

**3501.0750 ACADEMIC STANDARDS IN MATHEMATICS.**

Subpart 1. **Purpose and application.** The purpose of these standards is to establish statewide standards for mathematics that govern instruction of students in kindergarten through grade 12. School districts shall assess a student's performance using criteria in subparts 2 to 4.

Subp. 2. **Data analysis.**

A. The student will identify, formulate, and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data, and communicating the results.

B. The student will apply and explain the concepts of probability to interpret data, generate questions, predict and make informed decisions to solve problems, and communicate ideas.

Subp. 3. **Spatial reasoning.**

A. The student will investigate measurement using a variety of tools, units, systems, processes, and techniques in various cultures. The student will explain and reason with attributes, estimations, and formulas to communicate measurements and relationships effectively. The student will justify decisions and consider the reasonableness of the measurement.

B. The student will analyze characteristics of geometric shapes to make mathematical arguments and justifications about geometric relationships. The student will use visualization and geometric modeling to compare, solve problems, and communicate ideas.

Subp. 4. **Patterns and relationships.**

A. The student will describe, interpret, and use quantities, relationships between quantities, representations of quantities, and number systems. The student will describe operations and the relationship between operations. The student will use strategies and procedures accurately, efficiently, and flexibly. The student will assess the reasonableness of the results.

B. The student will use concepts and properties of equivalence and relational thinking to represent and compare numerical expressions, proportional relationships, algebraic expressions, and equations.

C. The student will represent and connect mathematical patterns and relationships using verbal descriptions, generalizations, tables, and graphs; and use representations to generate questions, make predictions, and solve mathematical problems.

Subp. 5. **High school preparedness.** By the end of grade 8, a student will meet the following criteria, which prepares the student for three credits of mathematics in grades 9 through 12, including Algebra II, Integrated Mathematics III, or an equivalent.

A. **Data analysis:** The student will analyze bivariate data by creating and using linear and geometric models.

**B. Spatial reasoning:** The student will apply the Pythagorean Theorem to find side lengths and calculate distances using algebraic reasoning, use similar triangles to explore lines and slope on a coordinate plane, and analyze types of solutions to systems of linear equations.

**C. Patterns and relationships:** The student will classify real numbers, use properties of exponents, solve financial contexts involving exponents, solve algebraic equations and inequalities, and analyze linear systems and nonlinear functions.

Subp. 6. **Implementation.** These standards must be implemented by school districts by the beginning of the 2027-2028 school year.

**Statutory Authority:** *MS s 120B.021*

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