

107TH CONGRESS
1ST SESSION

S. 1262

To make improvements in mathematics and science education, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JULY 27, 2001

Mr. ROCKEFELLER (for himself, Mr. ROBERTS, and Mr. KENNEDY) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

A BILL

To make improvements in mathematics and science 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 “National Mathematics
5 and Science Partnerships Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

8 (1) In 1989, the President of the United States
9 convened the Nation’s Governors to establish com-

1 mon goals for the improvement of elementary and
2 secondary education.

3 (2) Among the National Education Goals estab-
4 lished was the goal that by the year 2000, United
5 States students would be first in the world in mathe-
6 matics and science achievement.

7 (3) Despite these goals, 8th graders in the
8 United States showed just average performance in
9 mathematics and science in the Third International
10 Mathematics and Science Study.

11 (4) The United States must redouble its efforts
12 to provide all of its students with a world-class edu-
13 cation in mathematics, science, engineering, and
14 technology.

15 (5) The United States economy has become the
16 most robust in the world, not through State plan-
17 ning and government intervention, but through the
18 hard work and innovation of United States citizens.
19 This success is founded in our Nation's constitu-
20 tional tradition of respect for individual liberty to
21 pursue personal career objectives.

22 **SEC. 3. DEFINITIONS.**

23 In this Act:

24 (1) **DIRECTOR.**—The term “Director” means
25 the Director of the National Science Foundation.

1 (2) ELEMENTARY SCHOOL.—The term “elemen-
2 tary school” has the meaning given such term in
3 section 14101 of the Elementary and Secondary
4 Education Act of 1965 (20 U.S.C. 8801).

5 (3) ELIGIBLE NONPROFIT ORGANIZATION.—The
6 term “eligible nonprofit organization” means a non-
7 profit research institute or a nonprofit professional
8 association with demonstrated experience delivering
9 mathematics or science education as determined by
10 the Director.

11 (4) INSTITUTION OF HIGHER EDUCATION.—The
12 term “institution of higher education” has the
13 meaning given such term in section 101 of the High-
14 er Education Act of 1965 (20 U.S.C. 1001).

15 (5) LOCAL EDUCATIONAL AGENCY.—The term
16 “local educational agency” has the meaning given
17 such term in section 14101 of the Elementary and
18 Secondary Education Act of 1965 (20 U.S.C. 8801).

19 (6) SECONDARY SCHOOL.—The term “sec-
20 ondary school” has the meaning given such term in
21 section 14101 of the Elementary and Secondary
22 Education Act of 1965 (20 U.S.C. 8801).

23 (7) STATE EDUCATIONAL AGENCY.—The term
24 “State educational agency” has the meaning given

1 such term in section 14101 of the Elementary and
 2 Secondary Education Act of 1965 (20 U.S.C. 8801).

3 **SEC. 4. AUTHORIZATIONS OF APPROPRIATION RULE.**

4 Any authorization of appropriations in this Act shall
 5 be considered to be in addition to amounts otherwise au-
 6 thorized or appropriated for the National Science Founda-
 7 tion.

8 **SEC. 5. MATCHING REQUIREMENTS.**

9 The Director may establish matching fund require-
 10 ments for any programs authorized by this Act other than
 11 programs authorized under title IV.

12 **TITLE I—MATHEMATICS AND**
 13 **SCIENCE EDUCATION PART-**
 14 **NERSHIPS**

15 **PART A—MATHEMATICS AND SCIENCE**
 16 **EDUCATION PARTNERSHIPS**

17 **SEC. 111. PROGRAM AUTHORIZED.**

18 (a) GRANTS.—

19 (1) IN GENERAL.—From amounts appropriated
 20 under section 114, the Director shall establish a pro-
 21 gram to award grants to eligible partnerships to es-
 22 tablish mathematics and science education programs
 23 to improve the instruction of elementary and sec-
 24 ondary mathematics or science education.

1 (2) COMPETITIVE BASIS.—Grants shall be
 2 awarded under this section on a competitive basis
 3 using the criteria described in section 112(b).

4 (b) ELIGIBLE PARTNERSHIPS.—

5 (1) IN GENERAL.—To be eligible to receive a
 6 grant under this section, a partnership—

7 (A) shall consist of an institution of higher
 8 education or eligible nonprofit organization (in-
 9 cluding a consortium thereof) and a local edu-
 10 cational agency; and

11 (B) may include a State educational agen-
 12 cy or 1 or more businesses.

13 (2) REQUIREMENT.—Each institution of higher
 14 education participating in a partnership under this
 15 part shall include a mathematics, science, or engi-
 16 neering department in the program carried out by
 17 the partnership under this subsection.

18 (c) USES OF FUNDS.—Grant funds awarded under
 19 this section shall be used for activities that draw upon the
 20 expertise of the partners to improve elementary or sec-
 21 ondary education in mathematics or science. Such activi-
 22 ties may include—

23 (1) recruiting and preparing students for ca-
 24 reers in elementary and secondary mathematics and
 25 science education;

1 (2) offering professional development programs,
2 including summer and academic year institutes and
3 workshops, designed to strengthen the capabilities of
4 existing mathematics and science teachers;

5 (3) offering innovative programs that instruct
6 teachers on using technology more effectively in
7 teaching mathematics and science, including pro-
8 grams that recruit and train undergraduate and
9 graduate students to provide technical support to
10 teachers;

11 (4) developing distance learning programs for
12 teachers and students;

13 (5) offering teacher preparation and certifi-
14 cation programs for professional mathematicians,
15 scientists, and engineers who wish to begin a career
16 in teaching;

17 (6) developing assessment tools to measure stu-
18 dent mastery of content and cognitive skills;

19 (7) developing and adapting elementary school
20 and secondary school curricular materials, aligned to
21 State standards, that incorporate contemporary re-
22 search on the science of learning;

23 (8) developing undergraduate mathematics and
24 science courses for education majors;

1 (9) using mathematicians, scientists, and engi-
 2 neers employed by private businesses to help recruit
 3 and train mathematics and science teachers;

4 (10) developing a cadre of master teachers who
 5 will promote reform and improvement in schools;

6 (11) developing and offering mathematics and
 7 science enrichment programs for students;

8 (12) providing research opportunities in busi-
 9 ness or academia for students and teachers;

10 (13) bringing mathematicians, scientists, and
 11 engineers from business and academia into elemen-
 12 tary school and secondary school classrooms; and

13 (14) any other activities the Director deter-
 14 mines will accomplish the goals of this section.

15 (d) SCIENCE ENRICHMENT PROGRAMS FOR GIRLS.—

16 Activities carried out in accordance with paragraphs (11)
 17 and (12) of subsection (c) shall include elementary school
 18 and secondary school programs to encourage the ongoing
 19 interest of girls in science, mathematics, engineering or
 20 technology and to prepare girls to pursue undergraduate
 21 and graduate degrees and careers in science, mathematics,
 22 engineering or technology. Grant funds made available to
 23 partnerships for the purposes of this subsection may sup-
 24 port programs for—

1 (1) encouraging girls to pursue studies in
2 science, mathematics, engineering, or technology and
3 to major in such fields in postsecondary education;

4 (2) tutoring girls in science, mathematics, engi-
5 neering, or technology;

6 (3) providing mentors for girls in person and
7 through the Internet to support such girls in pur-
8 suing studies in science, mathematics, engineering,
9 or technology;

10 (4) educating the parents of girls about the dif-
11 ficulties faced by girls in maintaining an interest
12 and a desire to achieve in science, mathematics, en-
13 gineering, or technology, and enlisting the help of
14 parents in overcoming these difficulties; and

15 (5) acquainting girls with careers in science,
16 mathematics, engineering, or technology and encour-
17 aging girls to plan for careers in such fields.

18 (e) RESEARCH IN SECONDARY SCHOOLS.—Activities
19 carried out in accordance with subsection (c)(11) may in-
20 clude support for research projects performed by students
21 at secondary schools. Such support may include—

22 (1) training secondary school mathematics or
23 science teachers in the design of research projects
24 for students;

1 (2) establishing a system for students and
 2 teachers involved in research projects funded under
 3 this section to exchange information about their
 4 projects and research results; and

5 (3) assessing the educational value of the stu-
 6 dent research projects by such means as tracking
 7 the academic performance and choice of academic
 8 majors of students conducting research.

9 (f) STIPENDS.—Grants awarded under this section
 10 may be used to provide stipends for teachers or students
 11 participating in training or research activities that would
 12 not be part of their typical classroom activities.

13 **SEC. 112. SELECTION PROCESS.**

14 (a) APPLICATION.—A partnership that desires to re-
 15 ceive a grant under section 111 shall submit an applica-
 16 tion to the Director at such time, in such manner, and
 17 containing such information as the Director may require.
 18 The application shall include, at a minimum—

19 (1) a description of the partnership and the role
 20 that each partner will play in implementing the pro-
 21 gram;

22 (2) a description of each of the activities to be
 23 carried out using grant funds, including—

24 (A) how such activities will be aligned with
 25 State and local standards and with other activi-

1 ties that promote student achievement in math-
2 ematics and science; and

3 (B) how such activities will be based on a
4 review of relevant research, and why such ac-
5 tivities are expected to improve student per-
6 formance and strengthen the quality of mathe-
7 matics and science instruction;

8 (3) a description of the number, size, and na-
9 ture of any stipends that will be provided to students
10 or teachers and the reasons such stipends are need-
11 ed;

12 (4) a description of how the partnership will
13 serve as a catalyst for reform of mathematics and
14 science education programs;

15 (5) a description of how the partnership will as-
16 sess its success; and

17 (6) an assurance that the partnership will make
18 available to the Secretary materials developed with
19 grant funds provided under this part.

20 (b) REVIEW OF APPLICATIONS.—In evaluating the
21 applications submitted under subsection (a), the Director
22 shall consider, at a minimum—

23 (1) the ability of the partnership to effectively
24 carry out the proposed program;

1 (2) the extent to which the members of the
2 partnership are committed to making the partner-
3 ship a central organizational focus;

4 (3) the degree to which activities proposed to be
5 carried out by the partnership are based on relevant
6 research and likely to result in increased student
7 achievement;

8 (4) the degree to which such activities are
9 aligned with State and local standards; and

10 (5) the likelihood that the partnership will dem-
11 onstrate activities that can be widely implemented as
12 part of larger scale reform efforts.

