

110TH CONGRESS  
2D SESSION

# S. 3047

To provide for the coordination of the Nation's science, technology,  
engineering, and mathematics education initiatives.

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IN THE SENATE OF THE UNITED STATES

MAY 21, 2008

Mr. REID (for Mr. OBAMA (for himself, Mr. LUGAR, Mr. SANDERS, and Mr. BROWN)) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

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## A BILL

To provide for the coordination of the Nation's science, technology, engineering, and mathematics education initiatives.

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 “Enhancing Science,  
5 Technology, Engineering, and Mathematics Education Act  
6 of 2008”.

7 **SEC. 2. PURPOSE.**

8 The purpose of this Act is to coordinate Federal  
9 science, technology, engineering, and mathematics edu-

1 cation efforts and foster cooperation between the States  
2 and Federal Government by—

3 (1) improving coherence of Federal STEM edu-  
4 cation programs through the President’s Office of  
5 Science and Technology Policy;

6 (2) coordinating STEM education initiatives at  
7 the Department of Education;

8 (3) providing an incentive to States to align  
9 STEM education; and

10 (4) improving the dissemination of STEM edu-  
11 cation research, promising practices, and exemplary  
12 programs through the National STEM Education  
13 Research Repository.

14 **SEC. 3. FINDINGS.**

15 Congress finds the following:

16 (1) To preserve the competitiveness of the  
17 United States in the global economy our Nation  
18 must continue to combine innovation with techno-  
19 logical advances and scientific discovery.

20 (2) In 2006, the Committee on Science, Engi-  
21 neering, and Public Policy of the National Acad-  
22 emies published “Rising Above the Gathering  
23 Storm” estimating that in the United States innova-  
24 tions generated by STEM fields account for more

1 than half of the growth in gross domestic product  
2 (GDP).

3 (3) According to the analysis conducted by the  
4 Association of American Universities in 2006, only  
5 15 percent of college graduates receive a diploma in  
6 engineering or the natural sciences in the United  
7 States as compared with 38 percent in South Korea,  
8 47 percent in France, and 67 percent in Singapore.

9 (4) Every student deserves the opportunity to  
10 contribute to the long-term prosperity of the United  
11 States by acquiring skills that foster critical think-  
12 ing, inventiveness, and innovation.

13 (5) Highly qualified teachers are crucial to in-  
14 stilling students with the values and skills necessary  
15 to preserve and improve innovation in the United  
16 States and maintain our Nation's leadership in the  
17 global knowledge economy.

18 (6) Teacher preparation programs at institu-  
19 tions of higher education will enhance the prepara-  
20 tion they provide by incorporating promising prac-  
21 tices and exemplary programs that foster student  
22 learning, problem solving skills, and inventiveness  
23 and by aligning STEM education preservice and in-  
24 service training among States.

1           (7) Women and minorities in the United States  
2           are not employed in STEM occupations in propor-  
3           tion to their numbers in the population or their en-  
4           rollment in higher education; efforts must be made  
5           to increase diversity in the STEM workforce to im-  
6           prove the range of viewpoints and solutions available  
7           to address challenges presented by a diverse and  
8           global marketplace.

9           (8) Many of the Federal agencies have well es-  
10          tablished programs designed to support and improve  
11          STEM education including the Environmental Pro-  
12          tection Agency, Department of Agriculture, Depart-  
13          ment of Commerce, Department of Defense, Depart-  
14          ment of Education, Department of Energy, Depart-  
15          ment of Health and Human Services, Department of  
16          the Interior, National Aeronautics and Space Ad-  
17          ministration, National Oceanic and Atmospheric Ad-  
18          ministration, National Science Foundation, the Na-  
19          tional Institutes of Health, and the National Insti-  
20          tute of Standards and Technology.

21          (9) According to the Academic Competitiveness  
22          Council's (ACC) recent report, in 2006 the United  
23          States sponsored 105 STEM education programs at  
24          a dozen different Federal agencies. These programs  
25          devoted approximately \$3,120,000,000 to STEM

1 education activities spanning kindergarten through  
2 postgraduate education and outreach. It was shown  
3 that many of these Federal agencies do not share in-  
4 formation or work collaboratively on similar pro-  
5 grams. The ACC found that “coordination among  
6 agencies could be improved to avoid, for example,  
7 grants to numerous projects that support the same  
8 sorts of interventions . . . there appears to be a lack  
9 of communication among the agencies about the  
10 work they are funding and the results that are being  
11 generated . . . agencies are often uninformed by the  
12 results of earlier projects.”.

