

# Union Calendar No. 76

107<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

# H. R. 1858

**[Report No. 107–134, Part I]**

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

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## IN THE HOUSE OF REPRESENTATIVES

MAY 16, 2001

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

JULY 11, 2001

Additional sponsors: Mr. HALL of Texas, Mr. SMITH of Michigan, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. EHLERS, Mr. GORDON, Mrs. MORELLA, Mr. BARCIA, Mr. SHAYS, Ms. JACKSON-LEE of Texas, Mr. CALVERT, Mr. ETHERIDGE, Mr. BARTLETT of Maryland, Mr. UDALL of Colorado, Mr. GUTKNECHT, Mr. BAIRD, Mr. NETHERCUTT, Mr. BACA, Mrs. BIGGERT, Mr. MATHESON, Mr. JOHNSON of Illinois, Mr. ISRAEL, Mr. GRUCCI, Mr. HONDA, and Ms. HART

JULY 11, 2001

Reported from the Committee on Science with an amendment  
[Strike out all after the enacting clause and insert the part printed in italic]

JULY 11, 2001

Referral to the Committee on Education and the Workforce extended for a period ending not later than July 11, 2001

JULY 11, 2001

The Committee on Education and the Workforce discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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# 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 *The Congress finds the following:*

8 *(1) 12 years ago the President of the United*  
9 *States convened the Nation’s Governors to establish*  
10 *common goals for the improvement of elementary and*  
11 *secondary education.*

12 *(2) Among the National Education Goals estab-*  
13 *lished was the goal that by the year 2000 United*  
14 *States students would be first in the world in mathe-*  
15 *matics and science achievement.*

16 *(3) Despite these goals, 8th graders in the United*  
17 *States showed just average performance in mathe-*  
18 *matics and science in the Third International Mathe-*  
19 *matics and Science Study-Repeat and demonstrated*

1 lower relative performance than the cohort of 4th  
2 graders 4 years earlier.

3 (4) *The United States must redouble its efforts to*  
4 *provide all of its students with a world-class edu-*  
5 *cation in mathematics, science, engineering, and tech-*  
6 *nology.*

7 (5) *The American economy has become the most*  
8 *robust in the world, not through state planning and*  
9 *government intervention, but through the hard work*  
10 *and innovation of its citizens. This success is founded*  
11 *in our Constitutional tradition of respect for indi-*  
12 *vidual liberty to pursue personal career objectives.*

13 **SEC. 3. DEFINITIONS.**

14 *In this Act—*

15 (1) *the term “Director” means the Director of the*  
16 *National Science Foundation;*

17 (2) *the term “institution of higher education”*  
18 *has the meaning given such term in section 101 of the*  
19 *Higher Education Act of 1965 (20 U.S.C. 1001);*

20 (3) *the term “eligible nonprofit organization”*  
21 *means a nonprofit research institute or a nonprofit*  
22 *professional association with demonstrated experience*  
23 *delivering mathematics or science education as deter-*  
24 *mined by the Director;*

1           (4) the term “local educational agency” has the  
2           meaning given such term in section 1401 of the Ele-  
3           mentary and Secondary Education Act of 1965 (20  
4           U.S.C. 8801);

5           (5) the term “State educational agency” has the  
6           meaning given such term in section 1401 of the Ele-  
7           mentary and Secondary Education Act of 1965 (20  
8           U.S.C. 8801);

9           (6) the term “elementary school” has the mean-  
10          ing given that term by section 14101(14) of the Ele-  
11          mentary and Secondary Education Act of 1965 (20  
12          U.S.C. 8801(14)); and

13          (7) the term “secondary school” has the meaning  
14          given that term by section 14101(25) of the Elemen-  
15          tary and Secondary Education Act of 1965 (20  
16          U.S.C. 8801(25)).

17 **SEC. 4. AUTHORIZATIONS OF APPROPRIATIONS.**

18          Any authorization of appropriations in this Act shall  
19          be considered to be in addition to amounts otherwise au-  
20          thorized or appropriated for the National Science Founda-  
21          tion.

22 **SEC. 5. MATCHING REQUIREMENTS.**

23          The Director may establish matching fund require-  
24          ments for any programs authorized by this Act except those  
25          established in title IV.

1 **TITLE I—MATHEMATICS AND**  
2 **SCIENCE EDUCATION PART-**  
3 **NERSHIPS**

4 **Subtitle A—Mathematics and**  
5 **Science Education Partnerships**

6 **SEC. 101. PROGRAM AUTHORIZED.**

7 (a) *IN GENERAL.*—(1) *The Director shall establish a*  
8 *program to award grants to institutions of higher education*  
9 *or eligible nonprofit organizations (or consortia thereof) to*  
10 *establish mathematics and science education partnership*  
11 *programs to improve the instruction of elementary and sec-*  
12 *ondary science education.*

13 (2) *Grants shall be awarded under this section on a*  
14 *merit-reviewed competitive basis.*

15 (b) *PARTNERSHIPS.*—(1) *In order to be eligible to re-*  
16 *ceive a grant under this section, an institution of higher*  
17 *education or eligible nonprofit organization (or consortium*  
18 *thereof) shall enter into a partnership with one or more*  
19 *local educational agencies that may also include a State*  
20 *educational agency or one or more businesses, or both.*

21 (2) *A participating institution of higher education*  
22 *shall include mathematics, science, or engineering depart-*  
23 *ments in the programs carried out through a partnership*  
24 *under this subsection.*

1           (c) *USES OF FUNDS.*—Grants awarded under this sec-  
2 tion shall be used for activities that draw upon the expertise  
3 of the partners to improve elementary or secondary edu-  
4 cation, or both, in mathematics or science, or both. Such  
5 activities may include—

6           (1) *recruiting and preparing students for careers*  
7 *in elementary or secondary mathematics or science*  
8 *education;*

9           (2) *offering professional development programs,*  
10 *including summer or academic year institutes or*  
11 *workshops, designed to strengthen the capabilities of*  
12 *existing mathematics and science teachers;*

13           (3) *offering innovative programs that instruct*  
14 *teachers on using technology more effectively in teach-*  
15 *ing mathematics and science, including programs*  
16 *that recruit and train undergraduate and graduate*  
17 *students to provide technical support to teachers;*

18           (4) *developing distance learning programs for*  
19 *teachers or students, including developing courses,*  
20 *curricular materials and other resources for the in-*  
21 *service professional development of teachers that are*  
22 *made available to teachers through the Internet;*

23           (5) *offering teacher preparation and certification*  
24 *programs for professional mathematicians, scientists,*  
25 *and engineers who wish to begin a career in teaching;*

1           (6) *developing assessment tools to measure stu-*  
2           *dent mastery of content and cognitive skills;*

3           (7) *developing or adapting elementary and sec-*  
4           *ondary school curricular materials, aligned to State*  
5           *standards, that incorporate contemporary research on*  
6           *the science of learning;*

7           (8) *developing undergraduate mathematics and*  
8           *science courses for education majors;*

9           (9) *using mathematicians, scientists, and engi-*  
10          *neers employed by private businesses to help recruit*  
11          *and train mathematics and science teachers;*

12          (10) *developing a cadre of master teachers who*  
13          *will promote reform and improvement in schools;*

14          (11) *developing and offering mathematics or*  
15          *science enrichment programs for students, including*  
16          *after-school and summer programs;*

17          (12) *providing research opportunities in business*  
18          *or academia for students and teachers;*

19          (13) *bringing mathematicians, scientists and en-*  
20          *gineers from business and academia into elementary*  
21          *and secondary school classrooms; and*

22          (14) *any other activities the Director determines*  
23          *will accomplish the goals of this section.*

24          (d) *SCIENCE ENRICHMENT PROGRAMS FOR GIRLS.—*  
25          *Activities carried out in accordance with subsections (c)(11)*

