

114TH CONGRESS  
1ST SESSION

# H. R. 823

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.

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## IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 10, 2015

Mr. TONKO (for himself, Mr. MCKINLEY, Mr. KENNEDY, and Mr. RODNEY DAVIS of Illinois) introduced the following bill; which was referred to the Committee on Education and the Workforce

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## 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 (a) STANDARDS AND MEASUREMENT.—Section  
9 1111(b) of the Elementary and Secondary Education Act  
10 of 1965 (20 U.S.C. 6311(b)) is amended—

11 (1) in paragraph (1), by adding at the end the  
12 following new subparagraph:

13 “(G) INTEGRATION OF ENGINEERING  
14 SKILLS AND PRACTICES INTO SCIENCE STAND-  
15 ARDS.—Each State plan shall demonstrate that  
16 the State has incorporated engineering design  
17 skills and practices into the science standards  
18 required under subparagraph (C).”; and

19 (2) in paragraph (3)(C)(v)(II)—

20 (A) by striking “beginning not later than  
21 school year 2007–2008, measure” and inserting  
22 “Measure”; and

23 (B) by inserting “(including engineering  
24 design skills and practices)” after “science”.

1 (b) EFFECTIVE DATE.—The amendments made by  
2 subsection (a) shall apply with respect to school years be-  
3 ginning on or after July 1, 2018.

4 **SEC. 112. GRANTS FOR STATE ASSESSMENTS AND RELATED**  
5 **ACTIVITIES.**

6 Paragraph (1) of section 6111 of the Elementary and  
7 Secondary Education Act of 1965 (20 U.S.C. 7301) is  
8 amended by inserting “, including the integration of engi-  
9 neering design skills and practices into science assess-  
10 ments and standards,” before “required by section  
11 1111(b)”.

12 **PART B—PROFESSIONAL DEVELOPMENT AND**  
13 **INSTRUCTIONAL MATERIALS**

14 **SEC. 121. TEACHER AND PRINCIPAL TRAINING AND RE-**  
15 **CRUITING FUND.**

16 (a) STATE USE OF FUNDS.—Section 2113(c) of the  
17 Elementary and Secondary Education Act of 1965 (20  
18 U.S.C. 6613(c)) is amended by adding at the end the fol-  
19 lowing new paragraph:

20 “(19) Developing and providing professional de-  
21 velopment and instructional materials for STEM  
22 subject areas, including computer science and engi-  
23 neering.”.

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

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

6 (2) by adding at the end the following new  
7 paragraph:

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

12 **SEC. 122. STEM PARTNERSHIPS.**

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

16 (1) in the part heading, by striking “**MATHE-**  
17 **MATICS AND SCIENCE PARTNERSHIPS**” and in-  
18 serting “**STEM PARTNERSHIPS**”;

19 (2) in section 2201—

20 (A) by striking “mathematics and science”  
21 each place the term appears and inserting  
22 “STEM”; and

23 (B) in subsection (a)(4), by striking “engi-  
24 neering, mathematics, and science” and insert-  
25 ing “STEM”; and

1 (3) in section 2202—

2 (A) in the section heading, by striking  
3 “**MATHEMATICS AND SCIENCE**” and insert-  
4 ing “**STEM**”;

5 (B) in subsection (b)(2)—

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

9 (ii) in subparagraph (B), by striking  
10 “student academic achievement in mathe-  
11 matics and science” and inserting “student  
12 academic achievement in STEM”; and

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

16 (C) in subsection (c)—

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

20 (ii) in paragraph (3), in the matter  
21 preceding subparagraph (A), by striking  
22 “mathematics and science” each place the  
23 term appears and inserting “STEM”;

24 (iii) in paragraph (4)—

1 (I) in the matter preceding sub-  
2 paragraph (A), by striking “mathe-  
3 matics, engineering, and science ma-  
4 jors” and inserting “individuals with a  
5 baccalaureate degree in a STEM  
6 field”;

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

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

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

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

23 (v) in paragraph (6), by striking  
24 “mathematics and science” and inserting  
25 “STEM”;

1 (vi) in paragraph (7), by striking  
2 “mathematics or science” each place the  
3 term appears and inserting “STEM”;

4 (vii) in paragraph (8)—

5 (I) by striking “mathematics and  
6 science” and inserting “STEM”;

7 (II) by striking “and engineers”  
8 and inserting “engineers, and other  
9 professionals in STEM fields”; and

10 (III) by striking “science and  
11 mathematics” and inserting “STEM”;

12 (viii) in paragraph (9), by striking  
13 “mathematics and science” and inserting  
14 “STEM”; and

15 (ix) in paragraph (10)—

16 (I) by striking “mathematics and  
17 science teachers” and inserting  
18 “STEM teachers”; and

19 (II) by striking “mathematics  
20 and science careers (including engi-  
21 neering and technology)” and insert-  
22 ing “careers in STEM fields”;

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

1 (E) in subsection (e)(2)—

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

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

10 (iii) in subparagraph (C)—

11 (I) in clause (i), by striking  
12 “mathematics and science” and in-  
13 serting “STEM”;

14 (II) in clause (ii), by striking “in  
15 mathematics, engineering, or the  
16 sciences” and inserting “in a STEM  
17 field”; and

18 (III) in clause (iii)—

19 (aa) by striking “mathe-  
20 matics and science” and inserting  
21 “STEM subjects”; and

22 (bb) by striking “mathe-  
23 matics, engineering, and science”  
24 and inserting “a STEM field”.



1                   **PART C—AFTER SCHOOL PROGRAMS**

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

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

7                   **PART D—RURAL EDUCATION**

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

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

13                   **PART E—GENERAL PROVISIONS**

14   **SEC. 151. DEFINITIONS.**

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

17                   (1) by redesignating paragraphs (42) and (43)  
18                   as paragraphs (43) and (44), respectively; and

19                   (2) by inserting after paragraph (41) the fol-  
20                   lowing:

21                   “(42) STEM.—The term ‘STEM’ means—

22                                 “(A) science, technology, engineering, and  
23                                 mathematics; and

24                                 “(B) other academic subjects that build on  
25                                 the subjects described in subparagraph (A),  
26                                 such as computer science.”.

1 **TITLE II—AMENDMENTS TO THE**  
2 **EDUCATION SCIENCES RE-**  
3 **FORM ACT OF 2002**

4 **SEC. 201. DEFINITIONS.**

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

7 (1) by redesignating paragraph (23) as para-  
8 graph (24); and

9 (2) by inserting after paragraph (22) the fol-  
10 lowing:

11 “(23) STEM.—The term ‘STEM’ means—

12 “(A) science, technology, engineering, and  
13 mathematics; and

14 “(B) other academic subjects that build on  
15 the subjects described in subparagraph (A),  
16 such as computer science.”.

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

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

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

22 “(a) IN GENERAL.—The Secretary, acting through  
23 the Director, shall support, directly or through grants or  
24 contracts, research on engineering education, including  
25 studies and evaluations that—

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

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

8           “(3) include any other information or assess-  
9           ments the Secretary of Education may require.

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

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

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

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

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

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