

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”.

○