1 *and (12) shall include elementary and secondary school pro-*  
2 *grams to encourage the ongoing interest of girls in science,*  
3 *mathematics, engineering and technology and to prepare*  
4 *girls to pursue undergraduate and graduate degrees and ca-*  
5 *reers in science, mathematics, engineering or technology.*

6 *Funds made available through awards to partnerships for*  
7 *the purposes of this subsection may support programs for—*

8           (1) *encouraging girls to pursue studies in*  
9           *science, mathematics, engineering and technology and*  
10          *to major in such fields in postsecondary education;*

11          (2) *tutoring girls in science, mathematics, engi-*  
12          *neering and technology;*

13          (3) *providing mentors for girls in person and*  
14          *through the Internet to support such girls in pursuing*  
15          *studies in science, mathematics, engineering and tech-*  
16          *nology;*

17          (4) *educating the parents of girls about the dif-*  
18          *ficulties faced by girls to maintain an interest and*  
19          *desire to achieve in science, mathematics, engineering*  
20          *and technology, and enlisting the help of parents in*  
21          *overcoming these difficulties; and*

22          (5) *acquainting girls with careers in science,*  
23          *mathematics, engineering and technology and encour-*  
24          *aging girls to plan for careers in such fields.*



1           (e) *RESEARCH IN SECONDARY SCHOOLS.*—Activities  
2 carried out in accordance with subsection (c)(11) may in-  
3 clude support for research projects performed by students  
4 at secondary schools. Uses of funds made available through  
5 awards to partnerships for purposes of this subsection may  
6 include—

7           (1) training secondary school mathematics and  
8 science teachers in the design of research projects for  
9 students;

10           (2) establishing a system for students and teach-  
11 ers involved in research projects funded under this  
12 section to exchange information about their projects  
13 and research results; and

14           (3) assessing the educational value of the student  
15 research projects by such means as tracking the aca-  
16 demic performance and choice of academic majors of  
17 students conducting research.

18           (f) *STIPENDS.*—Grants awarded under this section  
19 may be used to provide stipends for teachers or students  
20 participating in training or research activities that would  
21 not be part of their typical classroom activities.

22 **SEC. 102. SELECTION PROCESS.**

23           (a) *APPLICATION.*—An institution of higher education  
24 or an eligible nonprofit organization (or a consortium  
25 thereof) seeking funding under section 101 shall submit an

1 *application to the Director at such time, in such manner,*  
2 *and containing such information as the Director may re-*  
3 *quire. The application shall include, at a minimum—*

4 *(1) a description of the partnership and the role*  
5 *that each member will play in implementing the pro-*  
6 *posal;*

7 *(2) a description of each of the activities to be*  
8 *carried out, including—*

9 *(A) how such activities will be aligned with*  
10 *State and local standards and with other activi-*  
11 *ties that promote student achievement in mathe-*  
12 *matics and science; and*

13 *(B) how such activities will be based on a*  
14 *review of relevant research, how such activities*  
15 *will encourage the interest of women and mi-*  
16 *norities in science, mathematics, engineering and*  
17 *technology and will help prepare women and mi-*  
18 *norities to pursue postsecondary studies in these*  
19 *fields, and why such activities are expected to*  
20 *improve student performance and strengthen the*  
21 *quality of mathematics and science instruction;*

22 *(3) a description of the number, size and nature*  
23 *of any stipends that will be provided to students or*  
24 *teachers and the reasons such stipends are needed;*

1           (4) *how the partnership will serve as a catalyst*  
2           *for reform of mathematics and science education pro-*  
3           *grams; and*

4           (5) *how the partnership will assess its success.*

5           (b) *REVIEW OF APPLICATIONS.*—*In evaluating the ap-*  
6           *plications submitted under subsection (a), the Director shall*  
7           *consider, at a minimum—*

8           (1) *the ability of the partnership to effectively*  
9           *carry out the proposed programs;*

10          (2) *the extent to which the members of the part-*  
11          *nership are committed to making the partnership a*  
12          *central organizational focus;*

13          (3) *the degree to which activities carried out by*  
14          *the partnership are based on relevant research and*  
15          *likely to result in increased student achievement;*

16          (4) *the degree to which such activities are*  
17          *aligned with State or local standards; and*

18          (5) *the likelihood that the partnership will dem-*  
19          *onstrate activities that can be widely implemented as*  
20          *part of larger scale reform efforts.*

21          (c) *AWARDS.*—(1) *The Director shall ensure, to the ex-*  
22          *tent practicable, that partnership grants be awarded under*  
23          *section 101 in a wide range of geographic areas and that*  
24          *the partnership program include rural, suburban, and*  
25          *urban local educational agencies.*

1       (2) *Not less than 50 percent of the partnerships funded*  
2 *under section 101 shall include businesses.*

3       (3) *The Director shall award grants under this subtitle*  
4 *for a period not to exceed 5 years.*

5 **SEC. 103. ACCOUNTABILITY AND DISSEMINATION.**

6       (a) *ASSESSMENT REQUIRED.—The Director shall*  
7 *evaluate the partnerships program established under section*  
8 *101. At a minimum, such evaluations shall—*

9               (1) *use a common set of benchmarks and assess-*  
10 *ment tools to identify best practices and materials de-*  
11 *veloped and demonstrated by the partnerships; and*

12               (2) *to the extent practicable, compare the effec-*  
13 *tiveness of practices and materials developed and*  
14 *demonstrated by the partnerships authorized under*  
15 *this subtitle with those of partnerships funded by*  
16 *other State or Federal agencies.*

17       (b) *DISSEMINATION OF RESULTS.—(1) The results of*  
18 *the evaluations required under subsection (a) shall be made*  
19 *available to the public, including through the National*  
20 *Science, Mathematics, Engineering, and Technology Edu-*  
21 *cation Digital Library, and shall be provided to the Com-*  
22 *mittee on Science of the House of Representatives and the*  
23 *Committee on Health, Education, Labor, and Pensions and*  
24 *the Committee on Commerce, Science, and Transportation*  
25 *of the Senate.*

1       (2) *Materials developed under the program established*  
 2 *under section 101 that are demonstrated to be effective shall*  
 3 *be made available through the National Science, Mathe-*  
 4 *matics, Engineering, and Technology Education Digital*  
 5 *Library.*

6       (c) *ANNUAL MEETING.*—*The Director shall convene an*  
 7 *annual meeting of the partnerships participating under*  
 8 *this subtitle to foster greater national collaboration.*

9       **SEC. 104. AUTHORIZATION OF APPROPRIATIONS.**

10       *There are authorized to be appropriated to the Na-*  
 11 *tional Science Foundation to carry out this subtitle*  
 12 *\$200,000,000 for each of fiscal years 2002 through 2006.*

13       ***Subtitle B—Teacher Research***  
 14       ***Scholarship Program***

15       **SEC. 111. PROGRAM AUTHORIZED.**

16       (a) *IN GENERAL.*—(1) *The Director shall establish a*  
 17 *program to award grants to institutions of higher education*  
 18 *or eligible nonprofit organizations (or consortia thereof) to*  
 19 *provide research opportunities in mathematics, science, and*  
 20 *engineering for elementary or secondary school teachers of*  
 21 *mathematics or science. Such institutions of higher edu-*  
 22 *cation or eligible nonprofit organizations may include one*  
 23 *or more businesses or Federal or State laboratories as part-*  
 24 *ners under the program.*

1       (2) *Grants shall be awarded under this section on a*  
2 *merit-reviewed competitive basis.*

3       (b) *PROGRAM COMPONENTS.*—*Grant recipients under*  
4 *this section—*

5           (1) *shall recruit and select teachers and provide*  
6 *such teachers with opportunities to conduct research*  
7 *in academic, business, or government laboratories;*

8           (2) *shall ensure that the teachers have mentors*  
9 *and other programming support to ensure that their*  
10 *research experience will contribute to their under-*  
11 *standing of mathematics, science, and engineering*  
12 *and improve their performance in the classroom;*

