

113TH CONGRESS
1ST SESSION

H. R. 3243

To provide support for K–12 teacher professional development programs at the National Science Foundation and the Department of Education in the areas of science, technology, engineering, and mathematics education, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 4, 2013

Ms. ESTY introduced the following bill; which was referred to the Committee on Education and the Workforce, and in addition to the Committee on Science, Space, and Technology, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

A BILL

To provide support for K–12 teacher professional development programs at the National Science Foundation and the Department of Education in the areas of science, technology, engineering, and mathematics 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 “Supporting Teachers
5 and Enhancing Manufacturing (STEM) Jobs Act of
6 2013”.

1 **SEC. 2. FINDINGS.**

2 The Congress finds the following:

3 (1) There is broad consensus that increasing
4 the number and quality of workers in STEM fields
5 is critical to maintaining United States economic
6 leadership and global competitiveness.

7 (2) Scientific innovation has produced approxi-
8 mately half of all United States economic growth
9 since 1950.

10 (3) Due to shortages of skilled workers, ap-
11 proximately 600,000 United States manufacturing
12 jobs remained vacant in 2011.

13 (4) Over the past 10 years, growth in STEM
14 jobs in the United States was three times greater
15 than that of non-STEM jobs. Additionally, STEM
16 jobs are forecasted to grow at an even faster rate in
17 the next decade.

18 (5) United States employees in STEM fields
19 earn higher wages, receiving 26 percent more on av-
20 erage than their non-STEM counterparts.

21 (6) Employment in engineering fields is ex-
22 pected to grow by 11 percent by 2018. Among indi-
23 viduals holding undergraduate degrees, engineers
24 earn some of the highest starting salaries on aver-
25 age.

1 (7) Employment in computer systems design
2 and related services, which is dependent on high-
3 level math and problem-solving skills, is projected to
4 grow by 45 percent by 2018.

5 (8) In 2008, 31 percent of United States col-
6 lege graduates majored in science or engineering
7 fields, as opposed to 61 percent of graduates in
8 Japan and 51 percent of graduates in China.

9 (9) In 2011, the World Economic Forum
10 ranked the United States 48th in quality of mathe-
11 matics and science K–12 teacher instruction.

12 (10) Recent reports on standardized testing
13 show that students in the United States perform av-
14 erage or below average in mathematics and science
15 as compared to their international peers.

16 (11) In 2011, only 45 percent of United States
17 high school graduates were ready for college-level
18 math, and only 30 percent were ready for college-
19 level science.

20 (12) In 2007, 33 percent of public middle
21 school science teachers and 36 percent of public mid-
22 dle school math teachers either did not have a col-
23 lege degree in the subject or were not certified to
24 teach the subject.

1 (13) United States teachers generally spent
 2 more time in the classroom with students and less
 3 time on professional development than their counter-
 4 parts in top-performing countries.

5 (14) United States teachers cite inadequate
 6 support from administrators on curriculum develop-
 7 ment as one of the top reasons for leaving their jobs.

8 (15) Exposure to projects and problem-based
 9 learning give high school students the skills that
 10 they need to be successful in engineering under-
 11 graduate and graduate programs of study as well as
 12 future careers.

13 **SEC. 3. NATIONAL SCIENCE FOUNDATION MASTER TEACH-**
 14 **ING FELLOWSHIPS TRACK.**

15 The National Science Foundation Authorization Act
 16 of 2002 (42 U.S.C. 1862n et seq.) is amended by inserting
 17 after section 10A the following:

18 **“SEC. 10B. NATIONAL SCIENCE FOUNDATION TEACHING**
 19 **FELLOWSHIPS AND MASTER TEACHING FEL-**
 20 **LOWSHIPS.**

21 “(a) IN GENERAL.—

22 “(1) GRANTS.—

23 “(A) IN GENERAL.—As part of the Robert
 24 Noyce Teacher Scholarship Program established
 25 under section 10, the Director shall establish a

1 separate program to award grants to eligible
2 entities to enable such entities to administer fel-
3 lowships in accordance with this section.

4 “(B) DEFINITIONS.—The terms used in
5 this section have the meanings given the terms
6 in section 10.

7 “(2) FELLOWSHIPS.—Fellowships under this
8 section shall be available only to—

9 “(A) science, technology, engineering, or
10 mathematics professionals, who shall be re-
11 ferred to as ‘National Science Foundation
12 Teaching Fellows’ and who, in the first year of
13 the fellowship, are enrolled in a master’s degree
14 program leading to teacher certification or li-
15 censing; and

16 “(B) mathematics and science elementary
17 and secondary school teachers, who shall be re-
18 ferred to as ‘National Science Foundation Mas-
19 ter Teaching Fellows’, and who possess a mas-
20 ter’s degree in their field or who do not possess
21 a master’s degree in education and/or their re-
22 spective field but possess potential to become
23 highly effective mathematics and science teach-
24 ers and leaders in their respective schools.

