

113TH CONGRESS
1ST SESSION

H. R. 1089

To stimulate collaboration with respect to, and provide for coordination and coherence of, the Nation's science, technology, engineering, and mathematics education initiatives, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 12, 2013

Mr. HONDA (for himself, Ms. BASS, Mrs. BEATTY, Mr. BERA of California, Ms. BORDALLO, Ms. BROWNLEY of California, Mr. BUTTERFIELD, Ms. CHU, Mr. CICILLINE, Mr. CLEAVER, Mr. CONYERS, Mr. DANNY K. DAVIS of Illinois, Mr. ELLISON, Mr. AL GREEN of Texas, Mr. GRIJALVA, Mr. LANGEVIN, Ms. LEE of California, Mr. LOWENTHAL, Mr. McDERMOTT, Mrs. NEGRETE McLEOD, Mr. MEEKS, Ms. MOORE, Mr. NADLER, Mrs. NAPOLITANO, Ms. NORTON, Mr. PAYNE, Mr. POLIS, Mr. PRICE of North Carolina, Ms. ROYBAL-ALLARD, Mr. RUIZ, Mr. RUSH, Mr. RYAN of Ohio, Mr. SABLAN, Ms. SCHAKOWSKY, Mr. SIRES, Ms. SPEIER, Mr. SWALWELL of California, Mr. TAKANO, and Mr. VEASEY) introduced the following bill; which was referred to the Committee on Education and the Workforce

A BILL

To stimulate collaboration with respect to, and provide for coordination and coherence of, the Nation's science, technology, engineering, and mathematics education initiatives, 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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Stepping Up to STEM
3 Act of 2013”.

4 **SEC. 2. FINDINGS.**

5 Congress finds the following:

6 (1) Technology and the Internet have trans-
7 formed nearly every aspect of both the global econ-
8 omy and our daily lives. In a technology-rich world,
9 no amount of memorizing information will make a
10 student competitive in the global labor market.
11 America needs an education system that supports
12 students from all walks of life in becoming inquisi-
13 tive, resourceful thinkers who use technology to pur-
14 sue knowledge, collaborate across geographic and
15 cultural boundaries, acquire new skills, and solve
16 complex problems.

17 (2) Equality and equity of access is more than
18 access to the same hardware, software, and
19 broadband connections. It includes access to the best
20 digital learning resources and access to teachers who
21 know how to orchestrate the use of these resources
22 in ways that inspire students and produce better
23 learning outcomes.

24 (3) Technology by itself will not improve stu-
25 dent outcomes. What is needed are carefully de-
26 signed innovations that include not just technology

1 but also good learning content, effective instructional
 2 strategies, supports for teachers and school systems
 3 figuring out how to use the new approach, and the
 4 capacity to collect, analyze and reflect on data that
 5 will show whether or not the innovation is having the
 6 intended effects.

7 (4) Effective learning technology implementa-
 8 tions addressing the challenging aspects of language
 9 arts, mathematics and science that all students are
 10 expected to master. This will require partnerships
 11 among education agencies, education researchers,
 12 and technology developers with the common goal of
 13 harnessing technology to provide opportunities for
 14 deeper learning to students who would not otherwise
 15 experience them.

16 **SEC. 3. OFFICE OF SCIENCE, TECHNOLOGY, ENGINEERING,**
 17 **AND MATHEMATICS EDUCATION WITHIN THE**
 18 **DEPARTMENT OF EDUCATION.**

19 (a) ASSISTANT SECRETARY.—Section 202 of the De-
 20 partment of Education Organization Act (20 U.S.C. 3412)
 21 is amended in subsection (b)(1)—

22 (1) in subparagraph (E) by striking “and” at
 23 the end;

24 (2) by redesignating subparagraph (F) as (G);
 25 and

1 (3) by inserting after subparagraph (E) the fol-
2 lowing:

3 “(F) an Assistant Secretary for Science,
4 Technology, Engineering, and Mathematics
5 Education (in this Act referred to as the ‘As-
6 sistant Secretary for STEM Education’); and”.

7 (b) OFFICE.—Title II of the Department of Edu-
8 cation Organization Act (20 U.S.C. 3411 et seq.) is
9 amended by adding at the end the following:

10 **“SEC. 221. OFFICE OF SCIENCE, TECHNOLOGY, ENGINEER-**
11 **ING, AND MATHEMATICS EDUCATION.**

12 “(a) IN GENERAL.—There shall be in the Depart-
13 ment of Education an Office of Science, Technology, Engi-
14 neering, and Mathematics Education (in this section re-
15 ferred to as the ‘Office of STEM Education’), to be ad-
16 ministered by the Assistant Secretary for STEM Edu-
17 cation appointed under section 202(b).