13           (3) *shall provide teachers with a scholarship sti-*  
14 *pend; and*

15           (4) *may provide room and board for residential*  
16 *programs.*

17       (c) *USE OF FUNDS.*—(1) *Not more than 25 percent*  
18 *of the funds provided under a grant under this section may*  
19 *be used for programming support for teachers.*

20           (2) *The Director shall issue guidelines specifying the*  
21 *minimum and maximum amounts of stipends recipients*  
22 *may provide to teachers under this section.*

23       (d) *DURATION.*—*A teacher may participate in re-*  
24 *search under the program under this section for up to 1*  
25 *calendar year or 2 sequential summers.*

1 **SEC. 112. SELECTION PROCESS.**

2 (a) *APPLICATION.*—*An institution of higher education*  
3 *or an eligible nonprofit organization (or a consortium*  
4 *thereof) seeking funding under section 111 shall submit an*  
5 *application to the Director at such time, in such manner,*  
6 *and containing such information as the Director may re-*  
7 *quire. The application shall include, at a minimum—*

8 (1) *a description of the research opportunities*  
9 *that will be made available to elementary or sec-*  
10 *ondary school teachers, or both, by the applicant;*

11 (2) *a description of how the applicant will re-*  
12 *cruit teachers to participate in the program and the*  
13 *criteria that will be used to select the participants;*

14 (3) *a description of the number, types, and*  
15 *amounts of the scholarships that the applicant in-*  
16 *tends to offer to participating teachers; and*

17 (4) *a description of the programming support*  
18 *that will be provided to participating teachers.*

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

22 (1) *the ability of the applicant to effectively*  
23 *carry out the proposed program;*

24 (2) *the extent to which the applicant is com-*  
25 *mitted to making the program a central organiza-*  
26 *tional focus; and*

1           (3) *the likelihood that the research experiences*  
2           *and programming to be offered by the applicant will*  
3           *improve elementary and secondary education.*

4           (c) *AWARDS.—(1) The Director shall ensure, to the ex-*  
5           *tent practicable, that grants be awarded under this subtitle*  
6           *in a wide range of geographic areas and to assist teachers*  
7           *from rural, suburban, and urban local educational agencies.*

8           (2) *The Director shall award grants under this subtitle*  
9           *for a period not to exceed 5 years.*

10 **SEC. 113. AUTHORIZATION OF APPROPRIATIONS.**

11           *There are authorized to be appropriated for the Na-*  
12           *tional Science Foundation to carry out this subtitle*  
13           *\$15,000,000 for each of fiscal years 2002 through 2006.*

14 **TITLE II—NATIONAL SCIENCE,**  
15 **MATHEMATICS, ENGINEER-**  
16 **ING, AND TECHNOLOGY EDU-**  
17 **CATION DIGITAL LIBRARY**

18 **SEC. 201. IN GENERAL.**

19           *The Director shall establish a program to expand the*  
20           *National Science, Mathematics, Engineering, and Tech-*  
21           *nology Education Digital Library (hereinafter in this Act*  
22           *referred to as the “Digital Library”) program to enable*  
23           *timely and continuous dissemination of elementary and sec-*  
24           *ondary science, math, engineering, and technology edu-*  
25           *cational resources, materials, practices, and policies*



1 *through the Internet and other digital technologies. The ex-*  
2 *anded Digital Library shall—*

3 *(1) contain an Internet-based repository of cur-*  
4 *ricular materials, practices, and teaching modules;*

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

12 *(3) provide users of the Digital Library with ac-*  
13 *cess to all materials in the Digital Library through*  
14 *a single entry point;*

15 *(4) contain only materials that have been peer-*  
16 *reviewed and tested to ensure factual accuracy and ef-*  
17 *fectiveness and that are aligned with recognized State*  
18 *and national mathematics and science standards;*

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

23 *(6) provide materials related to mathematics and*  
24 *science partnership programs, including—*

1           (A) links to all of the programs developed  
2 through the mathematics and science partner-  
3 ships established under subtitle A of title I;

4           (B) data related to assessment and evalua-  
5 tion and final program reports developed under  
6 subtitle A of title I, including both positive and  
7 negative outcomes of the program;

8           (C) materials developed by the partnerships  
9 under subtitle A of title I that have been dem-  
10 onstrated to be effective; and

11           (D) a mechanism for users to make com-  
12 ments or suggestions regarding the use and effec-  
13 tiveness of posted materials.

14 **SEC. 202. GRANTS AND CONTRACT.**

15       (a) *GRANTS.*—The Director may award grants to in-  
16 stitutions of higher education or other qualified entities—

17           (1) to design all or parts of the Digital Library;

18           (2) to provide assistance to schools in the selec-  
19 tion and adaptation of curricular materials, practices  
20 and teaching methods made available through the  
21 Digital Library; or

22           (3) to carry out the activities described in both  
23 paragraphs (1) and (2).

1 *Grants awarded under this subsection may cover the costs*  
 2 *of acquiring and reviewing educational materials for dis-*  
 3 *semination through the Digital Library.*

4 (b) *OPERATION.*—*The Director may contract out the*  
 5 *operation and management of the Digital Library.*

6 (c) *COMPETITIVE AWARDS.*—*Grants and contracts*  
 7 *shall be awarded under this section on a competitive basis.*

8 **SEC. 203. AUTHORIZATION OF APPROPRIATIONS.**

9 *There are authorized to be appropriated for the Na-*  
 10 *tional Science Foundation to carry out this title*  
 11 *\$20,000,000 for each of fiscal years 2002 through 2006.*

12 **TITLE III—STRATEGIC EDU-**  
 13 **CATION RESEARCH PROGRAM**  
 14 **Subtitle A—Centers**

15 **SEC. 301. ESTABLISHMENT OF CENTERS FOR RESEARCH ON**  
 16 **LEARNING AND EDUCATION IMPROVEMENT.**

17 (a) *IN GENERAL.*—(1) *The Director shall award*  
 18 *grants to institutions of higher education (or consortia*  
 19 *thereof) to establish 4 multidisciplinary Centers for Re-*  
 20 *search on Learning and Education Improvement.*

21 (2) *Grants shall be awarded under this subsection on*  
 22 *a merit-reviewed competitive basis.*

23 (b) *PURPOSE.*—*The purpose of the Centers shall be to*  
 24 *conduct and evaluate research in cognitive science, edu-*  
 25 *cation and related fields and to develop ways in which the*

1 *results of such research can be applied in elementary and*  
2 *secondary classrooms to improve the teaching of mathe-*  
3 *matics and science.*

4 *(c) FOCUS.—(1) Each Center shall be focused on a dif-*  
5 *ferent challenge faced by elementary or secondary school*  
6 *teachers of mathematics and science. In determining the re-*  
7 *search focus of the Centers, the Director shall consult with*  
8 *the National Academy of Sciences and take into account*  
9 *the extent to which other Federal programs support research*  
10 *on similar questions.*

11 *(2) The proposal solicitation issued by the Director*  
12 *shall state the focus of each Center and applicants shall*  
13 *apply for designation as a specific Center.*

14 **SEC. 302. SELECTION PROCESS.**

15 *(a) APPLICATION.—An institution of higher education*  
16 *(or a consortium thereof) seeking funding under this title*  
17 *shall submit an application to the Director at such time,*  
18 *in such manner, and containing such information as the*  
19 *Director may require. The application shall include, at a*  
20 *minimum a description of—*

21 *(1) the initial research projects that will be un-*  
22 *dertaken by the Center and the process by which new*  
23 *projects will be identified;*

1           (2) *how the Center will work with other research*  
2 *institutions and schools to broaden the national re-*  
3 *search agenda on learning and teaching;*

4           (3) *how the Center will promote active collabora-*  
5 *tion among physical, biological, and social science re-*  
6 *searchers;*