1 “(b) ELIGIBILITY.—In order to be eligible to receive
2 a grant under this section, an eligible entity shall enter
3 into a partnership that—

4 “(1) shall include—

5 “(A) not less than 1 high need local edu-
6 cational agency and a public school or a consor-
7 tium of public schools served by the agency;

8 “(B) a department within an institution of
9 higher education participating in the partner-
10 ship that provides an advanced program of
11 study in mathematics and science; and

12 “(C)(i) a school or department within an
13 institution of higher education participating in
14 the partnership that provides a teacher prepa-
15 ration program; or

16 “(ii) a 2-year institution of higher edu-
17 cation that has a teacher preparation offering
18 or a dual enrollment program with an institu-
19 tion of higher education participating in the
20 partnership; and

21 “(2) may include 1 or more nonprofit organiza-
22 tions that have a demonstrated record of capacity to
23 provide expertise or support to meet the purposes of
24 this section.

1 “(c) USE OF GRANTS.—Grants awarded under this
2 section shall be used by the eligible entity (and partici-
3 pating institutions of higher education of the consortium,
4 if applicable) to develop and implement a program for Na-
5 tional Science Foundation Teaching Fellows or National
6 Science Foundation Master Teaching Fellows, through—

7 “(1) administering fellowships in accordance
8 with this section, including providing teaching fel-
9 lowship salary supplements;

10 “(2) in the case of National Science Foundation
11 Teaching Fellowships—

12 “(A) offering academic courses and clinical
13 teaching experiences leading to a master’s de-
14 gree and designed to prepare individuals to
15 teach in elementary schools and secondary
16 schools, including such preparation as is nec-
17 essary to meet the requirements for certification
18 or licensing; and

19 “(B) offering programs both during and
20 after matriculation in the program for which
21 the fellowship is received to enable fellows to
22 become highly effective mathematics and
23 science teachers, including mentoring, training,
24 induction, and professional development activi-
25 ties, to fulfill the service requirements of this

1 section, including the requirements of sub-
2 section (e), and to exchange ideas with others
3 in their fields; and

4 “(3) in the case of National Science Foundation
5 Master Teaching Fellowships—

6 “(A) in the case of fellows who have a
7 master’s degree in education or in their respec-
8 tive field—

9 “(i) offering academic courses and
10 leadership training to prepare individuals
11 to become master teachers in elementary
12 schools and secondary schools; and

13 “(ii) offering programs both during
14 and after matriculation in the program for
15 which the fellowship is received to enable
16 fellows to become highly effective mathe-
17 matics and science teachers, including
18 mentoring, training, induction, and profes-
19 sional development activities, to fulfill the
20 service requirements of this section, includ-
21 ing the requirements of subsection (e), and
22 to exchange ideas with others in their
23 fields; and

1 “(B) in the case of fellows who do not have
2 a master’s degree in education or in their re-
3 spective field—

4 “(i) offering academic courses for in-
5 dividuals to earn a master’s degree;

6 “(ii) offering programs both during
7 and after matriculation in the program for
8 which the fellowship is received to enable
9 fellows to become highly effective mathe-
10 matics and science teachers, including
11 mentoring, training, and induction, to ful-
12 fill the service requirements of this section,
13 including the requirements of subsection
14 (e), and to exchange ideas with others in
15 their fields; and

16 “(iii) offering professional develop-
17 ment programs that provide for continuous
18 followup training during the academic year
19 that may include—

20 “(I) an online forum that may in-
21 clude—

22 “(aa) a discussion forum for
23 Master fellows to share best
24 practices with other fellows; and

1 “(bb) a question and answer
2 forum for Master fellows to ask
3 questions of faculty from the in-
4 stitution of higher education or
5 any other member of the partner-
6 ship;

7 “(II) a summer workshop train-
8 ing of no less than 2 weeks; and

9 “(III) direct interaction with fac-
10 ulty throughout the year.”.