13 (10) Strengthening partnerships between the  
14 Federal and State governments, the private sector,  
15 nonprofit organizations, and the education commu-  
16 nity will improve STEM education in our Nation’s  
17 schools.

18 **SEC. 4. DEFINITIONS.**

19 In this Act:

20 (1) **FEDERAL AGENCIES.**—The term “Federal  
21 agencies” means—

- 22 (A) the Environmental Protection Agency;  
23 (B) the Department of Agriculture;  
24 (C) the Department of Commerce;  
25 (D) the Department of Defense;

1 (E) the Department of Education;  
2 (F) the Department of Energy;  
3 (G) the Department of Health and Human  
4 Services;  
5 (H) the Department of Labor;  
6 (I) the Department of the Interior;  
7 (J) the National Aeronautics and Space  
8 Administration;  
9 (K) the National Oceanic and Atmospheric  
10 Administration;  
11 (L) the National Science Foundation;  
12 (M) the National Institutes of Health;  
13 (N) the National Institute of Standards  
14 and Technology; and  
15 (O) other agencies of the Federal Govern-  
16 ment that administer or provide funding for  
17 STEM education programs.

18 (2) NSERR.—The term “NSERR” means the  
19 National STEM Education Research Repository es-  
20 tablished under section 8.

21 (3) STEM.—The term “STEM” means science,  
22 technology, engineering, and mathematics.

1 **SEC. 5. ESTABLISHMENT OF THE COMMITTEE ON SCIENCE,**  
2 **TECHNOLOGY, ENGINEERING, AND MATHE-**  
3 **MATICS EDUCATION.**

4 (a) **ESTABLISHMENT OF COMMITTEE.**—The Presi-  
5 dent shall establish a Committee on Science, Technology,  
6 Engineering, and Mathematics Education within the Na-  
7 tional Science and Technology Council, which may be re-  
8 ferred to as the “Committee on STEM Education”.

9 (b) **FUNCTION.**—

10 (1) **IN GENERAL.**—The function of the Com-  
11 mittee on STEM Education shall be to coordinate  
12 the efforts of the Federal agencies that relate to  
13 STEM education from the prekindergarten level  
14 through the graduate level to avoid unnecessary du-  
15 plication and ensure coherence among Federal  
16 STEM education programs.

17 (2) **INCREASING PARTICIPATION OF MINORI-**  
18 **TIES, PERSONS WITH DISABILITIES, AND WOMEN.**—  
19 The Committee on STEM Education shall seek to  
20 improve the quality and quantity of the STEM  
21 workforce with consideration of increasing participa-  
22 tion of individuals identified in section 33 or 34 of  
23 the Science and Engineering Equal Opportunities  
24 Act (42 U.S.C. 1885a or 1885b).

25 (3) **COORDINATION.**—The President shall en-  
26 sure that all efforts to coordinate the efforts of the

1 Federal agencies that relate to STEM education are  
2 coordinated through the Committee on STEM Edu-  
3 cation.

4 (c) STRUCTURE AND OPERATION.—

5 (1) MEMBERSHIP.—The membership of the  
6 Committee on STEM Education—

7 (A) shall include not less than 1 represent-  
8 ative from each of the Federal agencies; and

9 (B) may include outside experts.

10 (2) MEETINGS.—The Committee on STEM  
11 Education shall convene not less often than quar-  
12 terly.

13 (3) STAFF.—The Committee on STEM Edu-  
14 cation shall be served by—

15 (A) an Assistant Director selected by the  
16 members of the Committee with the approval of  
17 the Director of the Office of Science and Tech-  
18 nology Policy; and

19 (B) a professional staff of not less than 2  
20 individuals.

21 (d) RESPONSIBILITIES.—The Committee on STEM  
22 Education shall have the following responsibilities:

23 (1) Conducting an ongoing inventory and as-  
24 sessment of the effectiveness and coherence of ef-

1       forts within Federal agencies that relate to STEM  
2       education.

