
Goals and Standards

PreK-12 Mathematics

Plano ISD

Goal 1: Develop number and operation sense.

- Standard 1: Understand numbers, ways of representing numbers, relationships among numbers and number systems.
- Standard 2: Understand the meaning of operations and how they relate to each other.
- Standard 3: Use computational tools and strategies fluently and estimate appropriately.

Goal 2: Develop and create patterns, functions, symbols, and models.

- Standard 1: Understand various types of patterns and functional relationships.
- Standard 2: Use symbolic forms to represent and analyze mathematical situations and structures.
- Standard 3: Use mathematical models and analyze change in both real and abstract contexts.

Goal 3: Develop geometry and spatial sense.

- Standard 1: Analyze characteristics and properties of two and three-dimensional geometric objects.
- Standard 2: Select and use different representational systems including coordinate geometry and graph theory.
- Standard 3: Recognize the usefulness of transformations and symmetry in analyzing mathematical situations.
- Standard 4: Use visualization and spatial reasoning to solve problems both within and outside of mathematics.

Goal 4: Develop and apply measurement concepts.

- Standard 1: Understand attributes, units, and systems of measurement.
- Standard 2: Apply a variety of techniques, tools, and formulas for determining measurements.

Goal 5: Develop the concepts of data analysis, statistics, and probability.

- Standard 1: Pose questions and collect, organize, and represent data to answer those questions.
- Standard 2: Interpret data using methods of exploratory data analysis.

Standard 3: Develop and evaluate inferences, predictions, and arguments that are based on data.

Standard 4: Understand and apply basic notions of chance and probability.

Goal 6: Develop problem-solving skills as part of understanding mathematics.

Standard 1: Build new mathematical knowledge through work with problems.

Standard 2: Develop a disposition to formulate, represent, abstract, and generalize in situations within and outside mathematics.

Standard 3: Apply a wide variety of strategies to solve problems and adapt the strategies to new situations.

Standard 4: Monitor and reflect on mathematical thinking on solving problems.

Goal 7: Focus on learning to reason and construct proofs as part of understanding mathematics.

Standard 1: Recognize reasoning and proof as essential and powerful parts of mathematics.

Standard 2: Make and investigate mathematics conjectures.

Standard 3: Develop and evaluate mathematical arguments and proofs.

Standard 4: Select and use various types of reasoning and methods of proof as appropriate.

Goal 8: Develop communication skills to foster understanding of mathematics.

Standard 1: Organize and consolidate mathematical thinking to communicate with others.

Standard 2: Express mathematical ideas coherently and clearly to peers, teachers, and others.

Standard 3: Extend mathematical knowledge by considering the thinking and strategies of others.

Standard 4: Use the language of mathematics as a precise means of mathematical expression.

Goal 9: Develop connections to foster understanding of mathematics.

Standard 1: Recognize and use connections among different mathematical ideas.

Standard 2: Understand how mathematical ideals build on one another to produce a coherent whole.

Standard 3: Recognize, use, and learn about mathematics in contexts outside of mathematics.

Goal 10: Create mathematical representations to foster understanding of mathematics.

Standard 1: Create and use representations to organize, record, and communicate mathematical ideas.

Standard 2: Develop a repertoire of mathematical representations that can be used purposefully, flexibly, and appropriately.

Standard 3: Use representations to model and interpret physical, social, and mathematical phenomena.

From the Principles and Standards for School Mathematics, National Council of Teachers of Mathematics, 2000.