13 (c) AWARDS.—

14 (1) RANGE.—The Director shall ensure, to the
15 extent practicable, that grants are awarded under
16 section 111 in a wide range of geographic areas and
17 that the program include rural, suburban, and urban
18 local educational agencies.

19 (2) BUSINESSES.—Not less than 50 percent of
20 the partnerships funded under section 111 shall in-
21 clude businesses.

22 (3) PERIOD.—The Director shall award grants
23 under this part for periods not to exceed 5 years.

1 **SEC. 113. ACCOUNTABILITY AND DISSEMINATION.**

2 (a) **ASSESSMENT REQUIRED.**—The Director shall
 3 evaluate the program established under section 111. At
 4 a minimum, such evaluations shall—

5 (1) use a common set of benchmarks and as-
 6 sessment tools to identify best practices and mate-
 7 rials developed and demonstrated by the partner-
 8 ships; and

9 (2) to the extent practicable, compare the effec-
 10 tiveness of practices and materials developed and
 11 demonstrated by the partnerships with those of part-
 12 nerships using similar practices and materials fund-
 13 ed by other State or Federal agencies.

14 (b) **DISSEMINATION OF RESULTS.**—

15 (1) **IN GENERAL.**—The Director shall make
 16 available the results of the evaluations required
 17 under subsection (a)—

18 (A) to the public, including through the
 19 National Science, Mathematics, Engineering,
 20 and Technology Education Digital Library; and

21 (B) to the Committee on Science of the
 22 House of Representatives and the Committee
 23 on Health, Education, Labor, and Pensions and
 24 the Committee on Commerce, Science, and
 25 Transportation of the Senate.

(c) ANNUAL MEETING.—The Director shall convene an annual meeting of the partnerships assisted under this part to foster greater national collaboration.

There is authorized to be appropriated to the National Science Foundation to carry out this part \$200,000,000 for each of fiscal years 2002 through 2006.

16 SEC. 121. PROGRAM AUTHORIZED.

(1) IN GENERAL.—From amounts appropriated under section 123, the Director shall establish a program to award grants to institutions of higher education or eligible nonprofit organizations (including consortia thereof), to enable such institutions, eligible nonprofit entities, and consortia to provide research opportunities in mathematics, science, and engineering for elementary school or secondary

1 school teachers of mathematics or science. Such in-
2 stitutions of higher education, eligible nonprofit or-
3 ganizations, or consortia may collaborate with 1 or
4 more businesses or Federal or State laboratories.

5 (2) COMPETITIVE BASIS.—Grants shall be
6 awarded under this section on a competitive basis
7 using the criteria described in section 122(b).

8 (b) PROGRAM COMPONENTS.—Grant recipients
9 under this section—

10 (1) shall recruit and select teachers to partici-
11 pate in the program, and shall provide such teachers
12 with opportunities to conduct research in academic,
13 business, or government laboratories;

14 (2) shall ensure that participating teachers have
15 mentors and other programming support to ensure
16 that such teachers' research experience will con-
17 tribute to the teachers' understanding of mathe-
18 matics, science, or engineering and will improve
19 their performance in the classroom;

20 (3) shall provide each participating teacher with
21 a stipend; and

22 (4) may provide the costs of room and board to
23 participating teachers for residential programs.

24 (c) USE OF FUNDS.—

1 (1) PROGRAMMING SUPPORT.—Not more than
 2 25 percent of the funds provided through a grant
 3 under this section may be used for programming
 4 support for participating teachers.

5 (2) STIPEND AMOUNTS.—The Director shall
 6 issue guidelines specifying the minimum and max-
 7 imum amounts of stipends that grant recipients may
 8 provide to teachers under this section.

9 (d) DURATION.—A teacher may participate in re-
 10 search under a program assisted under this section for not
 11 more than 1 calendar year or 2 sequential summers.

12 **SEC. 122. SELECTION PROCESS.**

13 (a) APPLICATION.—An institution of higher edu-
 14 cation or an eligible nonprofit organization (including a
 15 consortium thereof) that desires to receive a grant under
 16 section 121 shall submit an application to the Director
 17 at such time, in such manner, and containing such infor-
 18 mation as the Director may require. The application shall
 19 include, at a minimum—

20 (1) a description of the research opportunities
 21 that will be made available to elementary school or
 22 secondary school teachers by the institution, organi-
 23 zation, or consortium;

24 (2) a description of how the institution, organi-
 25 zation, or consortium will recruit teachers to partici-

1 pate in the program and the criteria that will be
2 used to select the participating teachers;

3 (3) a description of the number, types, and
4 amounts of the stipends that the institution, organi-
5 zation, or consortium intends to offer to partici-
6 pating teachers; and

7 (4) a description of the programming support
8 that will be provided to participating teachers.

9 (b) REVIEW OF APPLICATIONS.—In evaluating the
10 applications submitted under subsection (a), the Director
11 shall consider, at a minimum—

12 (1) the ability of the institution, organization,
13 or consortium to effectively carry out the proposed
14 program;

15 (2) the extent to which the institution, organi-
16 zation, or consortium is committed to making the
17 program a central organizational focus; and

18 (3) the likelihood that the research experiences
19 and programming proposed to be offered by the in-
20 stitution, organization, or consortium will improve
21 elementary and secondary education.

22 (c) AWARDS.—

23 (1) RANGE.—The Director shall ensure, to the
24 extent practicable, that grants are awarded under
25 this part in a wide range of geographic areas and to

1 assist teachers from rural, suburban, and urban
 2 local educational agencies.

3 (2) PERIOD.—The Director shall award grants
 4 under this part for periods not to exceed 5 years.

5 **SEC. 123. AUTHORIZATION OF APPROPRIATIONS.**

6 There is authorized to be appropriated to the Na-
 7 tional Science Foundation to carry out this part
 8 \$15,000,000 for each of fiscal years 2002 through 2006.

9 **TITLE II—NATIONAL SCIENCE,**
 10 **MATHEMATICS, ENGINEER-**
 11 **ING, AND TECHNOLOGY EDU-**
 12 **CATION DIGITAL LIBRARY**

13 **SEC. 211. EXPANSION OF THE DIGITAL LIBRARY.**

14 The Director shall establish a program to expand the
 15 National Science, Mathematics, Engineering, and Tech-
 16 nology Education Digital Library (hereinafter in this Act
 17 referred to as the “Digital Library”) program to enable
 18 timely and continuous dissemination of elementary and
 19 secondary science, mathematics, engineering, and tech-
 20 nology educational resources, materials, practices, and
 21 policies through the Internet and other digital tech-
 22 nologies. The Digital Library shall—

23 (1) contain an Internet-based repository of cur-
 24 ricular materials, practices, and teaching modules;

1 (2) contain, to the extent practicable, an Inter-
2 net-based repository of information about national
3 and regional conferences related to the improvement
4 of elementary and secondary mathematics, science,
5 engineering, and technology education, including, if
6 appropriate, links to materials generated by those
7 conferences;

8 (3) provide users of the Digital Library with ac-
9 cess to all materials in the Digital Library through
10 a single entry point;

11 (4) contain only materials that have been peer-
12 reviewed and tested to ensure factual accuracy and
13 effectiveness and that are aligned with recognized
14 State and national mathematics and science stand-
15 ards;

16 (5) present materials in a format that is con-
17 sistent, facilitates ease of comparison and use by
18 classroom teachers, and contains appropriate links
19 to other Federal educational clearinghouses; and

20 (6) provide materials related to mathematics
21 and science partnership programs, including—

22 (A) links to all of the programs developed
23 through the mathematics and science partner-
24 ships established under part A of title I;

1 (B) data related to assessment and evalua-
 2 tion and final program reports developed under
 3 part A of title I, including both positive and
 4 negative outcomes of the program;

5 (C) materials developed by the partner-
 6 ships under part A of title I that have been
 7 demonstrated to be effective; and

8 (D) a mechanism for users to make com-
 9 ments or suggestions regarding the use and ef-
 10 fectiveness of posted materials.

11 **SEC. 212. GRANTS AND CONTRACT.**

12 (a) GRANTS FOR DESIGN OF LIBRARY.—

13 (1) IN GENERAL.—The Director may award
 14 grants to institutions of higher education or other
 15 qualified entities—

16 (A) to design all or parts of the Digital Li-
 17 brary; or

18 (B) to provide assistance to schools in the
 19 selection and adaptation of curricular materials,
 20 practices, and teaching methods made available
 21 through the Digital Library.

22 (2) DISSEMINATION.—Grants awarded under
 23 this section may be used to pay the costs of acquir-
 24 ing and reviewing educational materials for dissemi-
 25 nation through the Digital Library.

1 (3) COMPETITIVE BASIS.—Grants under this
2 section shall be awarded on a competitive basis.

3 (b) CONTRACT.—The Director may enter into a con-
4 tract for the operation and management of the Digital Li-
5 brary.

6 **SEC. 213. AUTHORIZATION OF APPROPRIATIONS.**

7 There is authorized to be appropriated to the Na-
8 tional Science Foundation to carry out this title
9 \$20,000,000 for each of fiscal years 2002 through 2006.

10 **TITLE III—STRATEGIC EDU-**
11 **CATION RESEARCH PROGRAM**

12 **PART A—CENTERS**

13 **SEC. 311. ESTABLISHMENT OF CENTERS FOR RESEARCH**
14 **ON LEARNING AND EDUCATION IMPROVE-**
15 **MENT.**

16 (a) GRANTS.—

17 (1) IN GENERAL.—From amounts appropriated
18 under section 314, the Director shall award grants
19 to institutions of higher education (including con-
20 sortia thereof) to establish 4 multidisciplinary Cen-
21 ters for Research on Learning and Education Im-
22 provement (hereafter in this Act referred to as
23 “Centers”).

1 (2) COMPETITIVE BASIS.—Grants shall be
2 awarded under this section on a competitive basis
3 using the criteria described in section 312(b).

4 (b) PURPOSE.—The purpose of the Centers shall be
5 to conduct and evaluate research in cognitive science, edu-
6 cation and related fields and to develop ways in which the
7 results of such research can be applied in elementary and
8 secondary classrooms to improve the teaching of mathe-
9 matics and science.

