

as we gain a better understanding of how our children learn and as we gain new technologies. Just think of how computers have changed the way we teach and learn.

Our methodologies must change as well.

I was fortunate enough to serve on the Glenn Commission, which sought ways to improve the teaching of math and science. One of the major recommendations that came out of our report, *Before It's Too Late*, was to provide for an ongoing system of professional development of our teachers. I am pleased to see that these bills will provide grants to improve the professional development of our current teachers.

Just as the Glenn Commission recommended, H.R. 1858 also addresses ways to recruit new and talented teachers into the field by providing scholarships for math and science majors who go into teaching, funds to provide master teachers, and other initiatives to improve the quality of our math and science instructors.

I am also pleased to see that H.R. 1858 provides opportunities for traditionally underrepresented groups to excel in math and science related fields. According to a report by the Congressional Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development, women, minorities, and persons with disabilities still eschew technical occupations. They are severely underrepresented in scientific disciplines and while they represent the fastest growing segment of the workforce, they are not going into technical careers at an appreciable rate. If we are to meet the future demand for a highly skilled workforce, we must find ways to tap into these groups.

This bill would also address this important issue. It contains programs and language specifically geared towards the recruitment and retention of qualified individuals from these underrepresented groups.

Yet we need to do more. If we are going to improve the recruitment and retention of our teachers, it is important we hear from the people this affects most—our teachers.

I am concerned that this bill does not do enough to include the participation of teachers. Rather than giving sole authority to the Director of NSF, to ensure teachers' voices are heard, it is important that the director work in collaboration with teachers.

I hope as this bill continues to move through Congress, we can incorporate language that will ensure our teachers' voices are heard.

Nevertheless, I support the goals of this bill and I urge my colleagues to support it.

Mr. ETHERIDGE. Mr. Speaker, I rise in strong support of H.R. 1858-legislation to improve America's standing in mathematics, science and technology education and instruction.

A solid academic foundation in math and science education is crucial for success in the 21st Century. This bill includes a major initiative to enhance science education through the National Science Foundation. H.R. 1858 authorizes \$200 million for the National Science Foundation (NSF) to establish partnerships between institutions of learning and local or state school systems to improve instruction and learning of elementary and secondary school science.

As the former Superintendent of Schools in my home state of North Carolina, I have worked for many years to improve science

and math education in our schools. This bill also includes the measure that I proposed for the better preparation of K-12 teachers in science. We need better math and science instruction in our K-12 classrooms. This bill will help ensure that improving math and science education remains an important national priority. Quality instruction is the key to helping students learn in these critical fields. This action will make a real difference for our children and will put America on the road towards a higher standing in the world in math and science.

There is growing recognition that the success of nearly any effort to improve the academic performance of America's students depends critically on their teachers' mastery of subject matter and their ability to teach it. The way to lift student achievement is to ensure that we have a qualified teacher in every classroom. Therefore, if America is to improve its public schools, initiatives to improve science instruction and learning must become the first priority of education reform. I am pleased this bill takes several steps in that direction.

I urge adoption of this bill, and I hope the President will sign it into law as soon as it reaches his desk.

Mr. UDALL of Colorado. Mr. Speaker, I rise in strong support of H.R. 1858, the National Mathematics and Science Partnerships Act.

I would like to thank Science Committee Chairman BOEHLERT for working with me and my colleagues on the committee to craft this important bipartisan legislation.

I want to express particular support for Title IV in this bill. Title IV sets up the Robert Noyce Scholarship program, which would provide scholarships and programming designed to recruit and train mathematics and science teachers. I introduced a similar bill earlier this year, provisions of which have been incorporated into Title IV.

My bill, the Science Teachers Scholarships for Scientists and Engineers Act, provided for scholarships to students or professionals who have a degree in science or engineering to enable them to take the courses they need to become certified as science or math teachers.

From a series of Science Committee hearings last year about the state of science and math education, and from talking to constituents, students, and educators at home, it has become clear to me that we need to improve science and math education in this country.

In particular, I've come to understand that poor student performance in science and math has much to do with the fact that teachers often have little or no training in the disciplines they are teaching. While the importance of teacher expertise in determining student achievement is widely acknowledged, it is also the case that significant numbers of K-12 students are being taught science and math by unqualified teachers.

So I'm pleased that this bill would begin to address the shortage of qualified science and math teachers by providing an incentive for individuals with the content knowledge to try teaching as a career.

Mr. Speaker, to keep economic growth strong in the long-term, we need continued innovation. But innovation doesn't happen by itself—it requires a steady flow of scientists and engineers. That's why this legislation is so important. H.R. 1858 will help ensure we are prepared for the demands and challenges of the economy of this new century.

Mr. BOEHLERT. Mr. Speaker, I yield back the balance of my time.

The SPEAKER pro tempore (Mr. MILLER of Florida). The question is on the motion offered by the gentleman from New York (Mr. BOEHLERT) that the House suspend the rules and pass the bill, H.R. 1858, as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed.

A motion to reconsider was laid on the table.

NATIONAL SCIENCE EDUCATION ACT

Mr. EHLERS. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 100) to establish and expand programs relating to science, mathematics, engineering, and technology education, and for other purposes, as amended.

The Clerk read as follows:

H.R. 100

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 Science Education Act".

SEC. 2. FINDINGS.

Congress finds the following:

(1) As concluded in the report of the Committee on Science of the House of Representatives, "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 today 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 K–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 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 basics 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. 3. DUPLICATION OF PROGRAMS.

(a) IN GENERAL.—The Director of the National Science Foundation shall review the education programs of the National Science Foundation that are in operation as of the date of enactment of this Act to determine

whether any of such programs duplicate the programs authorized in this Act.

(b) IMPLEMENTATION.—(1) As programs authorized in this Act are implemented, the Director shall terminate any existing duplicative program or merge the duplicative program into a program authorized in this Act.

(2) The Director shall not establish any new program that duplicates a program that has been implemented pursuant to this Act.

(c) REPORT.—(1) The Director of the Office of Science and Technology Policy shall review the education programs of the National Science Foundation to ensure compliance with the provisions of this section.

(2) Not later than one year after the date of the enactment of this Act, the Director of the Office of Science and Technology Policy shall complete a report on the review carried out under this subsection and shall submit the report to the Committee on Science, the Committee on Education and the Workforce, and the Committee on Appropriations of the House of Representatives.

(3) Beginning one year after the date of enactment of this Act, the Director of the Office of Science and Technology Policy, shall, as part of the annual budget submission to Congress, submit an updated version of the report required by paragraph (2).

SEC. 4. MASTER TEACHER GRANT PROGRAM.

(a) DEFINITIONS.—In this section—

(1) The term “sponsoring school” means an elementary or secondary school that employs a teacher who is participating in a program funded in accordance with this section.

(2) The term “nonclassroom time” means time during regular school hours that is not utilized by a master teacher for instructing elementary or secondary school children in the classroom.

(3) 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.

(4) The term “mathematics or science teacher” means a teacher of mathematics, science, engineering, or technology in an elementary or secondary school.

(b) PROGRAM AUTHORIZED.—(1) The Director of the National Science Foundation shall establish a program to award competitive, merit-reviewed grants to institutions of higher education (or consortia thereof) to train master teachers and assist elementary and secondary schools to design and implement master teacher programs.

(2) Institutions of higher education receiving grants under this section shall offer programs to train master teachers. As part of such programs, a grantee 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.

(3) Grants awarded under this section may be used to—

(A) develop and implement professional development programs to train elementary or secondary school teachers to become master teachers and 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 them to develop and implement a plan for the use of master teachers;

(D) support participating teachers 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) fund any other activities the Director determines will accomplish the goals of this section.

(c) SELECTION PROCESS.—(1) An institution of higher education seeking funding under this section shall submit an application 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 applicant 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 program will ensure that teachers are given instruction in both content and pedagogy;

(E) a description of how the applicant will recruit teachers to participate in the program and the criteria that will be used to select the participants;

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

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

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

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

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

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

(3) 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) To be eligible to participate in a program funded 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 funded by this section, the participating teacher will be provided sufficient non-classroom time to serve as a master teacher. A copy of this assurance must be submitted to the institution of higher education as part of the teacher's application to participate in the master teacher program.

(2) No funds authorized by this section may be used to train any teacher who has not complied with paragraph (1).

(e) **ACCOUNTABILITY AND DISSEMINATION.**—(1) 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) The results of the evaluations required under this subsection shall be made available to the public, including through the National Science, Mathematics, Engineering, and Technology Education Digital Library, and shall be provided to the Committee on Science of the House of Representatives and the Committee on Health, Education, Labor, and Pensions of the Senate.

(3) Materials developed under the program established under this section that are demonstrated to be effective shall be made available through the National Science, Mathematics, Engineering, and Technology Education Digital Library.

(f) **AUTHORIZATION OF APPROPRIATIONS.**—There are 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. 5. DISSEMINATION OF INFORMATION ON REQUIRED COURSE OF STUDY FOR CAREERS IN SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION.

(a) **IN GENERAL.**—The Director of the National Science Foundation shall, jointly with the Secretary of Education, compile and disseminate information (including through outreach, school counselor education, and visiting speakers) regarding—

(1) typical standard prerequisites for middle school and high 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 or secondary school; and

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

(b) **LOCAL CONTROL.**—Nothing in this section shall be construed to authorize an officer or employee of the Federal Government to direct, review, or control the instructional content, curriculum, or related activities of a State or local educational agency or a school.

(c) **AUTHORIZATION OF APPROPRIATIONS.**—There are 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. 6. REQUIREMENT TO CONDUCT STUDY EVALUATION.

(a) **STUDY REQUIRED.**—The Director of the National Science Foundation shall enter into an agreement with the National Academies of Sciences and Engineering under which the Academies shall 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 explore the feasibility of one or more methodological frameworks to be used in evaluations of technologies that have different purposes and are used by schools and school systems with diverse educational goals. The study evaluation shall include, to the extent available, information on the type of technology used in each classroom, the reason that such technology works, and the teacher training that is conducted in conjunction with the technology.

(b) **DEADLINE FOR COMPLETION.**—The study evaluation required by subsection (a) shall be completed not later than one year after the date of the enactment of this Act.

(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.**—There are authorized to be appropriated to the National Science Foundation for the purpose of conducting the study evaluation required by subsection (a), \$600,000.

SEC. 7. SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY BUSINESS EDUCATION CONFERENCE.

(a) **IN GENERAL.**—Not later than 180 days after the date of the enactment of this Act, the Director of the National Science Foundation 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 would provide useful participation in the conference.

(b) **PURPOSES.**—The purposes of the conference convened under subsection (a) shall be 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 of the House of Representatives and to the Committee on Commerce, Science, and Transportation 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. 8. DISTANCE LEARNING GRANTS.

(a) **IN GENERAL.**—The Director of the National Science Foundation shall establish a program to award competitive, merit-based grants to institutions of higher education to provide distance learning opportunities in mathematics or science to elementary or secondary school students.

(b) **USE OF FUNDS.**—Grants awarded under this section shall be used by institutions of higher education to establish programs under which elementary or secondary school students can participate in research activities in mathematics or science occurring at the grantees' institution via the Internet.

(c) **SELECTION PROCESS.**—(1) An institution of higher education seeking funding under this section shall submit an application 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;

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

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

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

(E) a description of how the institution of higher education will ensure that the research is enhancing the participants' education and will make it more likely that the participants will continue their studies in mathematics or science; and

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

(2) In evaluating the applications submitted under this subsection, the Director shall consider—

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

(B) the extent to which the proposed program will enhance the participants' education and encourage them 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) The Director shall ensure, to the extent practicable, that the program established under this section serves students in a wide range of geographic areas and in rural, suburban, and urban schools.

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

SEC. 9. COORDINATION.

In carrying out the activities authorized by this Act, the Director of the National Science Foundation shall consult and coordinate with the Secretary of Education to ensure close cooperation with programs authorized under the Elementary and Secondary Education Act of 1965 (Public Law 89-10).

SEC. 10. DEFINITIONS.

In this Act:

(1) The term "elementary school" has the meaning given that term by section 14101(14) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801(14)).

(2) The term "secondary school" has the meaning given that term by section 14101(26) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801(26)).

(3) The term "institution of higher education" has the meaning given that term by section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

The SPEAKER pro tempore. Pursuant to the rule, the gentleman from Michigan (Mr. EHLERS) and the gentleman from Texas (Mr. HALL) each will control 20 minutes.

The Chair recognizes the gentleman from Michigan (Mr. EHLERS).

GENERAL LEAVE

Mr. EHLERS. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days within which to revise and extend their remarks and insert extraneous material into the RECORD on H.R. 100, as amended.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Michigan?

There was no objection.

Mr. EHLERS. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, first I want to thank the gentleman from New York (Mr. BOEHLERT), the chairman of the committee, and the gentleman from Texas (Mr. HALL), the ranking member, and all of the members of the Committee on Science for their bipartisan support of H.R. 100, the National Science Education Act. I am pleased that the bill passed unanimously in committee; I am also pleased that the bill is under consideration today.

The gentleman from Michigan (Mr. SMITH) in his earlier comments mentioned the importance of good math and science education for national security and prosperity. Let me underscore those comments of the gentleman from Michigan, the chairman of the Subcommittee on Research. First, as to the importance to the economy: during the past decade we had some stunning economic growth and, although many people have taken credit for it, Alan Greenspan correctly pointed out that the real credit goes to those scientists and engineers who developed all of the different ideas and inventions which came to fruition in the past decade. The majority of the growth of our economy in the past 10 years came from developments in science and technology, not from political action.

We must recognize the continued importance of science and technology to our economy and the future. We must also recognize, as the gentleman from Michigan (Mr. SMITH) pointed out, the importance to national security. In the war in the Balkans in which our Air Force and our other fighting arms dealt with the Serbian actions in Kosovo, we managed to win the battle without losing a single American soldier, sailor or airman because of developments in science and technology.

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Laser-guided bomb technology did not just drop into our laps. It was developed through a lot of hard work by scientists and engineers; and if we want to maintain our strength as a Nation in national security, we must continue with good science and math education so that we will have scientists and engineers for the future strength and security of America.

There are three main reasons why it is very important for us to have good science and math education, particularly in K through 12. It serves three main purposes.

First we need it to prepare future scientists and engineers for further study in college and graduate school. We do well in that right now, better than any other nation; but there is still room for improvement. We are simply not producing enough good scientists and engineers.

Furthermore, good K through 12 math and science education provides all future workers the basic technical skills they will need for the 21st century workforce, where nearly every job will have a technical component. Gone are the days when one can ignore math and science in high school and still get a good job. In the future, the good jobs will require people to know the basic ideas of math and science.

The third main purpose of K-12 science education is to provide scientific and technical understanding so that citizens may make informed decisions as both consumers and voters.

Mr. Speaker, there is a problem in our Nation. The Third International Mathematics and Science Study pointed out that, compared to other developed nations, we are dead last in high school physics, we are close to the bottom in high school mathematics, and we are second from the bottom out of all developed nations in math and science education overall in our high schools.

In addition to that, the National Science Policy Study, which I developed several years ago now and which led to the emphasis on this subject, pointed out the vital need to strengthen our Nation's science and mathematics education.

The Committee on Science held numerous hearings which served to further examine these problems and develop solutions. We have held many hearings during the past 3 years. These hearings have reinforced the earlier findings and have helped us to develop solutions that will bring needed improvements to our K through 12 math and science classes.

A key to all of this, as we soon found out, and as one could intuitively deduce, is that we must have a knowledgeable and well-prepared teacher in every classroom. While there are many factors that impact student achievement, there is no substitute for a knowledgeable and well-prepared teacher.

Research has shown that an inquiry-based, hands-on science curriculum, which is also concept based, is a vital component of high-quality science education. However, elementary and middle school teachers often lack the time, expertise, and school resources to implement such curricula.

This bill authorizes a grant program for institutions of higher education to train master teachers to have strong backgrounds in math and science so

they can provide professional development, in-classroom assistance, and oversight of hands-on science materials to K-9 science, math, and engineering technology teachers. This is the type of support our teachers deserve and should be receiving.

During my 30 years of working in higher education and also working in elementary and secondary classrooms on math-science education, I found that the single greatest determinant of success for a math or science program in a school was having a well-trained go-to person in that school, where the teachers could go for help if equipment broke or if they did not understand a concept. They could go there and immediately get help.

That is what this program will create, master teachers who will thus serve, and it provides for the training of those master teachers.

This bill also creates a program for higher education institutions to provide distance learning opportunities for elementary and secondary students. Distance learning invites exciting possibilities for student learning, particularly for student scientific research. Our Nation's teachers and students will be one step closer to receiving this training experience when this bill passes.

Again, I want to thank the gentleman from New York (Chairman BOEHLERT); the gentleman from Ohio (Chairman BOEHNER) of the Committee on Education and the Workforce; the leadership of the House, and of course the ranking member, the gentleman from Texas (Mr. HALL). They have all worked together to produce a good bill, and I am pleased to bring this bill to the floor of the House today.

Mr. BOEHLERT. Mr. Speaker, will the gentleman yield?

Mr. EHLERS. I yield to the gentleman from New York.

(Mr. BOEHLERT asked and was given permission to revise and extend his remarks.)

Mr. BOEHLERT. Mr. Speaker, this bipartisan legislation is the result of several years of hard work and perseverance on the part of my colleague, the gentleman from Michigan (Mr. EHLERS). It enjoys strong support from both the business and the educational communities; and the Committee on Science approved this bill, as was mentioned, unanimously.

I want to thank our good friends on the Committee on Education and the WorkForce, the gentleman from Ohio (Mr. BOEHNER), and the ranking member, the gentleman from California (Mr. GEORGE MILLER), for their advice and cooperation. We have worked together in an unparalleled spirit of close cooperation throughout this process, and they have made significant contributions to the legislation.

Mr. Speaker, study after study has confirmed that certified, well-trained teachers who majored or minored in their subject matter are one of the central factors affecting student achievement. As a matter of fact, I maintain

that the most important ingredient in a child's education, other than the family, is the teacher, not so much a new school or bricks and mortar or fancy textbooks or all that. They are all important, but the most important ingredient outside the home is the teacher, and this bill recognizes that.

I think it is the result of a lot of hard work on the part of a lot of well-intentioned people who have put their heads together, put their talents together, and have come up with something worthy of our support.

Mr. Speaker, let me salute once again the gentleman from Michigan (Mr. EHLERS) for his unparalleled leadership in this effort.

Mr. EHLERS. Mr. Speaker, I reserve the balance of my time.

Mr. HALL of Texas. Mr. Speaker, I yield myself such time as I may consume.

(Mr. HALL of Texas asked and was given permission to revise and extend his remarks.)

Mr. HALL of Texas. Mr. Speaker, I rise in support of H.R. 100, the National Science Education Act. It is a bill reported by the Committee on Science; and as we have spoken of the previous bill, it is a bipartisan bill. It is complementary to H.R. 1858, the Committee on Science's comprehensive science education legislation.

The principal provision of the bill addresses the important issue of training and supporting the activities of highly qualified science and math teachers, so-called "master teachers." The words "master teachers" will be heard several times during this hearing; several times, I am sure, as it goes to conference; and several times when it is presented to the President for his signature.

The master teacher provision is consistent with the approach taken by the master teacher language in H.R. 1693, an education bill I introduced earlier this year.

Over the past 3 years, the Committee on Science has held a series of hearings on how to improve K through 12 science and math education. A strong message that has emerged from this series of hearings is that there is no silver bullet that will improve student learning in these subjects.

But what is also clear is the critical importance of having teachers who have achieved mastery of their subject matter and who have acquired the teaching skills to effectively implement a hands-on standards-based curriculum.

Master teachers are individuals who have acquired these skills and who are available in schools as mentors and research resources for other science and math teachers. By training a new generation of master teachers, a multiplying effect occurs that will lead to improved science and math education in entire schools, not just in a single classroom.

Like other provisions in H.R. 100, these provisions are consistent with

education legislation that was approved in a bipartisan manner by the Committee on Science last year. I want to lay special emphasis on this, and this may be the day of the gentleman from Michigan (Mr. EHLERS), I do not know; but I want to lay special emphasis on his contribution.

I want to congratulate these people, all the gentleman from Michigan (Mr. EHLERS), including Professor EHLERS, Dr. EHLERS and Chairman EHLERS, for his willingness to work on this bill and his willingness to work with the minority to perfect it.

He did not just work this year; he was selected by the gentleman from Wisconsin (Chairman SENSENBRENNER) last year to carry out the thrust of the ingredients of H.R. 100. The gentleman from New York (Chairman BOEHLERT) endorsed that recommendation, and we are here today I think to see the fruits of his labor.

I congratulate the gentleman. I congratulate the gentleman from New York (Chairman BOEHLERT), of course, and others who have had a lot to do with it. I ask my colleagues to support passage of this legislation.

Mr. Speaker, I reserve the balance of my time.

Mr. EHLERS. Mr. Speaker, I yield 4 minutes to the gentlewoman from Maryland (Mrs. MORELLA).

Mrs. MORELLA. Mr. Speaker, I thank the gentleman for yielding time to me. I particularly thank him for this piece of legislation, H.R. 100, and for his commitment to science and math education. His leadership and dedication on that issue have been an inspiration to those of us on the Committee on Science and for all of his colleagues in the House.

Mr. Speaker, I appreciate this bill coming before us in this timely fashion. I appreciate the ranking member of the Committee on Science, the gentleman from Texas (Mr. HALL), and indeed, the chairman of the Committee on Science, the gentleman from New York (Mr. BOEHLERT), for the leadership and the kind of climate that they have introduced and that they have expanded on that bipartisan committee.

Mr. Speaker, we know we have a problem with math and science education in this country. Our students perform poorly compared with our international counterparts, and the gap appears to be widening. Most recently, the Glenn Commission, named for former Senator John Glenn, highlighted some of the reasons for our difficulties in its report, "Before It Is Too Late."

I served on that commission, and we noted that much of the problem lies with inadequate preparation of teachers, not with their dedication, and certainly not with their commitment.

To put it simply, when it comes to teaching math and science, we ask teachers the impossible: to teach a subject they were not trained to teach, and to do it without any assistance.

Over half of high school students take physical science from an out-of-

field teacher. Over 20 percent of high school math and science teachers lack even a minor in their main teaching field. Too many students take math and science classes from instructors with no formal training in these difficult and important subjects. Small wonder they have difficulties with this material.

It would be nice to change this situation. It would be nice if science and math majors were in the classroom teaching science and math. In fact, it is imperative. We have a number of proposals to increase the recruitment of qualified instructors; but we need to do something, and we need to do it now. We cannot wait for the next generation of teachers to graduate; and even with our best efforts, we will not be able to graduate enough teachers with technical backgrounds to meet our short-term needs.

Our best alternative is to provide some assistance to the ones that we have. H.R. 100 provides that help. It provides grants for the training of master teachers in math and science who, along with their instructional duties, are commissioned to serve as a reference for embattled teachers. They are experts to whom the less experienced math and science instructors can turn for curriculum advice, for technical assistance, and for other needs. They are a vital link to the scientific community for teachers with little formal experience.

It would be best if every teacher had some formal training in the subject he or she taught. Ideally, a math and science teacher would have completed extensive coursework in the specific disciplines they teach. But unfortunately, all too often that is just not the case.

Out-of-subject teachers are doing a difficult, if not impossible, job. Their hard work and dedication are commendable, but good intentions are not enough. They need support. They need some help. It is about time they got it. Give our teachers someone to turn to. Pass H.R. 100. It will pay off 100 percent.

Mr. HALL of Texas. Mr. Speaker, I yield 3 minutes to the gentlewoman from Texas (Ms. EDDIE BERNICE JOHNSON), the ranking member on the Subcommittee on Research, who ushered these bills through subcommittee, through committee, the Committee on Rules, and to the floor.

(Ms. EDDIE BERNICE JOHNSON of Texas asked and was given permission to revise and extend her remarks.)

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Speaker, I rise in support of H.R. 100. I commend the gentleman from New York (Mr. BOEHLERT), the gentleman from Michigan (Mr. EHLERS), and the ranking member for bringing this legislation forward. It works in concert with the bill we just passed and brings attention to the very important link, and that is to make sure that very well-qualified teachers are available. Students need this type of expertise in a classroom.

Mr. HALL of Ohio. Mr. Speaker, I have no further requests for time, and I yield back the balance of my time.

Mr. EHLERS. Mr. Speaker, I yield myself such time as I may consume.

□ 1545

I certainly appreciate all the expressions of support for this bill. As my colleagues may know, this bill and the previous one are a product of a number of years of work.

But let me reemphasize a few points. For those who think that we are already doing a sufficiently good job on K-12 math and science, I encourage a visit to graduate schools in this Nation. In virtually every graduate school in science and engineering, we find that over half of the students are from other nations. Our students cannot compete against students from other nations in applying for admission to graduate school.

If more evidence is needed, just look at the actions of this Congress itself. This year we have approved 200,000 H-1B visas. Why? Because we do not have enough scientists, engineers, technicians, and mathematicians in this country to do the work that we need done to invent, develop, and produce the products that we are making in this country.

I could give other reasons why we have problems here. Let us face it, some of the problems are cultural. That is why the gentlewoman from California (Ms. WOOLSEY) introduced her bill trying to encourage young girls to go into science, technology, and engineering because there is a culture in this country that women cannot do math or women cannot do science. It is utter nonsense. We are throwing away approximately 40 percent of our potential scientific, engineering, and mathematics workforce with that cultural attitude, that women are not good at science or math or that minorities do not care for science or math. That is nonsense, because in other countries they do; and they become scientists, engineers, doctors, and mathematicians. Women and minorities in this country can do the same.

We have to work hard to change that culture, and this bill will move us in that direction.

Science is fun if it is understood. Science is exciting when taught properly. And we have to make certain that the students of America enjoy that experience and realize that science is fun.

But the cultural issue is still an important one. As a physicist I have often had the experience when I met someone, before I came to the Congress, and they would ask what I do. I would say I am a physicist, and quite often I would get the response, "Oh, I could never understand all those numbers and symbols; I just could not get math or science." For a number of years, I accepted that statement. But then I began to think that was strange. What

if I had asked them the question first, what do you do, and they said, "Well, I am an English teacher," and I said, "Oh, I cannot understand all those letters and words, and so I gave up reading." That is socially unacceptable. But by the same standard, it should also be socially unacceptable to publicly profess ignorance of science and math.

Everyone is capable of learning some science and math. Everyone should learn it. I think it is extremely important in today's society that people not only understand the writings of Shakespeare and read them, but they should also understand the third law of dynamics; not as a physicist does, I do not expect that, but they should certainly understand what the three laws of thermodynamics mean and why we have an energy crisis today because we have, as a public, failed to understand the implications of the three laws of thermodynamics. Concepts such as this are important, and people should be aware of them and understand the implications of them.

These are all purposes of this bill and also of the bill of the gentleman from New York (Mr. BOEHLERT). I am hopeful that these bills will pass into law and that together they will go far to improve the competence of the scientists, engineers, mathematicians, and the lay people of this country so that we will no longer have a shortage of people to work in the technical, scientific industries, that we will train good teachers, and that we will have schools and students that we can be very proud of.

Mr. Speaker, I yield back the balance of my time.

The SPEAKER pro tempore (Mr. MILLER of Florida). The question is on the motion offered by the gentleman from Michigan (Mr. EHLERS) that the House suspend the rules and pass the bill, H.R. 100, as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed.

A motion to reconsider was laid on the table.

PROVIDING FOR RETENTION OF TRAVEL PROMOTIONAL ITEMS FOR FEDERAL EMPLOYEES

Mrs. MORELLA. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 2456) to provide that Federal employees may retain for personal use promotional items received as a result of travel taken in the course of employment.

The Clerk read as follows:

H.R. 2456

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

SECTION 1. RETENTION OF TRAVEL PROMOTIONAL ITEMS.

(a) IN GENERAL.—Section 5702 of title 5, United States Code, is amended—

(1) by redesignating subsection (c) as subsection (d);

(2) in subsection (d) (as redesignated by paragraph (1)), by striking "This section does" and inserting "Subsections (a) and (b) do"; and

(3) by inserting after subsection (b) the following new subsection:

"(c) Promotional items (including frequent flyer miles, upgrades, and access to carrier clubs or facilities) an employee receives as a result of using travel or transportation services procured by the United States or accepted pursuant to section 1353 of title 31 may be retained by the employee for personal use if such promotional items are obtained under the same terms as those offered to the general public and at no additional cost to the Government."

(b) REPEAL OF SUPERCEDED LAW.—Section 6008 of the Federal Acquisition Streamlining Act of 1994 (Public Law 103-355; 5 U.S.C. 5702 note) is repealed.

(c) APPLICABILITY.—The amendments made by this Act shall apply with respect to promotional items received before, on, or after the date of the enactment of this Act.

The SPEAKER pro tempore. Pursuant to the rule, the gentlewoman from Maryland (Mrs. MORELLA) and the gentleman from Texas (Mr. TURNER) each will control 20 minutes.

The Chair recognizes the gentlewoman from Maryland (Mrs. MORELLA).

GENERAL LEAVE

Mrs. MORELLA. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days within which to revise and extend their remarks on H.R. 2456, the bill under consideration.

The SPEAKER pro tempore. Is there objection to the request of the gentlewoman from Maryland?

There was no objection.

Mrs. MORELLA. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, lately we have been hearing many reports about the human capital crisis affecting our civil service. Many of our best Federal employees are leaving for the private sector, with better pay and better benefits that are available to them. In addition, many talented individuals are choosing jobs in the private sector over public sector work for the same reasons.

While it is difficult for the Federal Government to match salaries with the private sector, it can at least demonstrate to current and prospective Federal employees that it values their service and is willing to reward them with certain benefits; and for this reason I hope the House will pass today H.R. 2456.

This important legislation that I am proud to cosponsor allows Federal civilian employees to keep frequent flyer miles and other promotional benefits that they receive while traveling on official government business. Unlike private sector employees, current law prohibits Federal employees from keeping