

**REPORT OF THE
BOARD OF EDUCATION**

**Proposed Revisions to the
Regulations Governing the
Licensure of School Personnel
Related to the Endorsement for the
Mathematics Specialist for
Elementary and Middle Education**

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



SENATE DOCUMENT NO. 24

**COMMONWEALTH OF VIRGINIA
RICHMOND
2005**



COMMONWEALTH of VIRGINIA

BOARD OF EDUCATION

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Thomas M. Jackson, Jr.
President

October 26, 2005

The Honorable Mark R. Warner
Governor of Virginia
Patrick Henry Building, 3rd Floor
1111 East Broad Street
Richmond, Virginia 23219

Members of the General Assembly of Virginia
State Capitol Building
Richmond, Virginia 23219

Dear Governor Warner and Members of the General Assembly:

As requested by SJR 428, the Board of Education has considered the inclusion of the mathematics specialist endorsement during the review and revision of the *Regulations Governing the Licensure of School Personnel* (8 VAC 20-22-10 et seq.). The proposed regulations considered by the Board of Education at the June 27, 2005 meeting include provisions for a mathematics specialist endorsement for elementary and middle education.

In addition, at the September 21, 2005 meeting, the Board of Education considered corresponding language in the revisions to the *Regulations Governing the Review and Approval of Education Programs in Virginia* (8 VAC 20-542-10 et seq.).

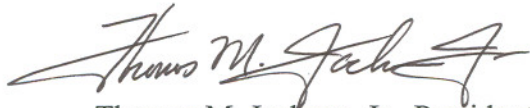
The Board of Education has waived first review and authorized Department of Education staff to proceed with the requirements of the Administrative Process Act and Executive Order 21 (2002), *Development and Review of Regulations Proposed by State Agencies*. Both sets of regulations are expected to come before the Board of Education in 2006 for final review and approval.

I am enclosing a document showing the proposed language related to the endorsement requirements for a mathematics specialist.

The Honorable Mark R. Warner
Members of the General Assembly of Virginia
October 26, 2005
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If you have questions or require additional information, please do not hesitate to contact me or Dr. Thomas A. Elliott, assistant superintendent for teacher education and professional licensure at (804) 371-2522 or Thomas.Elliott@doe.virginia.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas M. Jackson, Jr.", with a stylized flourish at the end.

Thomas M. Jackson, Jr., President
Virginia Board of Education

TMJ/ADW/jcj

Enclosure

**Proposed Revisions to the
Regulations Governing the Licensure of School Personnel
Related to the
Endorsement for the Mathematics Specialist for Elementary and Middle Education
(8 VAC 20-22-10 et seq.)
July 27, 2005**

8 VAC 20-22-610. Mathematics specialist for elementary and middle education

A. Endorsement requirements. The candidate must have:

1. Completed at least three years of successful classroom teaching experience in which the teaching of mathematics was an important responsibility; and
2. Graduated from an approved mathematics specialist preparation program (master's level) or completed a master's level program in mathematics, mathematics education, ore related education field with 30 semester hours of graduate coursework in the competencies listed below, including at least 21 hours of coursework in undergraduate or graduate-level mathematics.
 - a. Understanding of the knowledge, skills, and processes of the Virginia Mathematics Standards of Learning and how curriculum may be organized to teach these standards to diverse learners;
 - b. Understanding of a core knowledge base of concepts and procedures within the discipline of mathematics, including the following strands: number systems and number theory; geometry and measurement; statistics and probability; and functions and algebra;
 - c. Understanding of the sequential nature of mathematics and the mathematical structures inherent in the content strands;
 - d. Understanding of the connections among mathematical concepts and procedures and their practical applications;
 - e. Understanding of and the ability to use the five processes – becoming mathematical problem solvers, reasoning mathematically, communicating mathematically, making mathematical connections, and using mathematical representations – at different levels of complexity;
 - f. Understanding of the history of mathematics, including the contributions of different individuals and cultures toward the development of mathematics and the role of mathematics in culture and society;

- g. Understanding of major current curriculum studies and trends in mathematics;
- h. Understanding of the role of technology and the ability to use graphing utilities and computers in the teaching and learning of mathematics;
- i. Understanding of the ability to select, adapt, evaluate and use instructional materials and resources, including professional journals and technology;
- j. Understanding of and the ability to use strategies for managing, assessing, and monitoring student learning, including diagnosing student error;
- k. Understanding of and the ability to use strategies to teach mathematics to diverse learners;
- l. Understanding of leadership skills needed to improve mathematics programs at the school and division levels, including the needs of high and low-achieving students and of strategies to challenge them at appropriate levels; child psychology, including personality and learning behaviors; educational measurements and evaluation; and effective professional development approaches; and
- m. Understanding of and proficiency in grammar, usage, and mechanics and their integration in writing.

