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ABSTRACT

House Resolution 4982 establishes a network of 10 regional consortia for the purpose of providing technical assistance to schools undergoing reform of their science and mathematics programs; authorizes the Secretary of Education, through a merit-based competitive grant or contract, to establish a National Clearinghouse for Science, Mathematics, and Technology Education Materials; and makes several amendments to the Dwight D. Eisenhower Mathematics and Science Education Act in order to strengthen the program. Specifically discussed in this report are funding, committee consideration, need for legislation, major provisions of the bill, oversight, cost estimates, and changes in existing law made by the bill, as reported. The specific language of the bill "Title II--Critical Skills Improvement, Part A--Dwight D. Eisenhower Mathematics and Science Act" with all subparts and sections is included. (CW

101st Congress 2d Session | HOUSE OF REPRESENTATIVES | Report 101-571

DWIGHT EISENHOWER MATHEMATICS AND SCIENCE EDUCATION AMENDMENTS ACT OF 1990

July 6, 1990.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. Hawkins, from the Committee on Education and Labor, submitted the following

REPORT

[To accompany H.R. 4982]

[Including cost estimate of the Congressional Budget Office]

The Committee on Education and Labor, to whom was referred the bill (H.R. 4982) to promote the study of mathematics and science in elementary and secondary schools, to provide training for mathematics and science teachers, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

The amendment strikes out all after the enacting clause of the bill and inserts a new text which appears in italic type in the reported bill.

Summary

H.R. 4982 establishes a network of ten regional consortia for the purpose of providing technical assistance to schools undergoing reform of their science and mathematics education programs; authorizes the Secretary of Education, through a merit-based competitive grant or contract, to establish a National Clearinghouse for Science, Mathematics, and Technology Education Materials; and makes several amendments to the Dwight D. Eisenhower Mathematics and Science Education Act in order to strengthen the program.

Funding

This bill provides for approximately $124,000,000 in new authorizations.

39-006

COMMITTEE CONSIDERATION

During the 101st Congress, the Subcommittee on Elementary, Secondary, and Vocational Education conducted oversight activities on the Dwight D. Eisenhower Mathematics and Science Education Act. Staff of the Subcommittee conducted oversight visits in Raleigh, North Carolina; Denver, Colorado; Harrisburg, Pennsylvania; and Gettysburg, Pennsylvania. Many of the findings from the oversight visits have been incorporated into this legislation. Also, many of the provisions in H.R. 4982 were originally contained in H.R. 4379, the Equity and Excellence in Education Implementation Act of 1990. The Committee on Education and Labor conducted a hearing on H.R. 4379 on April 3, 1990, where individuals were given an opportunity to testify on the provisions relating to mathematics and science education.

The Committee met in mark-up session on June 27, 1990, and unanimously ordered reported the bill by a voice vote.

NEED FOR THE LEGISLATION

The President and governors have established the following two national goals for education:

By the year 2000, U.S. students will be first in the world in mathematics and science achievement.

By the year 2000, American students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, history, and geography, and every shcool in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.

Achievement of these critical goals by the turn of the century poses a great challenge for our collective will.

The need for improvement is clear, particularly in mathematics and science. U.S. students lag sadly behind the students in nearly all of the industrialized world in mathematics and science. Tests administered by International Association for the Evaluation of Educational Achievement (IEA) show U.S. 14 years old children's science achievement to be at the lowest levels for the industrialized countries participating, as are the chemistry and biology scores for high school seniors, and the mathematics scores for both 14 years old children and high school seniors. The National Assessment of Educational Progress reveals that our students' mathematics proficiency did not improve over the period from 1973 to 1986, and that science performance was actually lower in 1986 for 13 and 17 years old than it was in 1970.

We must take action. The Task Force on Women, Minorities, and the Handicapped in Science and Technology has stated clearly why we must do so:

> The educational pipeline—from pre-kindergarten through the Ph.D.—is failing to produce the workers needed to meet future demand. Indeed, unless parents, schools, colleges, professional societies, industry, State legislatures, Federal agencies, the President, and Congress

act in concert, our national science and engineering workforce will continue to erode and the prospects for maintaining an advanced industrial society will diminish. (Changing America: The New Face of Science and Engineering, Interim Report, September 1988.)

Some have already responded to the challenge. For example, the American Association for the Advancement of Science has launched Project 2061 to reform the shape, content, and instruction of mathematics and science in the elementary and secondary schools of the Nation. The National Science Teachers Association is working to change the way we introduce our children to science and to provide a seamless structure to science curriculum through secondary school education. The National Council of Teachers of Mathematics is at work to improve mathematics instruction and the curriculum. These and other efforts should be supported; school districts, schools, and teachers need help in adopting curricular reforms and adapting to them.

The legislation being reported by the Committee, the Dwight D. Eisenhower Mathematics and Science Amendments Act of 1990, H.R. 4982, takes an important step toward achievement of our national education goals as they apply to mathematics and science. Its focus, the Dwight D. Eisenhower Mathematics and Science Education Act, constitutes the single largest Federal investment directed to the improvement of elementary and secondary mathematics and science instruction. Funded in FY 1990 at $135.6 million, its importance is recognized by the administration, which has proposed a 70 percent increase in its funding for FY 1991.