10 (c) FOCUS.—

11 (1) IN GENERAL.—Each Center shall be fo-
12 cused on a different challenge faced by elementary
13 school or secondary school teachers of mathematics
14 or science.

15 (2) DETERMINATION.—In determining the re-
16 search focus of the Centers, the Director shall con-
17 sult with the National Academy of Sciences and
18 shall take into account the extent to which other
19 Federal programs support research on similar ques-
20 tions.

21 (3) SOLICITATION OF PROPOSAL.—The solicita-
22 tion of proposal issued by the Director for grants
23 under this section—

24 (A) shall state the focus of each Center;
25 and

1 (B) shall require institutions or consortia
 2 to apply to operate as a specific Center.

3 **SEC. 312. SELECTION PROCESS.**

4 (a) APPLICATION.—An institution of higher edu-
 5 cation (including a consortium thereof) that desires to re-
 6 ceive a grant under this title shall submit an application
 7 to the Director at such time, in such manner, and con-
 8 taining such information as the Director may require. The
 9 application shall include, at a minimum, a description of—

10 (1) the initial research projects that will be un-
 11 dertaken by the Center and the process by which
 12 new projects will be identified;

13 (2) how the Center will work with other re-
 14 search institutions and schools to broaden the na-
 15 tional research agenda on learning and teaching;

16 (3) how the Center will promote active collabo-
 17 ration among physical, biological, and social science
 18 researchers;

19 (4) how the Center will promote active partici-
 20 pation by elementary and secondary mathematics
 21 and science teachers and administrators; and

22 (5) how the Center will reduce the results of its
 23 research to educational practice and assess the suc-
 24 cess of new practices.

1 (b) REVIEW OF APPLICATIONS.—In evaluating the
2 applications submitted under subsection (a), the Director
3 shall consider, at a minimum—

4 (1) the ability of the institution or consortium
5 to effectively carry out the research program and re-
6 duce the program’s results to effective educational
7 practice;

8 (2) the experience of the institution or consor-
9 tium in conducting research on the science of teach-
10 ing and learning, and the capacity of the institution
11 or consortium to foster new multidisciplinary col-
12 laborations;

13 (3) the capacity of the institution or consortium
14 to attract precollege educators from a diverse array
15 of schools and professional experiences for participa-
16 tion in Center activities; and

17 (4) the amount of non-Federal matching funds
18 proposed to be provided by the institution or consor-
19 tium.

20 (c) AWARDS.—The Director shall ensure, to the ex-
21 tent practicable, that the Centers funded under this sec-
22 tion conduct research and develop educational practices
23 designed to improve the educational performance of a
24 broad range of students, including students from groups

1 underrepresented in mathematics, science, and engineer-
2 ing.

3 **SEC. 313. ANNUAL CONFERENCE.**

4 The Director shall convene an annual meeting of the
5 Centers to foster collaboration among the Centers and to
6 further disseminate the results of the Centers' activities.

7 **SEC. 314. AUTHORIZATION OF APPROPRIATIONS.**

8 There is authorized to be appropriated to the Na-
9 tional Science Foundation to carry out this title
10 \$12,000,000 for each of fiscal years 2002 through 2006.

11 **PART B—FELLOWSHIPS**

12 **SEC. 321. EDUCATION RESEARCH TEACHER FELLOWSHIPS.**

13 (a) GRANTS.—

14 (1) IN GENERAL.—From amounts appropriated
15 under subsection (g), the Director shall establish a
16 program to award grants to institutions of higher
17 education or eligible nonprofit entities (including
18 consortia thereof) to provide research opportunities
19 related to the science of learning, to elementary
20 school and secondary school teachers of science and
21 mathematics.

22 (2) COMPETITIVE BASIS.—Grants shall be
23 awarded under this section on a competitive basis
24 using the criteria described in subsection (f).

1 (b) PROGRAM COMPONENTS.—Grant recipients
2 under this section—

3 (1) shall recruit and select teachers to partici-
4 pate in the program assisted under this part and
5 provide such teachers with opportunities to conduct
6 research in the fields of—

7 (A) brain research as a foundation for re-
8 search on human learning;

9 (B) behavioral, cognitive, affective, and so-
10 cial aspects of human learning;

11 (C) science and mathematics learning in
12 formal and informal educational settings; or

13 (D) learning in complex educational sys-
14 tems;

15 (2) shall ensure that participating teachers have
16 mentors and other programming support to ensure
17 that such teachers' research experience will con-
18 tribute to the teachers' understanding of the science
19 of learning;

20 (3) shall provide programming, guidance, and
21 support to ensure that participating teachers dis-
22 seminate information about the current state of edu-
23 cation research and its implications on classroom
24 practice to other elementary and secondary edu-
25 cators and that participating teachers can use that

1 information to improve the teachers' performance in
2 the classroom;

3 (4) shall provide each participating teacher with
4 a fellowship; and

5 (5) may provide room and board to partici-
6 pating teachers for residential programs.

7 (c) USE OF FUNDS.—

8 (1) PROGRAMMING SUPPORT.—Not more than
9 25 percent of the funds provided through a grant
10 under this section may be used for programming
11 support for participating teachers.

12 (2) FELLOWSHIP AMOUNTS.—The Director
13 shall issue guidelines specifying the minimum or
14 maximum amounts of fellowships grant recipients
15 may provide to teachers under this section.

16 (d) DURATION.—A teacher may participate in re-
17 search under the program under this section for not more
18 than 1 calendar year or 2 sequential summers.

19 (e) APPLICATION.—An institution of higher edu-
20 cation or eligible nonprofit entity (including a consortium
21 thereof) that desires to receive a grant under this section
22 shall submit an application to the Director at such time,
23 in such manner, and containing such information as the
24 Director may require. The application shall include, at a
25 minimum—

1 (1) a description of the research opportunities
2 that will be made available to elementary school or
3 secondary school teachers by the institution, non-
4 profit entity, or consortium;

5 (2) a description of how the institution, non-
6 profit entity, or consortium will recruit teachers to
7 participate in the program, and the criteria that will
8 be used to select the participating teachers;

9 (3) a description of the number, types, and
10 amounts of the fellowships that the institution, non-
11 profit entity, or consortium intends to offer to par-
12 ticipating teachers; and

13 (4) a description of the programming support
14 that will be provided to participating teachers to en-
15 hance such teachers' research experience and to en-
16 able the teachers to educate their peers about the
17 value, findings, and implications of education re-
18 search.

19 (f) REVIEW OF APPLICANTS.—In evaluating the ap-
20 plications submitted under subsection (e), the Director
21 shall consider, at a minimum—

22 (1) the ability of the institution, nonprofit enti-
23 ty, or consortium to effectively carry out the pro-
24 posed program;

1 (2) the extent to which the institution, non-
2 profit entity, or consortium is committed to making
3 the program a central organizational focus; and

4 (3) the likelihood that the research experiences
5 and programming to be offered by the institution,
6 nonprofit entity, or consortium will improve elemen-
7 tary and secondary education.

8 (g) AUTHORIZATION OF APPROPRIATIONS.—There is
9 authorized to be appropriated to the National Science
10 Foundation to carry out this section \$5,000,000 for each
11 of fiscal years 2002 through 2004.

12 **TITLE IV—ROBERT NOYCE** 13 **SCHOLARSHIP PROGRAM**

14 **SEC. 411. DEFINITIONS.**

15 In this title:

16 (1) COST OF ATTENDANCE.—The term “cost of
17 attendance” has the meaning given such term in sec-
18 tion 472 of the Higher Education Act of 1965 (20
19 U.S.C. 1087ll).

20 (2) MATHEMATICS AND SCIENCE TEACHER.—
21 The term “mathematics and science teacher” means
22 a mathematics, science, or technology teacher at the
23 elementary school or secondary school level.

24 (3) MATHEMATICS, SCIENCE, OR ENGINEERING
25 PROFESSIONAL.—The term “mathematics, science,

1 or engineering professional” means a person who
 2 holds a baccalaureate, masters, or doctoral degree in
 3 science, mathematics, or engineering and is working
 4 in that field or a related area.

5 (4) SCHOLARSHIP.—The term “scholarship”
 6 means an award under section 415.

7 (5) SCHOLARSHIP RECIPIENT.—The term
 8 “scholarship recipient” means a student receiving a
 9 scholarship.

10 (6) STIPEND.—The term “stipend” means an
 11 award under section 416.

12 (7) STIPEND RECIPIENT.—The term “stipend
 13 recipient” means a science, mathematics or engi-
 14 neering professional receiving a stipend.

15 **SEC. 412. SCHOLARSHIP AND STIPEND PROGRAM.**

16 (a) GRANTS.—

17 (1) IN GENERAL.—From amounts appropriated
 18 under section 421, the Director shall establish a pro-
 19 gram to award grants to institutions of higher edu-
 20 cation (including consortia thereof) to enable the in-
 21 stitutions or consortia to provide scholarships, sti-
 22 pends, and programming designed to recruit and
 23 train mathematics and science teachers at the ele-
 24 mentary and secondary level. Such program shall be
 25 known as the “Robert Noyce Scholarship Program”.

1 (2) COMPETITIVE BASIS.—

2 (A) IN GENERAL.—Grants shall be pro-
3 vided under this section on a competitive basis
4 using the criteria described in section 413(b).

5 (B) PRIORITY.—In awarding grants under
6 this section, the Director shall give priority to
7 institutions of higher education that have his-
8 torically specialized in teacher training.

9 (b) USE OF GRANTS.—Grants provided under this
10 section shall be used by institutions of higher education—

11 (1) to develop and implement programs to en-
12 courage top college juniors and seniors majoring in
13 mathematics, science, and engineering at the grant
14 recipient's institution to become elementary and sec-
15 ondary mathematics and science teachers, through—

16 (A) administering scholarships in accord-
17 ance with section 415;

18 (B) offering programs to help scholarship
19 recipients teach in elementary schools and sec-
20 ondary schools, including programs that will re-
21 sult in teacher certification; and

22 (C) offering programs to scholarship re-
23 cipients, before and after such recipients receive
24 their baccalaureate degree, to enable the recipi-
25 ents to become better mathematics and science

1 teachers, and to exchange ideas with others in
 2 their fields; or

3 (2) to develop and implement programs to en-
 4 courage science, mathematics, or engineering profes-
 5 sionals to become elementary and secondary mathe-
 6 matics and science teachers, through—

7 (A) administering stipends in accordance
 8 with section 416;

9 (B) offering programs to help stipend re-
 10 cipients obtain teacher certification; and

11 (C) offering programs to stipend recipi-
 12 ents, during and after matriculation, to enable
 13 stipend recipients to become better mathematics
 14 and science teachers and exchange ideas with
 15 others in their fields.

