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

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A BILL

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

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''National Mathematics and Science Partnerships Act''.

SEC. 2. FINDINGS.

Congress finds the following:

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

mon goals for the improvement of elementary and secondary education.

(2) Among the National Education Goals established was the goal that by the year 2000, United States students would be first in the world in mathematics and science achievement.

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

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

(5) The United States economy has become the most robust in the world, not through State planning and government intervention, but through the hard work and innovation of United States citizens. This success is founded in our Nation's constitutional tradition of respect for individual liberty to pursue personal career objectives.

SEC. 3. DEFINITIONS.

In this Act:

(1) DIRECTOR.—The term ''Director'' means the Director of the National Science Foundation.

(2) ELEMENTARY SCHOOL.—The term ''elementary school'' has the meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).

(3) ELIGIBLE NONPROFIT ORGANIZATION.—The term ''eligible nonprofit organization'' means a nonprofit research institute or a nonprofit professional association with demonstrated experience delivering mathematics or science education as determined by the Director.

(4) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given such term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

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

(6) SECONDARY SCHOOL.—The term ''secondary school'' has the meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).

(7) STATE EDUCATIONAL AGENCY.—The term ''State educational agency'' has the meaning given

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

SEC. 4. AUTHORIZATIONS OF APPROPRIATION RULE.

Any authorization of appropriations in this Act shall be considered to be in addition to amounts otherwise authorized or appropriated for the National Science Foundation.

SEC. 5. MATCHING REQUIREMENTS.

The Director may establish matching fund requirements for any programs authorized by this Act other than programs authorized under title IV.

TITLE I—MATHEMATICS AND SCIENCE EDUCATION PARTNERSHIPS

PART A—MATHEMATICS AND SCIENCE EDUCATION PARTNERSHIPS

SEC. 111. PROGRAM AUTHORIZED.

(a) GRANTS.—

(1) IN GENERAL.—From amounts appropriated under section 114, the Director shall establish a program to award grants to eligible partnerships to establish mathematics and science education programs to improve the instruction of elementary and secondary mathematics or science education.

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

(b) ELIGIBLE PARTNERSHIPS.—

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

(A) shall consist of an institution of higher education or eligible nonprofit organization (including a consortium thereof) and a local educational agency; and

(B) may include a State educational agency or 1 or more businesses.

(2) REQUIREMENT.—Each institution of higher education participating in a partnership under this part shall include a mathematics, science, or engineering department in the program carried out by the partnership under this subsection.

(c) USES OF FUNDS.—Grant funds awarded under this section shall be used for activities that draw upon the expertise of the partners to improve elementary or secondary education in mathematics or science. Such activities may include—

(1) recruiting and preparing students for careers in elementary and secondary mathematics and science education;

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

(3) offering innovative programs that instruct teachers on using technology more effectively in teaching mathematics and science, including programs that recruit and train undergraduate and graduate students to provide technical support to teachers;

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

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

(6) developing assessment tools to measure student mastery of content and cognitive skills;

(7) developing and adapting elementary school and secondary school curricular materials, aligned to State standards, that incorporate contemporary research on the science of learning;

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

(9) using mathematicians, scientists, and engineers employed by private businesses to help recruit and train mathematics and science teachers;

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

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

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

(13) bringing mathematicians, scientists, and engineers from business and academia into elementary school and secondary school classrooms; and

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

(d) SCIENCE ENRICHMENT PROGRAMS FOR GIRLS.—Activities carried out in accordance with paragraphs (11) and (12) of subsection (c) shall include elementary school and secondary school programs to encourage the ongoing interest of girls in science, mathematics, engineering or technology and to prepare girls to pursue undergraduate and graduate degrees and careers in science, mathematics, engineering or technology. Grant funds made available to partnerships for the purposes of this subsection may support programs for—

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

(2) tutoring girls in science, mathematics, engineering, or technology;

(3) providing mentors for girls in person and through the Internet to support such girls in pursuing studies in science, mathematics, engineering, or technology;

(4) educating the parents of girls about the difficulties faced by girls in maintaining an interest and a desire to achieve in science, mathematics, engineering, or technology, and enlisting the help of parents in overcoming these difficulties; and

(5) acquainting girls with careers in science, mathematics, engineering, or technology and encouraging girls to plan for careers in such fields.

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

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

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

(3) assessing the educational value of the student research projects by such means as tracking the academic performance and choice of academic majors of students conducting research.

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

SEC. 112. SELECTION PROCESS.

(a) APPLICATION.—A partnership that desires to receive a grant under section 111 shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(1) a description of the partnership and the role that each partner will play in implementing the program;

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

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

ties that promote student achievement in mathematics and science; and

(B) how such activities will be based on a review of relevant research, and why such activities are expected to improve student performance and strengthen the quality of mathematics and science instruction;

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

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

(5) a description of how the partnership will assess its success; and

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

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

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

(2) the extent to which the members of the partnership are committed to making the partnership a central organizational focus;

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

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

(5) the likelihood that the partnership will demonstrate activities that can be widely implemented as part of larger scale reform efforts.

(c) AWARDS.—

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

(2) BUSINESSES.—Not less than 50 percent of the partnerships funded under section 111 shall include businesses.

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

SEC. 113. ACCOUNTABILITY AND DISSEMINATION.

