

107TH CONGRESS  
2D SESSION

# S. 2902

To promote mathematics and science education through a mathematics and science partnership and through the establishment of a grant program to increase student academic achievement in mathematics and science, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

SEPTEMBER 4, 2002

Mr. FRIST (for himself and Mr. ROBERTS) 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 promote mathematics and science education through a mathematics and science partnership and through the establishment of a grant program to increase student academic achievement in mathematics and science, 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 “Mathematics and  
5        Science Education Excellence Act”.

6        **SEC. 2. PURPOSE.**

7        It is the purpose of this Act to—

1           (1) upgrade the status and stature of mathe-  
2           matics and science teaching as a profession by en-  
3           couraging institutions of higher education to assume  
4           greater responsibility for improving mathematics and  
5           science teacher education through the establishment  
6           of a comprehensive, integrated system of recruiting  
7           and advising such teachers;

8           (2) focus on the education of mathematics and  
9           science teachers as a career-long process that should  
10          continuously stimulate teachers' intellectual growth  
11          and upgrade teachers' knowledge and skills;

12          (3) bring together mathematics and science  
13          teachers in elementary schools and secondary schools  
14          with scientists, mathematicians, and engineers to in-  
15          crease teacher content knowledge and improve teach-  
16          ing skills through the use of more sophisticated lab-  
17          oratory space and equipment, computing facilities, li-  
18          braries, and other resources that colleges and uni-  
19          versities are more able to provide;

20          (4) develop more rigorous mathematics and  
21          science curricula that are aligned with challenging  
22          State academic content standards and intended to  
23          prepare students for postsecondary study in mathe-  
24          matics and science; and

1           (5) conduct and evaluate research related to the  
2 science of learning and teaching in order to develop  
3 ways in which the results of such research can be  
4 applied, duplicated, and scaled up for use in low-per-  
5 forming elementary schools and secondary schools to  
6 improve the teaching and student achievement levels  
7 in mathematics and science.

8 **SEC. 3. DEFINITIONS.**

9 In this Act:

10           (1) DIRECTOR.—The term “Director” means  
11 the Director of the National Science Foundation.

12           (2) ELEMENTARY SCHOOL.—The term “elemen-  
13 tary school” has the meaning given such term in  
14 section 9101 of the Elementary and Secondary Edu-  
15 cation Act of 1965 (20 U.S.C. 7801).

16           (3) INSTITUTION OF HIGHER EDUCATION.—The  
17 term “institution of higher education” has the  
18 meaning given such term in section 101(a) of the  
19 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

20           (4) SECONDARY SCHOOL.—The term “sec-  
21 ondary school” has the meaning given such term in  
22 section 9101 of the Elementary and Secondary Edu-  
23 cation Act of 1965 (20 U.S.C. 7801).

1 **SEC. 4. MATHEMATICS AND SCIENCE PARTNERSHIP.**

2 (a) COMPETITIVE GRANT PROGRAM.—During fiscal  
3 years 2003 and 2004, the Director shall carry out a math-  
4 ematics and science partnership program in accordance  
5 with the requirements of sections 2201 and 2202 of the  
6 Elementary and Secondary Education Act of 1965 (20  
7 U.S.C. 6661 and 6662), by awarding competitive grants  
8 to eligible partnerships (as defined under section 2201 of  
9 such Act) in accordance with section 2202(a)(1) of such  
10 Act without regard to the amount of funds appropriated  
11 for such program under section 2203 of such Act.

12 (b) FORMULA GRANT PROGRAM.—During fiscal  
13 years 2005, 2006, and 2007, the Director shall carry out  
14 a mathematics and science partnership program in accord-  
15 ance with the requirements of sections 2201 and 2202 of  
16 the Elementary and Secondary Education Act of 1965 (20  
17 U.S.C. 6661 and 6662), by awarding grants to State edu-  
18 cational agencies in accordance with section 2202(a)(2) of  
19 such Act without regard to the amount of funds appro-  
20 priated for such program under section 2203 of such Act.

21 (c) SHARED PLAN.—Not later than 120 days after  
22 the date of enactment of this Act, the Director and the  
23 Secretary of Education shall prepare a plan for the joint  
24 administration of this section and submit such plan to  
25 Congress for review and comment.

1 (d) TECHNICAL ASSISTANCE.—The Director shall  
2 provide an eligible partnership or State educational agen-  
3 cy, at the request of the eligible partnership or State edu-  
4 cational agency, with technical assistance in meeting any  
5 requirements of the mathematics and science partnership  
6 program carried out by the Director, including providing  
7 advice from experts on how to develop—

8 (1) a high-quality application for a grant or  
9 subgrant under the program; and

10 (2) high-quality activities from funds received  
11 from a grant or subgrant under the program.