3               (2) Coordinating and facilitating the commu-  
4       nication and cooperation among all Federal agencies  
5       engaged in efforts that relate to STEM education.

6               (3) Developing annual goals and objectives for  
7       improving STEM education throughout the Nation  
8       in collaboration with relevant organizations.

9               (4) Not later than 30 days after developing the  
10      goals and objectives under paragraph (3)—

11              (A) disseminating the goals and objectives  
12      to each Federal agency engaged in efforts that  
13      relate to STEM education;

14              (B) communicating the goals and objec-  
15      tives to the Committee on Health, Education,  
16      Labor, and Pensions of the Senate, the Com-  
17      mittee on Commerce, Science, and Transpor-  
18      tation of the Senate, the Committee on Edu-  
19      cation and Labor of the House of Representa-  
20      tives, and the Committee on Science and Tech-  
21      nology of the House of Representatives, and rel-  
22      evant STEM education organizations; and

23              (C) making the goals and objectives widely  
24      available to the public, particularly to stake-  
25      holders that represent individuals identified in

1 section 33 or 34 of the Science and Engineering  
2 Equal Opportunities Act (42 U.S.C. 1885a or  
3 1885b).

4 (5) Annually evaluating the progress and suc-  
5 cess of each Federal agency at achieving the goals  
6 and objectives under paragraph (3).

7 (6) Consulting with the State Consortium on  
8 STEM Education when developing Federal STEM  
9 education policy and budgets.

10 (7) Proposing a coordinated interagency budget  
11 for STEM Education to the Office of Management  
12 and Budget aligned with the goals developed under  
13 paragraph (3).

14 (8) Strengthening partnerships between the  
15 STEM education community, Federal, State, and  
16 local governments, and other countries.

17 (9) Implementing the program for Semiannual  
18 Science, Technology, Engineering, and Mathematics  
19 Days as set forth in section 1004 of the America  
20 COMPETES Act (Public Law 110–69).

21 (10) Hosting an annual meeting on the status  
22 of STEM education, including the role of education  
23 in meeting the recommendations of the report sub-  
24 mitted by the National Science and Technology  
25 Summit in section 1001 of the America COM-

1       PETES Act (Public Law 110–69) in conjunction  
2       with—

3               (A) the State Consortium on STEM Edu-  
4       cation;

5               (B) the Federal agencies;

6               (C) States, including the District of Co-  
7       lumbia, the Commonwealth of Puerto Rico, the  
8       Commonwealth of the Northern Mariana Is-  
9       lands, American Samoa, Guam, the United  
10      States Virgin Islands, and any other territory  
11      or possession of the United States;

12              (D) businesses and industries;

13              (E) institutions of higher education;

14              (F) STEM education professions and  
15      teachers from prekindergarten through  
16      postbaccalaureate study; and

17              (G) other relevant stakeholders in STEM  
18      education, including stakeholders that represent  
19      individuals identified in section 33 or 34 of the  
20      Science and Engineering Equal Opportunities  
21      Act (42 U.S.C. 1885a or 1885b).

22              (11) Issuing a biennial report to the Nation on  
23      the status of STEM education that—

1 (A) specifies the efforts and outcomes of  
2 each Federal agency in improving STEM edu-  
3 cation; and

4 (B) contains an analysis of the quality,  
5 scale, and effectiveness of the efforts of the  
6 Federal Government relating to improving  
7 STEM education and increasing participation  
8 of individuals identified in section 33 or 34 of  
9 the Science and Engineering Equal Opportuni-  
10 ties Act (42 U.S.C. 1885a or 1885b).

11 (12) Developing, in consultation with the Sec-  
12 retary of Labor, business and industry partners and  
13 other appropriate entities, a 5-year projection of the  
14 STEM workforce, including a demographic break-  
15 down of individuals identified in section 33 or 34 of  
16 the Science and Engineering Equal Opportunities  
17 Act (42 U.S.C. 1885a or 1885b).