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

(1) use a common set of benchmarks and assessment tools to identify best practices and materials developed and demonstrated by the partnerships; and

(2) to the extent practicable, compare the effectiveness of practices and materials developed and demonstrated by the partnerships with those of partnerships using similar practices and materials funded by other State or Federal agencies.

(b) DISSEMINATION OF RESULTS.—

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

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

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

(2) MATERIALS.—The Secretary shall make available through the National Science, Mathematics, Engineering, and Technology Education Digital Library materials that are demonstrated to be effective and are developed by the partnerships under the programs established under section 111.

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

SEC. 114. AUTHORIZATION OF APPROPRIATIONS.

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.

PART B—TEACHER RESEARCH STIPEND PROGRAM

SEC. 121. PROGRAM AUTHORIZED.

(a) GRANTS.—

(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

school teachers of mathematics or science. Such institutions of higher education, eligible nonprofit organizations, or consortia may collaborate with 1 or more businesses or Federal or State laboratories.

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

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

(1) shall recruit and select teachers to participate in the program, and shall provide such teachers with opportunities to conduct research in academic, business, or government laboratories;

(2) shall ensure that participating teachers have mentors and other programming support to ensure that such teachers' research experience will contribute to the teachers' understanding of mathematics, science, or engineering and will improve their performance in the classroom;

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

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

(c) USE OF FUNDS.—

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

(2) STIPEND AMOUNTS.—The Director shall issue guidelines specifying the minimum and maximum amounts of stipends that grant recipients may provide to teachers under this section.

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

SEC. 122. SELECTION PROCESS.

(a) APPLICATION.—An institution of higher education or an eligible nonprofit organization (including a consortium thereof) that desires to receive a grant under section 121 shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(1) a description of the research opportunities that will be made available to elementary school or secondary school teachers by the institution, organization, or consortium;

(2) a description of how the institution, organization, or consortium will recruit teachers to partici-

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

(3) a description of the number, types, and amounts of the stipends that the institution, organization, or consortium intends to offer to participating teachers; and

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

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

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

(2) the extent to which the institution, organization, or consortium is committed to making the program a central organizational focus; and

(3) the likelihood that the research experiences and programming proposed to be offered by the institution, organization, or consortium will improve elementary and secondary education.

(c) AWARDS.—

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

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

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

SEC. 123. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the National Science Foundation to carry out this part $15,000,000 for each of fiscal years 2002 through 2006.

TITLE II—NATIONAL SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION DIGITAL LIBRARY

SEC. 211. EXPANSION OF THE DIGITAL LIBRARY.

The Director shall establish a program to expand the National Science, Mathematics, Engineering, and Technology Education Digital Library (hereinafter in this Act referred to as the ''Digital Library'') program to enable timely and continuous dissemination of elementary and secondary science, mathematics, engineering, and technology educational resources, materials, practices, and policies through the Internet and other digital technologies. The Digital Library shall—

(1) contain an Internet-based repository of curricular materials, practices, and teaching modules;

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

(3) provide users of the Digital Library with access to all materials in the Digital Library through a single entry point;

(4) contain only materials that have been peer-reviewed and tested to ensure factual accuracy and effectiveness and that are aligned with recognized State and national mathematics and science standards;

(5) present materials in a format that is consistent, facilitates ease of comparison and use by classroom teachers, and contains appropriate links to other Federal educational clearinghouses; and

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

(A) links to all of the programs developed through the mathematics and science partnerships established under part A of title I;

(B) data related to assessment and evaluation and final program reports developed under part A of title I, including both positive and negative outcomes of the program;

(C) materials developed by the partnerships under part A of title I that have been demonstrated to be effective; and

(D) a mechanism for users to make comments or suggestions regarding the use and effectiveness of posted materials.

SEC. 212. GRANTS AND CONTRACT.

(a) GRANTS FOR DESIGN OF LIBRARY.—

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

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

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

(2) DISSEMINATION.—Grants awarded under this section may be used to pay the costs of acquiring and reviewing educational materials for dissemination through the Digital Library.

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

(b) CONTRACT.—The Director may enter into a contract for the operation and management of the Digital Library.

SEC. 213. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the National Science Foundation to carry out this title $20,000,000 for each of fiscal years 2002 through 2006.

TITLE III—STRATEGIC EDUCATION RESEARCH PROGRAM

PART A—CENTERS

SEC. 311. ESTABLISHMENT OF CENTERS FOR RESEARCH ON LEARNING AND EDUCATION IMPROVEMENT.

(a) GRANTS.—

(1) IN GENERAL.—From amounts appropriated under section 314, the Director shall award grants to institutions of higher education (including consortia thereof) to establish 4 multidisciplinary Centers for Research on Learning and Education Improvement (hereafter in this Act referred to as ''Centers'').

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

(b) PURPOSE.—The purpose of the Centers shall be to conduct and evaluate research in cognitive science, education and related fields and to develop ways in which the results of such research can be applied in elementary and secondary classrooms to improve the teaching of mathematics and science.

(c) FOCUS.—

(1) IN GENERAL.—Each Center shall be focused on a different challenge faced by elementary school or secondary school teachers of mathematics or science.

(2) DETERMINATION.—In determining the research focus of the Centers, the Director shall consult with the National Academy of Sciences and shall take into account the extent to which other Federal programs support research on similar questions.