7           (4) *how the Center will promote active partici-*  
8 *pation by elementary and secondary mathematics*  
9 *and science teachers and administrators; and*

10          (5) *how the Center will reduce the results of its*  
11 *research to educational practice and assess the success*  
12 *of new practices.*

13          (b) *REVIEW OF APPLICATIONS.*—*In evaluating the ap-*  
14 *plications submitted under subsection (a), the Director shall*  
15 *consider, at a minimum—*

16           (1) *the ability of the applicant to effectively*  
17 *carry out the research program and reduce its results*  
18 *to effective educational practice;*

19           (2) *the experience of the applicant in conducting*  
20 *research on the science of teaching and learning and*  
21 *the capacity of the applicant to foster new multidisci-*  
22 *plinary collaborations;*

23           (3) *the capacity of the applicant to attract*  
24 *precollege educators from a diverse array of schools*

1        *and professional experiences for participation in Cen-*  
 2        *ter activities; and*

3                *(4) the capacity of the applicant to attract and*  
 4        *provide adequate support for graduate students to*  
 5        *pursue research at the intersection of educational*  
 6        *practice and basic research on human cognition and*  
 7        *learning.*

8        *(c) AWARDS.—The Director shall ensure, to the extent*  
 9        *practicable, that the Centers funded under this section con-*  
 10        *duct research and develop educational practices designed to*  
 11        *improve the educational performance of a broad range of*  
 12        *students, including those from groups underrepresented in*  
 13        *mathematics, science and engineering.*

14        **SEC. 303. ANNUAL CONFERENCE.**

15        *The Director shall convene an annual meeting of the*  
 16        *Centers to foster collaboration among the Centers and to*  
 17        *further disseminate the results of the Centers' activities.*

18        **SEC. 304. AUTHORIZATION OF APPROPRIATIONS.**

19        *There are authorized to be appropriated for the Na-*  
 20        *tional Science Foundation to carry out this title*  
 21        *\$12,000,000 for each of fiscal years 2002 through 2006.*

22                        ***Subtitle B—Fellowships***

23        **SEC. 311. EDUCATION RESEARCH TEACHER FELLOWSHIPS.**

24        *(a) ESTABLISHMENT.—(1) The Director shall establish*  
 25        *a program to award grants to institutions of higher edu-*

1 *cation or eligible nonprofit entities (or consortia thereof)*  
2 *to provide research opportunities related to the science of*  
3 *learning to elementary and secondary school teachers of*  
4 *science and mathematics.*

5 (2) *Grants shall be awarded under this section on a*  
6 *merit-reviewed competitive basis.*

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

9 (1) *shall recruit and select teachers and provide*  
10 *such teachers with opportunities to conduct research*  
11 *in the fields of—*

12 (A) *brain research as a foundation for re-*  
13 *search on human learning;*

14 (B) *behavioral, cognitive, affective, and so-*  
15 *cial aspects of human learning;*

16 (C) *science and mathematics learning in*  
17 *formal and informal educational settings; or*

18 (D) *learning in complex educational sys-*  
19 *tems;*

20 (2) *shall ensure that participating teachers have*  
21 *mentors and other programming support to ensure*  
22 *that their research experience will contribute to their*  
23 *understanding of the science of learning;*

24 (3) *shall provide programming, guidance, and*  
25 *support to ensure that participating teachers dissemi-*

1        *nate information about the current state of education*  
2        *research and its implications on classroom practice to*  
3        *other elementary and secondary educators and can*  
4        *use that information to improve their performance in*  
5        *the classroom;*

6            *(4) shall provide participating teachers with a*  
7        *scholarship stipend; and*

8            *(5) may provide room and board for residential*  
9        *programs.*

10        *(c) USE OF FUNDS.—(1) Not more than 25 percent*  
11        *of the funds provided under a grant under this section may*  
12        *be used for programming support for participating teach-*  
13        *ers.*

14            *(2) The Director shall issue guidelines specifying the*  
15        *minimum or maximum amounts of stipends grant recipi-*  
16        *ents may provide to teachers under this section.*

17            *(d) DURATION.—A teacher may participate in re-*  
18        *search under the program under this section for up to 1*  
19        *calendar year or 2 sequential summers.*

20            *(e) APPLICATION.—An institution of higher education*  
21        *or eligible nonprofit entity (or a consortium thereof) seeking*  
22        *funding under this section shall submit an application to*  
23        *the Director at such time, in such manner, and containing*  
24        *such information as the Director may require. The applica-*  
25        *tion shall include, at a minimum—*



1           (1) a description of the research opportunities  
2 that will be made available to elementary or sec-  
3 ondary school teachers, or both, by the applicant;

4           (2) a description of how the applicant will re-  
5 cruit teachers to participate in the program, and the  
6 criteria that will be used to select the participants;

7           (3) a description of the number, types, and  
8 amounts of the scholarships that the applicant in-  
9 tends to offer to participating teachers; and

10          (4) a description of the programming support  
11 that will be provided to participating teachers to en-  
12 hance their research experience and to enable them to  
13 educate their peers about the value, findings, and im-  
14 plications of education research.

15          (f) *REVIEW OF APPLICANTS.*—In evaluating the appli-  
16 cations submitted under subsection (e), the Director shall  
17 consider, at a minimum—

18           (1) the ability of the applicant to effectively  
19 carry out the proposed program;

20           (2) the extent to which the applicant is com-  
21 mitted to making the program a central organiza-  
22 tional focus; and

23           (3) the likelihood that the research experiences  
24 and programming to be offered by the applicant will  
25 improve elementary and secondary education.

1           (g) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
2 *authorized to be appropriated to the National Science*  
3 *Foundation for carrying out this section \$5,000,000 for*  
4 *each of fiscal years 2002 through 2004.*

5           ***TITLE IV—ROBERT NOYCE***  
6           ***SCHOLARSHIP PROGRAM***

7       ***SEC. 401. DEFINITIONS.***

8           *In this title—*

9                   (1) *the term “mathematics and science teacher”*  
10           *means a mathematics, science, or technology teacher*  
11           *at the elementary or secondary school level;*

12                   (2) *the term “mathematics, science, or engineer-*  
13           *ing professional” means a person who holds a baccala-*  
14           *ureate, masters, or doctoral degree in science, math-*  
15           *ematics, or engineering and is working in that field*  
16           *or a related area;*

17                   (3) *the term “scholarship” means an award*  
18           *under section 405; and*

19                   (4) *the term “scholarship recipient” means a*  
20           *student receiving a scholarship;*

21                   (5) *the term “stipend” means an award under*  
22           *section 406;*

23                   (6) *the term “stipend recipient” means a science,*  
24           *mathematics or engineering professional receiving a*  
25           *stipend; and*

1           (7) *the term “cost of attendance” has the mean-*  
2           *ing given such term in section 472 of the Higher Edu-*  
3           *cation Act of 1965 (20 U.S.C. 1087ll).*

4 **SEC. 402. SCHOLARSHIP PROGRAM.**

5           (a) *IN GENERAL.—(1) The Director shall establish a*  
6           *program to award grants to institutions of higher education*  
7           *(or consortia thereof) to provide scholarships and program-*  
8           *ming designed to recruit and train mathematics and science*  
9           *teachers. Such program shall be known as the “Robert*  
10          *Noyce Scholarship Program”.*

11          (2) *Grants shall be provided under this section on a*  
12          *merit-reviewed competitive basis.*

13          (b) *USE OF GRANTS.—Grants provided under this title*  
14          *shall be used by institutions of higher education—*

15                  (1) *to develop and implement a program to en-*  
16                  *courage top college juniors and seniors majoring in*  
17                  *mathematics, science, and engineering at the grantee’s*  
18                  *institution to become mathematics and science teach-*  
19                  *ers, through—*

20                          (A) *administering scholarships in accord-*  
21                          *ance with section 405;*

22                          (B) *offering programs to help scholarship*  
23                          *recipients to teach in elementary and secondary*  
24                          *schools, including programs that will result in*  
25                          *teacher certification; and*

1           (C) offering programs to scholarship recipi-  
2           ents, both before and after they receive their bac-  
3           calaureate degree, to enable the recipients to be-  
4           come better mathematics and science teachers,  
5           and to exchange ideas with others in their fields;  
6           or

7           (2) to develop and implement a program to en-  
8           courage science, mathematics, or engineering profes-  
9           sionals to become mathematics and science teachers,  
10          through—

11           (A) administering stipends in accordance  
12          with section 406;

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

15           (C) offering programs to stipend recipients,  
16          both during and after matriculation, to enable  
17          recipients to become better mathematics and  
18          science teachers and exchange ideas with others  
19          in their fields; or

20          (3) for both of the purposes described in para-  
21          graphs (1) and (2).