16 **SEC. 413. SELECTION PROCESS.**

17 (a) APPLICATION.—An institution of higher edu-
 18 cation or consortium desiring to receive a grant under this
 19 title shall submit an application to the Director at such
 20 time, in such manner, and containing such information as
 21 the Director may require. The application shall include,
 22 at a minimum—

23 (1) a description of the scholarship or stipend
 24 program that the institution or consortium intends
 25 to operate, including the number of scholarships and

1 the size and number of stipends the institution or
 2 consortium intends to award, and the selection proc-
 3 ess that will be used in awarding the scholarships or
 4 stipends;

5 (2) evidence that the institution or consortium
 6 has the capability to administer the scholarship or
 7 stipend program in accordance with the provisions of
 8 this title; and

9 (3) a description of the programming that will
 10 be offered to scholarship recipients or stipend recipi-
 11 ents during and after their matriculation.

12 (b) REVIEW OF APPLICATIONS.—In evaluating the
 13 applications submitted under subsection (a), the Director
 14 shall consider, at a minimum—

15 (1) the ability of the institution or consortium
 16 to effectively carry out the program;

17 (2) the extent to which the institution or con-
 18 sortium is committed to making the program a cen-
 19 tral organizational focus;

20 (3) the ability of the proposed programming to
 21 enable scholarship recipients or stipend recipients to
 22 become successful mathematics and science teachers;

23 (4) the number and quality of the students that
 24 will be served by the program; and

1 (5) the ability of the institution or consortium
 2 to recruit students who otherwise would not pursue
 3 a career in teaching.

4 **SEC. 414. AWARDS.**

5 (a) DESIGNATION.—The Director shall designate in-
 6 stitutions or consortia that are awarded grants under this
 7 title as “National Teacher Scholarship Centers”.

8 (b) DISTRIBUTION.—The Director shall ensure, to
 9 the extent practicable, that grants are awarded under this
 10 title in a wide range of geographic areas and to prepare
 11 students for jobs in rural, suburban, and urban local edu-
 12 cational agencies.

13 (c) PERIOD.—Grants under this title shall be award-
 14 ed for periods of 10 years.

15 **SEC. 415. SCHOLARSHIP REQUIREMENTS.**

16 (a) IN GENERAL.—Scholarships under this title shall
 17 be available only to individuals who are—

18 (1) majoring in science, mathematics, or engi-
 19 neering; and

20 (2) in the last 2 years of a baccalaureate degree
 21 program.

22 (b) SELECTION.—Individuals shall be selected to re-
 23 ceive scholarships primarily on the basis of academic
 24 merit, with consideration given to financial need and to

1 the goal of promoting the participation of minorities,
 2 women, and individuals with disabilities.

3 (c) AMOUNT.—Scholarships under this title shall be
 4 awarded in the amount of \$7,500 per year, or the cost
 5 of attendance at the institution of higher education, which-
 6 ever is less. Individuals may receive a maximum of 2 years
 7 of scholarship support.

8 (d) SERVICE OBLIGATION.—

9 (1) IN GENERAL.—An individual receiving a
 10 scholarship under this title shall be required to com-
 11 plete, not later than 6 years after graduation from
 12 the baccalaureate degree program for which the
 13 award was made, 2 years of service as a mathe-
 14 matics or science teacher in an elementary school or
 15 secondary school for each year a scholarship was re-
 16 ceived.

17 (2) SCHOOL.—Service required under this sub-
 18 section shall be performed at a school receiving as-
 19 sistance under part A of title I of the Elementary
 20 and Secondary Education Act of 1965.

21 **SEC. 416. STIPENDS.**

22 (a) IN GENERAL.—Stipends under this title shall be
 23 available only to mathematics, science, or engineering pro-
 24 fessionals who, while receiving the stipend, are enrolled in

1 a program to receive certification to teach in an elemen-
 2 tary school or secondary school.

3 (b) SELECTION.—Individuals shall be selected to re-
 4 ceive stipends under this title primarily on the basis of
 5 academic merit, with consideration given to financial need
 6 and to the goal of promoting the participation of minori-
 7 ties, women, and individuals with disabilities.

8 (c) AMOUNT.—A stipend under this title shall be
 9 awarded in the amount of \$7,500 per year, or the cost
 10 of tuition at the institution of higher education, whichever
 11 is less. Individuals may receive a maximum of 1 year of
 12 stipend support.

13 (d) SERVICE OBLIGATION.—

14 (1) IN GENERAL.—An individual receiving a sti-
 15 pend under this title shall be required to complete,
 16 not later than 6 years after completion of the pro-
 17 gram for which the stipend award was made, 2 years
 18 of service as a mathematics or science teacher.

19 (2) REQUIREMENT.—Service required under
 20 this subsection shall be performed at a school receiv-
 21 ing assistance under part A of title I of the Elemen-
 22 tary and Secondary Education Act of 1965.

23 **SEC. 417. CONDITIONS OF SUPPORT.**

24 As a condition of acceptance of a scholarship or sti-
 25 pend under this title, a scholarship recipient or stipend

1 recipient shall enter into an agreement with the applicable
2 institution of higher education or consortium under which
3 the recipient agrees to—

4 (1) the terms of the scholarship or stipend pur-
5 suant to section 415 or 416, as appropriate, and sec-
6 tion 419;

7 (2) provide the awarding institution of higher
8 education or consortium with annual certification of
9 employment and current contact information, and to
10 participate in surveys provided by the institution or
11 consortium as part of an ongoing assessment pro-
12 gram; and

13 (3) repay the United States any amount that is
14 required to be repaid in accordance with the provi-
15 sions of section 419.

16 **SEC. 418. COLLECTION FOR NONCOMPLIANCE.**

17 (a) MONITORING COMPLIANCE.—An institution of
18 higher education or consortium receiving a grant under
19 this title, as a condition of participating in the program,
20 shall enter into an agreement with the Director to monitor
21 the compliance of scholarship recipients and stipend re-
22 cipients with their respective service requirements.

23 (b) COLLECTION OF REPAYMENT.—

24 (1) IN GENERAL.—In the event that a scholar-
25 ship recipient or stipend recipient is required to

1 repay the scholarship or stipend under section 419,
 2 the institution of higher education or consortium
 3 that awarded the scholarship or stipend shall be re-
 4 sponsible for collecting the repayment amounts.

5 (2) TREASURY.—Except as provided in para-
 6 graph (3), any repayment shall be deposited into the
 7 Treasury of the United States.

8 (3) ADMINISTRATIVE COSTS.—An institution or
 9 consortium may retain a percentage of any repay-
 10 ment it collects to defray administrative costs associ-
 11 ated with the collection. The Director shall establish
 12 a single, fixed percentage that will apply to all insti-
 13 tutions and consortia.

14 **SEC. 419. FAILURE TO COMPLETE SERVICE OBLIGATION.**

15 (a) GENERAL RULE.—An individual who receives a
 16 scholarship under this title shall repay to the United
 17 States the amount described in subsection (b) if that
 18 individual—

19 (1) fails to maintain an acceptable level of aca-
 20 demic standing in the educational institution in
 21 which the individual is enrolled, as determined by
 22 the Director;

23 (2) is dismissed from such educational institu-
 24 tion for disciplinary reasons;

1 (3) withdraws from the baccalaureate degree
2 program for which the award was made before the
3 completion of such program;

4 (4) declares that the individual does not intend
5 to fulfill the individual's service obligation under this
6 title; or

7 (5) fails to fulfill the service obligation of the
8 individual under this title.

9 (b) AMOUNT OF REPAYMENT.—

10 (1) BEFORE COMPLETION OF 1 YEAR OF SERV-
11 ICE.—If a circumstance described in subsection (a)
12 occurs before the completion of 1 year of a service
13 obligation under this title, then the United States
14 shall be entitled to repayment from the individual,
15 not later than 1 year after the date of the occur-
16 rence, an amount equal to 2 times the sum of—

17 (A) the total amount of awards received by
18 such individual under this title; plus

19 (B) the interest on such amounts that
20 would be payable if at the time the amounts
21 were received they were loans bearing interest
22 at the underpayment rate determined under
23 section 6621(a)(2) of the Internal Revenue
24 Code of 1986.

1 (2) AFTER COMPLETION OF 1 YEAR OF SERV-
 2 ICE.—If a circumstance described in subsection (a)
 3 (4) or (5) occurs after the completion of 1 year of
 4 a service obligation under this title, then the United
 5 States shall be entitled to repayment from the indi-
 6 vidual, not later than 1 year after the date of the
 7 occurrence, an amount equal to the sum of—

8 (A) the total amount of awards received by
 9 such individual under this title minus \$3,750
 10 for each full year of service completed; plus

11 (B) the interest on such amounts that
 12 would be payable if at the time the amounts
 13 were received they were loans bearing interest
 14 at the underpayment rate determined under
 15 section 6621(a)(2) of the Internal Revenue
 16 Code of 1986.

17 (c) EXCEPTIONS.—

18 (1) WAIVER OR SUSPENSION.—The Director
 19 may provide for the partial or total waiver or sus-
 20 pension of any service obligation or repayment by an
 21 individual under this title whenever compliance by
 22 the individual is impossible or would involve extreme
 23 hardship to the individual, or if enforcement of such
 24 obligation with respect to the individual would be
 25 unconscionable.

1 (2) BANKRUPTCY.—Any obligation of an indi-
 2 vidual under this title for repayment under sub-
 3 section (b) may be released by a discharge in bank-
 4 ruptcy under title 11, United States Code, only if
 5 such discharge is granted after the expiration of the
 6 5-year period beginning on the first date that such
 7 repayment is required.

8 **SEC. 420. AUTHORIZATION OF APPROPRIATIONS.**

9 (a) IN GENERAL.—There is authorized to be appro-
 10 priated to the National Science Foundation to carry out
 11 this title \$20,000,000 for each of fiscal years 2002
 12 through 2005.