18 (e) REQUIREMENTS.—

19 (1) IN GENERAL.—Subject to paragraph (2),  
20 but notwithstanding any other provision of law, a  
21 person shall not be eligible to receive a grant from  
22 any Federal agency for a project that relates to  
23 STEM education research unless the person dem-  
24 onstrates that all reports, proceedings, data sets, on-  
25 line modules, and other products of the project will

1 be submitted by their authors for consideration to be  
2 included in the NSERR.

3 (2) COPYRIGHT.—The Committee on STEM  
4 Education and the NSERR shall implement the pub-  
5 lic access policy under paragraph (1) in a manner  
6 consistent with copyright law.

7 (f) AUTHORIZATION OF APPROPRIATIONS.—There  
8 are authorized to be appropriated to carry out this section  
9 \$650,000 for fiscal year 2009 and each of the succeeding  
10 fiscal years.

11 **SEC. 6. OFFICE OF SCIENCE, TECHNOLOGY, ENGINEERING,**  
12 **AND MATHEMATICS EDUCATION WITHIN THE**  
13 **DEPARTMENT OF EDUCATION.**

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

17 (1) in subparagraph (E) by striking “and” at  
18 the end;

19 (2) by redesignating subparagraph (F) as sub-  
20 paragraph (G); and

21 (3) by inserting after subparagraph (E) the fol-  
22 lowing:

23 “(F) an Assistant Secretary for Science,  
24 Technology, Engineering, and Mathematics

1 Education (who may be referred to as the As-  
2 sistant Secretary for STEM Education); and”.

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

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

8 “(a) IN GENERAL.—There shall be in the Depart-  
9 ment an Office of Science, Technology, Engineering, and  
10 Mathematics Education (which may be referred to as the  
11 ‘Office of STEM Education’), to be administered by the  
12 Assistant Secretary for STEM Education appointed under  
13 section 202(b).

14 “(b) RESPONSIBILITIES.—The Assistant Secretary  
15 for STEM Education, acting through the Office of STEM  
16 Education, shall have the following responsibilities:

17 “(1) Coordinating and overseeing all science,  
18 technology, engineering, and mathematics (referred  
19 to in this section as ‘STEM’) education efforts with-  
20 in the Department.

21 “(2) Preparing the annual budget for all STEM  
22 education programs within the Department.

23 “(3) Managing the following programs: Math  
24 and Science Partnerships, Math Now, Math Skills  
25 for Secondary Students, Minority Science and Engi-

1 neering Improvement, Teachers for a Competitive  
2 Tomorrow, and all other programs of the Depart-  
3 ment with a focus on STEM education, including,  
4 where appropriate, the National Science and Mathe-  
5 matics Access Retain Talent (SMART grants) pro-  
6 gram, the Teacher Education Assistance for College  
7 and Higher Education (TEACH grants) program,  
8 and the Academic Competitiveness grants program.

9 “(4) Consulting with other offices within the  
10 Department that have a STEM education focus, in-  
11 cluding those managing the Carl D. Perkins Career  
12 and Technical Education grants.

13 “(5) Representing the Department as the prin-  
14 cipal interagency liaison on the Committee on  
15 STEM Education within the Office of Science and  
16 Technology Policy, established under section 5 of the  
17 Enhancing Science, Technology, Engineering, and  
18 Mathematics Education Act of 2008, unless other-  
19 wise designated by the Assistant Secretary for  
20 STEM Education.

21 “(6) Ensuring access to equal educational op-  
22 portunity for every individual so as to increase, to  
23 the maximum extent possible, the participation and  
24 advancement of individuals identified in section 33  
25 or 34 of the Science and Engineering Equal Oppor-

1       tunities Act (42 U.S.C. 1885a or 1885b) in the  
2       STEM disciplines.

3               “(7) Promoting the development and implemen-  
4       tation of quality, scientifically-valid STEM teacher  
5       preparation and teacher professional development,  
6       and to provide technical assistance to support  
7       STEM learning.

8               “(8) Providing support to institutions of higher  
9       education and other institutions and organizations  
10      with effective informal STEM education programs to  
11      improve teacher preparation and teacher professional  
12      development by ensuring emphasis on promising  
13      practices and exemplary programs in STEM edu-  
14      cation.