The legislation reported by the Committee will strengthen the impact of the Eisenhower Act by: (1) establishing specific, realistic authorization levels for FY 1991 through FY 1993; (2) ensuring that all districts with relatively small grants will pool their funds in consortia; (3) focusing a portion of Eisenhower funding on the training of mathematics and science teachers in the critical elementary and middle grades; (4) increasing the funding available for administration; (5) authorizing establishment of a national clearinghouse for science, mathematics, and technology education materials; (6) authorizing the establishment of model programs for instruction and training in the use of computers in mathematics and science curricular; (7) creating regional science, mathematics, and technology education corsortia; and (8) requiring the U.S. Secretary of Education to prepare an annual report on all sources of Federal aid for mathematics and science education.

Major Provisions of the Bill

The legislation amends the Dwight D. Eisenhower Mathematics and Science Education Act (title II, Part A of the Elementary and Secondary Education Act of 1965, as amended).

FEDERAL RESPONSIBILITY IN MATHEMATICS AND SCIENCE

The bill establishes that the Federal Government is responsible for providing mathematics and science teachers with an opportunity to improve their skills; providing information to local education agencies (LEAs) on new mathematics and science instructional

materials; providing clearinghouse and dissemination services so successful efforts in these fields can be replicated; and preparing a central list of all Federal assistance to mathematics and science education.

INCREASE IN AUTHORIZATION LEVEL FOR STATE GRANTS AND NATIONAL PROGRAMS

Given the importance of the Eisenhower Act to the national effort to address our needs in these fields, the bill establishes substantial, but realistic, authorization levels for the legislation from FY 1991 through FY 1993. Current law provides only such sums as may be necessary for those years; the bill authorizes $250 million for FY 1991, $300 million for FY 1992, and $400 million for FY 1993. The FY 1990 appropriation level represents an increase of 84 percent; it is only 9 percent higher than the FY 1991 level proposed by the Administration in its FY 1991 budget request.

IN-STATE APPORTIONMENT

The Committee is concerned that, as currently structured, the Eisenhower Act distributes many relatively small grants to LEAs. In the early years of the program it was reported that some districts declined to apply for assistance under the Act because the size of their individuals grant did not justify the application effort. Grant size remains an important impediment to this program. Indeed, according to recent testimony before the House Appropriations Subcommittee on the Departments of Labor, Health and Human Services, and Education, the average grant to LEAs under the program is currently $5,000. That is clearly not sufficient to ensure that Eisenhower funds will accomplish their designated objectives.

As a result, the bill requires that any LEA receiving an allocation of less than $6,000 must enter a consortium with at least one other LEA, or an institution of higher education, assisted under this Act. Under current law, entering into consortia is strictly voluntary on the part of LEAs. This requirement guarantees that Eisenhower funds will be pooled to attain the mass critical to creating and implementing effective local programs. Further, the act of collaborating with another LEA or a higher education institution may have multiple benefits, such as bringing additional expertise to bear on addressing mathematics and science instructional needs. At the same time, the Committee is aware that a consortium cannot be created in every circumstance. The bill permits each State Educational Agency (SEA) to waive the requirement for an LEA that demonstrates that its grant is sufficient to support an appropriately high quality program. In doing so, the SEA is required to give special consideration to LEAs serving rural areas, and to consider the availability of State and local resources that an LEA might use in conjunction with its Eisenhower assistance.

ELEMENTARY AND SECONDARY EDUCATION PROGRAMS

The Committee believes that, unless the mathematics and science instruction provided to our children in the early grades is decidedly improved, the chances of broadening the pool of students with an understanding of these subjects, and of attaining the na-

tional educational goals cited earlier, are slim. The American Association for the Advancement of Science has found that "[f]ew elementary school teachers have even a rudimentary education in science and mathematics . . ." (Science for All Americans, 1989) Without better mathematics and science instruction in the early grades, children's interest in these fields will continue to be curbed and blunted. This is a loss that cannot continue.

H.R. 4982 amends the Eisenhower Act to establish a priority for teacher training that addresses the need to improve instruction in the early grades, from elementary school through middle school. For any allocation to an LEA that exceeds its FY 1990 allocation, the excess amount is to be used first to train mathematics teachers and science teachers in elementary and middle schools. The Committee stresses that all elementary and middle school teachers providing instruction in mathematics and science are to be involved, not just teachers specializing in those fields. The U.S. Secretary of Education is permitted to waive this requirement if an LEA demonstrates that its mathematics and science teachers will receive adequate levels of training without the application of these excess amounts.

Further, the Committee is aware of concern that the programs being operated under the Eisenhower Act are not being administered with the attention and creativity that should apply. To address that concern, the bill raises the administrative reserve for the SEA to at least $20,000 of the Eisenhower funds available for LEA grants. This will help support innovation and strengthen program coordination at the local level.

HIGHER EDUCATION PROGRAM

A similar criticism has been focused on the administration of the higher education grants under the Eisenhower Act. The Committee's bill sets the State higher education agency's administrative reserve to at least $20,000 of the funds available for higher education grants.

NATIONAL PROGRAMS

The Committee is concerned that, unless a special effort is made, the initiatives now underway to reform and modify elementary and secondary mathematics and science education programs and materials will not affect the education of the vast majority of students. School administrators, staff, and teachers currently have no way of gaining access to what has been developed across the country. The problem plagues all levels, including the Federal Government. Hans O. Andersen, president of the National Science Teachers Association, testifying on a similar proposal before the Senate Labor and Human Resources Committee, stated:

> The most serious deficiency in federal programs in the past has been the lack of institutional memory. Neither the Department of Education nor the National Science Foundation has an appropriate library or resources of materials generated by their own projects.

