),
5 such as computer science.”.

6 **TITLE II—AMENDMENTS TO THE**
7 **EDUCATION SCIENCES RE-**
8 **FORM ACT OF 2002**

9 **SEC. 201. DEFINITIONS.**

10 Section 102 of the Education Sciences Reform Act
11 of 2002 (20 U.S.C. 9501) is amended—

12 (1) by redesignating paragraph (23) as para-
13 graph (24); and

14 (2) by inserting after paragraph (22) the fol-
15 lowing:

16 “(23) STEM.—The term ‘STEM’ means—

17 “(A) science, technology, engineering, and
18 mathematics; and

19 “(B) other academic subjects that build on
20 the subjects described in subparagraph (A),
21 such as computer science.”.

22 **SEC. 202. RESEARCH ON ENGINEERING EDUCATION.**

23 Part A of title I of the Education Sciences Reform
24 Act of 2002 (20 U.S.C. 9511 et seq.) is amended by add-
25 ing at the end the following:

1 **“SEC. 121. RESEARCH ON ENGINEERING EDUCATION.**

2 “(a) IN GENERAL.—The Secretary, acting through
3 the Director, shall support, directly or through grants or
4 contracts, research on engineering education, including
5 studies and evaluations that—

6 “(1) identify and assess how science inquiry
7 and mathematical reasoning can be connected to en-
8 gineering design in kindergarten through grade 12
9 curricula and teacher professional development;

10 “(2) identify best practices and promising inno-
11 vations in the field of kindergarten through grade 12
12 engineering education; and

13 “(3) include any other information or assess-
14 ments the Secretary may require.

15 “(b) DISSEMINATION.—The Secretary shall, based on
16 the results of the research described in subsection (a), dis-
17 seminate information and analysis to the public, and pro-
18 vide technical assistance to State educational agencies, on
19 best practices and promising innovations in the field of
20 kindergarten through grade 12 engineering education.”.

21 **SEC. 203. NATIONAL CENTER FOR EDUCATION RESEARCH.**

22 Part B of title I of the Education Sciences Reform
23 Act of 2002 (20 U.S.C. 9531 et seq.) is amended—

24 (1) in section 131(b)(1)(C), by striking “mathe-
25 matics, science” and inserting “STEM”; and

- 1 (2) in section 133(a)(11), by striking “mathe-
2 matics and science” and inserting “STEM”.

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