(3) SOLICITATION OF PROPOSAL.—The solicitation of proposal issued by the Director for grants under this section—

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

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

SEC. 312. SELECTION PROCESS.

(a) APPLICATION.—An institution of higher education (including a consortium thereof) that desires to receive a grant under this title shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum, a description of—

(1) the initial research projects that will be undertaken by the Center and the process by which new projects will be identified;

(2) how the Center will work with other research institutions and schools to broaden the national research agenda on learning and teaching;

(3) how the Center will promote active collaboration among physical, biological, and social science researchers;

(4) how the Center will promote active participation by elementary and secondary mathematics and science teachers and administrators; and

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

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

(1) the ability of the institution or consortium to effectively carry out the research program and reduce the program's results to effective educational practice;

(2) the experience of the institution or consortium in conducting research on the science of teaching and learning, and the capacity of the institution or consortium to foster new multidisciplinary collaborations;

(3) the capacity of the institution or consortium to attract precollege educators from a diverse array of schools and professional experiences for participation in Center activities; and

(4) the amount of non-Federal matching funds proposed to be provided by the institution or consortium.

(c) AWARDS.—The Director shall ensure, to the extent practicable, that the Centers funded under this section conduct research and develop educational practices designed to improve the educational performance of a broad range of students, including students from groups

underrepresented in mathematics, science, and engineering.

SEC. 313. ANNUAL CONFERENCE.

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

SEC. 314. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the National Science Foundation to carry out this title $12,000,000 for each of fiscal years 2002 through 2006.

PART B—FELLOWSHIPS

SEC. 321. EDUCATION RESEARCH TEACHER FELLOWSHIPS.

(a) GRANTS.—

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

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

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

(1) shall recruit and select teachers to participate in the program assisted under this part and provide such teachers with opportunities to conduct research in the fields of—

(A) brain research as a foundation for research on human learning;

(B) behavioral, cognitive, affective, and social aspects of human learning;

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

(D) learning in complex educational systems;

(2) shall ensure that participating teachers have mentors and other programming support to ensure that such teachers' research experience will contribute to the teachers' understanding of the science of learning;

(3) shall provide programming, guidance, and support to ensure that participating teachers disseminate information about the current state of education research and its implications on classroom practice to other elementary and secondary educators and that participating teachers can use that

information to improve the teachers' performance in the classroom;

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

(5) may provide room and board to participating teachers for residential programs.

(c) USE OF FUNDS.—

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

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

(d) DURATION.—A teacher may participate in research under the program under this section for not more than 1 calendar year or 2 sequential summers.

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

(1) a description of the research opportunities that will be made available to elementary school or secondary school teachers by the institution, nonprofit entity, or consortium;

(2) a description of how the institution, nonprofit entity, or consortium will recruit teachers to participate in the program, and the criteria that will be used to select the participating teachers;

(3) a description of the number, types, and amounts of the fellowships that the institution, nonprofit entity, or consortium intends to offer to participating teachers; and

(4) a description of the programming support that will be provided to participating teachers to enhance such teachers' research experience and to enable the teachers to educate their peers about the value, findings, and implications of education research.

(f) REVIEW OF APPLICANTS.—In evaluating the applications submitted under subsection (e), the Director shall consider, at a minimum—

(1) the ability of the institution, nonprofit entity, or consortium to effectively carry out the proposed program;

(2) the extent to which the institution, nonprofit entity, or consortium is committed to making the program a central organizational focus; and

(3) the likelihood that the research experiences and programming to be offered by the institution, nonprofit entity, or consortium will improve elementary and secondary education.

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

TITLE IV—ROBERT NOYCE SCHOLARSHIP PROGRAM

SEC. 411. DEFINITIONS.

In this title:

(1) COST OF ATTENDANCE.—The term ''cost of attendance'' has the meaning given such term in section 472 of the Higher Education Act of 1965 (20 U.S.C. 1087ll).

(2) MATHEMATICS AND SCIENCE TEACHER.—The term ''mathematics and science teacher'' means a mathematics, science, or technology teacher at the elementary school or secondary school level.

(3) MATHEMATICS, SCIENCE, OR ENGINEERING PROFESSIONAL.—The term ''mathematics, science,

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

(4) SCHOLARSHIP.—The term ''scholarship'' means an award under section 415.

(5) SCHOLARSHIP RECIPIENT.—The term ''scholarship recipient'' means a student receiving a scholarship.

(6) STIPEND.—The term ''stipend'' means an award under section 416.

(7) STIPEND RECIPIENT.—The term ''stipend recipient'' means a science, mathematics or engineering professional receiving a stipend.

SEC. 412. SCHOLARSHIP AND STIPEND PROGRAM.

(a) GRANTS.—

(1) IN GENERAL.—From amounts appropriated under section 421, the Director shall establish a program to award grants to institutions of higher education (including consortia thereof) to enable the institutions or consortia to provide scholarships, stipends, and programming designed to recruit and train mathematics and science teachers at the elementary and secondary level. Such program shall be known as the ''Robert Noyce Scholarship Program''.

(2) COMPETITIVE BASIS.—

(A) IN GENERAL.—Grants shall be provided under this section on a competitive basis using the criteria described in section 413(b).