NATIONAL CLEARINGHOUSE FOR SCIENCE, MATHEMATICS, AND TECHNOLOGY EDUCATION MATERIALS

To remedy this deficiency nationwide, the bill authorizes the Secretary of Education to award a grant or a contract for creation of the National Clearinghouse for Science, Mathematics, and Technology Education Materials, as part of the activities authorized under the Eisenhower Act's national programs. The Clearinghouse is to: (1) maintain a permanent repository of instructional materials, and programs developed in science, mathematics, and technology, including those developed with Federal assistance and those developed without such assistance; (2) cooperate with relevant Federal and non-Federal data bases in its activities; (3) disseminate information on these materials and programs through a single, on-line computer data base, if feasible, to networks, including the National Diffusion Network financed by the U.S. Department of Education, and to regional consortia established by this bill (see discussion below); (4) disseminate these materials to the regional consortia and to the public. Further, the Clearinghouse is required to spend one-third of its Federal funding for the dissemination of material to the consortia. To ensure that the Clearinghouse will accomplish its objectives, the bill requires any Federal agency or department having supported, or currently supporting, development of relevant materials and programs to submit copies to the Clearinghouse and to the regional consortia.

In awarding funds to establish the Clearinghouse, the Secretary is required to establish a peer review process that will select the actual recipient. In addition, the Secretary is authorized to appoint a steering committee to make recommendations concerning the Clearinghouse.

MODEL PROGRAMS FOR INSTRUCTION AND TRAINING IN THE USE OF COMPUTERS

The bill further amends the Eisenhower Act's national programs by authorizing the Secretary to make grants to model programs for the training and instruction in the most appropriate methods of applying computers to the elementary and secondary mathematics and science curriculum. The Federal share of each grant is limited to not more than 50 percent; not less than 25 percent of the non-Federal share must be secured in cash by the grant recipient. These matching and cash requirements may be waived by the Secretary if a school operating a model program demonstrates its inability to match the Federal funds. The Secretary must give priority in selecting grantees to model programs that can be implemented nationally; show evidence of joint local commitment, involving groups such as teachers, the business community, and LEAs; provide teacher training to improve mathematics and science instruction through the use of computers; integrate higher order analytical and problem-solving skills into the mathematics and science curricula; and allow for interactive instruction and students' hands-on activity in delivering instruction.

REGIONAL SCIENCE, MATHEMATICS, AND TECHNOLOGY EDUCATION CONSORTIA

The Clearinghouse is only one part of the appropriate response to ensuring that mathematics and science education innovation reaches into every classroom in the country. The Committee believes that without direct, focused assistance to help schools implement needed changes in their mathematics and science curriculum and instruction, their access to new materials and programs will not bear fruit.

The bill requires the Secretary of Education to administer a merit-based competitive grant program to establish and operate a series of regional science, mathematics, and technology education consortia. One consortium will be funded in each region, as defined by the regions served by the regional educational laboratories supported by the U.S. Department of Education. These regional consortia will help in certain critical ways to further mathematics and science education reform. They will identify instructional materials, teaching methods, and assessment tools related to science, mathematics, and technology education for use by elementary and secondary school students. The consortia will disseminate and implement such materials, methods, and assessment tools, and, if needed, adapt them to the needs of elementary and secondary students.

The FY 1991 authorization level for the regional consortia is $15 million and such sums as necessary for FY 1992 and FY 1993. Each consortium will receive a grant awarded for a period not to exceed 5 years.

TEACHER RELATED ACTIVITIES

Among their activities directly related to teachers, the consortia will train classroom teachers and administrators; qualify classroom teachers to train other teachers in the use of these materials, methods, and assessment tools; work with classroom teachers in identifying and adapting these materials, methods, and assessment tools; help classroom teachers secure training in mathematics, science, and technology; and provide fellowships, internships, or summer programs to enable teachers to participate in the consortia's activities.

In addition, the consortia will disseminate information on informal science, mathematics, and technology education; provide needed technical assistance; gather necessary evaluation data on the effectiveness of their activities; maintain, if feasible, on-line computer networks linking the consortia and the Clearinghouse, as established by the bill; assist local educators in the identification of science equipment needs; and undertake programs to meet the needs of groups, such as women and minorities, who are underrepresented in mathematics, science, and technology education.

ENTITIES ELIGIBLE FOR FUNDING

The Committee intends that the entities eligible to receive funding to operate these consortia will cover a broad array of those organizations and institutions involved in addressing the mathematics, science, and technology education needs of our children. Such

eligible entities include private nonprofit organizations; higher education institutions; public agencies; interstate agencies established by compact; SEAs or LEAs; federally funded regional educational laboratories or research and development centers; professional scientific and mathematics associations; educational association; museums; libraries; nonprofit educational television stations or nonprofit producers of educational television programming; historically black colleges; federally assisted nonprofit scientific laboratories; or combinations of these entities.