11 **SEC. 4. TEACHER AND PRINCIPAL TRAINING AND RECRUIT-**
12 **ING FUND.**

13 Sections 2101, 2012, and 2013 of the Elementary
14 and Secondary Education Act of 1965 (20 U.S.C. 6601,
15 6602, 6603) are amended to read as follows:

16 **“SEC. 2101. PURPOSE.**

17 “The purpose of this part is to provide grants to
18 State educational agencies, local educational agencies,
19 State agencies for higher education, and eligible partner-
20 ships that may include nonprofit organizations or private
21 corporations in order to—

22 “(1) increase student academic achievement
23 through strategies such as improving teacher and
24 principal quality and increasing the number of high-
25 ly qualified teachers in the classroom and highly

1 qualified principals and assistant principals in
2 schools; and

3 “(2) hold local educational agencies and schools
4 accountable for improvements in student academic
5 achievement.

6 **“SEC. 2102. DEFINITIONS.**

7 “In this part:

8 “(1) ARTS AND SCIENCES.—The term ‘arts and
9 sciences’ means—

10 “(A) when referring to an organizational
11 unit of an institution of higher education, any
12 academic unit that offers one or more academic
13 majors in disciplines or content areas cor-
14 responding to the academic subjects in which
15 teachers teach; and

16 “(B) when referring to a specific academic
17 subject, the disciplines or content areas in
18 which an academic major is offered by an orga-
19 nizational unit described in subparagraph (A).

20 “(2) CHARTER SCHOOL.—The term ‘charter
21 school’ has the meaning given the term in section
22 5210.

23 “(3) HIGH-NEED LOCAL EDUCATIONAL AGEN-
24 CY.—The term ‘high-need local educational agency’
25 means a local educational agency—

1 “(A)(i) that serves not fewer than 10,000
2 children from families with incomes below the
3 poverty line; or

4 “(ii) for which not less than 20 percent of
5 the children served by the agency are from fam-
6 ilies with incomes below the poverty line; and

7 “(B)(i) for which there may be a high per-
8 centage of teachers not teaching in the aca-
9 demic subjects or grade levels that the teachers
10 were trained to teach; or

11 “(ii) for which there may be a high per-
12 centage of teachers with emergency, provisional,
13 or temporary certification or licensing.

14 “(4) HIGHLY QUALIFIED PARAPROFES-
15 SIONAL.—The term ‘highly qualified paraprofes-
16 sional’ means a paraprofessional who has not less
17 than 2 years of—

18 “(A) experience in a classroom; and

19 “(B) postsecondary education or dem-
20 onstrated competence in a field or academic
21 subject for which there is a significant shortage
22 of qualified teachers.

23 “(5) OUT-OF-FIELD TEACHER.—The term ‘out-
24 of-field teacher’ means a teacher who is teaching an

1 academic subject or a grade level for which the
2 teacher is not highly qualified.

3 “(6) PRINCIPAL.—The term ‘principal’ includes
4 an assistant principal.

5 **“SEC. 2103. AUTHORIZATIONS OF APPROPRIATIONS.**

6 “(a) GRANTS TO STATES, LOCAL EDUCATIONAL
7 AGENCIES, AND ELIGIBLE PARTNERSHIPS.—There are
8 authorized to be appropriated to carry out this part (other
9 than subpart 5) \$3,175,000,000 for fiscal year 2014 and
10 such sums as may be necessary for each of the 5 suc-
11 ceeding fiscal years.

12 “(b) NATIONAL PROGRAMS.—There are authorized to
13 be appropriated to carry out subpart 5 such sums as may
14 be necessary for fiscal year 2014 and each of the 5 suc-
15 ceeding fiscal years.”.

16 **SEC. 5. MATHEMATICS AND SCIENCE PARTNERSHIPS.**

17 Part B of title II of the Elementary and Secondary
18 Education Act of 1965 (20 U.S.C. 6661 et seq.) is amend-
19 ed to read as follows:

20 “PART B—MATHEMATICS AND SCIENCE PARTNERSHIPS

21 **“SEC. 2201. PURPOSES; DEFINITIONS.**

22 “(a) PURPOSE.—The purpose of this part is to im-
23 prove the academic achievement of students in the areas
24 of mathematics and science by encouraging State edu-
25 cational agencies, institutions of higher education, local

1 educational agencies, elementary schools, and secondary
2 schools to participate in programs that—

3 “(1) improve and upgrade the status and stat-
4 ure of mathematics and science teaching by encour-
5 aging institutions of higher education to assume
6 greater responsibility for improving mathematics and
7 science teacher education through the establishment
8 of a comprehensive, integrated system of recruiting,
9 training, and advising mathematics and science
10 teachers;

