

113TH CONGRESS
1ST SESSION

S. 1407

To amend the Elementary and Secondary Education Act of 1965 to strengthen elementary and secondary computer science education, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JULY 31, 2013

Mr. CASEY (for himself and Mr. RUBIO) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

A BILL

To amend the Elementary and Secondary Education Act of 1965 to strengthen elementary and secondary computer science education, and for other purposes.

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 “Computer Science
5 Education and Jobs Act of 2013”.

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

8 (1) Computer science is transforming industry,
9 creating new fields of commerce, driving innovation

1 in all fields of science, and bolstering productivity in
2 established economic sectors.

3 (2) The Bureau of Labor Statistics predicts
4 that there will be 9,200,000 jobs in the fields of
5 science, technology, engineering, and mathematics by
6 the year 2020. Half of these, or 4,600,000 jobs, will
7 be in computing.

8 (3) According to the Bureau of Labor Statis-
9 tics, in 2012, the national median annual salary was
10 \$45,790, and the average annual salary in computer
11 and mathematical occupations was \$80,180.

12 (4) Elementary and secondary computer science
13 education gives students a deeper knowledge of the
14 fundamentals of computing, yielding critical thinking
15 skills that will serve students throughout their lives
16 in numerous fields.

17 (5) Students who take the College Board's AP
18 computer science examination are 8 times more like-
19 ly to major in computer science in college. Unfortu-
20 nately, the College Board reports that in 2012, less
21 than 3,000 of the 40,000 high schools in the United
22 States offered AP computer science examinations.

23 (6) Only 14 States allow computer science
24 courses to count toward secondary school core grad-

1 uation requirements, chilling student interest in
2 computer science courses.

3 (7) The Computer Science Teachers Association
4 (CSTA) has found that many States do not have a
5 certification or licensure process for computer
6 science teachers. Where processes do exist, they
7 often have no connection to rigorous computer
8 science content.

9 (8) Computer science education has been en-
10 cumbered by confusion regarding the related but dis-
11 tinct concepts of computer science education, tech-
12 nology education, and the use of technology in edu-
13 cation.

14 (9) The Association for Computing Machinery
15 and the CSTA have established a clear 4-part,
16 grade-appropriate framework of standards for com-
17 puter science education to guide State reform ef-
18 forts.

19 (10) With the growing importance of computing
20 in society, the need for students to understand the
21 fundamentals of computing, and the significant chal-
22 lenges elementary and secondary computer science
23 education faces, broad support for computer science
24 education is needed to catalyze reform.

1 **SEC. 3. REFERENCES.**

2 Except as otherwise expressly provided, whenever in
3 this Act an amendment or repeal is expressed in terms
4 of an amendment to, or repeal of, a section or other provi-
5 sion, the reference shall be considered to be made to a
6 section or other provision of the Elementary and Sec-
7 ondary Education Act of 1965 (20 U.S.C. 6301 et seq.).

8 **SEC. 4. COMPUTER SCIENCE DEFINITIONS.**

9 Section 9101 (20 U.S.C. 7801) is amended—

10 (1) by redesignating paragraphs (7) through
11 (43) as paragraphs (8) through (44), respectively;

12 (2) by inserting after paragraph (6) the fol-
13 lowing:

14 “(7) COMPUTER SCIENCE.—The term ‘com-
15 puter science’ means the study of computers and al-
16 gorithmic processes and includes the study of com-
17 puting principles, computer hardware, software de-
18 sign, computer applications, and the impact of com-
19 puters on society.”;

20 (3) in paragraph (12), as redesignated by para-
21 graph (1), by striking “and geography” and insert-
22 ing “geography, and computer science”; and

23 (4) in subparagraph (A)(i) of paragraph (35),
24 as redesignated by paragraph (1), by inserting “(in-
25 cluding computer science)” after “academic sub-
26 jects”.

1 **SEC. 5. EXPANDING ACCESS TO ADVANCED PLACEMENT**
 2 **COMPUTER SCIENCE.**

3 Section 1705(c)(4) (20 U.S.C. 6535(c)(4)) is amend-
 4 ed by striking “and science” and inserting “science, and
 5 computer science”.