The Committee intends that any regional consortium will undertake its activities in its region with the direct assistance of a consortium of the science and mathematics education entities in the region Thus, the bill requires that, in applying for assistance, any eligible entity must demonstrate that such a consortium will be used. To ensure the most effective use of Federal funds, any applicant must describe the efforts it will make to coordinate its activities with those undertaken by the appropriate regional educational laboratory funded by the U.S. Department of Education.

Any applicant for assistance must assure that it will provide for the equitable participation of private elementary and secondary school teachers and student in its activities.

SELECTION OF GRANTEES

The Secretary of Education is to select grantees for operation of regional consortia, considering the recommendations made by a national peer review panel, or panels, established by the Secretary. The review panel is to include representatives of science and mathematics education teaching; SEAs and LEAs; private elementary and secondary schools; higher education; information education; scientists, engineers, and mathematicians; and groups, such as women and minorities, underrepresented in mathematics, science, and technology education, or underserved by such education.

Each recipient of funds to operate a regional consortium is authorized to establish a regional board to advise on program priorities. The legislation stipulates the representation that is required on that board. Each entity involved in each consortium is to be represented on the board. Additional members are required in the event the board would lack representation from SEAs and LEAs, private schools; teachers; higher education institutions; business; professional science and mathematics associations; parents, informal education; regional educational laboratories; and underrepresented and underserved groups in the relevant fields. Federal funds are prohibited from being used to establish or operate this board.

MATCHING REQUIREMENTS

To extend the reach of Federal funds for these consortia and to increase the degree of regional commitment to each corsortium, each Federal grant can meet only 75 percent of the costs of a consortium's activities during the first through third years of assistance, 60 percent during the fourth; and 50 percent during the fifth and any succeeding years. The non-Federal share must be allocated as follows: at least 10 percent provided by business concerns in the region; at least 10 percent by LEAs and the States in the region;

the balance to be provided by members of the regional consortium, higher education institutions, science and mathematics association, philanthropies, or other entities.

ASSESSMENT

The Committee wants to ensure that this effort is assessed, and therefore, the bill requires each grantee to collect data on its effectiveness, assess that effectiveness, and report data to the Secretary. The Secretary of Education is to report to the Congress on the effectiveness of the programs in each consortium.

FEDERAL ADMINISTRATION

The Committee in displayed by the absence of a comprehensive inventory of the Federal programs and activities that support mathematics and science education. Therefore, the legislation requires the Secretary of Education to prepare a report on all Federal sources of aid for mathematics and science education. This report is to be submitted to the House Education and Labor Committee and the Senate Labor and Human Resources Committee not later than March 1, 1992, as well as to each SEA. It is also to be made available to the public.

OVERSIGHT

No findings or recommendations concerning oversight of the programs amended in this bill have been received by this Committee from the Committee on Government Operations. Findings from the Subcommittee's and the full Committee's oversight hearings contributed to consideration of this legislation.

COST ESTIMATE

The Congressional Budget Office has estimated the following costs to the Federal government in implementing this legislation. The Committee concurs in these estimates and adopts them in compliance with clause VII of Rule 13. No costs estimates have been received from any other Federal department or agency.

The CBO letter follows:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, July 2, 1990.

Hon. AUGUSTUS F. HAWKINS,
Chairman, Committee on Education and Labor, U.S. House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has examined the federal cost impact of H.R. 4982, Dwight D. Eisenhower Mathematics and Science Education Act of 1990, as ordered reported by the House Education and Labor Committee on June 27, 1990.

If you wish further details on this estimate, we will be pleased to provide them.

Sincerely,

ROBERT D. REISCHAUER,
Director.

CONGRESSIONAL BUDGET OFFICE—COST ESTIMATE

1. Bill number: H.R. 4982.

2. Bill title: Dwight D. Eisenhower Mathematics and Science Education Amendments Act of 1990.

3. Bill status: As ordered reported by the House Education and Labor Committee, June 27, 1990.

4. Bill purpose: The purpose of this bill is to amend and extend the authorization for appropriations under the Dwight D. Eisenhower Mathematics and Science Education Act.

5. Estimated cost to the Federal Government:

[By fiscal years, in millions of dollars]

	1991	1992	1993	1994	1995
Authorizations:					
Mathematics and Science Education Program					
Estimated authorization level	109	153	247	...	...
Estimated outlays	13	92	154	198	48
Regional Science, Mathematics, and Technology Education Consortiums:					
Estimated authorization level	15	16	16	...	...
Estimated outlays	2	12	15	14	3
Federal report:					
Estimated authorization level	(1)	(1)	(1)	(1)	(1)
Estimated outlays	(1)	(1)	(1)	(1)	(1)
Bill total:					
Estimated authorization level	124	169	264	(1)	(1)
Estimated outlays	15	105	169	212	51

[1] Less than $500,000

The costs of this bill fall in Function 500.

Basis of estimate: The mathematics and science education program is currently authorized at such sums as may be necessary each year through 1993. The current authorization level is estimated to be the 1990 appropriation ($135.6 million) adjusted each year for projected inflation. This bill states a new authorization level for each year 1991 through 1993. This cost estimate reflects the difference between the newly authorized level and the current authorized level for 1991 through 1993.

The 1991 authorization level for the regional science, mathematics, and technology consortiums is stated in the bill. The program is authorized at such sums as may be necessary for 1992 and 1993. The estimated outyear authorization levels reflect the 1991 stated level adjusted for projected inflation.

