NCTM Draft Standards for Elementary Mathematics Specialist
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Standard 1: Content (Foundational) Knowledge

Elementary Mathematics Specialists demonstrate and apply understandings of major concepts, procedures, knowledge and applications, within and among mathematical domains of Pre- Number and Early Number; Whole Number Concepts, Operations and Algebraic Thinking; Rational Number and Algebraic Thinking; Data Analysis, Statistics and Probability; Geometry and Measurement, as well as how mathematics concepts and skills develop from PreK through middle school. This knowledge includes specialized knowledge that teachers need in order to understand and support student learning of elementary mathematics.

1a) **Pre-Number and Early Number.** Candidates demonstrate and apply understandings of major mathematics concepts, procedures, representations, learning progressions and applications, of pre-number and early number concepts (i.e. progression from sorting, grouping, non-quantified comparisons (less than, more than, the same), and 1-to-1 correspondence to meaningful counting, and ordinality.

1b) **Whole Number Concepts, Operations and Algebraic Thinking**

Candidates demonstrate and apply understandings of major mathematics concepts, procedures, representations, applications, and learning progressions within and among whole number concepts, operations and algebraic thinking (i.e.progression from pre-number and place value through whole number operations); and algebraic thinking (i.e., progression from recognizing pattern and using structure through generalizing procedures).

1c) **Rational Number and Algebraic Thinking**

Candidates demonstrate and apply understandings of major mathematics concepts, procedures, representations, applications, and learning progressions within and among rational number concepts, and operations, including fractions, decimals, and integers; and algebraic thinking (i.e., progression from applying properties to generalize procedures, reasoning proportionally, to generalizing and describing situations algebraically and analyzing change).

1d) **Data Analysis, Statistics and Probability**

Candidates demonstrate and apply understandings of major mathematics concepts, procedures, representations, applications, and learning progressions of Statistics and Probability (e.g. progression from understanding, explaining, and quantifying the variability in a set of data to make decisions; from posing questions that can be answered using statistics, data collection methods to visualizing and summarizing data; to analyzing results and drawing inferences; to identifying common misconceptions through the grades).

1e) **Geometry and Measurement**

Candidates demonstrate and apply understandings of major mathematics concepts, procedures, representations, applications, and learning progressions of Geometry and Measurement including using visual representations for numerical functions and relations, data and statistics, and networks, to provide a lens for solving problems in the physical world. (e.g. units for what is being measured; iterating of units to determine measurement, systems of measurement; two- and three-dimensional shapes, their properties and interrelationships; congruence and similarity) through the grades.

Standard 2: Mathematics Curriculum and Instruction

Candidates use foundational knowledge of mathematics to critique, analyze, and adapt mathematics curricula to meet needs of teachers and learners; plan for, and evaluate implementation of effective mathematics teaching practices including interventions to support all learners; collaborate with teachers to implement effective mathematics teaching practices.

2a) Curriculum Analysis and Design

Candidates use their knowledge of mathematics, standards, learning progressions, and the needs of all learners to critique, recommend, and adapt mathematics curricula

2b) Facilitate Curriculum Study

Candidates design effective strategies for engaging teachers and other stakeholders in processes to understand, critique, adapt, and use mathematics curricula to meet the needs of every learner.

2c) Implement Effective Teaching Practices

Candidates effectively collaborate with and coach school-based educators for implementation of research informed teaching practices including evaluating the learning of the full range of students.

2d) Implement Effective Student Interventions

Candidates draw upon their knowledge of mathematics, pedagogical content knowledge, learning progressions, and students to implement, coach for, and evaluate interventions to engage, support, and challenge students.

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Standard 3: Assessment and Evaluation
Elementary Mathematics Specialists select and use both informal and formal assessment strategies to elicit evidence of skill, conceptual understanding, and fluency and analyze each and every student's progress towards mathematics learning goals; inform instruction and evaluate interventions assist teachers in their understanding and use of assessment results; and advocate for appropriate mathematical practices to relevant stakeholders.

