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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

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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.

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 ''Stepping Up to STEM Act of 2013''.

SEC. 2. FINDINGS.

Congress finds the following:

(1) Technology and the Internet have transformed nearly every aspect of both the global economy and our daily lives. In a technology-rich world, no amount of memorizing information will make a student competitive in the global labor market. America needs an education system that supports students from all walks of life in becoming inquisitive, resourceful thinkers who use technology to pursue knowledge, collaborate across geographic and cultural boundaries, acquire new skills, and solve complex problems.

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

(3) Technology by itself will not improve student outcomes. What is needed are carefully designed innovations that include not just technology

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

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

SEC. 3. OFFICE OF SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS EDUCATION WITHIN THE DEPARTMENT OF EDUCATION.

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

(1) in subparagraph (E) by striking ''and'' at the end;

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

(3) by inserting after subparagraph (E) the following:

''(F) an Assistant Secretary for Science, Technology, Engineering, and Mathematics Education (in this Act referred to as the 'Assistant Secretary for STEM Education'); and''.

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

''SEC. 221. OFFICE OF SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS EDUCATION.

''(a) IN GENERAL.—There shall be in the Department of Education an Office of Science, Technology, Engineering, and Mathematics Education (in this section referred to as the 'Office of STEM Education'), to be administered by the Assistant Secretary for STEM Education appointed under section 202(b).

''(b) RESPONSIBILITIES.—The Assistant Secretary of STEM Education, acting through the Office, shall serve as the principal advisor to the Secretary on matters affecting science, technology, engineering, and math education, and shall administer such functions representing STEM education, including the coordination of STEM activities and programs across Federal agencies.

''(c) EVALUATION AND REPORT.—The Assistant Secretary for STEM Education shall conduct an independent evaluation, through grant or by contract, of the STEM education programs administered by the Department, at least every 5 years, which shall include—

''(1) conducting an assessment of STEM education activities within the Department by using the evaluations and reports of these programs to determine these programs' impact on—

''(A) the quantity of students taking advanced placement in STEM areas and seeking STEM degrees;

''(B) the quantity of students exposed to STEM content in the hours outside of the regular school day;

''(C) student academic achievement in mathematics and science; and

''(D) the increased number of highly qualified STEM teachers, STEM content coaches, and STEM master educators; and

''(2) the preparation and submission of a report on the results of the evaluation described in paragraph (1) to the Committee on Health, Education, Labor, and Pensions and the Committee on Commerce, Science, and Transportation of the Senate,

the Committee on Education and the Workforce and the Committee on Science, Space, and Technology of the House of Representatives, and the Committees on Appropriations of the Senate and the House of Representatives.

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

SEC. 4. ADVANCED RESEARCH PROJECTS AGENCY FOR EDUCATION.

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

''SEC. 222. ADVANCED RESEARCH PROJECTS AGENCY FOR EDUCATION.

''(a) ESTABLISHMENT.—There shall be in the Department an Advanced Research Projects Agency for Education (referred to in this section as 'ARPA–ED').

''(b) PURPOSES.—ARPA–ED is established under this section for the purposes of pursuing breakthrough research and development in educational technology and providing the effective use of the technology to improve achievement for all students, by—

''(1) integrating STEM related content areas including science, technology, computer science, engineering design, mathematics and computational thinking;

''(2) identifying and promoting revolutionary advances in fundamental and applied sciences and engineering that could be translated into new learning technologies;

''(3) developing novel learning technologies, and the enabling processes and contexts for effective use of those technologies;

''(4) developing, testing, and evaluating the impact and efficacy of those technologies;

''(5) developing educational technology innovations including data analytic tools that help State educational agencies and local educational agencies with reporting required under Federal accountability mandates;

''(6) accelerating transformational technological advances in areas in which the private sector, by itself, is not likely to accelerate such advances because of difficulties in implementation or adoption, or technical and market uncertainty;

''(7) coordinating activities with nongovernmental entities to demonstrate technologies and re-

search applications to facilitate technology transfer; and

''(8) encouraging educational research using new technologies and the data produced by the technologies.

''(c) COORDINATION.—

''(1) The Agency shall work closely and collaboratively between agencies in order to maximize the Federal effort and investment to the Project.

''(2) The Agency shall work with the National Science Foundation's Cyber Learning Program.