H.R. 4982 would require the Secretary to compile annually a report listing all sources of federal aid for mathematics and science education. The costs of these annual reports would be minimal.

6. Estimated cost to State and local governments: Ninety-five percent of the funds appropriated for the mathematics and science education program would be allocated to state governments based on population statistics. There are no federal funds matching requirements.

7. Estimated comparison: None.

8. Previous CBO estimate: None.

9. Estimate prepared by: Deborah Kalcevic.

10. Estimate approved by: James L. Blum, Assistant Director for Budget Analysis.

Committee Estimate

With reference to the statement required by clause 7(a)(1) of Rule XII of the Rules of the House of Representatives, the Committee accepts the estimate prepared by the Congressional Budget Office.

Inflationary Impact Statement

In compliance with clause 2(l)(4) of the Rules of the House of Representatives, the Committee estimates that the enactment into law of H.R. 4982 will have little inflationary impact on prices and costs in the operation of the national economy. It is the judgment of the Committee that the inflationary impact of this legislation as a component of the Federal budget is negligible.

Section-by-Section Summary

Section 1

Provides that the Act is to be cited as the Dwight D. Eisenhower Mathematics and Science Education Amendments of 1990.

Section 2

Provides a statement of congressional findings concerning U.S. students' poor performance in mathematics and science, and the Federal role in advancing the study of mathematics and science. Provides a statement of Federal responsibility for improving mathematics and science teachers' skills; disseminating information on mathematics and science instructional materials; conducting clearinghouse activities; and listing all Federal sources of mathematics and science assistance.

Section 3

Establishes the authorization level for the Dwight D. Eisenhower Mathematics and Science Education Act at $250,000,000 for FY 1991, $300,000,000 for FY 1992, and $400,000,000 for FY 1993.

Section 4

States that local educational agencies (LEAs) receiving an allocation of less than $6,000 under the Eisenhower program shall form a consortium with at least one other LEA or institution of higher education for the purpose of providing services. The State educational agency (SEA) can waive this provision if the LEA can demonstrate that such funds would provide a program of sufficient size, scope and quality to be effective.

Section 5

Requires that LEAs use new Eisenhower money (funds above the amount received by such LEAs for FY 1990) for the training of teachers of mathematics and science in elementary and middle schools. The SEA can grant a waiver from this requirement. Also, allows SEAs to use up to 5 percent or $20,000, whichever is greater, for technical assistance and administrative costs.

Section 6

Allows State higher education agencies to use up to 5 percent or $20,000, whichever is greater, for technical assistance and administrative costs.

Section 7

Amends the national programs section of the Eisenhower Act to authorize the creation of a National Clearinghouse for Science, Mathematics and Technology Education Materials. Such clearinghouse shall be awarded on a competitive basis.

The Clearinghouse shall maintain a permanent repository of science, mathematics, and technology education instructional materials for elementary, middle and secondary school programs; shall cooperate with other Federal and non Federal data bases containing mathematics and science curriculum and instructional materials; shall disseminate information regarding such materials and programs to dissemination networks; and shall disseminate such materials to regional consortia.

Section 7 also amends the national program section to include model programs for instruction and training in the use of computers. Under this program, the Secretary is authorized to mke grants for model programs that use computers as part of the mathematics and science curriculum in elementary and secondary schools.

Section 8

The Secretary is authorized to carry out a merit-based competitive grant program for the operation of regional science, mathematics, and technology education consortia for the purpose of disseminating and implementing exemplary science, mathematics, and technology education instruction materials, teaching methods, and assessment tools for use by elementary and secondary schools. The Secretary shall award one such grant for each region in the United States.

The regional centers shall identify, adapt, disseminate, and implement science, mathematics and technology education instructional materials, teaching methods, and assessment tools for use by elementary and secondary school students; train classroom teachers in the use of such materials, qualify classroom teachers to teach other teachers; offer fellowships and internships; disseminate information and provide technical assistance; collect data; if feasible, maintain on-line computer networks with all regional consortia and the National Clearinghouse, assist SEAs and LEAs in identifying science equipment needs; and establish programs and activities designed to meet the needs of groups that are underrepresented and underserved in mathematics, science, and technology education.

Each entity receiving a grant under this part may establish a regional board to advise on the administration and establishment of program priorities.

The Federal share for the first, second and third years shall be 75 percent; 60 percent for the fourth year; and 50 percent for the fifth and subsequent years.

There are authorized to be appropriated to carry out this program $15,000,000 for FY 1991 and such sums as may be necessary for FY 1992 and 1993.

Section 9

Requires the Secretary, in consultation with the heads of other appropriate agencies, to prepare a report listing all sources of Federal aid for mathematics and science. The report shall be submitted by March 1, 1992, to the Education and Labor Committee of the House and the Labor and Human Resources Committee of the Senate.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of Rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

DWIGHT D. EISENHOWER MATHEMATICS AND SCIENCE EDUCATION ACT

TITLE II—CRITICAL SKILLS IMPROVEMENT

PART A—DWIGHT D. EISENHOWER MATHEMATICS AND SCIENCE EDUCATION ACT

* * * * * * *

Subpart 1—State Grants and National Programs

SEC. 2003. PROGRAM AUTHORIZED.