15              “(9) Providing support to local educational  
16      agencies or to mathematics and science partnerships  
17      involving local educational agencies, to implement ef-  
18      fective STEM education instruction and exemplary  
19      programs that employ promising practices.

20              “(10) Consulting regularly with the State Con-  
21      sortium on STEM Education with regard to devel-  
22      oping STEM education policy and providing tech-  
23      nical support.

24              “(11) Conducting a biennial symposium with  
25      invited stakeholders emphasizing engaging students

1 that are identified in section 33 or 34 of the Science  
2 and Engineering Equal Opportunities Act (42  
3 U.S.C. 1885a or 1885b) in STEM disciplines, in-  
4 cluding—

5 “(A) expert STEM teachers;

6 “(B) the State Consortium on STEM Edu-  
7 cation and additional States;

8 “(C) business and industry partners;

9 “(D) institutions of higher education;

10 “(E) institutions and organizations with an  
11 informal STEM education focus; and

12 “(F) Federal agencies with STEM edu-  
13 cation programs.

14 “(12) Providing periodic public statements on  
15 the status of STEM education in the Nation.

16 “(13) Informing the Secretary, policymakers,  
17 the professional societies of STEM teaching profes-  
18 sionals, and STEM practitioners about the effective-  
19 ness of STEM-related education research and pro-  
20 grams operated within the Department.

21 “(14) Sharing scientifically-valid education re-  
22 search and promising practices and exemplary pro-  
23 grams with the National STEM Education Research  
24 Repository.”.

1 (c) EVALUATION AND REPORT.—The Assistant Sec-  
2 retary for STEM Education shall conduct an annual inde-  
3 pendent evaluation, through grant or by contract, of the  
4 STEM education programs administered by the Depart-  
5 ment of Education, which shall include—

6 (1) conducting an assessment of STEM edu-  
7 cation activities within the Department of Education  
8 by using the annual evaluations and reports of the  
9 programs to determine the programs' impact on—

10 (A) the quantity of students seeking  
11 STEM degrees, disaggregated by subject area  
12 and individuals identified under section 33 or  
13 34 of the Science and Engineering Equal Op-  
14 portunities Act (42 U.S.C. 1885a or 1885b);

15 (B) student academic achievement with  
16 consideration of problem-solving, critical think-  
17 ing, collaboration, and other higher order think-  
18 ing skills;

19 (C) improving STEM teacher quality,  
20 quantity, and retention; and

21 (D) improving promising teaching prac-  
22 tices that show evidence of fostering student in-  
23 novation; and

24 (2) the preparation and submission of an an-  
25 nual report on the results of the assessment de-

1 scribed in paragraph (1) to the Committee on  
2 Health, Education, Labor, and Pensions of the Sen-  
3 ate, the Committees on Appropriations of the Senate  
4 and the House of Representatives, the Committee on  
5 Education and Labor of the House of Representa-  
6 tives, and the Committee on Science and Technology  
7 of the House of Representatives.

8 (d) AUTHORIZATION OF APPROPRIATIONS.—There  
9 are authorized to be appropriated to carry out this section  
10 \$1,500,000 for fiscal year 2009 and such sums as may  
11 be necessary for each succeeding fiscal year.

12 **SEC. 7. STATE CONSORTIUM ON SCIENCE, TECHNOLOGY,**  
13 **ENGINEERING, AND MATHEMATICS EDU-**  
14 **CATION.**

15 (a) IN GENERAL.—From amounts made available to  
16 carry out this section, the Secretary of Education, acting  
17 through the Office of STEM Education, shall award a  
18 grant to establish 1 voluntary State Consortium on  
19 Science, Technology, Engineering, and Mathematics Edu-  
20 cation, which may be referred to as the “State Consortium  
21 on STEM Education”.

22 (b) ELIGIBILITY REQUIREMENT.—To be eligible to  
23 receive a grant under this section, the consortium shall  
24 include not less than 5 States representing not less than  
25 5 of the 9 regional divisions of the United States, accord-

1 ing to the regional divisions used by the Bureau of the  
2 Census.