6 **SEC. 6. COMPUTER SCIENCE IN STATE PLANS.**

7 (a) STATE PLANS.—Section 1111(b) (20 U.S.C.
 8 6311(b)) is amended—

9 (1) in paragraph (1)(E), by adding at the end
 10 the following: “Computer science is included as a
 11 subject under this subparagraph.”; and

12 (2) in paragraph (8)—

13 (A) in subparagraph (D), by striking
 14 “and” at the end;

15 (B) in subparagraph (E), by striking the
 16 period at the end and inserting “; and”; and

17 (C) by adding at the end the following:

18 “(F) how the State educational agency
 19 shall consider including computer science in
 20 academic standards, academic accountability,
 21 and assessments under subsection (b).”.

22 (b) HIGHLY QUALIFIED TEACHERS.—Section
 23 1119(a)(2) (20 U.S.C. 6319(a)(2)) is amended by striking
 24 the period after “school year” and inserting “, except that
 25 computer science teachers shall be found to be highly

1 qualified not later than the end of the 2015–2016 school
 2 year.”.

3 **SEC. 7. COMPUTER SCIENCE IN MATHEMATICS AND**
 4 **SCIENCE PARTNERSHIPS.**

5 (a) SUBPART HEADING.—Part B of title II (20
 6 U.S.C. 6661 et seq.) is amended by inserting after the
 7 part heading the following new subpart heading:

8 **“Subpart 1—Partnership Grants”.**

9 (b) PURPOSES AND DEFINITIONS.—

10 (1) Section 2201(a)(3) (20 U.S.C. 6661(a)(3))
 11 is amended by striking “and engineers” and insert-
 12 ing “engineers, computer science professionals, and
 13 informatics professionals”.

14 (2) Section 2201(b) (20 U.S.C. 6661(b)) is
 15 amended—

16 (A) in paragraph (1)(A)(ii), by striking “or
 17 science” and inserting “science, informatics, or
 18 computer science”;

19 (B) in paragraph (1)(B)(i), by inserting
 20 “informatics, computer science,” after
 21 “science,”; and

22 (C) by inserting at the end of such section
 23 the following:

24 “(3) MATHEMATICS AND SCIENCE.—The term
 25 ‘mathematics and science’ means science, tech-

1 nology, engineering, mathematics, and computer
2 science.”.

3 (c) AUTHORIZED ACTIVITIES.—

4 (1) Section 2202(c) (20 U.S.C. 6662(c)) is
5 amended—

6 (A) in paragraph (4), by striking “and
7 science” and inserting “science, informatics,
8 and computer science”;

9 (B) in subparagraphs (A), (C), and (D) of
10 paragraph (4), by striking “or science” and in-
11 serting “science, informatics, or computer
12 science”;

13 (C) in paragraph (5), by striking “and
14 science.” at the end and inserting “, science,
15 computer science, and informatics.”;

16 (D) in paragraph (8), by striking “and en-
17 gineers” and inserting “engineers, computer
18 science professionals, and informatics profes-
19 sionals”; and

20 (E) in paragraph (10), by striking “engi-
21 neering and technology” and inserting
22 “informatics”.

23 (2) Section 2202(e)(2)(C) (20 U.S.C.
24 6662(e)(2)(C)) is amended—

1 (A) in clause (ii), by striking “or the
2 sciences” and inserting “the sciences,
3 informatics, or computer science”; and

4 (B) in clause (iii), by striking “engineer-
5 ing, and science.” and inserting “engineering,
6 science, informatics, and computer science.”

7 (d) CONFORMING AND TECHNICAL AMENDMENTS.—

8 (1) The table of contents in section 2 is amend-
9 ed by inserting after the item relating to the heading
10 to part B of title II the following:

“SUBPART 1—PARTNERSHIP GRANTS”.

11 (2) Section 2201 (20 U.S.C. 6661) is amend-
12 ed—

13 (A) in subsection (a), by striking “part”
14 and inserting “subpart”; and

15 (B) in subsection (b), by striking “part”
16 and inserting “subpart”.

17 (3) Section 2202 (20 U.S.C. 6662) is amend-
18 ed—

19 (A) in subsection (a)—

20 (i) in each of subparagraphs (B) and
21 (C) of paragraph (2), by striking “part”
22 and inserting “subpart”;

23 (ii) in paragraph (3), by striking
24 “part” and inserting “subpart”; and

1 (iii) in paragraph (4), by striking
 2 “part” and inserting “subpart” each place
 3 the term appears;

4 (B) in each of paragraphs (1) and (2)(E)
 5 of subsection (b), by striking “part” and insert-
 6 ing “subpart”;

7 (C) in subsection (c), by striking “part”
 8 and inserting “subpart”;

9 (D) in each of paragraphs (1) and (2) of
 10 subsection (d), by striking “part” and inserting
 11 “subpart”;

12 (E) in subsection (e)(1), by striking “part”
 13 and inserting “subpart” each place the term
 14 appears; and

15 (F) in subsection (f), by striking “part”
 16 and inserting “subpart”.