13 (b) SPECIFIC APPROPRIATIONS.—There is authorized
 14 to be appropriated to the National Science Foundation to
 15 carry out the activities described in subsections (b)(1) (A)
 16 and (C) and (b)(2) (A) and (C) of section 412, such sums
 17 as may be necessary for each of fiscal years 2006 through
 18 2011.

19 **TITLE V—REQUIREMENTS FOR**
 20 **RESEARCH CENTERS**

21 **SEC. 511. REQUIREMENTS FOR RESEARCH CENTERS.**

22 The Director shall ensure that any National Science
 23 Foundation program that awards grants for the establish-
 24 ment of research centers at institutions of higher edu-
 25 cation after the date of enactment of this Act—

1 (1) requires that each research center offer pro-
 2 grams for elementary and secondary mathematics
 3 and science teachers and students to increase their
 4 understanding of the field in which the center spe-
 5 cializes; and

6 (2) uses the quality of a center's proposed
 7 precollege education programs as a criterion in de-
 8 termining grant awards.

9 **TITLE VI—EDUCATIONAL** 10 **TECHNOLOGY RESEARCH**

11 **SEC. 611. EDUCATIONAL TECHNOLOGY RESEARCH CEN-** 12 **TERS.**

13 (a) GRANTS.—

14 (1) IN GENERAL.—From amounts appropriated
 15 under section 614, the Director shall establish a pro-
 16 gram to award grants to institutions of higher edu-
 17 cation (including consortia thereof) to establish cen-
 18 ters to evaluate and improve the effectiveness of in-
 19 formation technologies in elementary and secondary
 20 mathematics and science education.

21 (2) COMPETITIVE BASIS.—Grants under this
 22 title shall be awarded on a competitive basis using
 23 the criteria described in section 612(b).

24 (b) ACTIVITIES.—Centers established under this title
 25 shall, at a minimum—

1 (1) identify educational approaches and tech-
 2 niques that are based on the use of information
 3 technology and that have the potential for being ef-
 4 fective in classroom settings;

5 (2) develop methods to measure the effective-
 6 ness of various applications of information tech-
 7 nology in mathematics and science education, includ-
 8 ing methods to measure student performance;

9 (3) evaluate the effectiveness of the use of tech-
 10 nology in elementary and secondary mathematics
 11 and science education in a variety of classroom set-
 12 tings;

13 (4) identify the key variables that influence
 14 educational effectiveness and the conditions nec-
 15 essary to implement successfully an approach or
 16 technique determined to be educationally effective
 17 for a particular educational setting;

18 (5) ensure that the results of such evaluations
 19 are widely disseminated; and

20 (6) develop a program to work with local edu-
 21 cational agencies to help the agencies apply the re-
 22 sults of the research conducted under this section.

23 **SEC. 612. SELECTION PROCESS.**

24 (a) APPLICATION.—An institution of higher edu-
 25 cation (or a consortium thereof) desiring a grant under

1 this title shall submit an application to the Director at
2 such time, in such manner, and containing such informa-
3 tion as the Director may require. The application shall in-
4 clude, at a minimum, a description of—

5 (1) the approaches to the use of information
6 technology that the center will initially evaluate, how
7 the center chose those approaches, how the center
8 will seek any additional approaches, and how assess-
9 ment procedures will be developed and applied;

10 (2) how the center will work with local edu-
11 cation agencies to evaluate the approaches in class-
12 rooms;

13 (3) how the center will disseminate the results
14 of the center's work; and

15 (4) how the center will develop an outreach pro-
16 gram to work with local educational agencies to help
17 the agencies apply the results of the center's re-
18 search.

19 (b) REVIEW OF APPLICATIONS.—In evaluating the
20 applications submitted under subsection (a), the Director
21 shall consider, at a minimum, the ability of the institution
22 of higher education or consortium to effectively evaluate
23 information technology approaches and to help local edu-
24 cational agencies apply the results of those evaluations.

1 (c) AWARDS.—The Director shall ensure, to the ex-
2 tent practicable, that the program established under this
3 title evaluates information technology—

4 (1) in a wide range of grade levels and geo-
5 graphic areas;

6 (2) in rural, suburban, and urban schools; and

7 (3) with a wide variety of students in terms of
8 race, ethnicity, and income.

9 **SEC. 613. DOCUMENTATION AND DISSEMINATION OF RE-**
10 **SULTS.**

11 (a) IN GENERAL.—The results of the research and
12 evaluations conducted in accordance with section 611 shall
13 be documented and widely disseminated, including
14 through publication in peer-reviewed scholarly journals.

15 (b) WORKSHOPS, CONFERENCES, AND WEB SITES.—
16 The Director is authorized to sponsor and support work-
17 shops, conferences, and dedicated web sites to disseminate
18 information about the activities of the educational tech-
19 nology research centers established under section 611.

20 (c) DEPOSIT IN LIBRARY.—Information about effec-
21 tive approaches and techniques, including information and
22 materials necessary for their implementation, shall be de-
23 posited in the Digital Library described in Title II.

1 **SEC. 614. AUTHORIZATION OF APPROPRIATIONS.**

2 There are authorized to be appropriated to the Na-
3 tional Science Foundation to carry out section 611—

4 (1) \$25,000,000 for each of fiscal years 2002
5 through 2004; and

6 (2) \$30,000,000 for each of fiscal years 2005
7 and 2006.

8 **TITLE VII—SCIENCE EDUCATION**

9 **SEC. 711. SHORT TITLE.**

10 This title may be cited as the “National Science Edu-
11 cation Act”.

12 **SEC. 712. FINDINGS.**

13 Congress finds the following:

14 (1) As concluded in the report of the Com-
15 mittee on Science of the House of Representatives
16 entitled “Unlocking Our Future Toward a New Na-
17 tional Science Policy”, the United States must main-
18 tain and improve its preeminent position in science
19 and technology in order to advance human under-
20 standing of the universe and all it contains, and to
21 improve the lives, health, and freedoms of all people.

22 (2) It is estimated that more than half of the
23 economic growth of the United States in 2001 re-
24 sults directly from research and development in
25 science and technology. The most fundamental re-
26 search is responsible for investigating our perceived

1 universe, to extend our observations to the outer lim-
2 its of what our minds and methods can achieve, and
3 to seek answers to questions that have never been
4 asked before. Applied research continues the process
5 by applying the answers from basic science to the
6 problems faced by individuals, organizations, and
7 governments in the everyday activities that make our
8 lives more livable. The scientific-technological sector
9 of our economy, which has driven our recent eco-
10 nomic boom and led the United States to the longest
11 period of prosperity in history, is fueled by the work
12 and discoveries of the scientific community.

13 (3) The effectiveness of the United States in
14 maintaining this economic growth will be largely de-
15 termined by the intellectual capital of the United
16 States. Education is critical to developing this re-
17 source.

18 (4) The education program of the United States
19 needs to provide for 3 different kinds of intellectual
20 capital. First, it needs scientists, mathematicians,
21 and engineers to continue the research and develop-
22 ment that are central to the economic growth of the
23 United States. Second, it needs technologically pro-
24 ficient workers who are comfortable and capable
25 dealing with the demands of a science-based, high-

1 technology workplace. Last, it needs scientifically lit-
2 erate voters and consumers to make intelligent deci-
3 sions about public policy.

4 (5) Student performance on the recent Third
5 International Mathematics and Science Study high-
6 lights the shortcomings of current kindergarten
7 through grade 12 science and mathematics edu-
8 cation in the United States, particularly when com-
9 pared to other countries. We must expect more from
10 our Nation's educators and students if we are to
11 build on the accomplishments of previous genera-
12 tions. New methods of teaching science, mathe-
13 matics, engineering, and technology are required, as
14 well as better curricula and improved training of
15 teachers.

16 (6) Science is more than a collection of facts,
17 theories, and results. It is a process of inquiry built
18 upon observations and data that leads to a way of
19 knowing and explaining in logically derived concepts
20 and theories. Mathematics is more than procedures
21 to be memorized. It is a field that requires rea-
22 soning, understanding, and making connections in
23 order to solve problems. Engineering is more than
24 just designing and building. It is the process of mak-
25 ing compromises to optimize design and assessing

1 risks so that designs and products best solve a given
2 problem. Technology is more than using computer
3 applications, the Internet, and programming. Tech-
4 nology is the innovation, change, or modification of
5 the natural environment, based on scientific, mathe-
6 matical, and engineering principles.

7 (7) Students should learn science primarily by
8 doing science. Science education ought to reflect the
9 scientific process and be object-oriented, experiment-
10 centered, and concept-based. Students should learn
11 mathematics with an understanding that numeric
12 systems have intrinsic properties that can represent
13 objects and systems in real life, and can be applied
14 in solving problems. Engineering education should
15 reflect the realities of real world design, and should
16 involve hands-on projects and require students to
17 make trade-offs based upon evidence. Students
18 should learn technology as both a tool to solve other
19 problems and as a process by which people adapt the
20 natural world to suit their own purposes. Computers
21 represent a particularly useful form of technology,
22 enabling students and teachers to acquire data,
23 model systems, visualize phenomena, communicate
24 and organize information, and collaborate with oth-
25 ers in powerful new ways. A background in the ba-

1 sics of information technology is essential for success
2 in the modern workplace and the modern world.

3 (8) Children are naturally curious and inquisi-
4 tive. To successfully tap into these innate qualities,
5 education in science, mathematics, engineering, and
6 technology must begin at an early age and continue
7 throughout the entire school experience.

8 (9) Teachers provide the essential connection
9 between students and the content they are learning.
10 Prospective teachers need to be identified and re-
11 cruited by presenting to them a career that is re-
12 spected by their peers, is financially and intellectu-
13 ally rewarding, contains sufficient opportunities for
14 advancement, and has continuing access to profes-
15 sional development.

16 (10) Teachers need to have incentives to remain
17 in the classroom and improve their practice, and
18 training of teachers is essential if the results are to
19 be good. Teachers need to be knowledgeable of their
20 content area, of their curriculum, of up-to-date re-
21 search in teaching and learning, and of techniques
22 that can be used to connect that information to their
23 students in their classroom.

