

110TH CONGRESS
2D SESSION

S. 3047

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

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

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 prekindergarten
9 through grade 12 reflecting common elements
10 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

and minority serving institutions and research institutions to provide STEM students at 2-year institutions of higher education and minority serving institutions expanded degree possibilities and opportunities to access research facilities and mentors, including—

(i) conducting a needs assessment of how to enhance the flow of STEM students from 2-year institutions of higher education and minority serving institutions to research institutions; and

(ii) establishing articulation agreements that shall address pathways and credit transfers between the institutions;

(B) improve and align STEM preservice teacher training among the member States, including developing common—

(i) STEM preservice teacher training degree programs;

(ii) STEM teacher credentials; and

(iii) alternative pathways to STEM teacher certification;

(C) promote and develop curriculum tools 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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