12 **SEC. 5. ESTABLISHMENT OF RESEARCH ON MATHEMATICS**  
13 **AND SCIENCE LEARNING AND EDUCATION**  
14 **IMPROVEMENT.**

15 (a) ESTABLISHMENT.—From funds appropriated  
16 under subsection (g), the Director shall award grants, on  
17 a competitive basis, to eligible recipients to—

18 (1) conduct and evaluate research in cognitive  
19 science, education, and related fields associated with  
20 the science of learning and teaching mathematics  
21 and science; and

22 (2) develop ways in which the results of such  
23 research can be applied, duplicated, and scaled up  
24 for use in low-performing elementary schools and

1 secondary schools to improve the teaching and stu-  
2 dent achievement levels in mathematics and science.

3 (b) ELIGIBLE RECIPIENT.—In this section, the term  
4 “eligible recipient” means an institution of higher edu-  
5 cation, a nonprofit organization, or a consortium of such  
6 entities.

7 (c) APPLICATION.—An eligible recipient desiring to  
8 receive a grant under this section shall submit an applica-  
9 tion to the Director at such time, in such manner, and  
10 accompanied by such information as the Director may re-  
11 quire.

12 (d) EVALUATION.—

13 (1) IN GENERAL.—In evaluating the applica-  
14 tions submitted under subsection (c), the Director  
15 shall consider, at a minimum—

16 (A) the ability of the eligible recipient to  
17 effectively carry out the research program and  
18 reduce the eligible recipient’s results to effective  
19 educational practice;

20 (B) the experience of the eligible recipient  
21 in conducting research on the science of teach-  
22 ing and learning and the capacity of the appli-  
23 cant to foster new multidisciplinary collabora-  
24 tions; and

1           (C) the capacity of the eligible recipient to  
2           attract and provide adequate support for grad-  
3           uate students to pursue research at the inter-  
4           section of educational practice and basic re-  
5           search on human cognition and learning.

6           (2) CURRENT PRACTICES.—Not less than 1 of  
7           the grants awarded by the Director under subsection  
8           (a) shall include a comprehensive evaluation of the  
9           effectiveness of current mathematics and science  
10          teaching practices.

11          (e) ACTIVITIES.—An eligible recipient receiving a  
12          grant under this section shall—

13               (1) include, in such recipient's research, the ac-  
14               tive participation of elementary school and secondary  
15               school administrators and mathematics and science  
16               teachers; and

17               (2) submit the results of such recipient's re-  
18               search to the Director.

19          (f) COORDINATION.—The Director shall coordinate  
20          with the Secretary of Education and the Director of the  
21          Office of Science and Technology Policy in—

22               (1) carrying out this section;

23               (2) disseminating the results of the research  
24          conducted pursuant to grants awarded under this

1 section to elementary school teachers and secondary  
2 school teachers; and

3 (3) providing programming, guidance, and sup-  
4 port to ensure that such teachers—

5 (A) understand the implications of the re-  
6 search disseminated under paragraph (1) for  
7 classroom practice; and

8 (B) can use the research to improve such  
9 teachers performance in the classroom.

10 (g) AUTHORIZATION OF APPROPRIATIONS.—There  
11 are authorized to be appropriated to carry out this section  
12 \$12,000,000 for fiscal year 2003 and such sums as may  
13 be necessary for each of the succeeding fiscal years.

14 **SEC. 6. DUPLICATION OF PROGRAMS.**

15 (a) IN GENERAL.—The Director shall review the edu-  
16 cation programs of the National Science Foundation that  
17 are in operation as of the date of enactment of this Act  
18 to determine whether any of such programs duplicate the  
19 programs authorized under this Act.

20 (b) IMPLEMENTATION.—As programs authorized  
21 under this Act are implemented, the Director shall—

22 (1) terminate any existing duplicative program  
23 being carried out by the National Science Founda-  
24 tion or merge the existing duplicative program into  
25 a program authorized under this Act; and

1           (2) not establish any new program that dupli-  
2 cates a program that has been implemented pursu-  
3 ant to this Act.

4           (c) REPORT.—

5           (1) REVIEW.—The Director of the Office of  
6 Science and Technology Policy shall review the edu-  
7 cation programs of the National Science Foundation  
8 to ensure compliance with the provisions of this sec-  
9 tion.

10           (2) SUBMISSION.—Not later than 1 year after  
11 the date of enactment of this Act, and annually  
12 thereafter as part of the annual Office of Science  
13 and Technology Policy’s budget submission to Con-  
14 gress, the Director of the Office of Science and  
15 Technology Policy shall complete a report on the re-  
16 view carried out under this subsection and shall sub-  
17 mit the report to—

18                   (A) the Committee on Science of the  
19 House of Representatives;

20                   (B) the Committee on Education and the  
21 Workforce of the House of Representatives;

22                   (C) the Committee on Appropriations of  
23 the House of Representatives;

24                   (D) the Committee on Health, Education,  
25 Labor, and Pensions of the Senate; and

1                   (E) the Committee on Appropriations of  
2                   the Senate.

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