11 “(2) focus on the education of mathematics and
12 science teachers as a career-long process that con-
13 tinuously stimulates teachers’ intellectual growth
14 and upgrades teachers’ knowledge and skills in order
15 to better retain good teachers;

16 “(3) bring mathematics and science teachers in
17 elementary schools and secondary schools together
18 with scientists, mathematicians, and engineers to in-
19 crease the subject matter knowledge of mathematics
20 and science teachers to foster relationships and im-
21 prove such teachers’ teaching skills through the use
22 of sophisticated laboratory equipment and work
23 space, computing facilities, libraries, and other re-
24 sources that institutions of higher education are bet-

1 ter able to provide than the elementary schools and
2 secondary schools;

3 “(4) develop more rigorous mathematics and
4 science curricula that are aligned with challenging
5 State and local academic content standards and with
6 the standards expected for postsecondary study and
7 careers in engineering, mathematics, and science;
8 and

9 “(5) improve and expand training of mathe-
10 matics and science teachers, including training such
11 teachers in the effective integration of technology
12 and project-based learning units into curricula and
13 instruction.

14 “(b) DEFINITIONS.—In this part:

15 “(1) ELIGIBLE PARTNERSHIP.—The term ‘eligi-
16 ble partnership’ means a partnership that—

17 “(A) shall include—

18 “(i) if grants are awarded under sec-
19 tion 2202(a)(1), a State educational agen-
20 cy;

21 “(ii) an engineering, mathematics, or
22 science department of an institution of
23 higher education; and

24 “(iii) a high-need local educational
25 agency; and

1 “(B) may include—

2 “(i) another engineering, mathe-
3 matics, science, or teacher training depart-
4 ment of an institution of higher education;

5 “(ii) additional local educational agen-
6 cies, public charter schools, public or pri-
7 vate elementary schools or secondary
8 schools, or a consortium of such schools;

9 “(iii) a business; or

10 “(iv) a nonprofit or for-profit organi-
11 zation of demonstrated effectiveness in im-
12 proving the quality of mathematics and
13 science teachers.

14 “(2) SUMMER WORKSHOP OR INSTITUTE.—The
15 term ‘summer workshop or institute’ means a work-
16 shop or institute, conducted during the summer,
17 that—

18 “(A) is conducted for a period of not less
19 than 2 weeks;

20 “(B) includes, as a component, a program
21 that provides direct interaction between teach-
22 ers and faculty from institution of higher edu-
23 cation;

24 “(C) provides for followup training during
25 the academic year that is conducted in the

1 classroom with direct interaction with partner-
2 ship participants for a period of not less than
3 3 consecutive or nonconsecutive days, except
4 that if the followup training is for teachers in
5 rural school districts, the followup training may
6 be conducted entirely through distance learning;
7 and

8 “(D) may provide for continuous followup
9 training during the academic year that is con-
10 ducted via an online forum that may include—

11 “(i) a discussion forum for teachers to
12 share best practices; and

13 “(ii) a question and answer forum for
14 teachers to ask questions of any other
15 member of the partnership.

16 **“SEC. 2202. GRANTS FOR MATHEMATICS AND SCIENCE**
17 **PARTNERSHIPS.**

18 “(a) **AUTHORIZED ACTIVITIES.**—An eligible partner-
19 ship shall use funds provided under this part for one or
20 more of the following activities related to elementary
21 schools or secondary schools:

22 “(1) Creating opportunities for enhanced and
23 ongoing professional development of mathematics
24 and science teachers that improves the subject mat-
25 ter knowledge of such teachers.

1 “(2) Promoting strong teaching skills for math-
2 ematics and science teachers and teacher educators,
3 including integrating reliable scientifically based re-
4 search teaching methods and technology-based
5 teaching methods into the curriculum.

6 “(3) Establishing and operating mathematics
7 and science summer workshops or institutes, includ-
8 ing followup training, for elementary school and sec-
9 ondary school mathematics and science teachers
10 that—

11 “(A) shall—

12 “(i) directly relate to the curriculum
13 and academic areas in which the teacher
14 provides instruction, and focus only sec-
15 ondarily on pedagogy;

16 “(ii) enhance the ability of the teacher
17 to understand and use the challenging
18 State academic content standards for
19 mathematics and science and to select ap-
20 propriate curricula; and

21 “(iii) train teachers to use curricula
22 that—

23 “(I) are based on scientific re-
24 search;

1 “(II) align with challenging State
2 academic content standards;

3 “(III) incorporate project-based
4 learning techniques; and

5 “(IV) are object-centered, experi-
6 ment-oriented, and concept- and con-
7 tent-based; and

8 “(B) may include—

9 “(i) programs that provide teachers
10 and prospective teachers with opportunities
11 to work under the guidance of experienced
12 teachers and college faculty;

13 “(ii) instruction in the use of data
14 and assessments to inform and instruct
15 classroom practice; and

16 “(iii) professional development activi-
17 ties, including supplemental and followup
18 activities, such as curriculum alignment,
19 distance learning, and activities that train
20 teachers to utilize technology in the class-
21 room.