24 **SEC. 713. MASTER TEACHER GRANT PROGRAM.**

25 (a) DEFINITIONS.—In this section:

1 (1) MASTER TEACHER.—The term “master
2 teacher” means a mathematics or science teacher
3 who works to improve the instruction of mathe-
4 matics or science in kindergarten through 9th grade
5 through—

6 (A) participating in the development or re-
7 vision of science, mathematics, engineering, or
8 technology curricula;

9 (B) serving as a mentor to mathematics or
10 science teachers at the sponsoring school or
11 other schools;

12 (C) coordinating and assisting teachers in
13 the use of hands-on inquiry materials, equip-
14 ment, and supplies, and when appropriate, su-
15 pervising acquisition and repair of such mate-
16 rials;

17 (D) providing in-classroom teaching assist-
18 ance to mathematics or science teachers; and

19 (E) providing professional development, in-
20 cluding for the purposes of training other mas-
21 ter teachers, to mathematics and science teach-
22 ers.

23 (2) MATHEMATICS OR SCIENCE TEACHER.—The
24 term “mathematics or science teacher” means a
25 teacher of mathematics, science, engineering, or

1 technology in an elementary school or secondary
2 school.

3 (3) NONCLASSROOM TIME.—The term “non-
4 classroom time” means time during regular school
5 hours that is not utilized by a master teacher for in-
6 structing elementary school or secondary school chil-
7 dren in the classroom.

8 (4) SPONSORING SCHOOL.—The term “spon-
9 soring school” means an elementary school or sec-
10 ondary school that employs a teacher who is partici-
11 pating in a program funded in accordance with this
12 section.

13 (b) GRANTS.—

14 (1) IN GENERAL.—From amounts made avail-
15 able under subsection (f), the Director of the Na-
16 tional Science Foundation (hereafter in this section
17 referred to as the “Director”) shall establish a pro-
18 gram to award grants to institutions of higher edu-
19 cation (or consortia thereof) to enable such institu-
20 tions or consortia to train master teachers and assist
21 elementary schools and secondary schools to design
22 and implement master teacher programs.

23 (2) COMPETITIVE BASIS.—Grants shall be
24 awarded under this section on a competitive basis
25 using the criteria described in subsection (c)(2).

1 (3) REQUIREMENTS.—An institution of higher
2 education or consortium receiving a grant under this
3 section shall offer a program to train master teach-
4 ers. As part of such program, an institution or con-
5 sortium shall—

6 (A) recruit and select teachers to receive
7 training;

8 (B) ensure that training covers both con-
9 tent and pedagogy;

10 (C) ensure that participating teachers have
11 mentors; and

12 (D) assist participating teachers with the
13 development and implementation of master
14 teacher programs at their sponsoring schools.

15 (4) ACTIVITIES.—An institution of higher edu-
16 cation or consortium may use grant funds received
17 under this section to—

18 (A) develop and implement professional de-
19 velopment programs to train elementary school
20 or secondary school teachers to become master
21 teachers or to train existing master teachers;

22 (B) provide stipends and reimbursement
23 for travel to allow teachers to participate in
24 professional development programs in the sum-
25 mer and throughout the year;

1 (C) provide guidance to sponsoring schools
 2 to enable schools to develop and implement a
 3 plan for the use of master teachers;

4 (D) support teachers who participate dur-
 5 ing the summer in research programs con-
 6 ducted at institutions of higher education, pri-
 7 vate entities, or government facilities;

8 (E) provide educational materials and
 9 equipment to master teachers;

10 (F) provide computer equipment and net-
 11 work connectivity necessary to enable master
 12 teachers to collaborate with other master teach-
 13 ers, to access educational materials available
 14 online, and to communicate with scientists or
 15 other mentors at remote locations; and

16 (G) carry out any other activities the Di-
 17 rector determines will accomplish the goals of
 18 this section.

19 (c) SELECTION PROCESS.—

20 (1) APPLICATION.—An institution of higher
 21 education or consortium desiring a grant under this
 22 section shall submit an application to the Director at
 23 such time, in such manner, and containing such in-
 24 formation as the Director may require. The applica-
 25 tion shall include, at a minimum—

1 (A) a description of which classroom sub-
2 jects and grade levels the training will address;

3 (B) a description of the activities to be car-
4 ried out, including—

5 (i) how such activities will be aligned
6 with State and local standards and with
7 other activities that promote student
8 achievement in mathematics and science;
9 and

10 (ii) how such activities will be based
11 on a review of relevant research and why
12 such activities are expected to strengthen
13 the quality of mathematics and science in-
14 struction;

15 (C) a description of how the institution or
16 consortium will ensure the active participation
17 of its mathematics, science, or engineering de-
18 partments in the development and implementa-
19 tion of the program;

20 (D) an explanation of how the institution
21 or consortium will ensure that teachers partici-
22 pating in the program are given instruction in
23 both content and pedagogy;

24 (E) a description of how the institution or
25 consortium will recruit teachers to participate

1 in the program and the criteria that will be
2 used to select the participating teachers;

3 (F) a description of the type and amount
4 of any financial assistance that will be provided
5 to teachers to enable teachers to participate;
6 and

7 (G) a description of how the institution or
8 consortium will work with schools to ensure the
9 success of the participating teachers.

10 (2) REVIEW OF APPLICATIONS.—In evaluating
11 the applications submitted under this subsection, the
12 Director shall consider, at a minimum—

13 (A) the ability of the institution or consor-
14 tium to effectively carry out the proposed pro-
15 gram;

16 (B) the experience of the institution or
17 consortium in developing and implementing
18 high-quality professional development programs
19 for mathematics or science teachers; and

20 (C) the extent to which the institution or
21 consortium is committed to making the pro-
22 gram a central organizational focus.

23 (3) PRIORITY.—In evaluating the applications
24 submitted under this subsection, the Director shall
25 give priority to those applications that demonstrate

1 the greatest participation of mathematics, science, or
2 engineering departments.

3 (d) TEACHER ELIGIBILITY.—

4 (1) IN GENERAL.—To be eligible to participate
5 in a program carried out by an institution or consor-
6 tium under this section, a mathematics or science
7 teacher shall submit to the Director, at such time
8 and in such manner as the Director may require, an
9 assurance executed by the sponsoring school, that,
10 after completing the program, the mathematics or
11 science teacher will be provided sufficient non-class-
12 room time at the sponsoring school to enable the
13 mathematics or science teacher to serve as a master
14 teacher. The mathematics or science teacher shall
15 submit a copy of this assurance to the institution of
16 higher education or consortium as part of the appli-
17 cation process for participation in the master teach-
18 er program.

19 (2) LIMITATION.—Funds authorized by this
20 section may not be used to train any teacher who
21 has failed to meet the requirements of paragraph
22 (1).

23 (e) ACCOUNTABILITY AND DISSEMINATION.—

24 (1) ASSESSMENT REQUIRED.—The Director
25 shall evaluate the activities carried out under this

1 section. At a minimum such evaluations shall use a
2 common set of benchmarks and assessment tools to
3 identify best practices and materials developed and
4 demonstrated with funds provided under this sec-
5 tion.

6 (2) DISSEMINATION OF RESULTS.—The Direc-
7 tor shall make available the results of the evaluation
8 required under paragraph (1)—

9 (A) to the public, including through the
10 National Science, Mathematics, Engineering,
11 and Technology Education Digital Library; and

12 (B) to the Committee on Science and the
13 Committee on Education and the Workforce of
14 the House of Representatives and the Com-
15 mittee on Health, Education, Labor and Pen-
16 sions and the Committee on Commerce,
17 Science, and Transportation of the Senate.

18 (3) MATERIALS.—The Secretary shall make
19 available through the National Science, Mathe-
20 matics, Engineering, and Technology Education
21 Digital Library materials that are demonstrated to
22 be effective and are developed by institutions of
23 higher education or consortia under subsection
24 (b)(4).

1 (f) AUTHORIZATION OF APPROPRIATIONS.—There is
 2 authorized to be appropriated to the National Science
 3 Foundation to carry out this section \$50,000,000 for each
 4 of fiscal years 2002 through 2004.

5 **SEC. 714. DISSEMINATION OF INFORMATION ON REQUIRED**
 6 **COURSE OF STUDY FOR CAREERS IN**
 7 **SCIENCE, MATHEMATICS, ENGINEERING, AND**
 8 **TECHNOLOGY EDUCATION.**

9 (a) IN GENERAL.—From amounts made available
 10 under subsection (b), the Director of the National Science
 11 Foundation, jointly with the Secretary of Education, shall
 12 compile and disseminate information (including through
 13 outreach, school counselor education, and visiting speak-
 14 ers) regarding—

15 (1) standard prerequisites for middle school and
 16 secondary school students who seek to enter a course
 17 of study at an institution of higher education in
 18 science, mathematics, engineering, or technology
 19 education for purposes of teaching in an elementary
 20 school or secondary school; and

21 (2) the licensing requirements in each State for
 22 science, mathematics, engineering, or technology ele-
 23 mentary school or secondary school teachers.

24 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
 25 authorized to be appropriated to the National Science

1 Foundation to carry out this section \$5,000,000 for each
 2 of fiscal years 2002 through 2004.

3 **SEC. 715. REQUIREMENT TO CONDUCT STUDY EVALUA-**
 4 **TION.**

5 (a) STUDY REQUIRED.—

6 (1) IN GENERAL.—The Director of the National
 7 Science Foundation shall enter into an agreement
 8 with the President of the National Academy of
 9 Sciences and the President of the National Academy
 10 of Engineering under which the academies shall—

11 (A) review existing studies on the effective-
 12 ness of technology in the classroom on learning
 13 and student performance, using various meas-
 14 ures of learning and teaching outcome, includ-
 15 ing standardized tests of student achievement;
 16 and

17 (B) explore the feasibility of 1 or more
 18 methodological frameworks being used to evalu-
 19 ate technologies that—

20 (i) have different purposes; and

21 (ii) are used by schools and school
 22 systems with diverse educational goals.

23 (2) CONTENTS.—The study evaluation shall in-
 24 clude, to the extent available, information on—

1 (A) the type of technology used in class-
 2 rooms;

3 (B) the reason that such technology works;
 4 and

5 (C) the teacher training that is conducted
 6 in conjunction with the technology.

7 (b) DATE.—The study evaluation required by sub-
 8 section (a) shall be completed not later than 1 year after
 9 the date of enactment of this title.

