I

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

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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.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Educating Tomorrow's Engineers Act of 2015''.

TITLE I—AMENDMENTS TO THE ELEMENTARY AND SECONDARY EDUCATION ACT OF 1965

PART A—ENGINEERING STANDARDS AND ASSESSMENTS

SEC. 111. ACADEMIC STANDARDS.

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

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

''(G) INTEGRATION OF ENGINEERING SKILLS AND PRACTICES INTO SCIENCE STANDARDS.—Each State plan shall demonstrate that the State has incorporated engineering design skills and practices into the science standards required under subparagraph (C).''; and

(2) in paragraph (3)(C)(v)(II)—

(A) by striking ''beginning not later than school year 2007–2008, measure'' and inserting ''Measure''; and

(B) by inserting ''(including engineering design skills and practices)'' after ''science''.

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

SEC. 112. GRANTS FOR STATE ASSESSMENTS AND RELATED ACTIVITIES.

Paragraph (1) of section 6111 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7301) is amended by inserting ", including the integration of engineering design skills and practices into science assessments and standards," before "required by section 1111(b)".

PART B—PROFESSIONAL DEVELOPMENT AND INSTRUCTIONAL MATERIALS

SEC. 121. TEACHER AND PRINCIPAL TRAINING AND RECRUITING FUND.

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

"(19) Developing and providing professional development and instructional materials for STEM subject areas, including computer science and engineering.".

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

(1) by redesignating paragraph (10) as paragraph (9); and

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

''(10) Developing and providing professional development and instructional materials for STEM subject areas, including computer science and engineering.''.

SEC. 122. STEM PARTNERSHIPS.

Part B of title II of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6661 et seq.) is amended—

(1) in the part heading, by striking ''**MATHEMATICS AND SCIENCE PARTNERSHIPS**'' and inserting ''**STEM PARTNERSHIPS**'';

(2) in section 2201—

(A) by striking ''mathematics and science'' each place the term appears and inserting ''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 curricula'' each place the term appears and inserting ''STEM curricula'';

(v) in paragraph (6), by striking ''mathematics and science'' and inserting ''STEM'';

(vi) in paragraph (7), by striking ''mathematics or science'' each place the term appears and inserting ''STEM'';

(vii) in paragraph (8)—

(I) by striking ''mathematics and science'' and inserting ''STEM'';

(II) by striking ''and engineers'' and inserting ''engineers, and other professionals in STEM fields''; and

(III) by striking ''science and mathematics'' and inserting ''STEM'';

(viii) in paragraph (9), by striking ''mathematics and science'' and inserting ''STEM''; and

(ix) in paragraph (10)—

(I) by striking ''mathematics and science teachers'' and inserting ''STEM teachers''; and

(II) by striking ''mathematics and science careers (including engineering and technology)'' and inserting ''careers in STEM fields'';

(D) in subsection (d)(2), by striking ''mathematics and science teaching'' and inserting ''STEM teaching''; and

(E) in subsection (e)(2)—

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

(ii) in subparagraph (B), by inserting ''and a strategy for integrating engineering into the science assessments in accordance with section 1111(b)(3)'' before the semicolon at the end; and

(iii) in subparagraph (C)—

(I) in clause (i), by striking ''mathematics and science'' and inserting ''STEM'';

(II) in clause (ii), by striking ''in mathematics, engineering, or the sciences'' and inserting ''in a STEM field''; and

(III) in clause (iii)—

(aa) by striking ''mathematics and science'' and inserting ''STEM subjects''; and

(bb) by striking ''mathematics, engineering, and science'' and inserting ''a STEM field''.

PART C—AFTER SCHOOL PROGRAMS

SEC. 131. 21ST CENTURY LEARNING CENTERS.

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

PART D—RURAL EDUCATION

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

Section 6222(a)(2) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7351a(a)(2)) is amended by inserting ''and professional development in the area of engineering education'' before the period at the end.

PART E—GENERAL PROVISIONS

SEC. 151. DEFINITIONS.

Section 9101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801) is amended—

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

(2) by inserting after paragraph (41) the following:

''(42) STEM.—The term 'STEM' means—

''(A) science, technology, engineering, and mathematics; and

''(B) other academic subjects that build on the subjects described in subparagraph (A), such as computer science.''.

TITLE II—AMENDMENTS TO THE EDUCATION SCIENCES REFORM ACT OF 2002

SEC. 201. DEFINITIONS.

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

(1) by redesignating paragraph (23) as paragraph (24); and

(2) by inserting after paragraph (22) the following:

''(23) STEM.—The term 'STEM' means—

''(A) science, technology, engineering, and mathematics; and

''(B) other academic subjects that build on the subjects described in subparagraph (A), such as computer science.''.

SEC. 202. RESEARCH ON ENGINEERING EDUCATION.

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

''SEC. 121. RESEARCH ON ENGINEERING EDUCATION.

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

''(1) identify and assess how science inquiry and mathematical reasoning can be connected to engineering design in kindergarten through grade 12 curricula and teacher professional development;

''(2) identify best practices and promising innovations in the field of kindergarten through grade 12 engineering education; and

''(3) include any other information or assessments the Secretary of Education may require.

''(b) DISSEMINATION.—The Secretary shall, based on the results of the research described in subsection (a), disseminate information and analysis to the public, and provide technical assistance to State educational agencies, on best practices and promising innovations in the field of kindergarten through grade 12 engineering education.''.

SEC. 203. NATIONAL CENTER FOR EDUCATION RESEARCH.

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

(1) in section 131(b)(1)(C), by striking ''mathematics, science'' and inserting ''STEM''; and

(2) in section 133(a)(11), by striking ''mathematics and science'' and inserting ''STEM''.

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