

Mathematics Specialist Endorsement

2008 Ohio/NCTM Modified Standards Grade P-6

Mathematics specialist (limited to a kindergarten-primary, elementary, or early childhood license, or middle childhood, high school, or adolescence to young adult mathematics teaching license), valid for providing coaching and professional development in mathematics education for classroom teachers of mathematics in grades Pre-Kindergarten through six. Candidates must have at least three years of successful experience teaching mathematics under a standard teaching certificate or license.

Ohio Educator Licensure Standards for P-6 Mathematics Specialist Endorsement

Introduction

The Ohio Educator Licensure Program Standards for P-6 Mathematics Specialist Endorsement Teacher Licensure program were developed by professionals serving in mathematics education programs and Consultants from the Ohio Department of Education, and after a thorough review of the following documents: Principles and Standards for School Mathematics (copyright 2000), National Council of Teachers of Mathematics Standards (2003), and the Ohio Performance-Based Teacher Licensure Standards.

Performance-based standards

Ohio requires performance-based programs and program reports which must include candidate performance assessments. Performance-based assessments should be appropriate for the standards including multiple forms of measurement, and measurement at multiple points over a candidate's progression through a program. **The standards will be assessed holistically**, and mastery of every criterion related to each standard is not required; however, program reports must provide adequate evidence of the proficiency of the standards. It is important that the evidence presented includes information that focuses directly on the standards.

Licensure Rule 3301-24-05 (E) (10)

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Other requirements:

As specified in OAC 3301-24, institutions must provide documentation that the program includes:

- A minimum of a baccalaureate degree
- A minimum of three years of successful experience in teaching mathematics

MATHEMATICS SPECIALIST ENDORSEMENT (GRADES P-6) STANDARDS

Standard 1. Candidates have an in-depth understanding of mathematics; content, processes, and pedagogy appropriate for grades P-6.

1.1 Candidates are confident in their knowledge of mathematics; which affects both what they teach and how they teach it.

1.2 Candidates understand numbers and operations (broadly and in-depth) in order to teach mathematics for understanding and develop strategies for building conceptual understanding of number.

1.3 Candidates use mathematics to build algebraic concepts, appropriately apply algebraic reasoning and use algebraic notation and language correctly.

1.4 Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.

1.5 Candidates select and use appropriate units, techniques, and tools for the attribute being measured.

1.6 Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.

1.7 Candidates approach mathematics as a unified whole by applying the criteria of the seven processes (i.e., problem solving, reasoning, communication, connections, representation, technology, dispositions) throughout work in all of the content standards.

1.8 Candidates are able to evaluate mathematics curricula based upon the NCTM Principles and Standards and upon the Ohio Academic Content Standards (OAS).

1.9 Candidates use technology as an integrated part of the curriculum.

Standard 2. Candidates create learning environments that promote growth, development, and achievement for all students.

2.1 Candidates identify, describe, and apply mathematics-specific principles of learning theory.

2.1.1 Candidates develop lessons which reflect application of current learning theory and knowledge of how students learn specific mathematical concepts.

2.1.2 Candidates articulate how differences in student characteristics can affect mathematics learning.

2.2 Candidates employ critical analysis and synthesis to identify, evaluate, and modify practice to meet the needs of a diverse student population

2.2.1 Candidates know and are able to apply and model a variety of intervention strategies for meeting diverse student needs.

2.3 Candidates know, implement, and model developmentally appropriate practice for all students.

2.4 Candidates assist in the development of student self-monitoring skills to use in their mathematics learning.

2.5 Candidates coach teachers in a variety of instructional grouping options and methods to promote a positive learning environment.

Standard 3. Candidates know and apply instructional strategies that promote students' learning and meet the needs and interests of all students.

3.1 Candidates select, evaluate, and use a wide range of instructional practices, approaches and methods.

3.2 Candidates design instructional plans that enable students to construct valid and useful understanding of mathematics.

3.3 Candidates teach students to connect prior knowledge with new information.

3.4 Candidates evaluate curriculum materials; plan and use appropriate materials, including technology-based, for effective mathematics instruction for learners at various stages of development.

3.5 Candidates effectively implement the appropriate use of technology-based practices for learners at different stages of development and to meet the needs of a diverse student population.

3.6 Candidates use instructional grouping options (individual, small-group, whole-class, and computer based) as appropriate for accomplishing given purposes.

Standard 4. Candidates construct and use varied assessments to inform instruction, evaluate, and ensure student learning.

4.1 Candidates use diagnostic, formative, and summative methods to determine students' understanding of mathematics, and to monitor their own teaching effectiveness.

4.2 Candidates coach in-service teachers to administer and interpret assessments appropriate for selected purposes.

4.3 Candidates identify the strengths and weaknesses of different assessment methods.

4.4 Candidates use statewide assessment tools and results to inform instruction and revise curriculum, and analyze results to make professional development decisions for teachers in the district.

4.4.1 Candidates coach in-service teachers to apply student assessment results to make inferences and draw conclusions about future instructional plans and goals.

4.4.2 Candidates coach in-service teachers to use assessment results to inform intervention practices for current students.

4.5 Candidates articulate evidence-based research supporting different perspectives regarding assessment and instruction.

4.6 Candidates provide appropriate interpretations of assessment results, and communicate results (in context) to specific individuals and groups (students, parents, caregivers, colleagues, administrators, policymakers, community members, etc.).

4.7 Candidates conduct and analyze longitudinal assessment studies to determine program effectiveness and recommend changes for improvement.

Standard 5. Candidates support classroom teachers in the use of a wide range of curriculum materials, in the selection of appropriate options, and explain evidence-based rationales for selecting practices to best meet the needs of all students.

5.1 Candidates support classroom teachers by modeling and using a wide range of instructional strategies (including technology) to meet the needs of all students.

5.2 Candidates introduce and model successful and innovative strategies, including translating research findings into practice.

5.3 Candidates encourage teachers to use self-reflection as a means of evaluating and modifying instruction.

5.4 Candidates assist other teachers in developing significant mathematical tasks and leading classroom discourse that promote mathematical thinking.

5.5 Candidates support classroom teachers in developing a climate of inquiry by incorporating the seven process standards in their classrooms.

5.6 Candidates assist classroom teachers in implementing prompt intervention strategies with low-performing students, including differentiation of time and teaching strategies.

5.7 Candidates coach in-service teachers to communicate in a variety of formats (e.g., newsletters, email, letters) to specific individuals and groups (students, parents, caregivers, colleagues, administrators, policymakers, community members, etc.).

5.8 Candidates coach in-service teachers to build an understanding of mathematical content knowledge (i.e., Standard I).

5.9 Candidates actively engage in collaboration and dialogue with other teachers and mathematics specialists on teaching practices and ideas on assessment, instruction, and all areas of mathematics practice.

Standard 6. Candidates demonstrate responsibility for professional growth, performance and involvement as an individual and as a member of a learning community.

6.1 Candidates use research to acquire an understanding of the teaching and learning of mathematics to inform and guide practice.

6.2 Candidates develop an understanding of research as it applies to professional development and adult learners.

6.3 Candidates pursue the development of professional knowledge and positive dispositions related to mathematics as well as to the teaching of mathematics.

6.4 Candidates collaborate with other professionals for the purpose of advancing knowledge of the teaching and learning of mathematics.

6.5 Candidates collaborate with colleagues as they observe, analyze, reflect, and provide feedback to current practices.

6.6 Candidates initiate, implement and evaluate professional development programs.

6.7 Candidates use a wide range of interpersonal skills to work successfully with teachers, administrators, families and others to promote positive change in the teaching and learning of mathematics.