18 “(b) RESPONSIBILITIES.—The Assistant Secretary of
19 STEM Education, acting through the Office, shall serve
20 as the principal advisor to the Secretary on matters affect-
21 ing science, technology, engineering, and math education,
22 and shall administer such functions representing STEM
23 education, including the coordination of STEM activities
24 and programs across Federal agencies.

1 “(c) EVALUATION AND REPORT.—The Assistant Sec-
2 retary for STEM Education shall conduct an independent
3 evaluation, through grant or by contract, of the STEM
4 education programs administered by the Department, at
5 least every 5 years, which shall include—

6 “(1) conducting an assessment of STEM edu-
7 cation activities within the Department by using the
8 evaluations and reports of these programs to deter-
9 mine these programs’ impact on—

10 “(A) the quantity of students taking ad-
11 vanced placement in STEM areas and seeking
12 STEM degrees;

13 “(B) the quantity of students exposed to
14 STEM content in the hours outside of the reg-
15 ular school day;

16 “(C) student academic achievement in
17 mathematics and science; and

18 “(D) the increased number of highly quali-
19 fied STEM teachers, STEM content coaches,
20 and STEM master educators; and

21 “(2) the preparation and submission of a report
22 on the results of the evaluation described in para-
23 graph (1) to the Committee on Health, Education,
24 Labor, and Pensions and the Committee on Com-
25 merce, Science, and Transportation of the Senate,

1 the Committee on Education and the Workforce and
2 the Committee on Science, Space, and Technology of
3 the House of Representatives, and the Committees
4 on Appropriations of the Senate and the House of
5 Representatives.

6 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
7 are authorized to be appropriated \$1,500,000 to carry out
8 this section for fiscal year 2014 and such sums as may
9 be necessary for each fiscal year thereafter.”.

10 **SEC. 4. ADVANCED RESEARCH PROJECTS AGENCY FOR**
11 **EDUCATION.**

12 Title II of the Department of Education Organization
13 Act (20 U.S.C. 3411 et seq.), as amended by section 2
14 of this Act, is further amended by adding at the end the
15 following:

16 **“SEC. 222. ADVANCED RESEARCH PROJECTS AGENCY FOR**
17 **EDUCATION.**

18 “(a) ESTABLISHMENT.—There shall be in the De-
19 partment an Advanced Research Projects Agency for Edu-
20 cation (referred to in this section as ‘ARPA–ED’).

21 “(b) PURPOSES.—ARPA–ED is established under
22 this section for the purposes of pursuing breakthrough re-
23 search and development in educational technology and
24 providing the effective use of the technology to improve
25 achievement for all students, by—

1 “(1) integrating STEM related content areas
2 including science, technology, computer science, en-
3 gineering design, mathematics and computational
4 thinking;

5 “(2) identifying and promoting revolutionary
6 advances in fundamental and applied sciences and
7 engineering that could be translated into new learn-
8 ing technologies;

9 “(3) developing novel learning technologies, and
10 the enabling processes and contexts for effective use
11 of those technologies;

12 “(4) developing, testing, and evaluating the im-
13 pact and efficacy of those technologies;

14 “(5) developing educational technology innova-
15 tions including data analytic tools that help State
16 educational agencies and local educational agencies
17 with reporting required under Federal accountability
18 mandates;

19 “(6) accelerating transformational technological
20 advances in areas in which the private sector, by
21 itself, is not likely to accelerate such advances be-
22 cause of difficulties in implementation or adoption,
23 or technical and market uncertainty;

24 “(7) coordinating activities with nongovern-
25 mental entities to demonstrate technologies and re-

1 search applications to facilitate technology transfer;
2 and

3 “(8) encouraging educational research using
4 new technologies and the data produced by the tech-
5 nologies.

6 “(c) COORDINATION.—

7 “(1) The Agency shall work closely and collabo-
8 ratively between agencies in order to maximize the
9 Federal effort and investment to the Project.

10 “(2) The Agency shall work with the National
11 Science Foundation’s Cyber Learning Program.