(a) GRANTS.—The Secretary is authorized to make grants to States and discretionary grants in accordance with the provision of this part for strengthening the skills of teachers and improving instruction in mathematics and science.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for the purposes of this part, $250,000,000 [for fiscal year 1989 and such sums as may be necessary for each of the 4 succeeding fiscal years.] *for each of the fiscal years 1989 and 1990, $250,000,000 for the fiscal year 1991, $300,000,000 for the fiscal year 1992, and $400,000,000 for the fiscal year 1993.*

* * * * * * *

SEC. 2005. IN-STATE APPORTIONMENT.

(a) * * *

* * * * * * *

(c) LIMITATION.—

(1) GENERAL RULE.—Except as provided in paragraph (2), any local educational agency that receives an allocation of less than $6,000 under subsection (a) shall, for the purpose of providing services under this part, form a consortium with at least 1 other

local educational agency or institution of higher education receiving assistance under this section.

(2) WAIVER.—The State educational agency may waive the application of paragraph (1) in the case of any local educational agency that demonstrates that the amount of its allocation is sufficient to provide a program of sufficient size, scope, and quality to be effective. In granting waivers under the preceding sentence, the State educational agency shall—

(A) give special consideration to local educational agencies serving rural areas; and

(B) consider cash or in-kind contributions provided from State or local sources that may be combined with the local educational agency's allocation for the purpose of providing services under this part.

SEC. 2006. ELEMENTARY AND SECONDARY EDUCATION PROGRAMS.

(a) * * *

* * * * * * *

(d) PRIORITY FOR TEACHER TRAINING.—

(1) GENERAL RULE.—Except as provided in paragraph (2), in any fiscal year beginning after September 30, 1990, for which a local educational agency receives under this section an amount that is larger than the amount such agency received under this section for the fiscal year 1990, the excess of such amount over the amount received under this section for the fiscal year 1990 shall first be used to provide training for mathematics teachers and science teachers in elementary and middle schools.

(2) WAIVER.—The Secretary may waive the application of paragraph (1) in the case of any local educational agency that demonstrates to the Secretary that mathematics teachers and science teachers in the elementary and middle schools under the jurisdiction of such local educational agency will receive adequate training without using such excess amounts for such training.

[(d)] *(e)* TECHNICAL ASSISTANCE AND ADMINISTRATIVE COSTS.—Not more than 5 percent of the amount available under this section, or *$20,000, whichever is greater,* may be used by the State educational agency—

(1) to provide technical assistance to local educational agencies, institutions of higher education, and nonprofit organizations, including museums, libraries, and educational television stations, in the conduct of programs specified in subsection (b); and

(2) for the costs of administration and assessment of programs assisted under this part.

SEC. 2007. HIGHER EDUCATION PROGRAMS.

(a) * * *

* * * * * * *

(d) ASSESSMENT AND ADMINISTRATIVE COSTS.—Not to exceed 5 percent of the amount available under this section, or *$20,000, whichever is greater,* may be used by the State agency for higher education for—

(1) the State assessment required by section 2008(c); and

(2) the costs incurred by such agency for administration and evaluation of programs assisted under this part.

* * * * * * *

SEC. 2012. NATIONAL PROGRAMS.

(a) * * *

* * * * * * *

(d) NATIONAL CLEARINGHOUSE FOR SCIENCE, MATHEMATICS, AND TECHNOLOGY EDUCATION MATERIALS.—

(1) The Secretary may carry out a merit based, competitive program of awarding a grant or contract to establish a clearinghouse to be known as the "National Clearinghouse for Science, Mathematics, and Technology Education Materials" (in this subsection referred to as the "Clearinghouse").

(2) The grant awarded under this subsection shall be used to—

(A) maintain a permanent repository of science, mathematics, and technology education instructional materials and programs for elementary and secondary schools, including middle schools (including all such materials and programs developed with Federal and non-Federal funds, such as instructional materials developed by the Department of Education, materials developed by State and national mathematics and science programs assisted under this part, and other instructional materials), for use by the regional consortiums established under subpart 2 and by the general public;

(B) cooperate with other Federal and non-Federal data bases containing science and mathematics curriculum and instructional materials in carrying out the functions under this subsection; and

(C) disseminate information regarding such materials and programs to dissemination networks, including the National Diffusion Network established under section 1562, and the regional consortiums established under subpart 2, which dissemination, if feasible, shall be carried out through a single on-line computer database that can be readily accessed; and

(D) disseminate instructional materials and programs to the regional consortiums established under subpart 2 and to the public.

(3) The Clearninghouse shall employ both traditional and technologically advanced methods for storing and disseminating materials to regional consortiums established under subpart 2 and to the public.

(4) Each Federal agency or departemnt which has supported or supports the development of a science, methematics, or technology education instructional material or program, including the Department of Education, shall submit to the Clearninghouse a sufficient number of copies of such material or program for the Clearninghouse and each regional consortium established under subpart 2.

(5) The Secretary shall establish a peer review process to select the recipient of the award under this subsection.

(6) The Secretary may appoint a steering committee to recommend policies and activities for the Clearninghouse.

(7) The National Clearninghouse shall expend ⅓ of any amounts received to carry out the provisions of this subsection for the dissemination of materials to the regional consortiums established under subpart 2.

(8) Nothing in this subsection shall be construed to allow the use of copying, in any media, of any material collected by the Clearninghouse that is protected under the copyright laws of the United States unless the permission of the owner of the copyright is obtained.