(B) PRIORITY.—In awarding grants under this section, the Director shall give priority to institutions of higher education that have historically specialized in teacher training.

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

(1) to develop and implement programs to encourage top college juniors and seniors majoring in mathematics, science, and engineering at the grant recipient's institution to become elementary and secondary mathematics and science teachers, through—

(A) administering scholarships in accordance with section 415;

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

(C) offering programs to scholarship recipients, before and after such recipients receive their baccalaureate degree, to enable the recipients to become better mathematics and science

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

(2) to develop and implement programs to encourage science, mathematics, or engineering professionals to become elementary and secondary mathematics and science teachers, through—

(A) administering stipends in accordance with section 416;

(B) offering programs to help stipend recipients obtain teacher certification; and

(C) offering programs to stipend recipients, during and after matriculation, to enable stipend recipients to become better mathematics and science teachers and exchange ideas with others in their fields.

SEC. 413. SELECTION PROCESS.

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

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

the size and number of stipends the institution or consortium intends to award, and the selection process that will be used in awarding the scholarships or stipends;

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

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

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

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

(2) the extent to which the institution or consortium is committed to making the program a central organizational focus;

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

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

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

SEC. 414. AWARDS.

(a) DESIGNATION.—The Director shall designate institutions or consortia that are awarded grants under this title as ''National Teacher Scholarship Centers''.

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

(c) PERIOD.—Grants under this title shall be awarded for periods of 10 years.

SEC. 415. SCHOLARSHIP REQUIREMENTS.

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

(1) majoring in science, mathematics, or engineering; and

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

(b) SELECTION.—Individuals shall be selected to receive scholarships primarily on the basis of academic merit, with consideration given to financial need and to

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

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

(d) SERVICE OBLIGATION.—

(1) IN GENERAL.—An individual receiving a scholarship under this title shall be required to complete, not later than 6 years after graduation from the baccalaureate degree program for which the award was made, 2 years of service as a mathematics or science teacher in an elementary school or secondary school for each year a scholarship was received.

(2) SCHOOL.—Service required under this subsection shall be performed at a school receiving assistance under part A of title I of the Elementary and Secondary Education Act of 1965.

SEC. 416. STIPENDS.

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

a program to receive certification to teach in an elementary school or secondary school.

(b) SELECTION.—Individuals shall be selected to receive stipends under this title primarily on the basis of academic merit, with consideration given to financial need and to the goal of promoting the participation of minorities, women, and individuals with disabilities.

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

(d) SERVICE OBLIGATION.—

(1) IN GENERAL.—An individual receiving a stipend under this title shall be required to complete, not later than 6 years after completion of the program for which the stipend award was made, 2 years of service as a mathematics or science teacher.

(2) REQUIREMENT.—Service required under this subsection shall be performed at a school receiving assistance under part A of title I of the Elementary and Secondary Education Act of 1965.

SEC. 417. CONDITIONS OF SUPPORT.

As a condition of acceptance of a scholarship or stipend under this title, a scholarship recipient or stipend

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

(1) the terms of the scholarship or stipend pursuant to section 415 or 416, as appropriate, and section 419;

(2) provide the awarding institution of higher education or consortium with annual certification of employment and current contact information, and to participate in surveys provided by the institution or consortium as part of an ongoing assessment program; and

(3) repay the United States any amount that is required to be repaid in accordance with the provisions of section 419.

SEC. 418. COLLECTION FOR NONCOMPLIANCE.

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

(b) COLLECTION OF REPAYMENT.—

(1) IN GENERAL.—In the event that a scholarship recipient or stipend recipient is required to

repay the scholarship or stipend under section 419, the institution of higher education or consortium that awarded the scholarship or stipend shall be responsible for collecting the repayment amounts.

(2) TREASURY.—Except as provided in paragraph (3), any repayment shall be deposited into the Treasury of the United States.

(3) ADMINISTRATIVE COSTS.—An institution or consortium may retain a percentage of any repayment it collects to defray administrative costs associated with the collection. The Director shall establish a single, fixed percentage that will apply to all institutions and consortia.

SEC. 419. FAILURE TO COMPLETE SERVICE OBLIGATION.

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

(1) fails to maintain an acceptable level of academic standing in the educational institution in which the individual is enrolled, as determined by the Director;

(2) is dismissed from such educational institution for disciplinary reasons;

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

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

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

(b) AMOUNT OF REPAYMENT.—

(1) BEFORE COMPLETION OF 1 YEAR OF SERVICE.—If a circumstance described in subsection (a) occurs before the completion of 1 year of a service obligation under this title, then the United States shall be entitled to repayment from the individual, not later than 1 year after the date of the occurrence, an amount equal to 2 times the sum of—

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

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

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

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

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

(c) EXCEPTIONS.—

(1) WAIVER OR SUSPENSION.—The Director may provide for the partial or total waiver or suspension of any service obligation or repayment by an individual under this title whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be unconscionable.

(2) BANKRUPTCY.—Any obligation of an individual under this title for repayment under subsection (b) may be released by a discharge in bankruptcy under title 11, United States Code, only if such discharge is granted after the expiration of the 5-year period beginning on the first date that such repayment is required.

SEC. 420. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—There is authorized to be appropriated to the National Science Foundation to carry out this title $20,000,000 for each of fiscal years 2002 through 2005.