''(d) AUTHORITIES OF SECRETARY.—The Secretary is authorized to—

''(1) appoint a Director, who shall be responsible for carrying out the purposes of ARPA–ED, as described in subsection (b), and such additional functions as the Secretary may prescribe;

''(2) establish processes for the development and execution of projects and the solicitation of entities to carry out the projects in a manner that is—

''(A) tailored to the purposes of ARPA–ED and not constrained by other Department-wide administrative requirements that could detract from achieving program results; and

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

''(3) award grants, contracts, cooperative agreements, and cash prizes, and enter into other transactions (in accordance with such regulations as the Secretary may establish regarding other transactions);

''(4) obtain independent, periodic, rigorous evaluations, as appropriate, of—

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

''(B) the effectiveness of individual projects assisted by ARPA–ED, using evidence standards developed in consultation with the Institute of Education Sciences, and the suitability of ongoing projects assisted by ARPA–ED for further investment or increased scale; and

''(5) disseminate, through the comprehensive centers established under section 203 of the Educational Technical Assistance Act of 2002 (20 U.S.C. 9602), the regional educational laboratories system established under section 174 of the Education Sciences Reform Act of 2002 (20 U.S.C.

9564), or such other means as the Secretary determines to be appropriate, information on effective practices and technologies developed with ARPA–ED support.

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

''(f) FEDERAL ADVISORY COMMITTEE ACT.—Notwithstanding any other provision of law, any advisory committee convened by the Secretary to provide advice with respect to this section shall be exempt from the requirements of the Federal Advisory Committee Act (5 U.S.C. App.) and the definition of 'employee' in section 2105 of title 5, United States Code, shall not be considered to include any appointee to such a committee.

''(g) NONDUPLICATION.—To the maximum extent practicable, the Secretary shall ensure that grants, contracts, cooperative agreements, cash prizes, or other assistance or arrangements awarded or entered into pursuant to this section that are designed to carry out the purposes of ARPA–ED do not duplicate activities under programs carried out under Federal law other than this section by the Department or other Federal agencies.''.

SEC. 5. STATE NETWORKS AND CONSORTIA ON SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS EDUCATION.

(a) IN GENERAL.—From amounts made available to carry out this section, the Secretary of Education shall make grants to eligible networks to expand STEM education.

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

(1) may include the participation of State officials, educators, administrators, afterschool providers, out of school time educators, parents, industry leaders, philanthropists, and representatives from the STEM communities;

(2) aims to increase student achievement and experiences in the STEM disciplines at the elementary schools and secondary schools in its State, and out of school programs and particularly for students with a high concentration of historically under represented students and at rural schools (within the meaning of part B of title VI of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6201 et seq.)); and

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

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

(c) ELIGIBLE NETWORK APPLICATION.—

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

(2) MATCHING REQUIREMENT.—In order to receive a grant under this section, an eligible network shall agree to provide, either directly or through private contributions, non-Federal matching funds equal to not less than 30 percent of the amount of the grant.

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

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

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

strategies for addressing problem areas, and communicating State needs to the Secretary.

(3) Assisting in the implementation of rigorous career and college ready standards in STEM education for grades prekindergarten through grade 12 that reflect and take into consideration—

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

(B) established international standards and 21st century skills that include critical thinking, problem solving, communication, collaboration, creativity, and innovation;

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

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

(4) Assisting the development of innovative STEM assessments that measure interest, engagement, and content proficiency.

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

(6) Promoting and developing rigorous undergraduate pre-service teacher programs in institutions

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

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

(8) Developing STEM career pathways that reflect the projected STEM workforce needs of the 21st century that may include mentoring programs and STEM professional outreach.

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

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

(11) Promoting, supporting, and designing programs that develop STEM content coaches and master educators in order to strengthen core competencies of the classroom practitioner.

(e) EVALUATION AND REPORT.—Not later than 2 years after receiving a grant under this section, each eligible network receiving such a grant shall—

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

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

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

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

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

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

(h) DEFINITIONS.—In this section:

(1) The terms ''elementary school'', ''local educational agency'', ''secondary school'', and ''State educational agency'' have the meanings given such terms in section 9101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801).

(2) The term ''high concentration of low-income students'' has the meaning given such term in section 1707 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6537).

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

(4) The term ''Secretary'' means the Secretary of Education.

(5) The term ''State'' means each of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the Commonwealth of Northern Mariana Islands, American Samoa, and the United States Virgin Islands.

(6) The term ''STEM'' means science, technology, engineering, and mathematics.

(7) The term ''21st century readiness initiative'' means any initiative that—

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

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

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