22 **SEC. 403. SELECTION PROCESS.**

23          (a) *APPLICATION.*—An institution of higher education  
24          (or a consortium thereof) seeking funding under this title  
25          shall submit an application to the Director at such time,

1 *in such manner, and containing such information as the*  
2 *Director may require. The application shall include, at a*  
3 *minimum—*

4           (1) *a description of the scholarship or stipend*  
5 *program, or both, that the applicant intends to oper-*  
6 *ate, including the number of scholarships or the size*  
7 *and number of stipends the applicant intends to*  
8 *award, and the selection process that will be used in*  
9 *awarding the scholarships or stipends;*

10           (2) *evidence that the applicant has the capability*  
11 *to administer the scholarship or stipend program in*  
12 *accordance with the provisions of this title; and*

13           (3) *a description of the programming that will*  
14 *be offered to scholarship or stipend recipients during*  
15 *and after their matriculation.*

16       (b) *REVIEW OF APPLICATIONS.—In evaluating the ap-*  
17 *plications submitted under subsection (a), the Director shall*  
18 *consider, at a minimum—*

19           (1) *the ability of the applicant to effectively*  
20 *carry out the program;*

21           (2) *the extent to which the applicant is com-*  
22 *mitted to making the program a central organiza-*  
23 *tional focus;*

1           (3) *the ability of the proposed programming to*  
2           *enable scholarship or stipend recipients to become suc-*  
3           *cessful mathematics and science teachers;*

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

6           (5) *the ability of the applicant to recruit stu-*  
7           *dents who would otherwise not pursue a career in*  
8           *teaching.*

9   **SEC. 404. AWARDS.**

10          (a) *DESIGNATION.*—*The Director shall designate insti-*  
11          *tutions awarded grants under this title as “National Teach-*  
12          *er Scholarship Centers”.*

13          (b) *DISTRIBUTION.*—*The Director shall ensure, to the*  
14          *extent practicable, that grants be awarded under this title*  
15          *in a wide range of geographic areas and to prepare students*  
16          *for jobs in rural, suburban, and urban local educational*  
17          *agencies.*

18          (c) *DURATION.*—*Grants awarded under this title shall*  
19          *be for a period of 10 years.*

20   **SEC. 405. SCHOLARSHIP REQUIREMENTS.**

21          (a) *IN GENERAL.*—*Scholarships under this title shall*  
22          *be available only to students who are—*

23                  (1) *majoring in science, mathematics, or engi-*  
24                  *neering; and*

1           (2) *in the last 2 years of a baccalaureate degree*  
2           *program.*

3           (b) *SELECTION.*—*Individuals shall be selected to re-*  
4           *ceive scholarships primarily on the basis of academic merit,*  
5           *with consideration given to financial need and to the goal*  
6           *of promoting the participation of minorities, women, and*  
7           *people with disabilities.*

8           (c) *AMOUNT.*—*Scholarships under this title shall be in*  
9           *the amount of \$7,500 per year, or the cost of attendance,*  
10           *whichever is less. Individuals may receive a maximum of*  
11           *2 years of scholarship support.*

12           (d) *SERVICE OBLIGATION.*—*If an individual receives*  
13           *a scholarship, that individual shall be required to complete,*  
14           *within 6 years after graduation from the baccalaureate de-*  
15           *gree program for which the scholarship was awarded, 2*  
16           *years of service as a mathematics or science teacher for each*  
17           *year a scholarship was received. Service required under this*  
18           *subsection shall be performed at a school receiving assist-*  
19           *ance under chapter 1 of title I of the Elementary and Sec-*  
20           *ondary Education Act of 1965 (Public Law 89–10).*

21           **SEC. 406. STIPENDS.**

22           (a) *IN GENERAL.*—*Stipends under this title shall be*  
23           *available only to mathematics, science, and engineering*  
24           *professionals who, while receiving the stipend, are enrolled*  
25           *in a program to receive certification to teach.*

1           (b) *SELECTION.*—*Individuals shall be selected to re-*  
2 *ceive stipends under this title primarily on the basis of aca-*  
3 *demic merit, with consideration given to financial need and*  
4 *to the goal of promoting the participation of minorities,*  
5 *women, and people with disabilities.*

6           (c) *AMOUNT.*—*Stipends under this title shall be for an*  
7 *amount of up to \$7,500 per year, but in no event more*  
8 *than the cost of attendance. Individuals may receive a max-*  
9 *imum of 1 year of stipend support.*

10          (d) *SERVICE OBLIGATION.*—*If an individual receives*  
11 *a stipend under this title, that individual shall be required*  
12 *to complete, within 6 years after graduation from the pro-*  
13 *gram for which the stipend was awarded, 2 years of service*  
14 *as a mathematics or science teacher for each year a stipend*  
15 *was received. Service required under this subsection shall*  
16 *be performed at a school receiving assistance under chapter*  
17 *1 of title I of the Elementary and Secondary Education*  
18 *Act of 1965 (Public Law 89–10).*

19 **SEC. 407. CONDITIONS OF SUPPORT.**

20           *As a condition of acceptance of a scholarship or sti-*  
21 *pend under this title, a recipient shall enter into an agree-*  
22 *ment with the institution of higher education—*

23                   (1) *accepting the terms of the scholarship or sti-*  
24 *pend pursuant to sections 405 and 409 or section 406;*



1           (2) agreeing to provide the awarding institution  
2           of higher education with annual certification of em-  
3           ployment and current contact information and to  
4           participate in surveys provided by the institution of  
5           higher education as part of an ongoing assessment  
6           program; and

7           (3) establishing that any scholarship recipient  
8           shall be liable to the United States for any amount  
9           that is required to be repaid in accordance with the  
10          provisions of section 409.

11 **SEC. 408. COLLECTION FOR NONCOMPLIANCE.**

12          (a) **MONITORING COMPLIANCE.**—An institution of  
13          higher education (or consortium thereof) receiving a grant  
14          under this title shall, as a condition of participating in  
15          the program, enter into an agreement with the Director to  
16          monitor the compliance of scholarship and stipend recipi-  
17          ents with their respective service requirements.

18          (b) **COLLECTION OF REPAYMENT.**—(1) In the event  
19          that a scholarship recipient is required to repay the scholar-  
20          ship under section 409, the institution shall be responsible  
21          for collecting the repayment amounts.

22          (2) Except as provided in paragraph (3), any repay-  
23          ment shall be returned to the Treasury of the United States.