**Proposed Revisions to the
Regulations Governing the Review and Approval of Education Programs in Virginia
Related to the
Endorsement for the Mathematics Specialist for Elementary and Middle Education
(8 VAC 20-542-10 et seq.)
September 21, 2005**

8 VAC 20-542-540. Mathematics specialist for elementary and middle education

- A. A mathematics specialist is a teacher in the elementary or middle grades who has interest and special preparation in mathematics content, scientifically based research in the teaching and learning of mathematics, diagnostic and assessment methods, and leadership skills. The school-based mathematics specialist shall serve as a resource in professional development, instruction children who have learning difficulties in mathematics, curriculum development and implementation, mentoring new teachers, and parent and community education.
- B. The mathematics specialist program shall ensure that the candidate has completed at least three years of successful classroom teaching experience in which the teaching of mathematics was an important responsibility and demonstrated the following competencies:
1. Understanding of the knowledge, skills, and processes of the Virginia Mathematics Standards of Learning and how curriculum may be organized to teach these standards to diverse learners;
 2. Understanding of a core knowledge base of concepts and procedures within the discipline of mathematics, including the following strands: number systems and number theory; geometry and measurement; statistics and probability; and functions and algebra;
 3. Understanding of the sequential nature of mathematics and the mathematical structures inherent in the content strands;
 4. Understanding of the connections among mathematical concepts and procedures and their practical applications;
 5. Understanding of and the ability to use the five processes – becoming mathematical problem solvers, reasoning mathematically, communicating mathematically, making mathematical connections, and using mathematical representations – at different levels of complexity;
 6. Understanding of the history of mathematics, including the contributions of different individuals and cultures toward the development of mathematics and the role of mathematics in culture and society;

7. Understanding of major current curriculum studies and trends in mathematics;
8. Understanding of the role of technology and the ability to use graphing utilities and computers in the teaching and learning of mathematics;
9. Understanding of the ability to select, adapt, evaluate and use instructional materials and resources, including professional journals and technology;
10. Understanding of and the ability to use strategies for managing, assessing, and monitoring student learning, including diagnosing student error;
11. Understanding of and the ability to use strategies to teach mathematics to diverse learners;
12. Understanding of leadership skills needed to improve mathematics programs at the school and division levels, including the needs of high and low-achieving students and of strategies to challenge them at appropriate levels; child psychology, including personality and learning behaviors; educational measurements and evaluation; and effective professional development approaches; and
13. Understanding of and proficiency in grammar, usage, and mechanics and their integration in writing.

SENATE JOINT RESOLUTION NO. 428

Requesting the Board of Education to include the mathematics specialist endorsement in the Licensure Regulations for School Personnel. Report.

Agreed to by the Senate, February 8, 2005

Agreed to by the House of Delegates, February 24, 2005

WHEREAS, to comply with accountability requirements in the federal No Child Left Behind Act, local school divisions must meet steadily increasing student pass rates on mathematics assessments, reaching a 100 percent pass rate in the Commonwealth by the 2013-2014 school year; and

WHEREAS, the Standards of Accreditation require that public schools and students satisfy certain mathematics standards for the purpose of obtaining full accreditation and a high school diploma, respectively; and

WHEREAS, the Standards of Learning for Mathematics require students to build a strong and diverse mathematics foundation in their elementary and middle school years; and

WHEREAS, mathematics specialists are classroom teachers in kindergarten through grade eight who possess sound school leadership skills, and strong preparation and experience in mathematics content and teaching; and

WHEREAS, mathematics specialists strive to improve student achievement in mathematics through the enhancement of the instructional capabilities and content knowledge of elementary and middle school teachers; and

WHEREAS, some Virginia institutions of higher education have implemented mathematics specialist programs to prepare teachers in math content and instruction, curriculum alignment, data analysis, and professional development; and

WHEREAS, teachers from 20 school divisions participating in these programs indicate they have increased their mathematical knowledge and teaching skills significantly; and

WHEREAS, the employment of mathematics specialists by some school divisions indicates the recognition of their value and contribution to elevating student performance in mathematics; and

WHEREAS, currently, the Board of Education is reviewing the licensure regulations through its Advisory Board on Teacher Education and Licensure (ABTEL), and the regulatory process to promulgate revised regulations may occur in the early spring of 2005; and

WHEREAS, requesting the Board of Education to consider the inclusion of the mathematics specialist endorsement during the review and revision of its licensure regulations is timely and appropriate; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That the Board of Education be requested to include the mathematics specialist endorsement in the Licensure Regulations for School Personnel. The Board shall design the endorsement in a manner to facilitate and improve student achievement in mathematics and include such endorsement in the current review and revision of the Licensure Regulations for School Personnel by its Advisory Board on Teacher Education and Licensure (ABTEL).

The Board of Education shall submit to the Division of Legislative Automated Systems an executive summary and report of its progress in meeting the request of this resolution no later than the first day of the 2006 Regular Session of the General Assembly. The executive summary and report shall be submitted for publication as a report document as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.