3 (c) PEER REVIEW AND SELECTION OF GRANT RE-  
4 CIPIENT.—The Secretary of Education shall—

5 (1) establish a peer-review process to assist in  
6 the review and approval of a grant proposal sub-  
7 mitted under this section;

8 (2) appoint individuals to participate in the  
9 peer-review process who are educators and experts in  
10 identifying, evaluating, and implementing effective  
11 STEM education programs and practices, including  
12 areas of teaching and learning, educational stand-  
13 ards and assessments, professional development, cur-  
14 riculum, and increasing the participation of individ-  
15 uals identified under section 33 or 34 of the Science  
16 and Engineering Equal Opportunities Act (42  
17 U.S.C. 1885a or 1885b), English language learners,  
18 and students with disabilities, including recognized  
19 exemplary teachers and school administrators who  
20 have been recognized at the national or State level  
21 for exemplary work or contributions to the STEM  
22 education field;

23 (3) approve 1 grant from the proposals sub-  
24 mitted under this section not later than 120 days  
25 after the deadline for submission and acceptance of

1 the proposals, as determined by the Secretary, un-  
2 less the Secretary determines that none of the grant  
3 proposals submitted meet the requirements of this  
4 section;

5 (4) if only 1 grant proposal is submitted pursu-  
6 ant to this section, not decline to approve the grant  
7 proposal before—

8 (A) offering the applicant an opportunity  
9 to revise the proposal of the applicant if the  
10 proposal does not meet the requirements of this  
11 section; and

12 (B) providing the applicant with technical  
13 assistance in order to submit a successful pro-  
14 posal; and

15 (5) direct the Inspector General of the Depart-  
16 ment of Education to—

17 (A) review—

18 (i) the process used for screening the  
19 individuals appointed to the peer-review  
20 process under this section to avoid both fi-  
21 nancial conflicts of interest and non-finan-  
22 cial interests that would impair objectivity  
23 in peer review; and

1 (ii) the objectivity of the process used  
2 in reviewing and awarding the grant under  
3 this section; and

4 (B) report the findings of the review under  
5 subparagraph (A) to Congress.

6 (d) AMOUNT OF GRANT.—

7 (1) IN GENERAL.—Except as provided under  
8 paragraph (2), the grant awarded to the consortium  
9 under this section shall be not more than  
10 \$20,000,000.

11 (2) ADDITIONAL FUNDS.—For each fiscal year  
12 of the grant period, the Secretary of Education shall  
13 award to the consortium awarded a grant under this  
14 section \$2,000,000 for each additional State that is  
15 a member of the consortium beyond the minimum 5  
16 States required under subsection (b).

17 (e) USE OF GRANT FUNDS.—The consortium shall  
18 use the grant funds awarded under this section for the  
19 following purposes:

20 (1) To establish the State Consortium on  
21 STEM Education.

22 (2) To convene an Interstate Council on  
23 Science, Technology, Engineering, and Mathematics  
24 Education, which may be referred to as the “Inter-  
25 state Council on STEM Education”, that includes a

1 diverse group of individuals representing a variety of  
2 perspectives on STEM education, the STEM dis-  
3 ciplines, business, curriculum, assessments, English  
4 language learners, and special education, including  
5 the following:

6 (A) Representatives from States that shall  
7 include not less 1 State Governor, 1 Chief State  
8 School Officer, and 1 representative of a State  
9 educational agency or such agency's designee.

10 (B) Representatives from local educational  
11 agencies that shall include not less than 1 cur-  
12 rent school administrator, and 3 expert STEM  
13 educators that represent early childhood, ele-  
14 mentary, middle, and secondary school perspec-  
15 tives.

16 (C) Not less than 4 representatives from  
17 STEM education and the STEM fields at insti-  
18 tutions of higher education that include commu-  
19 nity colleges, and public and private 4-year in-  
20 stitutions of higher education.

21 (D) Not less than 1 representative from a  
22 STEM education professional organization,  
23 such as the National Science Teachers Associa-  
24 tion, the National Council for Teachers of  
25 Mathematics, or those representing career and

1 technical education organizations that represent  
2 underrepresented communities in STEM.

3 (E) Not less than 1 representative from  
4 each of the following categories of relevant  
5 STEM related organizations:

6 (i) Informal STEM education.

7 (ii) Business and industry.