24          (3) A grantee may retain a percentage of any repay-  
25          ment it collects to defray administrative costs associated

1 *with the collection. The Director shall establish a single,*  
2 *fixed percentage that will apply to all grantees.*

3 **SEC. 409. FAILURE TO COMPLETE SERVICE OBLIGATION.**

4 (a) *GENERAL RULE.*—*If an individual who has receive*  
5 *a scholarship under this title—*

6 (1) *fails to maintain an acceptable level of aca-*  
7 *demie standing in the educational institution in*  
8 *which the individual is enrolled, as determined by the*  
9 *National Science Foundation;*

10 (2) *is dismissed from such educational institu-*  
11 *tion for disciplinary reasons;*

12 (3) *withdraws from the baccalaureate degree pro-*  
13 *gram for which the award was made before the com-*  
14 *pletion of such program;*

15 (4) *declares that the individual does not intend*  
16 *to fulfill his service obligation under this title; or*

17 (5) *fails to fulfill the service obligation of the in-*  
18 *dividual under this title,*

19 *such individual shall be liable to the United States as pro-*  
20 *vided in subsection (b).*

21 (b) *AMOUNT OF REPAYMENT.*—(1) *If a circumstance*  
22 *described in subsection (a) occurs before the completion of*  
23 *one year of a service obligation under this title, the United*  
24 *States shall be entitled to recover from the individual, with-*

1 *in one year after the date of the occurrence of such cir-*  
2 *cumstance, an amount equal to—*

3 *(A) the total amount of awards received by such*  
4 *individual under this title; plus*

5 *(B) the interest on such amounts which would be*  
6 *payable if at the time the amounts were received they*  
7 *were loans bearing interest at the maximum legal*  
8 *prevailing rate, as determined by the Treasurer of the*  
9 *United States,*

10 *multiplied by 2.*

11 *(2) If a circumstance described in subsection (a)(4) or*  
12 *(a)(5) occurs after the completion of one year of a service*  
13 *obligation under this title, the United States shall be enti-*  
14 *tled to recover from the individual, within one year after*  
15 *the date of the occurrence of such circumstance, an amount*  
16 *equal to—*

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

20 *(B) the interest on such amounts which would be*  
21 *payable if at the time the amounts were received they*  
22 *were loans bearing interest at the maximum legal*  
23 *prevailing rate, as determined by the Treasurer of the*  
24 *United States.*

1           (c) *EXCEPTIONS.*—(1) *The National Science Founda-*  
2 *tion may provide for the partial or total waiver or suspen-*  
3 *sion of any service obligation or payment by an individual*  
4 *under this title whenever compliance by the individual is*  
5 *impossible or would involve extreme hardship to the indi-*  
6 *vidual, or if enforcement of such obligation with respect to*  
7 *the individual would be unconscionable.*

8           (2) *Any obligation of an individual under this title*  
9 *for payment under subsection (b) may be released by a dis-*  
10 *charge in bankruptcy under title 11, United States Code,*  
11 *only if such discharge is granted after the expiration of the*  
12 *5-year period beginning on the first date that such payment*  
13 *is required.*

14 **SEC. 410. REPORT.**

15           (a) *DATA COLLECTION.*—*Institutions receiving grants*  
16 *under this title shall supply to the Director any relevant*  
17 *statistical and demographic data on scholarship recipients*  
18 *and stipend recipients the Director may request, including*  
19 *information on employment required by section 407.*

20           (b) *ASSESSMENT.*—*Not later than 7 years after the*  
21 *date of the enactment of this Act, the Director shall submit*  
22 *to Congress a report assessing the impact of the implemen-*  
23 *tation of this title on drawing into teaching top mathe-*  
24 *matics and science students, including students from groups*  
25 *underrepresented in mathematics, science and engineering.*

1 **SEC. 411. AUTHORIZATION OF APPROPRIATIONS.**

2       (a) *IN GENERAL.*—*There are authorized to be appro-*  
3 *priated to the National Science Foundation to carry out*  
4 *this title \$20,000,000 for each of fiscal years 2002 through*  
5 *2005.*

6       (b) *SPECIFIC APPROPRIATIONS.*—*There are authorized*  
7 *to be appropriated to the National Science Foundation to*  
8 *support the activities described in subsections (b)(1)(A) and*  
9 *(C) and (b)(2)(A) and (C) of section 402, such sums as may*  
10 *be necessary for each of fiscal years 2006 through 2011.*

11       **TITLE V—REQUIREMENTS FOR**  
12                               **RESEARCH CENTERS**

13 **SEC. 501. REQUIREMENTS FOR RESEARCH CENTERS.**

14       *The Director shall ensure that any National Science*  
15 *Foundation program that awards grants for the establish-*  
16 *ment of research centers at institutions of higher education*  
17 *after the date of the enactment of this Act—*

18               (1) *requires that every center offer programs for*  
19 *elementary and secondary mathematics and science*  
20 *teachers and students to increase their understanding*  
21 *of the field in which the center specializes; and*

22               (2) *uses the quality of a center's proposed*  
23 *precollege education programs as a criterion in deter-*  
24 *mining grant awards.*

1           **TITLE VI—EDUCATIONAL**  
2           **TECHNOLOGIES RESEARCH**

3   **SEC. 601. EDUCATIONAL TECHNOLOGY RESEARCH CEN-**  
4           **TERS.**

5           (a) *IN GENERAL.*—(1) *The Director shall establish a*  
6 *program to award grants to institutions of higher education*  
7 *(or consortia thereof) to establish centers to evaluate and*  
8 *improve the effectiveness of information technologies in ele-*  
9 *mentary and secondary mathematics and science education.*

10          (2) *Grants shall be awarded under this title on a*  
11 *merit-reviewed competitive basis.*

12          (b) *ACTIVITIES.*—*Centers established under this title*  
13 *shall, at a minimum—*

14               (1) *identify educational approaches and tech-*  
15 *niques that are based on the use of information tech-*  
16 *nology and that have the potential for being effective*  
17 *in classroom settings;*

18               (2) *develop methods to measure the effectiveness*  
19 *of various applications of information technology in*  
20 *mathematics and science education, including meth-*  
21 *ods to measure student performance;*

22               (3) *evaluate the effectiveness of the use of tech-*  
23 *nology in elementary and secondary mathematics and*  
24 *science education in a variety of classroom settings;*  
25 *and*

1           (4) *identify the key variables that influence edu-*  
2           *cational effectiveness and the conditions necessary to*  
3           *implement successfully an approach or technique de-*  
4           *termined to be educationally effective for a particular*  
5           *educational setting;*

6           (5) *ensure that the results of such evaluations are*  
7           *widely disseminated; and*

8           (6) *develop a program to work with local edu-*  
9           *cational agencies to help them apply the results of the*  
10          *research conducted under this section.*

11 **SEC. 602. SELECTION PROCESS.**

12          (a) *APPLICATION.*—*An institution of higher education*  
13 *(or a consortium thereof) seeking funding under this title*  
14 *shall submit an application to the Director at such time,*  
15 *in such manner, and containing such information as the*  
16 *Director may require. The application shall include, at a*  
17 *minimum, a description of—*

18           (1) *the approaches to the use of information tech-*  
19           *nology that the center will initially evaluate, how it*  
20           *chose those approaches, how it will seek out any addi-*  
21           *tional approaches, and how assessment procedures*  
22           *would be developed and applied;*

23           (2) *how the center will work with local education*  
24           *agencies to evaluate the approaches in classrooms;*

1           (3) *how the center will disseminate the results of*  
2       *its work; and*

3           (4) *how the center will develop an outreach pro-*  
4       *gram to work with local educational agencies to help*  
5       *them apply the results of its research.*

6       (b) *REVIEW OF APPLICATIONS.*—*In evaluating the ap-*  
7       *plications submitted under subsection (a), the Director shall*  
8       *consider, at a minimum, the ability of the applicant to ef-*  
9       *fectively evaluate information technology approaches and to*  
10       *help local education agencies apply the results of those eval-*  
11       *uations.*

12       (c) *AWARDS.*—*The Director shall ensure, to the extent*  
13       *practicable, that the program established under this title*  
14       *evaluates information technology—*

15           (1) *in a wide range of grade levels and geo-*  
16       *graphic areas;*

