

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.

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

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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