8 (iii) A STEM disciplinary or profes-  
9 sional society.

10 (iv) A private or corporate foundation.

11 (v) Other relevant organizations.

12 (3) To support not less than 1 full-time staff  
13 member for each State.

14 (4) To share STEM education research, prom-  
15 ising practices and exemplary programs, and pro-  
16 grams through the NSERR.

17 (f) FUNCTIONS.—The State Consortium on STEM  
18 Education—

19 (1) shall—

20 (A) establish small working groups com-  
21 prised of members of the State Council on  
22 STEM Education and outside experts in appro-  
23 priate fields consulting widely to address the  
24 functions outlined in this subsection;

1           (B) identify points of weakness and  
2 strength in the STEM education efforts,  
3 prioritize strategies for addressing problem  
4 areas, and communicate State needs to the  
5 Committee on STEM Education and the Assist-  
6 ant Secretary for STEM Education;

7           (C) develop rigorous common content  
8 standards in STEM education for prekind-  
9 garten through grade 12 reflecting common ele-  
10 ments between disciplines with consideration  
11 of—

12                   (i) established international standards  
13 and 21st century skills; and

14                   (ii) the needs of English language  
15 learners and special education students;

16           (D) develop and implement strategies to  
17 integrate STEM education into other subject  
18 areas, such as language arts, social studies,  
19 physical and health education, music and other  
20 performing arts, and environmental education;

21           (E) develop innovative STEM assessment  
22 practices that include a substantial proportion  
23 of extended constructed response items, such as  
24 performance-based measures, that measure  
25 higher order thinking skills and understanding,

1 application and transferability knowledge, prob-  
2 lemsolving, analysis, and synthesis, and include  
3 administration through a variety of modalities,  
4 such as audio-visual and interactive technology;

5 (F) develop strategies to increase the par-  
6 ticipation and success of individuals identified  
7 in section 33 or 34 of the Science and Engi-  
8 neering Equal Opportunities Act (42 U.S.C.  
9 1885a or 1885b) in STEM fields with consider-  
10 ation of first generation students;

11 (G) identify and utilize, to the maximum  
12 extent possible, the expertise and resources of  
13 educators, institutions of higher education,  
14 business and industry, and Federal agencies in  
15 the development and implementation of func-  
16 tions outlined in this subsection;

17 (H) issue periodic reports on the status of  
18 STEM education in the States; and

19 (I) make STEM education research, prom-  
20 ising practices and exemplary programs, and ef-  
21 fective STEM programs widely available  
22 through the NSERR; and

23 (2) may—

24 (A) establish and strengthen partnerships  
25 between 2-year institutions of higher education

1 and minority serving institutions and research  
2 institutions to provide STEM students at 2-  
3 year institutions of higher education and minor-  
4 ity serving institutions expanded degree possi-  
5 bilities and opportunities to access research fa-  
6 cilities and mentors, including—

7 (i) conducting a needs assessment of  
8 how to enhance the flow of STEM students  
9 from 2-year institutions of higher edu-  
10 cation and minority serving institutions to  
11 research institutions; and

12 (ii) establishing articulation agree-  
13 ments that shall address pathways and  
14 credit transfers between the institutions;

15 (B) improve and align STEM preservice  
16 teacher training among the member States, in-  
17 cluding developing common—

18 (i) STEM preservice teacher training  
19 degree programs;

20 (ii) STEM teacher credentials; and

21 (iii) alternative pathways to STEM  
22 teacher certification;

23 (C) promote and develop curriculum tools  
24 and professional development for in-service

1 teachers that foster innovation and inventive-  
2 ness;

3 (D) evaluate the impact that STEM edu-  
4 cation professional development organizations  
5 have on classroom instruction and student  
6 learning in member States;

7 (E) provide technical support to States  
8 that are members of the Consortium to estab-  
9 lish or strengthen existing P-16 or P-20 Coun-  
10 cils and to align secondary school graduation  
11 requirements with the demands of 21st century  
12 postsecondary education endeavors and support  
13 P-16 education data systems established by  
14 States under section 6401 of the America  
15 COMPETES Act (20 U.S.C. 9871);

16 (F) develop STEM Career Awareness Pro-  
17 grams in collaboration with school guidance  
18 counselors that reflect the projected STEM  
19 workforce needs of the 21st century that may  
20 include mentoring programs and STEM profes-  
21 sional outreach; and

22 (G) develop STEM-related workforce edu-  
23 cation and training programs to enhance the  
24 skills of workers to meet the needs of business  
25 and industry.