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

TITLE V—REQUIREMENTS FOR RESEARCH CENTERS

SEC. 511. REQUIREMENTS FOR RESEARCH CENTERS.

The Director shall ensure that any National Science Foundation program that awards grants for the establishment of research centers at institutions of higher education after the date of enactment of this Act—

(1) requires that each research center offer programs for elementary and secondary mathematics and science teachers and students to increase their understanding of the field in which the center specializes; and

(2) uses the quality of a center's proposed precollege education programs as a criterion in determining grant awards.

TITLE VI—EDUCATIONAL TECHNOLOGY RESEARCH

SEC. 611. EDUCATIONAL TECHNOLOGY RESEARCH CENTERS.

(a) GRANTS.—

(1) IN GENERAL.—From amounts appropriated under section 614, the Director shall establish a program to award grants to institutions of higher education (including consortia thereof) to establish centers to evaluate and improve the effectiveness of information technologies in elementary and secondary mathematics and science education.

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

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

(1) identify educational approaches and techniques that are based on the use of information technology and that have the potential for being effective in classroom settings;

(2) develop methods to measure the effectiveness of various applications of information technology in mathematics and science education, including methods to measure student performance;

(3) evaluate the effectiveness of the use of technology in elementary and secondary mathematics and science education in a variety of classroom settings;

(4) identify the key variables that influence educational effectiveness and the conditions necessary to implement successfully an approach or technique determined to be educationally effective for a particular educational setting;

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

(6) develop a program to work with local educational agencies to help the agencies apply the results of the research conducted under this section.

SEC. 612. SELECTION PROCESS.

(a) APPLICATION.—An institution of higher education (or a consortium thereof) desiring a grant under

this title shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum, a description of—

(1) the approaches to the use of information technology that the center will initially evaluate, how the center chose those approaches, how the center will seek any additional approaches, and how assessment procedures will be developed and applied;

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

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

(4) how the center will develop an outreach program to work with local educational agencies to help the agencies apply the results of the center's research.

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

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

(1) in a wide range of grade levels and geographic areas;

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

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

SEC. 613. DOCUMENTATION AND DISSEMINATION OF RESULTS.

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

(b) WORKSHOPS, CONFERENCES, AND WEB SITES.—The Director is authorized to sponsor and support workshops, conferences, and dedicated web sites to disseminate information about the activities of the educational technology research centers established under section 611.

(c) DEPOSIT IN LIBRARY.—Information about effective approaches and techniques, including information and materials necessary for their implementation, shall be deposited in the Digital Library described in Title II.

SEC. 614. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the National Science Foundation to carry out section 611—

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

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

TITLE VII—SCIENCE EDUCATION

SEC. 711. SHORT TITLE.

This title may be cited as the ''National Science Education Act''.

SEC. 712. FINDINGS.

Congress finds the following:

(1) As concluded in the report of the Committee on Science of the House of Representatives entitled ''Unlocking Our Future Toward a New National Science Policy'', the United States must maintain and improve its preeminent position in science and technology in order to advance human understanding of the universe and all it contains, and to improve the lives, health, and freedoms of all people.

(2) It is estimated that more than half of the economic growth of the United States in 2001 results directly from research and development in science and technology. The most fundamental research is responsible for investigating our perceived

universe, to extend our observations to the outer limits of what our minds and methods can achieve, and to seek answers to questions that have never been asked before. Applied research continues the process by applying the answers from basic science to the problems faced by individuals, organizations, and governments in the everyday activities that make our lives more livable. The scientific-technological sector of our economy, which has driven our recent economic boom and led the United States to the longest period of prosperity in history, is fueled by the work and discoveries of the scientific community.

(3) The effectiveness of the United States in maintaining this economic growth will be largely determined by the intellectual capital of the United States. Education is critical to developing this resource.

(4) The education program of the United States needs to provide for 3 different kinds of intellectual capital. First, it needs scientists, mathematicians, and engineers to continue the research and development that are central to the economic growth of the United States. Second, it needs technologically proficient workers who are comfortable and capable dealing with the demands of a science-based, high-

technology workplace. Last, it needs scientifically literate voters and consumers to make intelligent decisions about public policy.

(5) Student performance on the recent Third International Mathematics and Science Study highlights the shortcomings of current kindergarten through grade 12 science and mathematics education in the United States, particularly when compared to other countries. We must expect more from our Nation's educators and students if we are to build on the accomplishments of previous generations. New methods of teaching science, mathematics, engineering, and technology are required, as well as better curricula and improved training of teachers.

(6) Science is more than a collection of facts, theories, and results. It is a process of inquiry built upon observations and data that leads to a way of knowing and explaining in logically derived concepts and theories. Mathematics is more than procedures to be memorized. It is a field that requires reasoning, understanding, and making connections in order to solve problems. Engineering is more than just designing and building. It is the process of making compromises to optimize design and assessing

risks so that designs and products best solve a given problem. Technology is more than using computer applications, the Internet, and programming. Technology is the innovation, change, or modification of the natural environment, based on scientific, mathematical, and engineering principles.

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

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

(8) Children are naturally curious and inquisitive. To successfully tap into these innate qualities, education in science, mathematics, engineering, and technology must begin at an early age and continue throughout the entire school experience.