(e) MODEL PROGRAMS FOR INSTRUCTION AND TRAINING IN THE USE OF COMPUTERS.—

(1) The Secretary may make grants to model programs for training and instruction in the use of computers as part of the mathematics and science curriculum of elementary and secondary schools to pay the Federal share of the cost of improving and expanding such programs.

(2)(A) Except as provided in subparagraph (C), the Federal share of the cost of improving and expanding a model program under this subsection shall not exceed 50 percent of such cost.

(B) Not less than 25 percent of the non-Federal share of the cost of improving and expanding a model program under this subsection shall be in cash.

(C) The Secretary may waive the application of this paragraph in the case of any model program operated by a school that demonstrates an inability to obtain funds from non-Federal sources for the program.

(3) In awarding grants under this subsection, the Secretary shall give priority to applicants that demonstrate the ability to—

(A) develop a program that can be applied nationally;

(B) include a shared commitment from a combination of local parties, such as teachers, the business community, and local educational agencies;

(C) provide teacher training programs in elementary and secondary schools, including middle schools, that are designed to improve the quality of mathematics and science instruction through the use of computers and in instructional tool;

(D) integrate higher order analytical and problem-solving skills into mathematics and science curricula; and

(E) provide interactive and manipulative application as part of the instructional delivery system.

[(d)] *(f)* DISSEMINATION OF INFORMATION.—The Secretary shall disseminate information concerning grants and cooperative agreements under this section to State and local educational agencies and institutions of higher education. Such dissemination of information shall include examples of exemplary national programs in

mathematics and science instruction and necessary technical assistance for the establishment of similar programs.

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Subpart 2—Regional Science, Mathematics, and Technology Education Consortiums

SEC. 2016. PROGRAM ESTABLISHED.

(a) IN GENERAL.—The Secretary shall carry out a merit-based competitive program of awarding grants to establish and operate regional science, mathematics, and technology education consortiums for the purpose of disseminating and implementing exemplary science, mathematics and technology education instruction materials, teaching methods, and assessment tools for use by elementary and secondary school students.

(b) LOCATION OF REGIONAL CONSORTIUMS.—The Secretary shall, in accordance with the provisions of this subpart, award 1 grant to an eligible entity in each region.

(c) GRANT TERM AND REVIEW.—Grants under this subpart shall be awarded for a period of not more than 5 years and shall be reviewed before the end of the 30-month period beginning on the date the grant is awarded. Grants shall be awarded before the end of the 12-month period beginning on the date of the enactment of an act making appropriations to carry out the provisions of this subpart.

(d) AMOUNT.—In making grants under this subpart, the Secretary shall assure that there is a relatively equal distribution of the funds made available among the regions, but the Secretary may award additional funds to a regional consortium on the basis of population and geographical conditions of the region being served.

SEC. 2017. USE OF FUNDS.

Funds provided under this subpart shall be used by each regional consortium to—

(1) identify, adapt, disseminate, and implement science, mathematics, and technology education instruction materials, teaching methods, and assessment tools for use by elementary and secondary school students;

(2) train classroom teachers and administrators in elementary and secondary schools, including middle schools, in the use of science, mathematics, and technology education instruction materials, teaching methods, and assessment tools;

(3) qualify classroom teachers to train other teachers in the use of such instruction materials, teaching methods, and assessment tools in the classroom;

(4) work with classroom teachers in the identification and adaptation of such instruction materials, teaching methods, and assessment tools for use in classrooms within the region;

(5) assist classroom teachers, where appropriate, in securing training to enhance such teachers' subject knowledge and teaching skills in the areas of science, mathematics, and technology education;

(6) offer fellowships, internships, or summer programs to enable teachers to participate in the activities of the regional consortiums;

(7) disseminate information regarding informal science, mathematics, and technology education activities and programs offered by Federal agencies and private or public agencies and institutions within the region;

(8) provide technical assistance in order to maximize the effectiveness of such instruction materials and programs and fulfill the instructional goals of the recipients of such materials and programs;

(9) collect data on activities assisted under this subpart in order to evaluate the effectiveness of the activities of the regional consortiums;

(10) if feasible, maintain on-line computer networks with all regional consortiums and the National Clearinghouse for Science, Mathematics, and Technology Education Materials established under section 2012(e);

(11) assist local and state educators in identifying science equipment needs; and

(12) establish programs and activities designed to meet the needs of groups that are underrepresented in, and underserved by, science, mathematics, and technology education, such as women and minorities.

SEC. 2018. APPLICATION AND REVIEW.

(a) IN GENERAL.—Each eligible entity desiring to receive a grant under this subpart shall submit an application to the Secretary at such time, in such manner, and accompanied by such additional information as the Secretary may reasonably require. Each such application shall—

(1) demonstrate that the eligible entity shall implement and disseminate science, mathematics, and technoloby education instructional materials, teaching methods, and assessments tools through a consortium of the region's science and mathematics education organizations and agencies;

(2) demonstrate that the eligible entity shall carry out the functions of the regional consortium;

(3) describe the activities for which assistance is sought;

(4) demonstrate the capability to properly and effectively implement and disseminate science, mathematics, and technology education instructional materials, teaching methods, and assessment tools;

(5) provide assurances that emphasis will be given to programs and activities designed to meet the needs of groups that are underrepresented in, and underserved by, science, mathematics, and technology education, such as women and minorities;

(6) include a description of efforts to coordinate activities carried out by the regional consortium with activities carried out by the appropriate regional educational laboratory supported under section 405(d)(4)(A)(i) of the General Education Provisions Act;

(7) assure that provision will be made for the equitable participation of children and teachers from private elementary and secondary schools consistent with section 2010; and

(8) assure that the entity will conduct its activities and supervise its personnel in a manner that effectively ensures compliance with the copyright laws of the United States.