17           (2) *in rural, suburban, and urban schools; and*

18           (3) *with a wide variety of students in terms of*  
19       *race, ethnicity, and income.*

20       **SEC. 603. DOCUMENTATION AND DISSEMINATION OF RE-**  
21                **SULTS.**

22       (a) *IN GENERAL.*—*The results of the research and eval-*  
23       *uations conducted in accordance with section 601 shall be*  
24       *documented and widely disseminated, including through*  
25       *publication in peer-reviewed scholarly journals.*



1           (b) *WORKSHOPS, CONFERENCE, AND WEB SITES.*—  
2 *The Director is authorized to sponsor and support work-*  
3 *shops, conferences, and dedicated web sites to disseminate*  
4 *information about the activities of the educational tech-*  
5 *nology research centers established under section 601.*

6           (c) *DEPOSIT IN LIBRARY.*—*Information about effective*  
7 *approaches and techniques, including information and ma-*  
8 *terials necessary for their implementation, shall be depos-*  
9 *ited in the Digital Library.*

10 **SEC. 604. AUTHORIZATION OF APPROPRIATIONS.**

11           *There are authorized to be appropriated to the Na-*  
12 *tional Science Foundation to carry out the program estab-*  
13 *lished under section 601—*

14                   (1) *\$25,000,000 for each of fiscal years 2002*  
15 *through 2004; and*

16                   (2) *\$30,000,000 for each of fiscal years 2005 and*  
17 *2006.*

18           **TITLE VII—MISCELLANEOUS**  
19                                   **PROVISIONS**

20 **SEC. 701. MATHEMATICS AND SCIENCE PROFICIENCY PART-**  
21 **NERSHIPS.**

22           (a) *FINDINGS.*—*Congress finds the following:*

23                   (1) *Proficiency in mathematics, science, and in-*  
24 *formation technology is necessary to prepare all stu-*  
25 *dents in the United States for participation in the*

1       *21st Century and to guarantee that the United States*  
2       *economy remains vibrant and competitive.*

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

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

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

21            *(b) AUTHORITY.—(1)(A) The Director shall establish*  
22       *a demonstration project under which the Director awards*  
23       *grants in accordance with this section to eligible local edu-*  
24       *cational agencies.*

1       (B) *A local educational agency that receives a grant*  
2 *under this section may use such grant funds to develop a*  
3 *program that builds or expands mathematics, science, and*  
4 *information technology curricula, to purchase equipment*  
5 *necessary to establish such program, and to provide profes-*  
6 *sional development to enhance teacher quality in those*  
7 *fields.*

8       (2) *A program described in paragraph (1) shall—*

9           (A) *provide teacher professional development spe-*  
10 *cifically in information technology, mathematics, and*  
11 *science; and*

12           (B) *provide students with a rich standards-based*  
13 *course of study in mathematics, science, and informa-*  
14 *tion technology.*

15       (c) *ELIGIBLE LOCAL EDUCATIONAL AGENCIES.—For*  
16 *purposes of this section, a local educational agency is eligi-*  
17 *ble to receive a grant under this section if the agency—*

18           (1) *provides assurances that it has executed con-*  
19 *ditional agreements with representatives of the pri-*  
20 *vate sector to provide services and funds described in*  
21 *subsection (d); and*

22           (2) *agrees to enter into an agreement with the*  
23 *Director to comply with the requirements of this sec-*  
24 *tion.*

1       (d) *PRIVATE SECTOR PARTICIPATION.*—*The condi-*  
2 *tional agreements referred to in subsection (c)(1) shall de-*  
3 *scribe participation by the private sector, including—*

4           (1) *the donation of computer hardware, software,*  
5 *and other technology tools;*

6           (2) *the establishment of internship and men-*  
7 *toring opportunities for students who participate in*  
8 *the mathematics, science, and information technology*  
9 *program; and*

10          (3) *the donation of higher education scholarship*  
11 *funds for eligible students to continue their study of*  
12 *mathematics, science, and information technology.*

13       (e) *APPLICATION.*—(1) *To apply for a grant under this*  
14 *section, each eligible local educational agency shall submit*  
15 *an application to the Director in accordance with guide-*  
16 *lines established by the Director pursuant to paragraph (2).*

17          (2)(A) *The guidelines referred to in paragraph (1)*  
18 *shall require, at a minimum, that the application include—*

19           (i) *a description of proposed activities consistent*  
20 *with the uses of funds and program requirements*  
21 *under paragraphs (1)(B) and (2) of subsection (b);*

22           (ii) *a description of the higher education scholar-*  
23 *ship program, including criteria for selection, dura-*  
24 *tion of scholarship, number of scholarships to be*

1        *awarded each year, and funding levels for scholar-*  
2        *ships; and*

3            *(iii) evidence of private sector participation and*  
4        *financial support to establish an internship, men-*  
5        *toring, and scholarship program.*

6        *(B) The Director shall issue and publish such guide-*  
7        *lines not later than 6 months after the date of the enactment*  
8        *of this Act.*

9            *(3) The Director shall select a local educational agency*  
10       *to receive an award under this section on the basis of merit*  
11       *to be determined after conducting a comprehensive review.*

12        *(f) PRIORITY.—The Director shall give special priority*  
13       *in awarding grants under this section to eligible local edu-*  
14       *cational agencies that—*

15            *(1) demonstrate the greatest ability to obtain*  
16        *commitments from representatives of the private sec-*  
17        *tor to provide services and funds described under sub-*  
18        *section (d); and*

19            *(2) demonstrate the greatest economic need.*

20        *(g) ASSESSMENT.—The Director shall assess the effec-*  
21       *tiveness of activities carried out under this section.*

22        *(h) STUDY AND REPORT.—The Director—*

23            *(1) shall initiate an evaluative study of the effec-*  
24        *tiveness of the activities carried out under this section*  
25        *in improving student performance in mathematics,*

1 science, and information technology at the precollege  
2 level and in stimulating student interest in pursuing  
3 undergraduate studies in those fields; and

4 (2) shall report the findings of the study to Con-  
5 gress not later than 4 years after the award of the  
6 first scholarship.

7 Such report shall include the number of students graduating  
8 from an institution of higher education with a major in  
9 mathematics, science, or information technology and the  
10 number of students who find employment in such fields.

11 (i) *DEFINITIONS.*—*In this section:*

12 (1) The term “conditional agreement” means an  
13 arrangement between representatives of the private  
14 sector and local educational agencies to provide cer-  
15 tain services and funds, such as, but not limited to,  
16 the donation of computer hardware and software, the  
17 establishment of internship and mentoring opportuni-  
18 ties for students who participate in mathematics,  
19 science, and information technology programs, and  
20 the donation of scholarship funds for use at institu-  
21 tions of higher education by eligible students who  
22 have participated in the mathematics, science, and  
23 information technology programs.