17 (4) Section 2203 (20 U.S.C. 6663) is amended
 18 by striking “part” and inserting “subpart”.

19 **SEC. 8. EXPANDING TEACHER PREPARATION PROGRAMS**
 20 **FOR COMPUTER SCIENCE TEACHERS.**

21 (a) COMPUTER SCIENCE MODEL TEACHER PREPA-
 22 RATION PROGRAM.—Part B of title II (20 U.S.C. 6661
 23 et seq.), as amended by section 7, is further amended by
 24 adding at the end the following:

1 **“Subpart 2—Model Teacher Preparation Program**

2 **“SEC. 2211. COMPUTER SCIENCE MODEL TEACHER PREPA-**
3 **RATION PROGRAM.**

4 “(a) ESTABLISHMENT.—The Secretary is authorized
5 to award grants to institutions of higher education to im-
6 prove training for elementary school and secondary school
7 computer science teachers.

8 “(b) ELIGIBILITY.—The Secretary may award a
9 grant under this section to an institution of higher edu-
10 cation that—

11 “(1) has, at minimum—

12 “(A) a program in teacher education; and

13 “(B) a program in computer science or
14 informatics; and

15 “(2) submits an application at such time, in
16 such form, and containing such information and as-
17 surances as the Secretary may require.

18 “(c) USE OF FUNDS.—An institution of higher edu-
19 cation that receives a grant under the section shall use
20 the grant funds to carry out not less than 1 of the fol-
21 lowing activities:

22 “(1) Develop courses for undergraduate stu-
23 dents that—

24 “(A) prepare such students to teach com-
25 puter science in elementary schools and sec-
26 ondary schools;

1 “(B) address content and pedagogy in
2 informatics or computer science education; and

3 “(C) engage the teacher education depart-
4 ment and other relevant departments at the in-
5 stitution of higher education.

6 “(2) Develop and fund teacher mentoring pro-
7 grams to support elementary school and secondary
8 school computer science teachers who are new to the
9 profession.

10 “(d) DURATION OF GRANTS.—Each grant awarded
11 by the Secretary under this section shall be for a period
12 of 5 years.

13 “(e) REPORT.—Not later than 180 days after the
14 conclusion of the grant period described under subsection
15 (d), an institution of higher education that receives a
16 grant under this section shall submit to the Secretary and
17 Congress a report that—

18 “(1) identifies the number of teachers served
19 under the grant;

20 “(2) identifies the number of teachers described
21 in paragraph (1) who obtain a teaching position in
22 a computer science classroom; and

23 “(3) evaluates the activities carried out under
24 this section.”.

1 (b) TECHNICAL AMENDMENT.—The table of contents
 2 in section 2 is amended by inserting before the item relat-
 3 ing to part C of title II the following:

“SUBPART 2—MODEL TEACHER PREPARATION PROGRAM

“Sec. 2211. Computer science model teacher preparation program.”.

4 **SEC. 9. COMPUTER SCIENCE IN THE ROBERT NOYCE**
 5 **TEACHER SCHOLARSHIP PROGRAM.**

6 Section 10 of the National Science Foundation Au-
 7 thorization Act of 2002 (42 U.S.C. 1862n–1) is amend-
 8 ed—

9 (1) by striking “and mathematics” and insert-
 10 ing “mathematics, informatics, and computer
 11 science” in each place it appears;

12 (2) in subsection (a)(3)(B), by striking “or
 13 mathematics” and inserting “mathematics,
 14 informatics, and computer science”;

15 (3) in subsections (b)(1)(D)(i), (c)(1)(A),
 16 (d)(1), and (i)(7), by striking “or mathematics”
 17 each place the term appears and inserting “mathe-
 18 matics, informatics, or computer science”; and

19 (4) in subsection (i)(5), by striking “or mathe-
 20 matics” and inserting “mathematics, or computer
 21 science”.

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