(b) APPROVAL OF APPLICATION.—

(1) The Secretary shall approve or disapprove applications submitted purusant to subsection (a) in accordance with the criteria and procedures established under paragraph (2).

(2) The Secretary shall develop procedures and critieria designed to ensure that grants are awarded on the basis of merit and determined by the peer review process described in paragraph (3).

(3)(A) The Secretary shall establish a national panel, or to the extent necessary, panels, to submit to the Secretary recommendations for awards of grants under this subpart. The Secretary shall appoint the members of such panel or panels.

(B) Each panel appointed as required by subparagraph (A) shall include representatives of—

(i) science and mathematics education and teaching;
(i) State and local educational agencies;
(iii) private elementary and secondary schools;
(iv) higher education;
(v) informal education;
(vi) practicing scientists, engineers, and mathematicians;
(vii) business; and
(viii) groups that are underrepresented in, and underserved by, science, mathematics, and technology education, such as women and minorities.

SEC. 2019. REGIONAL BOARDS.

(a) GENERAL AUTHORITY.—Subject to subsections (b) and (c), each eligible entity receiving a grant under this subpart may establish a regional board to advise on the administration of and establishment of program priorities for the regional consortium established by such eligible entity.

(b) REPRESENTATION.—Any regional board established as authorized by subsection (a) shall include at least 1 representative of each agency or organization participating in the regional consortium, and, if not represented on the consortium, at least 1 representative of—

(1) State educational agencies;
(2) local educational agencies, including representatives of large, small, urban and rural school districts;
(3) private elementary and secondary schools;
(4) teachers;
(5) institutions of higher education, including science and mathematics educators;
(6) business;
(7) professional scientific and mathematics associations;
(8) parents;
(9) informal education organizations;
(10) regional educational laboratories; and
(11) groups that are underrepresented in, and underserved by, science, mathematics and technology education, such as women and minorities.

(c) PROHIBITION ON USE OF FEDERAL FUNDS.—No Federal funds may be used for the establishment or operation of a regional board authorized by subsection (a).

SEC. 2020. PAYMENTS; FEDERAL SHARE; NON-FEDERAL SHARE.

(a) PAYMENTS.—The Secretary shall pay to each eligible entity having an application approved under section 2018 the Federal share of the cost of the activities described in the application.

(b) FEDERAL SHARE.—The Federal share shall be—

(1) 75 percent for the first, second, and third fiscal years in which an eligible entity receives assistance;

(2) 60 percent for the fourth such year; and

(3) 50 percent for the fifth and each succeeding such year.

(c) NON-FEDERAL SHARE.—

(1) The non-Federal share of payments under this section may be in cash or in kind, fairly evaluated, including facilities, overhead, equipment, or services.

(2) Each eligible entity having an application approved under section 2018 shall pay the non-Federal share in accordance with the following requirements:

(A) At least 10 percent of the cost of activities described in the application shall be furnished by business concerns within the region.

(B) At least 10 percent of the cost of activities described in the application shall be furnished by local educational agencies and the States in the region.

(C) The balance of the cost of activities described in the application of the non-Federal share may be furnished by members of the regional consortium, institutions of higher education, professional scientific and mathematics associations, philanthropies, or other public and private agencies, institutions or organizations.

SEC. 2021. ASSESSMENT.

Each eligible entity receiving a grant under this subpart shall collect data on, and assess the effectiveness of, the programs conducted at the regional consortium. At the and of each grant period, the Secretary shall submit to Congress a report on the effectiveness of the programs conducted at each regional consortium.

SEC. 2022. DEFINITONS.

For purposes of this subpart:

(1) The term "eligible entity" means—

(A) a private nonprofit organization;

(B) an institution of higher education;

(C) a public agency;

(D) an interstate agency established by compact;

(E) a State or local educational agency;

(F) a regional educational laboratory or research and development center established under section 405(d)(4)(A) of the General Education Provisions Act;

(G) a professional scientific and mathematics association;

(H) an educational association;

(I) a museum;

(J) a library;

(K) a nonprofit educational television station or a nonprofit producer of programs for educational television stations;

(L) an historically Black College;

(M) a nonprofit scientific laboratory that receives Federal assistance; or

(N) a combination of the entitites set forth in subparagraphs (A) through (M).

(2) The term "institution of higher education" has the meaning provided in section 1201(a) of the Higher Education Act of 1965.

(3) The term "region" means a region of the United States served by a regional educational laboratory that is supported by the Secretary pursuant to section 405(d)(4)(A)(i) of the General Education Provisions Act.

(4) The term "regional consortium" means a regional science, mathematics, and technology education consortium established pursuant to section 2015(a).

SEC. 2023. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out the provisions of this subpart $15,000,000 for the fiscal year 1991. and such sums as may be necessary for each of the fiscal years 1992 and 1993.

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END

U.S. Dept. of Education

Office of Educational
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