(9) Teachers provide the essential connection between students and the content they are learning. Prospective teachers need to be identified and recruited by presenting to them a career that is respected by their peers, is financially and intellectually rewarding, contains sufficient opportunities for advancement, and has continuing access to professional development.

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

SEC. 713. MASTER TEACHER GRANT PROGRAM.

(a) DEFINITIONS.—In this section:

(1) MASTER TEACHER.—The term ''master teacher'' means a mathematics or science teacher who works to improve the instruction of mathematics or science in kindergarten through 9th grade through—

(A) participating in the development or revision of science, mathematics, engineering, or technology curricula;

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

(C) coordinating and assisting teachers in the use of hands-on inquiry materials, equipment, and supplies, and when appropriate, supervising acquisition and repair of such materials;

(D) providing in-classroom teaching assistance to mathematics or science teachers; and

(E) providing professional development, including for the purposes of training other master teachers, to mathematics and science teachers.

(2) MATHEMATICS OR SCIENCE TEACHER.—The term ''mathematics or science teacher'' means a teacher of mathematics, science, engineering, or

technology in an elementary school or secondary school.

(3) NONCLASSROOM TIME.—The term ''nonclassroom time'' means time during regular school hours that is not utilized by a master teacher for instructing elementary school or secondary school children in the classroom.

(4) SPONSORING SCHOOL.—The term ''sponsoring school'' means an elementary school or secondary school that employs a teacher who is participating in a program funded in accordance with this section.

(b) GRANTS.—

(1) IN GENERAL.—From amounts made available under subsection (f), the Director of the National Science Foundation (hereafter in this section referred to as the ''Director'') shall establish a program to award grants to institutions of higher education (or consortia thereof) to enable such institutions or consortia to train master teachers and assist elementary schools and secondary schools to design and implement master teacher programs.

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

(3) REQUIREMENTS.—An institution of higher education or consortium receiving a grant under this section shall offer a program to train master teachers. As part of such program, an institution or consortium shall—

(A) recruit and select teachers to receive training;

(B) ensure that training covers both content and pedagogy;

(C) ensure that participating teachers have mentors; and

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

(4) ACTIVITIES.—An institution of higher education or consortium may use grant funds received under this section to—

(A) develop and implement professional development programs to train elementary school or secondary school teachers to become master teachers or to train existing master teachers;

(B) provide stipends and reimbursement for travel to allow teachers to participate in professional development programs in the summer and throughout the year;

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

(D) support teachers who participate during the summer in research programs conducted at institutions of higher education, private entities, or government facilities;

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

(F) provide computer equipment and network connectivity necessary to enable master teachers to collaborate with other master teachers, to access educational materials available online, and to communicate with scientists or other mentors at remote locations; and

(G) carry out any other activities the Director determines will accomplish the goals of this section.

(c) SELECTION PROCESS.—

(1) APPLICATION.—An institution of higher education or consortium desiring a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(A) a description of which classroom subjects and grade levels the training will address;

(B) a description of the activities to be carried out, including—

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

(ii) how such activities will be based on a review of relevant research and why such activities are expected to strengthen the quality of mathematics and science instruction;

(C) a description of how the institution or consortium will ensure the active participation of its mathematics, science, or engineering departments in the development and implementation of the program;

(D) an explanation of how the institution or consortium will ensure that teachers participating in the program are given instruction in both content and pedagogy;

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

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

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

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

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

(A) the ability of the institution or consortium to effectively carry out the proposed program;

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

(C) the extent to which the institution or consortium is committed to making the program a central organizational focus.

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

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

(d) TEACHER ELIGIBILITY.—

(1) IN GENERAL.—To be eligible to participate in a program carried out by an institution or consortium under this section, a mathematics or science teacher shall submit to the Director, at such time and in such manner as the Director may require, an assurance executed by the sponsoring school, that, after completing the program, the mathematics or science teacher will be provided sufficient non-classroom time at the sponsoring school to enable the mathematics or science teacher to serve as a master teacher. The mathematics or science teacher shall submit a copy of this assurance to the institution of higher education or consortium as part of the application process for participation in the master teacher program.

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

(e) ACCOUNTABILITY AND DISSEMINATION.—

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

section. At a minimum such evaluations shall use a common set of benchmarks and assessment tools to identify best practices and materials developed and demonstrated with funds provided under this section.

(2) DISSEMINATION OF RESULTS.—The Director shall make available the results of the evaluation required under paragraph (1)—

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

(B) to the Committee on Science and the Committee on Education and the Workforce of the House of Representatives and the Committee on Health, Education, Labor and Pensions and the Committee on Commerce, Science, and Transportation of the Senate.

(3) MATERIALS.—The Secretary shall make available through the National Science, Mathematics, Engineering, and Technology Education Digital Library materials that are demonstrated to be effective and are developed by institutions of higher education or consortia under subsection (b)(4).

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

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

(a) IN GENERAL.—From amounts made available under subsection (b), the Director of the National Science Foundation, jointly with the Secretary of Education, shall compile and disseminate information (including through outreach, school counselor education, and visiting speakers) regarding—

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

(2) the licensing requirements in each State for science, mathematics, engineering, or technology elementary school or secondary school teachers.

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

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

SEC. 715. REQUIREMENT TO CONDUCT STUDY EVALUATION.