22 “(4) Recruiting and retaining quality mathe-
23 matics, engineering, and science majors to teaching
24 through the use of—

1 “(A) signing and performance incentives
2 that are linked to activities proven effective in
3 retaining teachers, or for recruiting individuals
4 with demonstrated professional experience in
5 mathematics, engineering, or science into teach-
6 ing;

7 “(B) stipends provided to mathematics and
8 science teachers for certification through alter-
9 native routes;

10 “(C) scholarships for teachers to pursue
11 advanced course work in mathematics, engi-
12 neering, or science; and

13 “(D) other programs that the State edu-
14 cational agency determines to be effective in re-
15 cruiting and retaining individuals with strong
16 mathematics, engineering, or science back-
17 grounds.

18 “(5) Developing or redesigning more rigorous
19 mathematics and science curricula that are aligned
20 with challenging State and local academic content
21 standards and with the standards expected for post-
22 secondary study in mathematics and science.

23 “(6) Establishing distance learning programs
24 for mathematics and science teachers using curricula
25 that are innovative, content-based, and based on sci-

1 entifically based research that is current as of the
2 date of the program involved.

3 “(7) Designing programs to prepare a mathe-
4 matics or science teacher at a school to provide pro-
5 fessional development to other mathematics or
6 science teachers at the school and to assist begin-
7 ning and other teachers at the school, including (if
8 applicable) a mechanism to integrate the teacher’s
9 experiences from a summer workshop or institute
10 into the provision of professional development and
11 assistance.

12 “(8) Establishing and operating programs to
13 bring mathematics and science teachers into contact
14 with working scientists, mathematicians, and engi-
15 neers, to expand such teachers’ subject matter
16 knowledge of and research in science and mathe-
17 matics.

18 “(9) Designing programs to identify and de-
19 velop exemplary mathematics and science teachers in
20 the kindergarten through grade 8 classrooms.

21 “(10) Training mathematics and science teach-
22 ers and developing programs to encourage young
23 women and other underrepresented individuals in
24 mathematics and science careers (including engineer-

1 ing and technology) to pursue postsecondary degrees
2 in majors leading to such careers.

3 “(b) EVALUATION AND ACCOUNTABILITY PLAN.—

4 “(1) IN GENERAL.—Each eligible partnership
5 receiving a grant or subgrant under this part shall
6 develop an evaluation and accountability plan for ac-
7 tivities assisted under this part that includes rig-
8 orous objectives that measure the impact of activi-
9 ties funded under this part.

10 “(2) CONTENTS.—The plan developed pursuant
11 to paragraph (1)—

12 “(A) shall include measurable objectives to
13 increase the number of mathematics and
14 science teachers who participate in content-
15 based professional development activities;

16 “(B) shall include measurable objectives
17 for improved student academic achievement on
18 State mathematics and science assessments or,
19 where applicable, an International Mathematics
20 and Science Study assessment; and

21 “(C) may include objectives and measures
22 for—

23 “(i) increased participation by stu-
24 dents in advanced courses in mathematics
25 and science; and

1 “(ii) increased percentages of elemen-
2 tary and secondary school teachers with
3 academic majors or minors, or group ma-
4 jors or minors, in mathematics, engineer-
5 ing, or the sciences.

6 “(c) REPORT.—Each eligible partnership receiving a
7 grant or subgrant under this part shall report annually
8 to the Secretary regarding the eligible partnership’s
9 progress in meeting the objectives described in the ac-
10 countability plan of the partnership under subsection (b).

11 **“SEC. 2203. AUTHORIZATION OF APPROPRIATIONS.**

12 “There are authorized to be appropriated to carry out
13 this part \$450,000,000 for fiscal year 2014 and such sums
14 as may be necessary for each of the 5 succeeding fiscal
15 years.”.

16 **SEC. 6. SPECIAL RULE RELATING TO SUBGRANTS TO ELIGI-**
17 **BLE PARTNERSHIPS.**

18 Section 2132(c) of the Elementary and Secondary
19 Education Act of 1965 (20 U.S.C. 6632(c)) is amended
20 by striking “50” and inserting “75”.

○