

114TH CONGRESS
2D SESSION

H. R. 6095

To authorize the Secretary of Education to carry out a program to increase access to prekindergarten through grade 12 computer science education.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 21, 2016

Ms. LEE (for herself, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. BUTTERFIELD, Ms. JUDY CHU of California, Mr. POLIS, Ms. DELBENE, Mr. HINOJOSA, Ms. TITUS, Ms. KELLY of Illinois, Mr. HONDA, Ms. CLARK of Massachusetts, and Ms. FUDGE) introduced the following bill; which was referred to the Committee on Education and the Workforce

A BILL

To authorize the Secretary of Education to carry out a program to increase access to prekindergarten through grade 12 computer science 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 “Computer Science for
5 All Act of 2016”.

6 **SEC. 2. FINDINGS.**

7 Congress finds that:

1 (1) Computer science is transforming industry,
2 creating new fields of commerce, driving innovation,
3 and bolstering productivity.

4 (2) There are more than 550,000 technology
5 jobs unfilled in the United States as of May of 2016.
6 It is projected that there will be 1,400,000 new jobs
7 in the technology sector by 2020; however, 70 per-
8 cent of those jobs will be unfulfilled at the rate
9 American universities are producing qualified grad-
10 uates.

11 (3) Knowledge of computer science and use of
12 technology is increasingly essential for all individ-
13 uals, not just those working or planning to work in
14 the technology sector.

15 (4) Providing students with computer science
16 education in elementary school and secondary school
17 is critical for student success, and strengthening the
18 workforce of a 21st century economy.

19 (5) While an estimated 90 percent of parents
20 want computer science taught in their children's
21 schools, just 25 percent of all elementary schools
22 and secondary schools offer high-quality computer
23 science instruction that includes programming and
24 coding.

1 (6) African-Americans, Latinos, Native Ameri-
2 cans, and Pacific Islanders are disproportionately
3 underrepresented in the technology sector. For ex-
4 ample, African-Americans and Latinos make up 27
5 percent of the United States workforce, but make up
6 only 13.8 percent of the science and engineering
7 workforce, and only 11 percent of computer science
8 professionals.

9 (7) While underrepresented minority students
10 overall face an opportunity gap in STEAM edu-
11 cation, women of color particularly face an achieve-
12 ment gap in science and engineering education. In
13 2012, while women received 48.8 percent of all bach-
14 elor’s degrees in science and engineering majors,
15 women of color received only 15.7 percent (Black:
16 5.3 percent; Latino: 5.5 percent; Native American or
17 Alaska Native: 0.3 percent, and Asian or Pacific Is-
18 lander: 4.6 percent).

19 (8) Women overall face challenges in accessing
20 computer science education. Only 18 percent of all
21 bachelor’s degrees awarded in computer science in
22 2012 went to women, and women of color received
23 only 6.6 percent (Black: 3.0 percent; Latino: 1.7
24 percent; Native American or Alaska Native: 0.1 per-
25 cent, and Asian or Pacific Islander: 1.8 percent).

1 (9) Disparities in enrollment and academic
2 achievement start early. In 2015, only 22 percent of
3 students taking the AP Computer Science exam
4 were women, and just 13 percent were African-
5 American or Latino.

6 (10) Nationwide, only 184 Native American
7 students took the AP Computer Science exam in
8 2015. This means that while Native Americans
9 make up about 1.1 percent of the U.S. student pop-
10 ulation, they made up less than half a percent of
11 students who took AP Computer Science exams in
12 2015.

13 **SEC. 3. DEFINITIONS.**

14 In this Act:

15 (1) **COMPUTATIONAL THINKING.**—The term
16 “computational thinking” aims to capture the wide
17 range of creative processes that go into formulating
18 problems and their solutions in such a way that the
19 solutions can be carried out by a computer, and may
20 involve some understanding of software and hard-
21 ware design, logic and the use of abstraction and
22 representation, algorithm design, algorithm expres-
23 sion, problem decomposition, modularity, program-
24 ming paradigms and languages, issues of informa-
25 tion security and privacy, the application of com-

1 putation across a wide range of disciplines, and the
2 societal impact of computing. Programming is a
3 hands-on, inquiry-based way in which computational
4 thinking may be learned.

