Family Friendly Math

GUIDE FOR APPLICATIONS AND MODELING

Log on to the SC Department of Education website, for the complete standards.

Applications and Modeling (AM) is a newly designed course that expands and reinforces concepts learned in Geometry with Statistics and Algebra 1 by analyzing data to make predictions and informed judgments about the real world. The standards and indicators in AM are sorted within the strands of Data, Probability, and Statistical Reasoning (DPSR); Measurement, Geometry, and Spatial Reasoning (MGSR); Numerical Reasoning (NR); and Patterns, Algebra, and Functional Reasoning (PAFR).

In this course, students explore decision making for financial planning and management, design in three dimensions, interpret statistical studies and create functions that model scenarios from the real-world. Technology is used extensively for computation. Topics in this course are closely aligned to the topics on the South Carolina Workforce Industry Needs Scholarship (SC WINS) assessment.

Prerequisite courses: Geometry with Statistics>Algebra 1

DATA, PROBABILITY, AND STATISTICAL REASONING

Applications and Modeling students will summarize, interpret data, use probability models and expected value to make informed decisions in real-world situations.

- Summarize and interpret trends to make predictions.
- Calculate and explain pay scale and operating costs.
- Construct and analyze charts that reflect current demographics.
- Determine the probability of simple and compound events to make and justify decisions.
- Calculate and analyze the expected value of a probability model (binominal, normal and Poisson distributions).

MEASUREMENT, GEOMETRIC, AND SPATIAL REASONING

Applications and Modeling students will apply trigonometric principles to solve real-world problems. Apply two- and three-dimensional representations and scale models in planning, designing and constructing solutions in real-world situations.

- Use Laws of Sines and Cosines to solve geometric situations involving inaccessible distances.
- Apply knowledge of fractions to determine and read blueprints.
- Calculate lengths using the Pythagorean Theorem.
- Apply the concepts of area, volume, scale factors and scale drawing to specific projects *(continued on next page)*

- Apply Heron's Formula for finding the area of a triangular region.
- Use technology and other tools to perform transformations and dilations in the x, y and/or z axes.
- Recognize and apply vectors to real-world situations.
- Use and apply matrices in real-world situations.

NUMERICAL REASONING

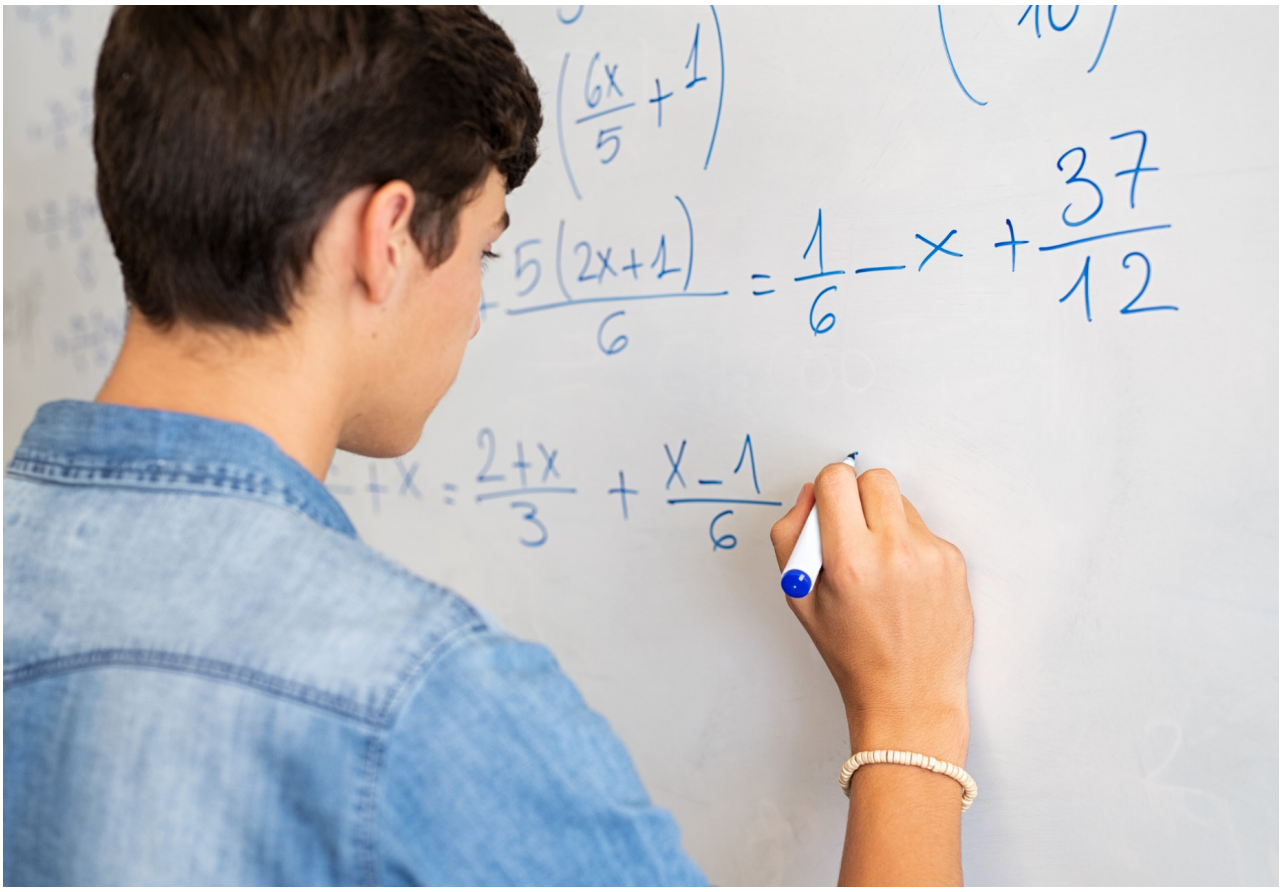
In Numerical Reasoning (NR), **Applications and Modeling** students will solve problems using fractions, percents and ratios.

- Apply numerical reasoning involving percent increase and decrease in real-world situations.

PATTERNS, ALGEBRA, AND FUNCTIONAL REASONING

Applications and Modeling students will create, analyze and solve application-based problems relating to direct, inverse and joint variation. Students will analyze and apply linear programming in real-world applications.

- Use exponential functions to model financial situations.
- Compare various means of paying for an automobile.
- Apply and utilize mathematical skills for troubleshooting in business and industrial applications.
- Calculate the values of the variables that maximize or minimize a function given four constraints.



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