12 “(d) AUTHORITIES OF SECRETARY.—The Secretary
13 is authorized to—

14 “(1) appoint a Director, who shall be respon-
15 sible for carrying out the purposes of ARPA–ED, as
16 described in subsection (b), and such additional
17 functions as the Secretary may prescribe;

18 “(2) establish processes for the development
19 and execution of projects and the solicitation of enti-
20 ties to carry out the projects in a manner that is—

21 “(A) tailored to the purposes of ARPA–
22 ED and not constrained by other Department-
23 wide administrative requirements that could de-
24 tract from achieving program results; and

1 “(B) designed to heighten transparency,
2 and public- and private-sector involvement, to
3 ensure that investments are made in the most
4 promising areas;

5 “(3) award grants, contracts, cooperative agree-
6 ments, and cash prizes, and enter into other trans-
7 actions (in accordance with such regulations as the
8 Secretary may establish regarding other trans-
9 actions);

10 “(4) obtain independent, periodic, rigorous eval-
11 uations, as appropriate, of—

12 “(A) the effectiveness of the processes
13 ARPA–ED is using to achieve its purposes; and

14 “(B) the effectiveness of individual projects
15 assisted by ARPA–ED, using evidence stand-
16 ards developed in consultation with the Insti-
17 tute of Education Sciences, and the suitability
18 of ongoing projects assisted by ARPA–ED for
19 further investment or increased scale; and

20 “(5) disseminate, through the comprehensive
21 centers established under section 203 of the Edu-
22 cational Technical Assistance Act of 2002 (20
23 U.S.C. 9602), the regional educational laboratories
24 system established under section 174 of the Edu-
25 cation Sciences Reform Act of 2002 (20 U.S.C.

1 9564), or such other means as the Secretary deter-
2 mines to be appropriate, information on effective
3 practices and technologies developed with ARPA–ED
4 support.

5 “(e) EVALUATION FUNDS.—The Secretary may use
6 funds made available for ARPA–ED to pay the cost of
7 the evaluations under subsection (c)(6).

8 “(f) FEDERAL ADVISORY COMMITTEE ACT.—Not-
9 withstanding any other provision of law, any advisory com-
10 mittee convened by the Secretary to provide advice with
11 respect to this section shall be exempt from the require-
12 ments of the Federal Advisory Committee Act (5 U.S.C.
13 App.) and the definition of ‘employee’ in section 2105 of
14 title 5, United States Code, shall not be considered to in-
15 clude any appointee to such a committee.

16 “(g) NONDUPLICATION.—To the maximum extent
17 practicable, the Secretary shall ensure that grants, con-
18 tracts, cooperative agreements, cash prizes, or other as-
19 sistance or arrangements awarded or entered into pursu-
20 ant to this section that are designed to carry out the pur-
21 poses of ARPA–ED do not duplicate activities under pro-
22 grams carried out under Federal law other than this sec-
23 tion by the Department or other Federal agencies.”.

1 **SEC. 5. STATE NETWORKS AND CONSORTIA ON SCIENCE,**
2 **TECHNOLOGY, ENGINEERING, AND MATHE-**
3 **MATICS EDUCATION.**

4 (a) IN GENERAL.—From amounts made available to
5 carry out this section, the Secretary of Education shall
6 make grants to eligible networks to expand STEM edu-
7 cation.

8 (b) ELIGIBLE NETWORK DEFINED.—In this section,
9 the term “eligible network” means a State-based STEM
10 network or similar organization, which—

11 (1) may include the participation of State offi-
12 cials, educators, administrators, afterschool pro-
13 viders, out of school time educators, parents, indus-
14 try leaders, philanthropists, and representatives from
15 the STEM communities;

16 (2) aims to increase student achievement and
17 experiences in the STEM disciplines at the elemen-
18 tary schools and secondary schools in its State, and
19 out of school programs and particularly for students
20 with a high concentration of historically under rep-
21 resented students and at rural schools (within the
22 meaning of part B of title VI of the Elementary and
23 Secondary Education Act of 1965 (20 U.S.C. 6201
24 et seq.)); and

25 (3) aims to increase the number of quality
26 afterschool programs offering STEM learning oppor-

1 tunities, particularly for students from populations
2 traditionally under-represented in the STEM fields.

3 (c) ELIGIBLE NETWORK APPLICATION.—

4 (1) IN GENERAL.—An eligible network seeking
5 a grant under this section shall submit an applica-
6 tion at such time, in such manner, and containing
7 such information as the Secretary may reasonably
8 require.

9 (2) MATCHING REQUIREMENT.—In order to re-
10 ceive a grant under this section, an eligible network
11 shall agree to provide, either directly or through pri-
12 vate contributions, non-Federal matching funds
13 equal to not less than 30 percent of the amount of
14 the grant.