3a) Plan and Implement Assessments
Candidates develop or select and use both informal and formal assessment strategies to *elicit evidence* of each student's progress toward intended mathematics learning goals.

Level 1 **The Beginning Candidate**	**Level 2** **The Developing Candidate**	**Level 3** **The Competent Candidate**	**Level 4** **The Accomplished Candidate**
Candidate administers required formal assessments.	Candidate selects and administers formal and informal assessments without making modifications to meet individual student needs.	. Candidate selects and administers a variety of formal and informal assessments and differentiates assessments using modifications based on students' individual learning needs or mathematical goals.	Candidate designs, selects, adapts, and administers a variety of formal and informal assessments and differentiates assessments using modifications based on students' individual learning needs and mathematical learning goals.

3b) Analyze and Respond to Data
Candidates use data from informal and formal assessments to *analyze* each student's progress toward intended mathematics learning goals and make adjustments to curriculum or instruction in support of improved student learning.

Level 1	**Level 2**	**Level 3**	**Level 4**

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The Beginning Candidate	The Developing Candidate	The Competent Candidate	The Accomplished Candidate
Candidate does not interpret assessments that have been administered. Candidate does not use assessment information to make adjustments to curriculum or instruction.	Candidate interprets formal assessments to provide required data reports for accountability. Candidate uses assessment information to plan initial instruction but does not make adjustments during instruction.	Candidate accurately interprets formal and informal assessments to identify students' learning needs, to monitor learning, or to report progress. Candidate uses assessment information to plan initial instruction as well as monitor and adapt instruction to meet the learning needs of individuals or groups of students. .	Candidate accurately interprets formal and informal assessments identify what individual student's know and need to learn, and to report progress on mathematical goals. Candidate uses assessment information to plan initial instruction as well as monitor and adapt instruction to meet the learning needs of individuals and groups of students, providing both remediation and enrichment.

3c) Collaborative Instructional Decisions

Candidates lead professional learning experiences with teachers to collaboratively plan for assessment and make instructional decisions based upon informal and formal assessment data.

Level 1 The Beginning Candidate	Level 2 The Developing Candidate	Level 3 The Competent Candidate	Level 4 The Accomplished Candidate
Candidate plans professional learning experiences for teachers but do not collaborate in planning. Candidate does not provide support and professional	Candidate assists colleagues to collaboratively provides feedback to guide students' learning although the feedback is not consistently goal- oriented and based upon assessment data.	Candidate consistently collaborates with colleagues to provide feedback that is goal-oriented and based upon data from the assessments.	Candidate consistently work with colleagues to provide students with effective and age-appropriate feedback based upon the assessments developed and implemented. The collaboration

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development that makes instructional decisions based upon data.		Candidate provides feedback and assistance to colleagues in developing misconception identification skills, self-evaluation, and independence in learning as a result of the assessments implemented.	provides opportunities for candidates and colleagues to assist students to set and monitor both long range and short- range goals for their own learning. Candidate provides feedback and assistance to assist colleagues in engaging students in activities that foster the development of misconception identification skills, and self- evaluation.

3d) Communicate

Candidates use both written and oral communication to explain assessment results and advocate for appropriate mathematical processes to a variety of stakeholders (e.g. students, educators, and parents/guardians).

Level 1 **The Beginning Candidate**	**Level 2** **The Developing Candidate**	**Level 3** **The Competent Candidate**	**Level 4** **The Accomplished Candidate**
Candidate does not demonstrate ability to collaborate with colleagues in explaining and interpreting assessment results to advocate for students. Candidate does not demonstrate ability to communicate with other stakeholders for appropriate mathematical processes that	Candidate collaborates with classroom teachers, or specialist teachers, or other grade level teachers, in planning how to use assessment results to advocate for the appropriate mathematical processes for students.	. Candidate collaborates with classroom host teacher, or specialist teachers, or other grade level teachers, in planning and implementing class activities. Candidate and other educator collaborates with other stakeholders to communicate	Candidate collaborates with classroom host teacher, and specialist teachers, or other grade level teachers to evaluate assessment results to advocate for specific instructional activities that enhance the mathematics processes for students.

