

114TH CONGRESS  
1ST SESSION

# H. R. 565

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.

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## IN THE HOUSE OF REPRESENTATIVES

JANUARY 27, 2015

Mr. HONDA (for himself, Ms. CHU of California, Mr. CICILLINE, Ms. LEE, Mr. LOWENTHAL, Mr. MEEKS, Mr. POCAN, Ms. ROYBAL-ALLARD, Mr. RYAN of Ohio, Mr. SABLAN, Ms. SPEIER, and Mr. TAKANO) introduced the following bill; which was referred to the Committee on Education and the Workforce

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## 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,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Stepping Up to STEM  
5 Education Act”.

6 **SEC. 2. FINDINGS.**

7 The Congress finds the following:

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

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

19          (3) Technology by itself will not improve stu-  
20          dent outcomes. What is needed are carefully de-  
21          signed innovations that include not just technology  
22          but also good learning content, effective instructional  
23          strategies, supports for teachers and school systems  
24          figuring out how to use the new approach, and the  
25          capacity to collect, analyze and reflect on data that

1 will show whether or not the innovation is having the  
2 intended effects.

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

12 **SEC. 3. ADVANCED RESEARCH PROJECTS AGENCY FOR**  
13 **EDUCATION.**

14 Title II of the Department of Education Organization  
15 Act (20 U.S.C. 3411 et seq.) is amended by adding at  
16 the end the following:

17 **“SEC. 221. ADVANCED RESEARCH PROJECTS AGENCY FOR**  
18 **EDUCATION.**

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

22 “(b) PURPOSES.—ARPA–ED is established under  
23 this section for the purposes of pursuing breakthrough re-  
24 search and development in educational technology and

1 providing the effective use of the technology to improve  
2 achievement for all students, by—

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

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

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

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

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

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

1           “(7) coordinating activities with nongovern-  
2           mental entities to demonstrate technologies and re-  
3           search applications to facilitate technology transfer;  
4           and

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

8           “(c) COORDINATION.—

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

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

14          “(d) AUTHORITIES OF SECRETARY.—The Secretary  
15          is authorized to—

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

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

23                  “(A) tailored to the purposes of ARPA–  
24          ED and not constrained by other Department-

1 wide administrative requirements that could de-  
2 tract from achieving program results; and

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

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

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

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

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

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

1 system established under section 174 of the Edu-  
2 cation Sciences Reform Act of 2002 (20 U.S.C.  
3 9564), or such other means as the Secretary deter-  
4 mines to be appropriate, information on effective  
5 practices and technologies developed with ARPA–ED  
6 support.

7 “(e) QUALIFIED INDIVIDUALS.—The Secretary shall  
8 appoint, for a term of not more than 4 years qualified  
9 individuals who represent scientific, engineering, profes-  
10 sional, and other personnel with expertise in carrying out  
11 the activities described in this section to positions in  
12 ARPA–ED, at rates of compensation determined by the  
13 Secretary, without regard to the provisions of title 5,  
14 United States Code, except that such rates of compensa-  
15 tion shall not to exceed the rate for level I of the Executive  
16 Schedule under section 5312 of such title.

17 “(f) ADMINISTRATIVE REQUIREMENTS.—Notwith-  
18 standing section 437(d) of the General Education Provi-  
19 sions Act (20 U.S.C. 1232(d)), the Secretary shall estab-  
20 lish such processes as may be necessary for the Secretary  
21 to manage and administer ARPA–ED, which are not con-  
22 strained by other Department-wide administrative require-  
23 ments that may prevent ARPA–ED from carrying out the  
24 purposes described in subsection (b).

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

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

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

20 **SEC. 4. STATE NETWORKS AND CONSORTIA ON SCIENCE,**  
21 **TECHNOLOGY, ENGINEERING, AND MATHE-**  
22 **MATICS EDUCATION.**

23       (a) IN GENERAL.—From amounts made available to  
24 carry out this section, the Secretary of Education shall

1 make grants to eligible networks to expand STEM edu-  
2 cation.

