

Standards addressed Robotics in the Montessori Classroom

Analytic geometry: Coordinate graphing

Common core:

Fifth Grade

- Geometry
 - Graph points on the coordinate plane to solve real-world and mathematical problems.

Eighth Grade

- Statistics and Probability
 - Investigate patterns of association in bivariate data.

Fifth Grade

- Geometry
 - Graph points on the coordinate plane to solve real-world and mathematical problems.

Functions

- Building Functions
 - Build new functions from existing functions
- Interpreting Functions
 - Understand the concept of a function and use function notation
 - Interpret functions that arise in applications in terms of the context
 - Analyze functions using different representations
- Linear, Quadratic, and Exponential Models
 - Construct and compare linear, quadratic, and exponential models and solve problems
 - Interpret expressions for functions in terms of the situation they model
- Trigonometric Functions
 - Model periodic phenomena with trigonometric functions

NCTM

Grades 3-5

- Geometry
 - Specify locations and describe spatial relationships using coordinate geometry and other representational systems

Variables

Common Core

Functions

- Building Functions
 - Build a function that models a relationship between two quantities

- Interpreting Functions
 - Understand the concept of a function and use function notation
- Linear, Quadratic, and Exponential Models
 - Construct and compare linear, quadratic, and exponential models and solve problems

Seventh Grade

- Expressions and Equations
 - Use properties of operations to generate equivalent expressions.

Sixth Grade

- Expressions and Equations
 - Apply and extend previous understandings of arithmetic to algebraic expressions.
 - Represent and analyze quantitative relationships between dependent and independent variables.

Angles

Common Core

Fourth Grade

- Geometry
 - Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
- Measurement and Data
 - Geometric measurement: understand concepts of angle and measure angles.

Geometry

- Congruence
 - Prove geometric theorems

Seventh Grade

- Geometry
 - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Number sense

Common Core

Fifth Grade

- Operations and Algebraic Thinking
 - Analyze patterns and relationships.

Fourth Grade

- Operations and Algebraic Thinking
 - Use the four operations with whole numbers to solve problems.

Functions

- Linear, Quadratic, and Exponential Models
 - Construct and compare linear, quadratic, and exponential models and solve problems

Euclidean Geometry

Triangles

Common Core

Fifth Grade

- Geometry
 - Classify two-dimensional figures into categories based on their properties.

Seventh Grade

- Geometry
 - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Sixth Grade

- Geometry
 - Solve real-world and mathematical problems involving area, surface area, and volume.

Third Grade

- Geometry
 - Reason with shapes and their attributes.
- Measurement and Data
 - Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
 - Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Tessellate

Common Core

Fourth Grade

- Operations and Algebraic Thinking
 - Generate and analyze patterns.

Geometry

- Congruence
 - Experiment with transformations in the plane
 - Understand congruence in terms of rigid motions

NCTM

Grades 3-5

- Geometry
 - Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
 - Apply transformations and use symmetry to analyze mathematical situations
 - Use visualization, spatial reasoning, and geometric modeling to solve problems

Grades 6-8

- Geometry
 - Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
 - Apply transformations and use symmetry to analyze mathematical situations
 - Use visualization, spatial reasoning, and geometric modeling to solve problems

Grades 9-12

- Geometry
 - Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
 - Apply transformations and use symmetry to analyze mathematical situations
 - Use visualization, spatial reasoning, and geometric modeling to solve problems

Introduction to Fractals

Common Core

Eighth Grade

- Geometry
 - Understand congruence and similarity using physical models, transparencies, or geometry software.

Geometry

- Congruence
 - Make geometric constructions
- Similarity, Right Triangles, and Trigonometry
 - Understand similarity in terms of similarity transformations

NCTM

Grades 6-8

- Geometry
 - Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
 - Apply transformations and use symmetry to analyze mathematical situations
 - Use visualization, spatial reasoning, and geometric modeling to solve problems

Grades 9-12

- Algebra
 - Understand patterns, relations, and functions
- Geometry
 - Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
 - Use visualization, spatial reasoning, and geometric modeling to solve problems