(a) STUDY REQUIRED.—

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

(A) review existing studies on the effectiveness of technology in the classroom on learning and student performance, using various measures of learning and teaching outcome, including standardized tests of student achievement; and

(B) explore the feasibility of 1 or more methodological frameworks being used to evaluate technologies that—

(i) have different purposes; and

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

(2) CONTENTS.—The study evaluation shall include, to the extent available, information on—

(A) the type of technology used in classrooms;

(B) the reason that such technology works; and

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

(b) DATE.—The study evaluation required by subsection (a) shall be completed not later than 1 year after the date of enactment of this title.

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

(d) AUTHORIZATION OF APPROPRIATIONS.—

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

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

SEC. 716. SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY BUSINESS EDUCATION CONFERENCE.

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

tional Science Foundation (hereafter in this section referred to as the ''Director'') shall convene the first of an annual 3- to 5-day conference for kindergarten through 12th grade science, mathematics, engineering, and technology education stakeholders, including—

(1) representatives from Federal, State, and local governments, private industries, private businesses, and professional organizations;

(2) educators;

(3) science, mathematics, engineering, and technology educational resource providers;

(4) students; and

(5) any other stakeholders the Director determines will provide useful participation in the conference.

(b) PURPOSES.—The purposes of the conference convened under subsection (a) are to—

(1) identify and gather information on existing science, mathematics, engineering, and technology education programs and resource providers, including information on distribution, partners, cost assessment, and derivation;

(2) determine the extent of any existing coordination between providers of curricular activities, initiatives, and units; and

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

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

(1) transmit to the Committee on Science and the Committee on Education and the Workforce of the House of Representatives and to the Committee on Commerce, Science, and Transportation and the Committee on Health, Education, Labor and Pensions of the Senate a report on the outcome and conclusions of the conference, including an inventory of curricular activities, initiatives, and units, the content of the conference, and strategies developed that will support partnerships and leverage resources; and

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

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

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

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

SEC. 717. DISTANCE LEARNING GRANTS.

(a) IN GENERAL.—From amounts made available under subsection (d), the Director of the National Science Foundation (hereafter in this section referred to as the ''Director'') shall establish a program to award grants, on a competitive basis, to institutions of higher education to enable such institutions to provide distance learning opportunities in mathematics or science to elementary school or secondary school students.

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

(c) SELECTION PROCESS.—

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

(A) a description of the research opportunities that will be offered by the institution;

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

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

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

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

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

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

(A) the ability of the institution to effectively carry out the proposed program;

(B) the extent to which the proposed program will enhance the education of the participating students and will encourage such stu-

dents to continue the study of mathematics or science; and

(C) the extent to which the proposed program will provide opportunities that would not otherwise be available to students.

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

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

TITLE VIII—MISCELLANEOUS PROVISIONS

SEC. 811. MATHEMATICS AND SCIENCE PROFICIENCY PARTNERSHIPS.

(a) FINDINGS.—Congress finds the following:

(1) Proficiency in mathematics, science, and information technology is necessary to prepare all students in the United States for participation in the 21st Century and to guarantee that the United States economy remains vibrant and competitive.

(2) In order to achieve such results, it is important that the Federal Government shows interest in economically disadvantaged students who have not been provided with opportunities that will improve their knowledge of mathematics, science, and technology.

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

(4) The schools and businesses serving urban and rural communities are strategically positioned to form a unique partnership with students that will increase their mathematics, science, and technology proficiency and encourage and support their undergraduate study in those fields for the benefit of the Nation.

(b) DEFINITIONS.—In this section:

(1) CONDITIONAL AGREEMENT.—The term ''conditional agreement'' means an arrangement between representatives of the private sector and local educational agencies to provide certain services and funds, such as the donation of computer hardware and software, the establishment of internship and

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

(2) ELIGIBLE STUDENT.—The term ''eligible student'' means a student enrolled in the 12th grade who—

(A) has participated in a mathematics, science, or information technology program established pursuant to this section;

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

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

(c) DEMONSTRATION PROJECT.—

(1) IN GENERAL.—From amounts made available under subsection (d), the Director shall award grants, under a demonstration project, to eligible

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

(2) LOCAL USE OF FUNDS.—

(A) IN GENERAL.—An eligible local educational agency that receives a grant under this section may use such grant funds to develop a program that builds or expands mathematics, science, or information technology curricula, to purchase equipment necessary to establish such program, and to provide professional development to enhance teacher quality in those fields.

(B) REQUIREMENTS.—A program described in subparagraph (A) shall—

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

(ii) provide students with a rich standards-based course of study in mathematics, science, or information technology.

(3) ELIGIBLE LOCAL EDUCATIONAL AGENCIES.—A local educational agency is eligible to receive a grant under this section if the agency—

(A) provides assurances that the agency has executed conditional agreements with representatives of the private sector to provide

services and funds described in paragraph (4); and

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

(4) PRIVATE SECTOR PARTICIPATION.—The conditional agreements referred to in paragraph (3)(A) shall describe participation by the private sector, including—

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

(B) the establishment of internship and mentoring opportunities for students who participate in the mathematics, science, or information technology program; and

(C) the donation of higher education scholarship funds for eligible students to continue their study of mathematics, science, or information technology.