24 (2) The term “eligible student” means a student  
25 enrolled in the 12th grade who—

1           (A) *has participated in a mathematics,*  
2           *science, and an information technology program*  
3           *established pursuant to this section;*

4           (B) *has demonstrated a commitment to pur-*  
5           *sue a career in information technology, mathe-*  
6           *matics, science, or engineering; and*

7           (C) *has attained high academic standing*  
8           *and maintains a grade point average of not less*  
9           *than 2.7 on a 4.0 scale for the period from the*  
10          *beginning of the 10th grade through the time of*  
11          *application for a scholarship.*

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

16          (k) *MAXIMUM GRANT AWARD.—An award made to an*  
17          *eligible local educational agency under this section may not*  
18          *exceed \$300,000.*

19          **SEC. 702. ARTICULATION PARTNERSHIPS BETWEEN COM-**  
20                                    **MUNITY COLLEGES AND SECONDARY**  
21                                    **SCHOOLS.**

22          (a) *OUTREACH GRANTS.—In making awards for out-*  
23          *reach grants authorized under section 3(c)(2) of the Sci-*  
24          *entific and Advanced-Technology Act of 1992 (42 U.S.C.*  
25          *1862i(c)(2)), the Director shall give priority to proposals*

1 *that involve secondary schools with a majority of students*  
2 *from groups that are underrepresented in the science, math-*  
3 *ematics and engineering workforce. Awards in such cases*  
4 *shall not be subject to the requirement under section 3(f)(3)*  
5 *of such Act for a matching contribution.*

6 (b) *AUTHORIZATION OF APPROPRIATIONS.—There are*  
7 *authorized to be appropriated to the National Science*  
8 *Foundation to carry out this section \$5,000,000 for each*  
9 *of fiscal years 2002 through 2004.*

10 **SEC. 703. ASSESSMENT OF IN-SERVICE TEACHER PROFES-**  
11 **SIONAL DEVELOPMENT PROGRAMS.**

12 (a) *ASSESSMENT.—The Director shall review all pro-*  
13 *grams sponsored by the National Science Foundation that*  
14 *support in-service teacher professional development for*  
15 *science teachers to determine—*

16 (1) *the level of resources and degree of emphasis*  
17 *placed on training teachers in the effective use of in-*  
18 *formation technology in the classroom; and*

19 (2) *the allocation of resources between summer*  
20 *activities and follow-on reinforcement training and*  
21 *support to participating teachers during the school*  
22 *year.*

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



1           (1) *describes the results of the review and assess-*  
2           *ment conducted under subsection (a);*

3           (2) *summarizes the major categories of in-service*  
4           *teacher professional development activities supported*  
5           *at the time of the review, and the funding levels for*  
6           *such activities; and*

7           (3) *describes any proposed changes, including*  
8           *new funding allocations, to strengthen the in-service*  
9           *teacher professional development programs of the Na-*  
10          *tional Science Foundation that support activities de-*  
11          *scribed in paragraphs (a)(1) and (2).*

12   **SEC. 704. INSTRUCTIONAL MATERIALS.**

13          *The Director may award competitive, merit-reviewed*  
14          *grants for the development of educational materials on en-*  
15          *ergy production and use, energy conservation, and renew-*  
16          *able energy for use in elementary and secondary schools.*

17   **SEC. 705. STUDY OF BROADBAND NETWORK ACCESS FOR**  
18                            **SCHOOLS AND LIBRARIES.**

19          (a) *REPORT TO CONGRESS.*—*The Director shall con-*  
20          *duct a study of the issues described in subsection (c), and*  
21          *not later than 1 year after the date of the enactment of this*  
22          *Act, transmit to Congress a report including recommenda-*  
23          *tions to address those issues. Such report shall be updated*  
24          *annually for 6 additional years.*

1       (b) *CONSULTATION.*—*In preparing the reports under*  
2 *subsection (a), the Director shall consult with the National*  
3 *Aeronautics and Space Administration, the National Insti-*  
4 *tute of Standards and Technology, and such other Federal*  
5 *agencies and educational entities as the Director considers*  
6 *appropriate.*

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

8           (1) *identify the current status of high-speed,*  
9 *large bandwidth capacity access to all public elemen-*  
10 *tary and secondary schools and libraries in the*  
11 *United States;*

12           (2) *identify how the provision of high-speed,*  
13 *large bandwidth capacity access to the Internet to*  
14 *such schools and libraries can be effectively utilized*  
15 *within each school and library;*

16           (3) *consider the effect that specific or regional*  
17 *circumstances may have on the ability of such insti-*  
18 *tutions to acquire high-speed, large bandwidth capaci-*  
19 *ty access to achieve universal connectivity as an ef-*  
20 *fective tool in the education process; and*

21           (4) *include options and recommendations to ad-*  
22 *dress the challenges and issues identified in the re-*  
23 *ports.*

1 **SEC. 706. EDUCATIONAL TECHNOLOGY ASSISTANCE;**  
2 **LEARNING COMMUNITY CONSORTIUM.**

3 *Section 3 of the Scientific and Advanced Technology*  
4 *Act of 1992 (Public Law 102–476; 42 U.S.C. 1862i) is*  
5 *amended by redesignating subsections (d), (e), (f), and (g)*  
6 *as subsections (f), (g), (h), and (i), respectively, and by in-*  
7 *serting after subsection (c) the following new subsections:*

8 “(d) **EDUCATIONAL TECHNOLOGY ASSISTANCE.**—

9 “(1) **IN GENERAL.**—*The Director is authorized to*  
10 *make awards on a competitive, merit-reviewed basis*  
11 *to associate-degree granting colleges, bachelor-degree*  
12 *granting institutions, or education service agencies*  
13 *(or consortia thereof) to establish centers to assist ele-*  
14 *mentary and secondary schools in the use of informa-*  
15 *tion technology for mathematics, science, or tech-*  
16 *nology instruction.*

17 “(2) **ACTIVITIES.**—*Activities of centers funded*  
18 *under this subsection may include—*

19 “(A) *helping schools evaluate their need for*  
20 *information technology;*

21 “(B) *training teachers on how to best use*  
22 *information technology in instruction; and*

23 “(C) *providing other information and*  
24 *training to help schools and teachers ensure that*  
25 *they have access to appropriate information tech-*

1            *nologies and are using them to maximum advan-*  
2            *tage.*

3            “(3) *APPLICATION.—An application to receive*  
4            *funds under this subsection shall include, at a*  
5            *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 applicant will*  
11                   *draw on the expertise of its faculty and students*  
12                   *to assist schools and teachers; and*

13                   “(D) *a description of how the applicant will*  
14                   *operate the program after funding made avail-*  
15                   *able by this subsection has expired.*

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

19                    “(A) *the ability of the applicant to effec-*  
20                    *tively carry out the program;*

21                    “(B) *the number of schools and students*  
22                    *who would be served and the their need for as-*  
23                    *sistance;*

24                    “(C) *the extent to which the applicant has*  
25                    *worked with participating schools to ensure that*

1           *priority problems would be addressed by the as-*  
2           *stance provided under this subsection; and*

3           “(D) *the ability of the applicant to continue*  
4           *to provide assistance after funding under this*  
5           *subsection has expired.*

6           “(5) *AWARDS.—(A) The Director shall ensure, to*  
7           *the extent practicable, that the program established by*  
8           *this subsection assists schools in rural, suburban, and*  
9           *urban areas.*

10          “(B) *No institution shall receive funds under*  
11          *this subsection for more than three years.*

12          “(6) *REPORT.—Not later than April 1, 2005, the*  
13          *Director shall provide a report to Congress assessing*  
14          *the success of the program funded under this sub-*  
15          *section and the need of schools for continued assist-*  
16          *ance, and, based on the experience with the program,*  
17          *recommending ways information technology assist-*  
18          *ance to schools could be made more broadly available.*

19          “(7) *AUTHORIZATION OF APPROPRIATIONS.—*  
20          *There are authorized to be appropriated to the Na-*  
21          *tional Science Foundation to carry out this subsection*  
22          *\$5,000,000 for each of the fiscal years 2002 through*  
23          *2004.*

24          “(e) *LEARNING COMMUNITY CONSORTIUM.—The Di-*  
25          *rector is authorized to provide to a consortium composed*

1 *of associate-degree granting colleges a grant in the amount*  
2 *of \$10,000,000 for the purpose of carrying out a pilot*  
3 *project to encourage women, minorities and persons with*  
4 *disabilities to enter and complete programs in mathematics,*  
5 *science, engineering and technology.”.*



**Union Calendar No. 76**

107<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

**H. R. 1858**

**[Report No. 107-134, Part I]**

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**A BILL**

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

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JULY 11, 2001

Reported from the Committee on Science with an amendment

JULY 11, 2001

Referral to the Committee on Education and the Workforce extended for a period ending not later than July 11, 2001

JULY 11, 2001

The Committee on Education and the Workforce discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed