

HOUSE BILL REPORT

2SHB 1906

As Passed Legislature

Title: An act relating to improving mathematics and science education.

Brief Description: Improving mathematics and science education.

Sponsors: By House Committee on Appropriations (originally sponsored by Representatives Hunter, Anderson, Wallace, Seaquist, Eddy, P. Sullivan, McDermott, Ormsby, McIntire, Pedersen, Rolfes, Barlow, Goodman, Rodne, O'Brien, Kenney, McDonald, Morrell, Newhouse, Hurst, Skinner, Wood and Bailey).

Brief History:

Committee Activity:

Education: 2/8/07, 2/26/07 [DPS];

Appropriations: 3/19/07, 3/26/07 [DP2S(w/o sub ED)].

Floor Activity:

Passed House: 3/28/07, 90-7.

Senate Amended.

Passed Senate: 4/11/07, 37-12.

House Concurred.

Passed House: 4/17/07, 96-2.

Passed Legislature.

Brief Summary of Second Substitute Bill

- Creates an after school mathematics support program with community based organizations.
- Creates a mathematics and science instructional coach program.
- Directs the State Board of Education (SBE), with advice of citizen advisory panels, to recommend revisions to the Essential Academic Learning Requirements (EALRs) and Grade Level Expectations (GLEs) in mathematics and science.
- Requires the Superintendent of Public Instruction (SPI) to revise the EALRs and GLEs and present the revised standards to the SBE and the Legislature according to specified timelines.

This analysis was prepared by non-partisan legislative staff for the use of legislative members in their deliberations. This analysis is not a part of the legislation nor does it constitute a statement of legislative intent.

- Establishes timelines for the SPI to present recommendations for three basic mathematics and science curricula for elementary, middle, and high school grade spans.
- Creates two new alternative routes to teacher certification for mathematics and science teachers.
- Requires a common math placement test and performance standard to be used by all colleges and universities as a measure of college readiness.
- Creates a Mathematics, Science, and Technology (MST) director and, within funds appropriated for these purposes, establishes a number of different MST initiatives and public-private partnerships.
- Requires the SPI to develop education technology standards and classroom-based assessments for education technology for voluntary use.

HOUSE COMMITTEE ON EDUCATION

Majority Report: The substitute bill be substituted therefor and the substitute bill do pass. Signed by 9 members: Representatives Quall, Chair; Barlow, Vice Chair; Priest, Ranking Minority Member; Anderson, Assistant Ranking Minority Member; Haigh, McDermott, Roach, Santos and P. Sullivan.

Staff: Barbara McLain (786-7383).

HOUSE COMMITTEE ON APPROPRIATIONS

Majority Report: The second substitute bill be substituted therefor and the second substitute bill do pass and do not pass the substitute bill by Committee on Education. Signed by 32 members: Representatives Sommers, Chair; Dunshee, Vice Chair; Alexander, Ranking Minority Member; Bailey, Assistant Ranking Minority Member; Haler, Assistant Ranking Minority Member; Anderson, Buri, Chandler, Cody, Conway, Darneille, Ericks, Fromhold, Grant, Haigh, Hinkle, Hunter, Kagi, Kenney, Kessler, Kretz, Linville, McDermott, McDonald, McIntire, Morrell, Pettigrew, Priest, Schual-Berke, Seaquist, P. Sullivan and Walsh.

Minority Report: Without recommendation. Signed by 1 member: Representative Hunt.

Staff: Ben Rarick (786-7349).

Background:

The Washington Learns comprehensive education study, chaired by Governor Gregoire, issued final recommendations in November 2006. The Governor proposes implementation of a number of the recommendations regarding mathematics and science education through her proposed budget for the 2007-09 biennium and proposed legislation.

Mathematics and Science Review. The Superintendent of Public Instruction (SPI) is responsible for developing and periodically revising the Essential Academic Learning Requirements (EALRs) and Grade Level Expectations (GLEs) that form the state's learning standards. The State Board of Education (SBE) has responsibility for developing a state accountability system to improve student achievement.

In February 2007, the SBE issued a request for proposals for an independent review of Washington's mathematics standards. The SBE also intends to develop recommendations regarding an accountability system by December 2007.

After School Support. One of the Washington Learns report recommendations was that the state should work with local community organizations and partnerships on student activities to reinforce mathematics and science concepts and skills.

Instructional Coaches. Another recommendation was to create training programs for mentors and instructional coaches who would teach alongside classroom teachers to provide encouragement, ideas, feedback, and examples related to effective practice. The report recommended that an initial focus be on mathematics coaching.

The Legislature currently supports mathematics coaches through the Math Helping Corps (MHC), which provides assistance to schools with low student performance in mathematics. The 13 MHC facilitators are employed by the SPI and are typically assigned to work directly in one school. They spend the rest of their time providing training and assistance to other teachers in the region.

Alternative Routes to Teacher Certification. There are several alternative routes for individuals to earn a teaching certificate other than completing a traditional teacher preparation program. Alternative route programs must be approved by the Professional Educator Standards Board (PESB). Route One is designed for paraeducators with an associate's degree seeking certification in special education or English as a Second Language (ESL). Subject to funding, alternative route candidates are eligible for conditional scholarships of up to \$8,000 per year, with the condition of two years of school service for every year of scholarship.

The PESB has also adopted pathways for currently certificated teachers to add a subject area endorsement. One of these pathways allows the teacher to pass the state subject area assessment (Praxis II) and have their instructional performance in that subject evaluated by a college or university teacher preparation program. Some teachers may need to take additional coursework to pass the assessment. One of the Washington Learns report recommendations was to expand the alternative route programs to prepare more mathematics and science teachers.

College Readiness. Community and technical colleges use a number of different tests to help determine whether and at what level students are prepared for college-level work. Four-year universities consider SAT or ACT scores in their decisions for admission, but rely on the Math Placement Test (MPT) developed by the University of Washington (UW) to assist them in determining the appropriate math course for incoming students.

Some high schools in Washington are working with local colleges to administer college placement tests to students in grades 10 or 11 as a way to provide early information about college readiness and for guidance and counseling purposes. One of the recommendations of the Washington Learns steering committee was expanded use of college placement tests for these purposes.

Mathematics, Science, and Technology. Another of the Washington Learns recommendations was to encourage public-private partnerships and initiatives to get students excited about mathematics and science. Examples include the Washington Aerospace Scholars Program with the Museum of Flight, the Leadership and Assistance for Science Education Reform (LASER) Program with Battelle and the Pacific Science Center, Project Lead the Way with the American Electronics Association, and the Washington State Science and Engineering Fair. There are no Essential Academic Learning Requirements (EALRs) or Grade Level Expectations (GLEs) expressly for technology. However, the SPI has adopted the National Educational Technology Standards and has developed definitions of technology literacy and technology fluency in the State Educational Technology Plan. Enhanced state funding for students enrolled in approved career and technical education (CTE) programs is provided only for programs in high schools and not in middle schools.

Summary of Second Substitute Bill:

Math and Science Review. By September 2007, the SBE will recommend to the SPI revised EALRs and GLEs in mathematics. The recommendations will consider clarity, rigor, and coherence of standards; college readiness standards; study of national and international standards and those in other states; and information presented during public comment. By January 2008, the SPI must revise the EALRs and GLEs and present them to the SBE and the legislative education committees. The SPI must adopt the revisions unless otherwise advised by the Legislature in the 2008 session. The SBE will be aided by an expert consultant retained by the SBE and a Mathematics Advisory Panel (Panel) of up to 16 members appointed by the SBE. Panel members include representation from academia, business and industry, educators, parents, and other individuals.

Using the same process as for mathematics standards, the SBE and the SPI revise the science standards by June 30, 2008, with a report to the Legislature by December 1, 2008. The SBE also appoints a Science Advisory Panel.

The SBE must also amend high school graduation requirements by December 1, 2007, to include a minimum of three credits of mathematics and describe the required content. At least one of the credits can be a career and technical education course equivalent.

The SPI identifies no more than three mathematics and science curricula for elementary, middle, and high school grade spans that align with the new standards and presents them to the SBE for formal comment. Mathematics curricula must be identified by May 15, 2008, and science curricula by May 15, 2009. Subject to funding, at least one of the curricula must be available online at no cost to schools and parents.

Nothing requires a school district to use the identified curricula. However, the accountability plan adopted by the SBE must recommend conditions where schools would be required to use the curricula. Required use of the curricula as an intervention strategy must be authorized by the Legislature. The SPI and the SBE make quarterly progress reports to the Legislature through December 2008.

After School Support. An after school mathematics support program is created. The SPI provides grants to community-based nonprofit organizations that demonstrate the capacity to provide assistance in mathematics learning, with priority for proposals to serve middle and junior high school students. The SPI evaluates program outcomes and makes recommendations regarding continuation, modification, sustainability, and possible expansion. An interim report is due November 1, 2008, with a final report due December 1, 2009.

Instructional Coaches. A mathematics and science instructional coach program is created. The program includes a coaching institute, coaching support seminars, and additional coach development services. In developing the program the SPI must draw upon research and the experiences of coaches in other programs.

Participating schools and districts select the individuals to perform the role of coach, based on characteristics of a successful coach. The coach's role is to support teachers as they apply knowledge, develop skills, polish techniques, and deepen their understanding of content and instructional practices. Each coach is assigned to two schools.

Coach program participants ensure that coaches participate in the coach development institute and support seminars, practice coaching activities according to their defined role, collect data, and participate in program evaluation activities.

The Washington State University Social and Economic Sciences Research Center evaluates the program. An interim report is due November 1, 2008, with a final report due December 1, 2009.

Alternative Routes to Teacher Certification. Two new alternative routes to teacher certification are created. The Pipeline for Paraeducators program is for individuals with at least three years of classroom experience but without a college degree. A conditional scholarship of up to \$4,000 per year for no more than two years is provided for candidates to enroll in a community or technical college. Upon completion of an Associate's Degree, the candidate is eligible to enroll in a Route One alternative route program to obtain a mathematics, special education, or English as a Second Language (ESL) teaching certificate.

The Retooling to Teach Mathematics and Science Program is for current teachers and individuals who are not employed as teachers, but who have an elementary teaching certificate. A conditional scholarship of up to \$3,000 per year is provided for these individuals to pursue a middle level or secondary mathematics or science endorsement through one of the PESB's pathways to endorsement. Candidates with an elementary teaching certificate who are not employed as teachers can seek only a middle level endorsement.

College Readiness. By September 1, 2008, the education and higher education agencies and institutions that make up the Transition Math Project, must revise the MPT to serve as a common college readiness test for all two and four-year colleges and universities. The test must be implemented by September 1, 2009, with a common performance standard for college readiness.

Subject to funding, beginning in the fall of 2009, school districts must provide students the option of taking the MPT once at no cost and encourage junior and seniors to take it. The SPI reimburses each district for the costs of providing students this opportunity.

Mathematics, Science, and Technology (MST). Within funds appropriated for this purpose, middle schools approved to provide CTE programs or hands-on experiences in mathematics and science integrated with exploratory CTE programs receive enhanced funding through state apportionment formulas. A statewide director for MST is created to conduct outreach to attract middle and high school students to careers in math, science, or technology and to educate students about the course work necessary to be adequately prepared to succeed in these fields. The director also develops public-private partnerships to promote scholarships and professional development opportunities for teachers; coordinates youth opportunities and participation in clubs, fairs, and competitions; and provides technical assistance to schools. Within funds appropriated for these purposes, OSPI:(1) obtains a statewide license or otherwise obtains and disseminates an interactive, project-based high school and middle school technology curriculum. The curriculum must be distributed to all school districts, or as many as feasible, by the 2007-08 school year;

- (2) supports an ongoing, inquiry-based science program that is based on research and aligned with the science GLEs;
- (3) supports a public-private partnership to provide enriching opportunities in mathematics, engineering, and science for under-represented students;
- (4) develops EALRs and GLEs for educational technology literacy and fluency; and
- (5) obtains or develops classroom based assessments for educational technology, which must be available for voluntary use by school districts by the 2010-11 school year. The assessments must be able to be administered and scored by school staff using consistent scoring criteria. If a school district uses a technology assessment, they must notify the SPI, and the SPI will report to the Legislature on the number of districts using the assessments.

The Higher Education Coordinating Board (HECB) is directed to assess the need for additional baccalaureate programs that specialize in teacher preparation in MST

Appropriation: None.

Fiscal Note: Available.

Effective Date: The bill takes effect 90 days after adjournment of session in which bill is passed, except section 1, relating to the review of mathematics and science standards and curriculum and section 2, regarding advisory panels for math and science curricula, which contain an emergency clause and take effect immediately.

Staff Summary of Public Testimony: (Education)

(Invited testimony) Teacher qualifications and effectiveness are the most important influence on student learning. Any curriculum, no matter how bad, will be overcome by a good teacher. But no curriculum, no matter how good, will be effective without a good teacher.

The instructional coach proposal is strongly opposed. Coaches need to be under district direction and implementing district priorities. Math standards must be more focused on basic skills. The definition of a math "expert" must be someone with demonstrated experience in teaching students. Three state-approved curriculum is too limiting. Districts need to be able to intervene based on student needs.

Coaches don't mandate what teachers teach, they only make suggestions. The model of coaching is "job-embedded" professional development that takes place in the classroom with teachers and students, not at an isolated workshop. Schools need to be ready to benefit from coaching.

The alternative routes programs should be expanded in number of slots and number of options. There is a surplus in teachers in certain areas. The alternative routes have great appeal to someone who has chosen a different career trajectory and/or needs to continue working while gaining the certification. Alternative route teachers have life experience and maturity.

(In support) This is one of the most significant pieces of legislation that must be addressed this session. We must examine our math and science standards. We need a narrow set of curricular materials to be able to offer professional development. We can't hire enough teachers to meet the demand; we must find ways to retrain the existing workforce.

Washington's math standards are a mile wide and an inch deep with no opportunity for mastery. The standards shouldn't just be thrown out. Students need to be able to do basic math operations but also have a sense of math and its use and purpose. The WASL scores are strong evidence that math is an important issue. Parents feel very strongly about the importance of improving math and science education in our schools. There should be recognition and alignment of any new standards with the college readiness standards adopted by the Transition Math Project. The review should be comprehensive, transparent, and result in clear and balanced standards.

More work is needed in math and science education. The community must be a part of what schools do successfully with students. Both coaches and mentors are important. Not all school districts have what it takes to do highly effective professional development. Community organizations already have the infrastructure to offer more academic programming; they also have the kids who need the help and partnerships with school districts, often on-campus. Community and technical colleges are ready to help paraeducators move into the teaching pipeline.

(In support with concerns) There must be an independent panel outside of the SBE or the SPI to review standards. All standards should be reviewed, not just math and science. There are pros and cons with coaches. The program must be fully funded and evaluated carefully. Limiting the curriculum eliminates local control. Alternative routes are a good idea, but should not be limited to math and science. Don't lose sight of the whole system. Alternative routes are valuable, but the scholarships should be available for teachers in regular certification programs also.

Success of a coaching program is dependent on the quality of the individual. Paraeducator teacher training programs are only viable if the individuals can work at the same time. The inclusion of well-trained paraeducators working directly with students is what will really work to improve student achievement. As we deal with math and science proposals, we must not forget integration of career and technical course equivalencies.

(Opposed) There is insufficient attention to the key issue: weak math standards. This proposal relies on the idea that the SPI can objectively review its own standards. More professional development and coaching is a waste of money if it's focused on the wrong standards. Each school must have the opportunity to choose its own curriculum. Don't put the same people responsible for the problem in charge of the solution.

Staff Summary of Public Testimony: (Appropriations)

(In support) The Washington State PTA supports this bill. It is important to have a comprehensive solution to the problem of math and science standards that benefits all children and gives districts necessary incentives to adopt rigorous curriculum. As parents, our main concern is to make sure our kids are prepared to succeed in college and in the workplace.

I represent Where's the Math?, a grassroots organization. I am an immigrant with a PhD in electric engineering. There is very little mathematical content in the curriculum in middle and high schools. I want to applaud the efforts of the Legislature, particularly the establishment of an advisory panel to guide the effort of adopting math and science standards. However, we should not artificially limit ourselves to three curricula, and funds should be appropriated to reimburse school districts for the cost of curricula.

The standards review is critical to our ability as a state to move forward. Additionally, the alternate routes and retooling programs are critical; this can help us take advantage of work our state has already done. We have capacity already in place to move this piece forward. We should take advantage of all the para-educators who want to become new math and science teachers by providing them the means to do so.

The Washington Roundtable supports this bill. In the main, this is the right set of activities to be taking on at this point. We need refinement of our standards and a rigorous set of curriculum in the areas of math and science.

Most of the initiatives from HB 1906 were recommendations from Washington Learns. We are very supportive of the coaching initiatives in this bill. Additionally, regarding section 9, we believe the task of revising the math placement test does belong with the Transition Math Project.

Regarding section 1, the SBE has undertaken a review of the math standards and we want to fast track this process, because we would like to be done by the end of August. We are working with Representative Hunter and others to clarify the State Board of Education's role relative to the OSPI in this bill. The OSPI has the staffing capacity and should be in a position to do the substantive work and we should be in an oversight and approval role.

Section 5 references the pipeline to create more math teachers by helping paraeducators that don't have an associate's degree enter onto a pathway to both receive an associate's degree quickly and then move on to get teacher certification in mathematics. The two-year colleges are currently working with the four-year institutions through a negotiated agreement to support this pipeline and are in the process of developing courses for math educators. The colleges are working on the schedules for next year to ensure courses are offered around the working schedules of the paraeducators. We support the funding of these paraeducator and teacher scholarships.

(With concerns) We are concerned about HB 1906. A major concern is the overlapping policy pieces with other legislation. There are too many moving pieces that don't appear to integrate. We ask that you collapse all of the bills that have fiscal impacts so we can see the nexus of all these moving pieces.

The Transitions Mathematics Project is a collaborative of the State Board for Community and Technical Colleges, the Office of the Superintendent of Instruction, the Higher Education Coordinating Board and the Council of Presidents and is financially supported by the Legislature and the Bill Gates Foundation. The Transitions Mathematics Project is concerned section 9 of the bill, which outlines the development of one common readiness test with one common performance standard to be used at all the two- and four-year colleges and universities. The proposal regarding the development of the college readiness test has gained agreement by all the agencies listed above as well as the two- and four-year colleges and universities. The group does not feel the statutory direction provided in the bill is necessary as they have already reached agreement and are working together.

In addition, language contained in section 9 directs the University of Washington (UW) to develop the assessment. This presents a challenge in that the UW is the lead in the development of the Washington math placement test but it is a placement test used by all the baccalaureate institutions. We appreciate the amendments made to the original bill and hope to work more with the Legislature to align this with the proposal.

As a partner with the Transitions Math Project, there is concern with regards to items in the bill regarding remediation. The substitute bill stipulates the baccalaureate institutions may not offer remedial courses in mathematics and the goal of the Transitions Math Project is to reduce remediation needs in math. Yet, there is no distinction in the bill between remedial courses for recent high school graduates or for returning adults and that is an important distinction.

Also please consider that "college ready" is not something that is an all or nothing description for a student. A student can be and usually is prepared in most areas but falls short in one area and that area is usually math. Being able to keep going to college, to stay enrolled; to not have an additional barrier to be put in front of a student is an important way to keep that student on track and to graduate.

There is a concern with section 7 regarding what has been called alternative routes for teachers is now being called conditional scholarship programs. Tying public service back to scholarship is great and lowers the cost of entry into the teacher profession. As you fund what could be large increases in the program, request that the money be attached to candidates not the particular program. Doing so would result in spreading the availability of programs throughout the state as there are many programs that provide teacher training.

Persons Testifying: (Education) (Invited testimony) Dr. Loyce Adams, University of Washington; Dr. Sondra Bright, Tacoma School District; Deborah Lane, Math Helping Corps; Lin Douglas, Professional Educator Standards Board; and Phil Allen, Bellevue School District.

(In support) Representative Hunter, prime sponsor; Virginia Warfield, Washington Teachers of Teachers of Mathematics; Laura Bay and Beverly Young Reed, Washington State Parent Teachers Association; Bill Tsoukalas, Boys & Girls Club of Snohomish County; Fred Yancey, Washington Alliance of Boys & Girls Clubs; Loretta Seppanen, State Board for Community and Technical Colleges; Brian Jeffries, Transition Math Project; and Kyra Kester, Office of the Superintendent of Public Instruction.

(In support with concerns) Elliott Paull, Shalimar Backman, and Julie Wright, Where's the Math; Lucinda Young, Washington Education Association; Bob Cooper, Washington Association of Colleges of Teacher Education; Kathleen Lopp, Washington Association for Career and Technical Education; Jerry Bender, Association of Washington School Principals; and Tom Lopp, Public School Employees.

(Opposed) Joyce Fiess, Citizens United for Responsible Education; and Sharon Hanek.

Persons Testifying: (Appropriations) (In support) Lukas Van Ginueken, Where's the Math?; Julie Wright, Washington State Parent Teacher Association; Marc Frazer, Washington Roundtable; Loretta Seppanen, State Board for Community and Technical Colleges; Kyra Kester, Office of the Superintendent of Public Instruction; and Judy Hartmann, Office of the Governor.

(With concerns) Edie Harding, State Board of Education; Barbara Mertens, Washington Association of School Administrators; Bob Cooper, Washington Association of Colleges for Teacher Education; Brian Jeffries, Transition Math Project; and Cinda Morana, Council of Presidents.

Persons Signed In To Testify But Not Testifying: (Education) None.

Persons Signed In To Testify But Not Testifying: (Appropriations) None.