

District of Columbia Program Standards for Teacher Preparation

Mathematics (Middle Level)

Institutions and Organizations seeking State Approval for programs which prepare and result in the recommendation for licensure as teachers of Middle-level Math Education shall be required to demonstrate that they meet the following program standards. The Standards below are an adapted version of the 2003 standards of the National Council of Teachers of Mathematics, for the preparation of Middle-level Math Teachers.

Standard 1: Knowledge of Mathematical Problem Solving

Candidates know, understand, and apply the process of mathematical problem solving.

Standard 2: Knowledge of Reasoning and Proof

Candidates reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry. *NCTM Standards (2003) – Middle Level Mathematics Teachers 2*

Standard 3: Knowledge of Mathematical Communication

Candidates communicate their mathematical thinking orally and in writing to peers, faculty, and others.

Standard 4: Knowledge of Mathematical Connections

Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

Standard 5: Knowledge of Mathematical Representation

Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.

Standard 6: Knowledge of Technology

Candidates embrace technology as an essential tool for teaching and learning mathematics. *NCTM Standards (2003) – Middle Level Mathematics Teachers 3*

Standard 7: Dispositions

Candidates support a positive disposition toward mathematical processes and mathematical learning.

Standard 8: Knowledge of Mathematics Pedagogy

Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.

Standard 9: Knowledge of Number and Operation

Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and meanings of operations.

Standard 10: Knowledge of Different Perspectives on Algebra

Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.
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Standard 11: Knowledge of Geometries

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

Standard 12: Knowledge of Calculus

Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in the techniques and application of the calculus.

Standard 13: Knowledge of Discrete Mathematics

Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.

Standard 14: Knowledge of Data Analysis, Statistics, and Probability

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

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Standard 15: Knowledge of Measurement

Candidates apply and use measurement concepts and tools.

Standard 16: Field-Based Experiences

Candidates complete field-based experiences in mathematics classrooms.