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enhance the learning of all students. Candidate provides minimal feedback to students, such as grades with no explanation. Candidates do not assist colleagues in using data.	Candidate is not clear or specific about how collaboration with classroom host teacher, specialist teachers, or related school professionals, can be tied to communicating with parents and families and community agencies to provide appropriate mathematical processes for students. Candidates use a single assessment source to provide general feedback or assist their colleagues in providing feedback to groups or individuals about their achievement	how assessment results provide appropriate mathematical processes that utilize the strength and opportunities that partners provide. Candidate uses multiple assessment sources to provide detailed, task-specific feedback to individuals and groups about their achievement and engagement.	Candidate communicates with other stakeholders routinely and systematically to plan, implement, and evaluate classroom accommodations or modifications to meet individual student's learning and developmental needs. Candidates use a variety of assessment sources to provide detailed, task-specific feedback to individuals and groups about their achievement and engagement in tandem with implementing assessment strategies that facilitate student reflection and self-assessment to identify their successes and struggles, efforts needed to reach their goals, and their preferred learning strategies.

Standard 4: Diversity, Equity, and Advocacy

Candidates support inclusive and affirming classrooms by implementing research-informed practices related to culture, equity, and diversity; identify systemic injustices in mathematics education and advocate for equity at school, district, or community levels.

4a) Understand Equitable Research Based Practices

Candidates understand research on cultural differences among students; the systemic roles of power, privilege, and oppression in mathematics education; and recognize equitable and inequitable classroom and systemic practices.

4b) Awareness

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Candidates coach for increased understanding and awareness of differences among learners; the systemic roles of power, privilege, and oppression in mathematics education; and recognize equitable and inequitable classroom and systemic practices.

4c) Supporting Equitable Classrooms
Candidates coach for research-informed classroom practices that attend to the diversity (cultural, disability, linguistic, gender, socio-economic, developmental) and build on student strengths to support students' mathematical learning.

4d) Structural Change or Leadership
Candidates identify and analyze inequitable systemic practices and/or policies and develop a plan for change that results in increased access to equitable learning experiences at the school or district level.

Standard 5: The Learning Environment

Candidates promote, foster and support the development of positive classroom and school climates so that each and every student has access and opportunities to engage in and learn meaningful mathematics

5a) School Environment
Candidates foster, with families, colleagues, and other stakeholders, the understanding that social learning contexts that engage students in discussions and mathematical explorations among peers to motivate and extend learning opportunities.

5b) Support Classroom Environment
Candidates coach for social learning contexts that engage students in discussions and mathematical explorations among peers to motivate and extend learning opportunities and support each student's emerging positive mathematics identity.

5c) Classroom Environment
Candidates facilitate efforts to create the physical and social mathematics-rich learning environment, that ensure that each student's ideas and contributions are valued.

Standard 6: Professional Learning and Leadership

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Candidates demonstrate the ability to be reflective mathematics educators, who continuously learn and apply their knowledge of adult learning, leadership and facilitation when collaborating with and supporting colleagues.

6a) Professional Growth

Candidates take an active role in their professional growth and participate in learning communities, such as professional organizations or district-organized communities, that focus on learning, teaching, and leadership in mathematics education.

6b) Collaborative Decision Making

Candidates use their knowledge of adult learning to plan and implement collaborative decision making with colleagues.

6c) Facilitation of Professional Learning

Candidates facilitate continuous and collaborative learning opportunities with colleagues that draw upon research in mathematics education to inform practice and improve learning.

6d) Reflection and Adaptation

Candidates use data to reflect upon and adapt their practice as effective mathematics instructional leaders.

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