1 (g) OUTSIDE FUNDS.—The State Consortium on  
2 STEM Education shall be permitted to accept and solicit  
3 outside funds.

4 (h) EVALUATION AND REPORT.—The State Consor-  
5 tium on STEM Education shall conduct an annual inde-  
6 pendent evaluation, by grant or by contract, of the State  
7 Consortium on STEM Education’s effectiveness at accom-  
8 plishing the functions outlined in subsection (f), which  
9 shall include—

10 (1) an assessment of the impact of such activi-  
11 ties on STEM teaching and learning; and

12 (2) the preparation and submission of an an-  
13 nual report on the results of the assessment de-  
14 scribed in paragraph (1) to the Assistant Secretary  
15 for STEM Education.

16 (i) PROHIBITIONS.—

17 (1) IN GENERAL.—In implementing this sec-  
18 tion, the Secretary may not—

19 (A) endorse, approve, or sanction any  
20 STEM curriculum designed for use in any  
21 school; or

22 (B) engage in oversight, technical assist-  
23 ance, or activities that will require the adoption  
24 of a specific STEM program or instructional

1 materials by a State, local educational agency,  
2 or school.

3 **SEC. 8. NATIONAL STEM EDUCATION RESEARCH REPOSI-**  
4 **TORY.**

5 (a) IN GENERAL.—From amounts made available to  
6 carry out this section, the Secretary of Education, acting  
7 through the Office of STEM Education, shall make a  
8 grant to the National Science Digital Library for use by  
9 the Library to establish a National STEM Education Re-  
10 search Repository, which may be referred to as the  
11 “NSERR”, to coordinate and organize scientifically-valid  
12 STEM education research, and STEM education pro-  
13 grams that demonstrate promising practices and exem-  
14 plary programs, among governmental and nongovern-  
15 mental agencies.

16 (b) USE OF GRANT AMOUNTS.—The recipient of the  
17 grant under subsection (a) shall use the grant to provide  
18 basic operational support to the NSERR, including con-  
19 tent development and maintenance, office space, equip-  
20 ment, personnel, and other operational costs.

21 (c) RESPONSIBILITIES.—The NSERR shall have the  
22 following responsibilities:

23 (1) Integrating existing STEM education collec-  
24 tions, teacher professional development opportuni-  
25 ties, and student programs available through the

1 Federal agencies, including the Science Education  
2 Resource Center, Research from Institutions of  
3 Higher Education, Regional Education Centers  
4 (labs, comprehensive centers, and technical assist-  
5 ance centers), Applied Math and Science Repository,  
6 Education Resources Information Center (ERIC),  
7 State initiatives, national experts, and others.

8 (2) Developing criteria for STEM education re-  
9 search and promising practices and exemplary pro-  
10 grams, in collaboration with relevant STEM edu-  
11 cation experts, for inclusion in the NSERR.

12 (3) Publishing, not later than 180 days after  
13 the date of enactment of this Act, the criteria devel-  
14 oped under paragraph (2).

15 (4) Ensuring that STEM education research,  
16 promising practices, and exemplary programs have  
17 been evaluated by experts, and that those meeting  
18 the established minimum criteria in paragraph (2)  
19 are made widely available.

20 (5) Providing summaries of STEM education  
21 research and promising practices and exemplary pro-  
22 grams that were submitted and evaluated under  
23 paragraph (4), including providing contact informa-  
24 tion, examples of successful implementation, and

1 other information that may be beneficial to edu-  
2 cators.

3 (d) OUTSIDE FUNDS.—The NSERR shall be per-  
4 mitted to accept and solicit outside funds.

5 (e) AUTHORIZATION OF APPROPRIATIONS.—There  
6 are authorized to be appropriated to carry out this section  
7 \$1,500,000 for fiscal year 2009 and such sums as may  
8 be necessary for each succeeding fiscal year.

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