113TH CONGRESS
1ST SESSION

S. 1178

To better integrate engineering education into kindergarten through grade 12 instruction and curriculum and to support research on engineering education.

IN THE SENATE OF THE UNITED STATES

JUNE 18, 2013

Mrs. GILLIBRAND introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

---

A BILL

To better integrate engineering education into kindergarten through grade 12 instruction and curriculum and to support research on 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''.

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

PART A—ENGINEERING STANDARDS AND ASSESSMENTS

SEC. 111. ACADEMIC STANDARDS, ACADEMIC ASSESSMENTS, AND ACCOUNTABILITY.

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:

"(G) INTEGRATION OF ENGINEERING SKILLS AND PRACTICES INTO SCIENCE STANDARDS.—By not later than the 2016–2017 school year, each State plan shall demonstrate that the State has incorporated engineering design skills and practice into the State science challenging academic content standards and student academic achievement standards that are required under this paragraph."; and

(2) in paragraph (3)(C)(v)(II), by inserting "(including, beginning not later than the 2016–2017 school year, engineering design skills and practices)" after "science".

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

Section 6111(1) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7301(1)) is amended by inserting ", including the integration of engineering concepts into science assessments," before "and standards".

PART B—PROFESSIONAL DEVELOPMENT AND INSTRUCTIONAL MATERIALS

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

Section 2113 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6613) is amended—

(1) in subsection (a)—

(A) in paragraph (1), by striking "95" and inserting "85";

(B) in paragraph (2), by striking "and" after the semicolon;

(C) by redesignating paragraph (3) as paragraph (4); and

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

"(3) reserve 10 percent of the funds made available through the grant to make subgrants in accordance with subsection (e);";

(2) by redesignating subsections (e) and (f) as subsections (f) and (g), respectively; and

(3) by inserting after subsection (d) the following:

''(e) STEM PROFESSIONAL DEVELOPMENT AND INSTRUCTIONAL MATERIALS GRANTS.—A State educational agency that receives a grant under this part shall use the funds described in subsection (a)(3) to award grants, on a competitive basis, to nonprofit organizations, and other entities, with expertise and a demonstrated record of success in STEM fields to enable such organizations and entities to develop and provide professional development and instructional materials for STEM in the State.''.

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. 6351a(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 (37) through (43) as paragraphs (38) through (44), respectively; and

(2) by inserting after paragraph (37) the following:

''(38) 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 SCIENCE REFORM ACT OF 2002

SEC. 201. NATIONAL CENTER FOR EDUCATION RESEARCH.

The Education Sciences Reform Act of 2002 (20 U.S.C. 9501 et seq.) is amended—

(1) in section 131(b)(1)(C) (20 U.S.C. 9531(b)(1)(C)), by striking ''mathematics, science,'' and inserting ''STEM (as defined in section 9101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801)),''; and

(2) in section 133(a)(11) (20 U.S.C. 9533(a)(11)) by striking ''mathematics and science'' and inserting ''STEM (as defined in section 9101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801))''.

SEC. 202. RESEARCH ON ENGINEERING EDUCATION.

(a) IN GENERAL.—The Secretary of Education, acting through the Director of the Institute of Education Sciences, shall support, directly or through grants or con-

tracts, 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 of Education 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.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this section such sums as may be necessary for each of fiscal years 2014 through 2018.

○