5 (2) COMPUTER SCIENCE EDUCATION.—The
6 term “computer science education” includes any of
7 the following: computational thinking; software de-
8 sign; hardware architecture and organization; theo-
9 retical foundations; use of abstraction and represen-
10 tation in problem solving; logic; algorithm design
11 and implementation; the limits of computation; pro-
12 gramming paradigms and languages; parallel and
13 distributed computing; information security and pri-
14 vacy; computing systems and networks; graphics and
15 visualization; databases and information retrieval;
16 the relationship between computing and mathe-
17 matics; artificial intelligence; applications of com-
18 puting across a broad range of disciplines and prob-
19 lems; and the social impacts and professional prac-
20 tices of computing.

21 (3) ELIGIBLE TRIBAL SCHOOL.—The term “eli-
22 gible Tribal school” means—

23 (A) a school operated by the Bureau of In-
24 dian Education;

1 (B) a school operated pursuant to the In-
2 dian Self-Determination and Education Assist-
3 ance Act (25 U.S.C. 450 et seq.); or

4 (C) a tribally controlled school (as defined
5 in section 5212 of the Tribally Controlled
6 Schools Act of 1988 (25 U.S.C. 2511)).

7 (4) INSTITUTION OF HIGHER EDUCATION.—The
8 term “institution of higher education” has the
9 meaning given the term in section 102 of the Higher
10 Education Act of 1965 (20 U.S.C. 1002).

11 (5) LOCAL EDUCATIONAL AGENCY.—The term
12 “local educational agency” has the meaning given
13 the term in section 8101 of the Elementary and Sec-
14 ondary Education Act of 1965 (20 U.S.C. 8101).

15 (6) POVERTY LINE.—The term “poverty line”
16 has the meaning given the term in section 8101 of
17 the Elementary and Secondary Education Act of
18 1965 (20 U.S.C. 8101).

19 (7) SECRETARY.—The term “Secretary” means
20 the Secretary of Education.

21 (8) STEAM.—The term “STEAM” means the
22 subjects of science, technology, engineering, arts,
23 and mathematics, including computer science.

1 **SEC. 4. GRANTS TO STATES, LOCAL EDUCATIONAL AGEN-**
2 **CIES, AND ELIGIBLE TRIBAL SCHOOLS.**

3 (a) GRANTS TO STATES, LOCAL EDUCATIONAL
4 AGENCIES, AND ELIGIBLE TRIBAL SCHOOLS.—

5 (1) IN GENERAL.—The Secretary shall award
6 grants to States, local educational agencies, and eli-
7 gible Tribal schools—

8 (A) that demonstrate an ability to carry
9 out an ambitious computer science education
10 expansion effort for all students served by the
11 State, agency, or school, including traditionally
12 underrepresented students; and

13 (B) to serve as models for national replica-
14 tion of computer science education expansion
15 efforts.

16 (2) CONSORTIA AND PARTNERSHIPS.—A State,
17 local educational agency, or eligible Tribal school
18 may apply for a grant under this section as part of
19 a consortium or in partnership with a State edu-
20 cational agency or other partner.

21 (3) DURATION.—Grants awarded under this
22 section shall be for a period of not more than 5
23 years.

24 (b) APPLICATION REQUIREMENTS.—A State, local
25 educational agency, or eligible Tribal school that desires
26 a grant under this section shall submit an application to

1 the Secretary at such time, in such manner, and con-
2 taining such information as the Secretary may require, in-
3 cluding, at a minimum, plans for the following:

4 (1) Every high school student served by the
5 State, local educational agency, or eligible Tribal
6 school to have access to computer science education
7 not later than 5 years after receipt of grant funds.