15 (d) USES OF FUNDS.—Each eligible network receiv-
16 ing a grant under this section shall use the funds to carry
17 out one or more of the following:

18 (1) Testing, validating, sharing, and scaling up
19 STEM education research, promising practices, and
20 exemplary programs among members of the network
21 and with other eligible networks receiving grants
22 under this section.

23 (2) Identifying points of weakness and strength
24 among State STEM education efforts, prioritizing

1 strategies for addressing problem areas, and commu-
2 nicating State needs to the Secretary.

3 (3) Assisting in the implementation of rigorous
4 career and college ready standards in STEM edu-
5 cation for grades prekindergarten through grade 12
6 that reflect and take into consideration—

7 (A) career and college ready standards in
8 STEM disciplines;

9 (B) established international standards
10 and 21st century skills that include critical
11 thinking, problem solving, communication, col-
12 laboration, creativity, and innovation;

13 (C) the needs of English language learners
14 and special education students; and

15 (D) the need to increase STEM literacy of
16 prekindergarten through grade 12 students.

17 (4) Assisting the development of innovative
18 STEM assessments that measure interest, engage-
19 ment, and content proficiency.

20 (5) Supporting the implementation of STEM
21 assessments that measure career and college ready
22 standards.

23 (6) Promoting and developing rigorous under-
24 graduate pre-service teacher programs in institutions

1 of higher education that emphasize STEM content
2 with emphasis on the elementary educator.

3 (7) Promoting and developing curriculum tools
4 and professional development for STEM educators
5 both in school and out of school.

6 (8) Developing STEM career pathways that re-
7 flect the projected STEM workforce needs of the
8 21st century that may include mentoring programs
9 and STEM professional outreach.

10 (9) Developing STEM-related education and
11 workforce training programs in secondary schools
12 and community colleges to reflect the needs of the
13 local community.

14 (10) Developing systems for the implementation
15 of expanded learning opportunities on school sites to
16 enhance STEM education inside and outside of the
17 classroom.

18 (11) Promoting, supporting, and designing pro-
19 grams that develop STEM content coaches and mas-
20 ter educators in order to strengthen core com-
21 petencies of the classroom practitioner.

22 (e) EVALUATION AND REPORT.—Not later than 2
23 years after receiving a grant under this section, each eligi-
24 ble network receiving such a grant shall—

1 (1) conduct periodic independent evaluations,
2 by grant or by contract, of the eligible network's ef-
3 fectiveness at accomplishing the activities described
4 in this section, which shall include an assessment of
5 the impact of such activities on STEM teaching and
6 learning; and

7 (2) prepare and submit a report on the results
8 of each evaluation described in paragraph (1) to the
9 Secretary and make for dissemination to other
10 STEM Networks.

11 (f) PROHIBITIONS.—In implementing this section,
12 the Secretary may not—

13 (1) endorse, approve, or sanction any STEM
14 curriculum designed for use in any elementary
15 school, secondary school, or institution of higher
16 education; or

17 (2) engage in oversight, technical assistance, or
18 activities that will require the adoption of a specific
19 STEM program or instructional materials by a
20 State, local educational agency, or school.

21 (g) TOTAL AMOUNT OF GRANTS.—The total amount
22 of grants made under this section in any fiscal year may
23 not exceed \$20,000,000.

24 (h) DEFINITIONS.—In this section:

1 (1) The terms “elementary school”, “local edu-
2 cational agency”, “secondary school”, and “State
3 educational agency” have the meanings given such
4 terms in section 9101 of the Elementary and Sec-
5 ondary Education Act of 1965 (20 U.S.C. 7801).

6 (2) The term “high concentration of low-income
7 students” has the meaning given such term in sec-
8 tion 1707 of the Elementary and Secondary Edu-
9 cation Act of 1965 (20 U.S.C. 6537).

10 (3) The term “institution of higher education”
11 has the meaning given such term in section 101 of
12 the Higher Education Act of 1965 (20 U.S.C.
13 1001).

14 (4) The term “Secretary” means the Secretary
15 of Education.

16 (5) The term “State” means each of the several
17 States of the United States, the District of Colum-
18 bia, the Commonwealth of Puerto Rico, Guam, the
19 Commonwealth of Northern Mariana Islands, Amer-
20 ican Samoa, and the United States Virgin Islands.

21 (6) The term “STEM” means science, tech-
22 nology, engineering, and mathematics.

23 (7) The term “21st century readiness initia-
24 tive” means any initiative that—

1 (A) embeds core academic subjects with
2 critical skills; and

3 (B) is focused on ensuring that students
4 are prepared for postsecondary education and
5 careers, upon graduation from secondary
6 school.

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