10 (c) DEFINITION OF TECHNOLOGY.—In this section,
 11 the term “technology” has the meaning given that term
 12 in section 3113(11) of the Elementary and Secondary
 13 Education Act of 1965 (20 U.S.C. 6813(11)).

14 (d) AUTHORIZATION OF APPROPRIATIONS.—

15 (1) IN GENERAL.—There is authorized to be
 16 appropriated to the National Science Foundation to
 17 carry out this section, \$600,000 for fiscal year 2002.

18 (2) AVAILABILITY.—Any amounts appropriated
 19 under the authority of paragraph (1) shall remain
 20 available until expended.

21 **SEC. 716. SCIENCE, MATHEMATICS, ENGINEERING, AND**
 22 **TECHNOLOGY BUSINESS EDUCATION CON-**
 23 **ERENCE.**

24 (a) IN GENERAL.—Not later than 180 days after the
 25 date of enactment of this title, the Director of the Na-

1 tional Science Foundation (hereafter in this section re-
2 ferred to as the “Director”) shall convene the first of an
3 annual 3- to 5-day conference for kindergarten through
4 12th grade science, mathematics, engineering, and tech-
5 nology education stakeholders, including—

6 (1) representatives from Federal, State, and
7 local governments, private industries, private busi-
8 nesses, and professional organizations;

9 (2) educators;

10 (3) science, mathematics, engineering, and tech-
11 nology educational resource providers;

12 (4) students; and

13 (5) any other stakeholders the Director deter-
14 mines will provide useful participation in the con-
15 ference.

16 (b) PURPOSES.—The purposes of the conference con-
17 vened under subsection (a) are to—

18 (1) identify and gather information on existing
19 science, mathematics, engineering, and technology
20 education programs and resource providers, includ-
21 ing information on distribution, partners, cost as-
22 sessment, and derivation;

23 (2) determine the extent of any existing coordi-
24 nation between providers of curricular activities, ini-
25 tiatives, and units; and

1 (3) identify the common goals and differences
2 among the participants at the conference.

3 (c) REPORT AND PUBLICATION.—At the conclusion
4 of the conference, the Director shall—

5 (1) transmit to the Committee on Science and
6 the Committee on Education and the Workforce of
7 the House of Representatives and to the Committee
8 on Commerce, Science, and Transportation and the
9 Committee on Health, Education, Labor and Pen-
10 sions of the Senate a report on the outcome and
11 conclusions of the conference, including an inventory
12 of curricular activities, initiatives, and units, the
13 content of the conference, and strategies developed
14 that will support partnerships and leverage re-
15 sources; and

16 (2) ensure that a similar report is published
17 and distributed as widely as possible to stakeholders
18 in science, mathematics, engineering, and technology
19 education.

20 (d) AUTHORIZATION OF APPROPRIATIONS.—There
21 are authorized to be appropriated to the National Science
22 Foundation to carry out this section—

23 (1) \$300,000 for fiscal year 2002; and

24 (2) \$200,000 for each of fiscal years 2003 and
25 2004.

1 **SEC. 717. DISTANCE LEARNING GRANTS.**

2 (a) IN GENERAL.—From amounts made available
3 under subsection (d), the Director of the National Science
4 Foundation (hereafter in this section referred to as the
5 “Director”) shall establish a program to award grants, on
6 a competitive basis, to institutions of higher education to
7 enable such institutions to provide distance learning op-
8 portunities in mathematics or science to elementary school
9 or secondary school students.

10 (b) USE OF FUNDS.—Institutions of higher education
11 shall use grants awarded under this section to establish
12 programs under which elementary school or secondary
13 school students can participate in research activities in
14 mathematics or science occurring at such institutions via
15 the Internet.

16 (c) SELECTION PROCESS.—

17 (1) APPLICATION.—An institution of higher
18 education desiring a grant under this section shall
19 submit an application to the Director at such time,
20 in such manner, and containing such information as
21 the Director may require. The application shall in-
22 clude, at a minimum—

23 (A) a description of the research opportu-
24 nities that will be offered by the institution;

1 (B) a description of how the institution
2 will publicize these research opportunities for
3 schools and teachers;

4 (C) a description of how the institution will
5 involve teachers of participating students in the
6 program;

7 (D) a description of how students will be
8 selected to participate in the program;

9 (E) a description of how the institution
10 will ensure that the research carried out under
11 this section will enhance the education of the
12 participating students and will make it more
13 likely that such students will continue to study
14 mathematics or science; and

15 (F) a description of how the grant funds
16 will be spent.

17 (2) REVIEW OF APPLICATIONS.—In evaluating
18 the applications submitted under this subsection, the
19 Director shall consider, at a minimum—

20 (A) the ability of the institution to effec-
21 tively carry out the proposed program;

22 (B) the extent to which the proposed pro-
23 gram will enhance the education of the partici-
24 pating students and will encourage such stu-

1 dents to continue the study of mathematics or
 2 science; and

3 (C) the extent to which the proposed pro-
 4 gram will provide opportunities that would not
 5 otherwise be available to students.

6 (3) RANGE.—The Director shall ensure, to the
 7 extent practicable, that grants are awarded under
 8 this section in a wide range of geographic areas and
 9 to assist students in rural, suburban, and urban
 10 schools.

11 (d) AUTHORIZATION OF APPROPRIATIONS.—There is
 12 authorized to be appropriated to the National Science
 13 Foundation to carry out this section \$5,000,000 for each
 14 of fiscal years 2002 through 2004.

15 **TITLE VIII—MISCELLANEOUS** 16 **PROVISIONS**

17 **SEC. 811. MATHEMATICS AND SCIENCE PROFICIENCY** 18 **PARTNERSHIPS.**

19 (a) FINDINGS.—Congress finds the following:

20 (1) Proficiency in mathematics, science, and in-
 21 formation technology is necessary to prepare all stu-
 22 dents in the United States for participation in the
 23 21st Century and to guarantee that the United
 24 States economy remains vibrant and competitive.

1 (2) In order to achieve such results, it is impor-
 2 tant that the Federal Government shows interest in
 3 economically disadvantaged students who have not
 4 been provided with opportunities that will improve
 5 their knowledge of mathematics, science, and tech-
 6 nology.

7 (3) Many economically disadvantaged students
 8 in urban and rural America share a common need
 9 to receive a quality education, but often the schools
 10 of such students lack the needed resources to lift
 11 those students into the information age.

12 (4) The schools and businesses serving urban
 13 and rural communities are strategically positioned to
 14 form a unique partnership with students that will in-
 15 crease their mathematics, science, and technology
 16 proficiency and encourage and support their under-
 17 graduate study in those fields for the benefit of the
 18 Nation.

19 (b) DEFINITIONS.—In this section:

20 (1) CONDITIONAL AGREEMENT.—The term
 21 “conditional agreement” means an arrangement be-
 22 tween representatives of the private sector and local
 23 educational agencies to provide certain services and
 24 funds, such as the donation of computer hardware
 25 and software, the establishment of internship and

1 mentoring opportunities for students who participate
 2 in mathematics, science, or information technology
 3 programs, and the donation of scholarship funds for
 4 use at institutions of higher education by eligible
 5 students who have participated in the mathematics,
 6 science, or information technology programs.

7 (2) ELIGIBLE STUDENT.—The term “eligible
 8 student” means a student enrolled in the 12th grade
 9 who—

10 (A) has participated in a mathematics,
 11 science, or information technology program es-
 12 tablished pursuant to this section;

13 (B) has demonstrated a commitment to
 14 pursue a career in information technology,
 15 mathematics, science, or engineering; and

16 (C) has attained high academic standing
 17 and maintains a grade point average of not less
 18 than 2.7 on a 4.0 scale for the period from the
 19 beginning of the 10th grade through the time
 20 of application for a scholarship.

21 (c) DEMONSTRATION PROJECT.—

22 (1) IN GENERAL.—From amounts made avail-
 23 able under subsection (d), the Director shall award
 24 grants, under a demonstration project, to eligible

1 local educational agencies to allow such agencies to
2 carry out the activities described in paragraph (2).

3 (2) LOCAL USE OF FUNDS.—

4 (A) IN GENERAL.—An eligible local edu-
5 cational agency that receives a grant under this
6 section may use such grant funds to develop a
7 program that builds or expands mathematics,
8 science, or information technology curricula, to
9 purchase equipment necessary to establish such
10 program, and to provide professional develop-
11 ment to enhance teacher quality in those fields.

12 (B) REQUIREMENTS.—A program de-
13 scribed in subparagraph (A) shall—

14 (i) provide teachers with professional
15 development specifically in information
16 technology, mathematics, or science; and

17 (ii) provide students with a rich
18 standards-based course of study in mathe-
19 matics, science, or information technology.

20 (3) ELIGIBLE LOCAL EDUCATIONAL AGEN-
21 CIES.—A local educational agency is eligible to re-
22 ceive a grant under this section if the agency—

23 (A) provides assurances that the agency
24 has executed conditional agreements with rep-
25 resentatives of the private sector to provide

1 services and funds described in paragraph (4);
2 and

3 (B) agrees to enter into an agreement with
4 the Director to comply with the requirements of
5 this section.

6 (4) PRIVATE SECTOR PARTICIPATION.—The
7 conditional agreements referred to in paragraph
8 (3)(A) shall describe participation by the private sec-
9 tor, including—

10 (A) the donation of computer hardware,
11 software, and other technology tools;

12 (B) the establishment of internship and
13 mentoring opportunities for students who par-
14 ticipate in the mathematics, science, or infor-
15 mation technology program; and

16 (C) the donation of higher education schol-
17 arship funds for eligible students to continue
18 their study of mathematics, science, or informa-
19 tion technology.

20 (5) APPLICATION.—

21 (A) IN GENERAL.— Each eligible local
22 educational agency desiring to receive a grant
23 under this section shall submit an application to
24 the Director in accordance with guidelines es-

1 tablished by the Director pursuant to subpara-
2 graph (B).

3 (B) GUIDELINES.—

4 (i) IN GENERAL.—The guidelines re-
5 ferred to in subparagraph (A) shall re-
6 quire, at a minimum, that the application
7 include—

8 (I) a description of proposed ac-
9 tivities consistent with the uses of
10 funds and program requirements
11 under paragraphs (2), (3), and (4);

12 (II) a description of the higher
13 education scholarship program, in-
14 cluding criteria for selection, duration
15 of scholarship, number of scholarships
16 to be awarded each year, and funding
17 levels for scholarships; and

18 (III) evidence of private sector
19 participation and financial support to
20 establish an internship, mentoring,
21 and scholarship program.