8 (2) All students served by the State, local edu-
9 cational agency, or eligible Tribal school to have ac-
10 cess to a progression of computer science education
11 from prekindergarten through middle school that
12 prepares students for high school computer science
13 education.

14 (3) Expansion of overall access to rigorous
15 STEAM classes, utilizing computer science as a cat-
16 alyst for increased interest in STEAM more broadly,
17 and reducing the enrollment and academic achieve-
18 ment gap for underrepresented groups such as mi-
19 norities, girls, and youth from families living at, or
20 below, the poverty line.

21 (4) Continuous monitoring and evaluation of
22 project activities.

23 (5) Effectively sustaining project activities after
24 the grant period ends, and the length of time which
25 the applicant plans to sustain the project activities.

1 (c) USE OF GRANT FUNDS.—

2 (1) REQUIRED ACTIVITIES.—A State, local edu-
3 cational agency, or eligible Tribal school that re-
4 ceives a grant under this section shall use the grant
5 funds for the following activities:

6 (A) Training teachers to teach computer
7 science.

8 (B) Expanding access to high-quality
9 learning materials and online learning options.

10 (C) Creating plans for expanding overall
11 access to rigorous STEAM classes, utilizing
12 computer science as a catalyst for increased in-
13 terest in STEAM more broadly, and reducing
14 course equity gaps for all students, including
15 underrepresented groups such as minorities,
16 girls, and youth from low-income families.

17 (D) Ensuring additional support and re-
18 sources, which may include mentoring for stu-
19 dents traditionally underrepresented in STEAM
20 fields.

21 (2) PERMISSIBLE ACTIVITIES.—A State, local
22 educational agency, or eligible Tribal school that re-
23 ceives a grant under this section may use the grant
24 funds for the following activities:

1 (A) Building effective regional collabora-
2 tions with industry, nonprofit organizations, 2-
3 year and 4-year degree granting institutions of
4 higher education (including community colleges,
5 Historically Black Colleges and Universities,
6 Hispanic-serving institutions, Asian American
7 and Native American Pacific Islander-serving
8 institutions, American Indian Tribally con-
9 trolled colleges and universities, Alaska Native
10 and Native Hawaiian-serving institutions, Pre-
11 dominantly Black Institutions, Native Amer-
12 ican-serving, Nontribal institutions, and other
13 minority-serving institutions), and out-of-school
14 providers.

15 (B) Recruiting and hiring instructional
16 personnel as needed, including curriculum spe-
17 cialists.

18 (C) Preparations for effectively sustaining
19 project activities after the grant period ends.

20 (D) Disseminating information about effec-
21 tive practices.

22 (3) LIMITATION.—Not more than 15 percent of
23 a grant may be used to purchase equipment.

24 (d) NATIONAL ACTIVITIES.—The Secretary may re-
25 serve not more than 2.5 percent of funds available for

1 grants under this section for national activities, including
2 technical assistance, evaluation, and dissemination.

3 (e) AUTHORIZATION OF APPROPRIATIONS.—There
4 are authorized to be appropriated to carry out this section
5 \$250,000,000.

6 **SEC. 5. REPORTING REQUIREMENTS.**

7 (a) GRANTEE REPORTS.—Each State, local edu-
8 cational agency, and eligible Tribal school that receives a
9 grant under this Act shall submit to the Secretary a re-
10 port, not less than twice a year during the grant period,
11 on the use of grant funds that shall include data on the
12 numbers of students served through activities funded
13 under this Act, disaggregated by race (for Asian and Na-
14 tive Hawaiian or Pacific Islander students using the same
15 race response categories as the decennial census of the
16 population), ethnicity, gender, and eligibility to receive a
17 free or reduced price lunch under the Richard B. Russell
18 National School Lunch Act (42 U.S.C. 1751 et seq.).

19 (b) REPORT BY THE SECRETARY.—Not later than 5
20 years after the first grant is awarded under this Act, the
21 Secretary shall submit to Congress a report based on the
22 analysis of reports received under subsection (a) with a
23 recommendation on how to expand the program under this
24 Act.

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