(5) APPLICATION.—

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

tablished by the Director pursuant to subparagraph (B).

(B) GUIDELINES.—

(i) IN GENERAL.—The guidelines referred to in subparagraph (A) shall require, at a minimum, that the application include—

(I) a description of proposed activities consistent with the uses of funds and program requirements under paragraphs (2), (3), and (4);

(II) a description of the higher education scholarship program, including criteria for selection, duration of scholarship, number of scholarships to be awarded each year, and funding levels for scholarships; and

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

(ii) PUBLICATION.—The Director shall issue and publish such guidelines not later than 6 months after the date of enactment of this title.

(6) SELECTION.—

(A) IN GENERAL.—The Director shall award grants to eligible local educational agencies on the basis of merit to be determined after conducting a comprehensive review of applications submitted under paragraph (5).

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

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

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

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

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

(9) STUDY AND REPORT.—

(A) STUDY.—The Director shall initiate an evaluative study of the effectiveness of the activities carried out under this section in improving student performance in mathematics, science, and information technology at the precollege level and in stimulating student interest in pursuing undergraduate studies in those fields.

(B) REPORT.—

(i) IN GENERAL.—The Director shall report the findings of the study to Congress not later than 4 years after the award of the first scholarship under this section.

(ii) CONTENTS.—Such report shall include the number of students graduating from an institution of higher education with a major in mathematics, science, or information technology and the number of students who find employment in such fields.

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

SEC. 812. ARTICULATION PARTNERSHIPS BETWEEN COMMUNITY COLLEGES AND SECONDARY SCHOOLS.

(a) AMENDMENT.—Section 3(c)(2) of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862i(c)(2)) is amended by adding at the end the following: ''The Director shall give priority to proposals that involve secondary schools with a majority of students from groups that are underrepresented in the science, mathematics, or engineering workforce. Grants in such cases shall not be subject to the requirement under subsection (f)(3) for a matching contribution.''.

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

SEC. 813. ASSESSMENT OF IN-SERVICE TEACHER PROFESSIONAL DEVELOPMENT PROGRAMS.

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

(1) the level of resources and degree of emphasis placed on training teachers in the effective use of information technology in the classroom; and

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

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

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

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

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

SEC. 814. INSTRUCTIONAL MATERIALS.

The Director may award grants, on a competitive basis, for the development of educational materials on energy production and use, energy conservation, and renewable energy for use in elementary schools and secondary schools.

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

(a) STUDY AND REPORT.—

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

(2) REPORT.—

(A) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Director shall submit to Congress a report that includes recommendations to address the issues studied under paragraph (1).

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

(b) CONSULTATION.—In preparing the reports under subsection (a), the Director shall consult with the National Aeronautics and Space Administration, the National Institute of Standards and Technology, and such other Federal agencies and educational entities as the Director considers appropriate.

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

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

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

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

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

(4) include options and recommendations to address the challenges and issues identified in the reports.

SEC. 816. EDUCATIONAL TECHNOLOGY ASSISTANCE; LEARNING COMMUNITY CONSORTIUM.

Section 3 of the Scientific and Advanced Technology Act of 1992 (42 U.S.C. 1862i) is amended by redesignating subsections (d), (e), (f), and (g) as subsections (f), (g), (h), and (i), respectively, and by inserting after subsection (c) the following:

''(d) EDUCATIONAL TECHNOLOGY ASSISTANCE.—

''(1) GRANTS.—

''(A) IN GENERAL.—The Director is authorized to award grants on a competitive basis, using the criteria described in paragraph (4), to eligible entities to enable such eligible entities to establish centers to assist elementary schools and secondary schools in the use of information technology for mathematics, science, or technology instruction.

''(B) ELIGIBLE ENTITIES.—To be eligible to receive a grant under subparagraph (A), an entity shall be an associate-degree-granting college, a bachelor-degree-granting institution, or an education service agency (including a consortia thereof).

''(2) ACTIVITIES.—Activities carried out by centers funded under this subsection may include—

''(A) helping schools evaluate their need for information technology;

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

''(C) providing other information and training to help schools and teachers ensure that schools and teachers have access to appropriate information technologies and are using the technologies to maximum advantage.

''(3) APPLICATION.—An eligible entity that desires to receive a grant under this subsection shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require including, at a minimum—

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

''(B) a list of the schools expected to be served;

''(C) a description of how the eligible entity will draw on the expertise of the entity's faculty and students to assist schools and teachers; and

''(D) a description of how the eligible entity will operate the program after funding made available by this subsection has expired.

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

''(A) the ability of the eligible entity to effectively carry out the program;

''(B) the number of schools and students that will be served and their need for assistance;

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

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

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

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

''(6) REPORT.—Not later than April 1, 2005, the Director shall provide a report to Congress that assesses the success of the program under this subsection and the need of schools for continued assistance and that recommends, based on experience with the program, ways that information technology assistance can be made more broadly available to schools.

''(7) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the National Science Foundation to carry out this sub-

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

''(e) LEARNING COMMUNITY CONSORTIUM.—The Director is authorized to award a grant in the amount of $10,000,000 to a consortium composed of associate-degree granting colleges to enable such consortium to carry out a pilot project to encourage women, minorities, and individuals with disabilities to enter and complete programs in mathematics, science, engineering, and technology.''.

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