22 (ii) PUBLICATION.—The Director
23 shall issue and publish such guidelines not
24 later than 6 months after the date of en-
25 actment of this title.

1 (6) SELECTION.—

2 (A) IN GENERAL.—The Director shall
3 award grants to eligible local educational agen-
4 cies on the basis of merit to be determined after
5 conducting a comprehensive review of applica-
6 tions submitted under paragraph (5).

7 (B) PRIORITY.—The Director shall give
8 special priority in awarding grants under this
9 section to eligible local educational agencies
10 that—

11 (i) demonstrate the greatest ability to
12 obtain commitments from representatives
13 of the private sector to provide services
14 and funds described under paragraph (4);
15 and

16 (ii) demonstrate the greatest economic
17 need for assistance under this section.

18 (7) MAXIMUM GRANT AMOUNT.—Any grant
19 made to an eligible local educational agency under
20 this section may not exceed \$300,000.

21 (8) ASSESSMENT.—The Director shall assess
22 the effectiveness of activities carried out under this
23 section.

24 (9) STUDY AND REPORT.—

1 (A) STUDY.—The Director shall initiate an
2 evaluative study of the effectiveness of the ac-
3 tivities carried out under this section in improv-
4 ing student performance in mathematics,
5 science, and information technology at the
6 precollege level and in stimulating student in-
7 terest in pursuing undergraduate studies in
8 those fields.

9 (B) REPORT.—

10 (i) IN GENERAL.—The Director shall
11 report the findings of the study to Con-
12 gress not later than 4 years after the
13 award of the first scholarship under this
14 section.

15 (ii) CONTENTS.—Such report shall in-
16 clude the number of students graduating
17 from an institution of higher education
18 with a major in mathematics, science, or
19 information technology and the number of
20 students who find employment in such
21 fields.

22 (d) AUTHORIZATION OF APPROPRIATIONS.—There is
23 authorized to be appropriated to the National Science
24 Foundation to carry out this section \$5,000,000 for each
25 of fiscal years 2002 through 2004.

1 **SEC. 812. ARTICULATION PARTNERSHIPS BETWEEN COM-**
2 **MUNITY COLLEGES AND SECONDARY**
3 **SCHOOLS.**

4 (a) AMENDMENT.—Section 3(c)(2) of the Scientific
5 and Advanced-Technology Act of 1992 (42 U.S.C.
6 1862i(c)(2)) is amended by adding at the end the fol-
7 lowing: “The Director shall give priority to proposals that
8 involve secondary schools with a majority of students from
9 groups that are underrepresented in the science, mathe-
10 matics, or engineering workforce. Grants in such cases
11 shall not be subject to the requirement under subsection
12 (f)(3) for a matching contribution.”.

13 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
14 authorized to be appropriated to the National Science
15 Foundation to carry out this section \$5,000,000 for each
16 of fiscal years 2002 through 2004.

17 **SEC. 813. ASSESSMENT OF IN-SERVICE TEACHER PROFES-**
18 **SIONAL DEVELOPMENT PROGRAMS.**

19 (a) ASSESSMENT.—The Director shall review all pro-
20 grams sponsored by the National Science Foundation that
21 support in-service teacher professional development for
22 science teachers to determine—

23 (1) the level of resources and degree of empha-
24 sis placed on training teachers in the effective use of
25 information technology in the classroom; and

1 (2) the allocation of resources between summer
2 activities and follow-up reinforcement training and
3 support for such participants during the school year.

4 (b) REPORT.—The Director shall submit to Congress,
5 not later than 1 year after the date of enactment of this
6 Act, a report that—

7 (1) describes the results of the review conducted
8 under subsection (a);

9 (2) summarizes the major categories of in-serv-
10 ice teacher professional development activities sup-
11 ported at the time of the review, and the funding
12 levels for such activities; and

13 (3) describes any proposed changes, including
14 new funding allocations, to strengthen the in-service
15 teacher professional development programs of the
16 National Science Foundation that support activities
17 described in paragraphs (1) and (2) of subsection
18 (a).

19 **SEC. 814. INSTRUCTIONAL MATERIALS.**

20 The Director may award grants, on a competitive
21 basis, for the development of educational materials on en-
22 ergy production and use, energy conservation, and renew-
23 able energy for use in elementary schools and secondary
24 schools.

1 **SEC. 815. STUDY OF BROADBAND NETWORK ACCESS FOR**
2 **SCHOOLS AND LIBRARIES.**

3 (a) STUDY AND REPORT.—

4 (1) STUDY.—The Director shall conduct a
5 study of the issues described in subsection (c).

6 (2) REPORT.—

7 (A) IN GENERAL.—Not later than 1 year
8 after the date of enactment of this Act, the Di-
9 rector shall submit to Congress a report that
10 includes recommendations to address the issues
11 studied under paragraph (1).

12 (B) UPDATES.—The Director shall update
13 the report described in subparagraph (A) and
14 shall submit to Congress the updated report
15 each year for the 6 years after the year in
16 which report is submitted under subparagraph
17 (A).

18 (b) CONSULTATION.—In preparing the reports under
19 subsection (a), the Director shall consult with the National
20 Aeronautics and Space Administration, the National Insti-
21 tute of Standards and Technology, and such other Federal
22 agencies and educational entities as the Director considers
23 appropriate.

24 (c) ISSUES TO BE ADDRESSED.—The reports shall—

25 (1) identify the current status of high-speed,
26 large bandwidth capacity access to all public elemen-

1 tary schools and secondary schools and libraries in
2 the United States;

3 (2) identify how the provision of high-speed,
4 large bandwidth capacity access to the Internet to
5 such schools and libraries can be effectively utilized
6 within each school and library;

7 (3) consider the effect that specific or regional
8 circumstances may have on the ability of such
9 schools and libraries to acquire high-speed, large
10 bandwidth capacity access to achieve universal
11 connectivity as an effective tool in the education
12 process; and

13 (4) include options and recommendations to ad-
14 dress the challenges and issues identified in the re-
15 ports.

16 **SEC. 816. EDUCATIONAL TECHNOLOGY ASSISTANCE;**
17 **LEARNING COMMUNITY CONSORTIUM.**

18 Section 3 of the Scientific and Advanced Technology
19 Act of 1992 (42 U.S.C. 1862i) is amended by redesign-
20 ating subsections (d), (e), (f), and (g) as subsections (f),
21 (g), (h), and (i), respectively, and by inserting after sub-
22 section (c) the following:

23 “(d) EDUCATIONAL TECHNOLOGY ASSISTANCE.—

24 “(1) GRANTS.—

1 “(A) IN GENERAL.—The Director is au-
 2 thorized to award grants on a competitive basis,
 3 using the criteria described in paragraph (4), to
 4 eligible entities to enable such eligible entities to
 5 establish centers to assist elementary schools
 6 and secondary schools in the use of information
 7 technology for mathematics, science, or tech-
 8 nology instruction.

9 “(B) ELIGIBLE ENTITIES.—To be eligible
 10 to receive a grant under subparagraph (A), an
 11 entity shall be an associate-degree-granting col-
 12 lege, a bachelor-degree-granting institution, or
 13 an education service agency (including a con-
 14 sortia thereof).

15 “(2) ACTIVITIES.—Activities carried out by cen-
 16 ters funded under this subsection may include—

17 “(A) helping schools evaluate their need
 18 for information technology;

19 “(B) training teachers on how to best use
 20 information technology in instruction; and

21 “(C) providing other information and
 22 training to help schools and teachers ensure
 23 that schools and teachers have access to appro-
 24 priate information technologies and are using
 25 the technologies to maximum advantage.

1 “(3) APPLICATION.—An eligible entity that de-
 2 sires to receive a grant under this subsection shall
 3 submit an application to the Director at such time,
 4 in such manner, and containing such information as
 5 the Director may require including, at a minimum—

6 “(A) a description of the services that will
 7 be provided to schools and teachers;

8 “(B) a list of the schools expected to be
 9 served;

10 “(C) a description of how the eligible enti-
 11 ty will draw on the expertise of the entity’s fac-
 12 ulty and students to assist schools and teachers;
 13 and

14 “(D) a description of how the eligible enti-
 15 ty will operate the program after funding made
 16 available by this subsection has expired.

17 “(4) SELECTION.—In evaluating applications
 18 submitted under paragraph (3), the Director shall
 19 consider, at a minimum—

20 “(A) the ability of the eligible entity to ef-
 21 fectively carry out the program;

22 “(B) the number of schools and students
 23 that will be served and their need for assist-
 24 ance;

1 “(C) the extent to which the eligible entity
2 has worked with participating schools to ensure
3 that priority problems will be addressed by the
4 assistance provided under this subsection; and

5 “(D) the ability of the eligible entity to
6 continue to provide assistance after funding
7 under this subsection has expired.

8 “(5) AWARDS.—(A) The Director shall ensure,
9 to the extent practicable, that the program estab-
10 lished by this subsection assists schools in rural,
11 suburban, and urban areas.

12 “(B) No eligible entity shall receive grant funds
13 under this subsection for more than three years.

14 “(6) REPORT.—Not later than April 1, 2005,
15 the Director shall provide a report to Congress that
16 assesses the success of the program under this sub-
17 section and the need of schools for continued assist-
18 ance and that recommends, based on experience with
19 the program, ways that information technology as-
20 sistance can be made more broadly available to
21 schools.

22 “(7) AUTHORIZATION OF APPROPRIATIONS.—
23 There is authorized to be appropriated to the Na-
24 tional Science Foundation to carry out this sub-

1 section \$5,000,000 for each of fiscal years 2002
2 through 2004.

3 “(e) LEARNING COMMUNITY CONSORTIUM.—The Di-
4 rector is authorized to award a grant in the amount of
5 \$10,000,000 to a consortium composed of associate-degree
6 granting colleges to enable such consortium to carry out
7 a pilot project to encourage women, minorities, and indi-
8 viduals with disabilities to enter and complete programs
9 in mathematics, science, engineering, and technology.”.

○