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

6 (1) may include the participation of State offi-  
7 cials, educators, administrators, afterschool pro-  
8 viders, out of school time educators, parents, indus-  
9 try leaders, philanthropists, and representatives from  
10 the STEM communities;

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

20 (3) aims to increase the number of quality  
21 afterschool programs offering STEM learning oppor-  
22 tunities, particularly for students from populations  
23 traditionally underrepresented in the STEM fields.

24 (c) ELIGIBLE NETWORK APPLICATION.—

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

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

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

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

20           (2) Identifying points of weakness and strength  
21 among State STEM education efforts, prioritizing  
22 strategies for addressing problem areas, and commu-  
23 nicating State needs to the Secretary.

24           (3) Assisting in the implementation of rigorous  
25 career and college ready standards in STEM edu-

1 cation for grades prekindergarten through grade 12  
2 that reflect and take into consideration—

3 (A) career and college ready standards in  
4 STEM disciplines;

5 (B) established international standards  
6 and 21st century skills that include critical  
7 thinking, problem solving, communication, col-  
8 laboration, creativity, and innovation;

9 (C) the needs of English language learners  
10 and special education students; and

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

13 (4) Assisting the development of innovative  
14 STEM assessments that measure interest, engage-  
15 ment, and content proficiency.

16 (5) Supporting the implementation of STEM  
17 assessments that measure career and college ready  
18 standards.

19 (6) Promoting and developing rigorous under-  
20 graduate pre-service teacher programs in institutions  
21 of higher education that emphasize STEM content  
22 with emphasis on the elementary educator.

23 (7) Promoting and developing curriculum tools  
24 and professional development for STEM educators  
25 both in school and out of school.

1           (8) Developing STEM career pathways that re-  
2           flect the projected STEM workforce needs of the  
3           21st century that may include mentoring programs  
4           and STEM professional outreach.

5           (9) Developing STEM-related education and  
6           workforce training programs in secondary schools  
7           and community colleges to reflect the needs of the  
8           local community.

9           (10) Developing systems for the implementation  
10          of expanded learning opportunities on school sites to  
11          enhance STEM education inside and outside of the  
12          classroom.

13          (11) Promoting, supporting, and designing pro-  
14          grams that develop STEM content coaches and mas-  
15          ter educators in order to strengthen core com-  
16          petencies of the classroom practitioner.

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

20                (1) conduct periodic independent evaluations,  
21                by grant or by contract, of the eligible network’s ef-  
22                fectiveness at accomplishing the activities described  
23                in this section, which shall include an assessment of  
24                the impact of such activities on STEM teaching and  
25                learning; and

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

5           (f) PROHIBITIONS.—In implementing this section,  
6 the Secretary may not—

7           (1) endorse, approve, or sanction any STEM  
8 curriculum designed for use in any elementary  
9 school, secondary school, or institution of higher  
10 education; or

11           (2) engage in oversight, technical assistance, or  
12 activities that will require the adoption of a specific  
13 STEM program or instructional materials by a  
14 State, local educational agency, or school.

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

18           (h) DEFINITIONS.—In this section:

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

24           (2) The term “high concentration of low-income  
25 students” has the meaning given such term in sec-

1 tion 1707 of the Elementary and Secondary Edu-  
2 cation Act of 1965 (20 U.S.C. 6537).

3 (3) The term “institution of higher education”  
4 has the meaning given such term in section 101 of  
5 the Higher Education Act of 1965 (20 U.S.C.  
6 1001).

7 (4) The term “Secretary” means the Secretary  
8 of Education.

9 (5) The term “State” means each of the several  
10 States of the United States, the District of Colum-  
11 bia, the Commonwealth of Puerto Rico, Guam, the  
12 Commonwealth of the Northern Mariana Islands,  
13 American Samoa, and the United States Virgin Is-  
14 lands.

15 (6) The term “STEM” means science, tech-  
16 nology, engineering, mathematics, and computer  
17 science.

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

20 (A) embeds core academic subjects with  
21 critical skills; and

22 (B) is focused on ensuring that students  
23 are prepared for postsecondary education and

1 careers, upon graduation from secondary  
2 school.

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