Applications and Modeling is a two-semester course that is 100% aligned to the South Carolina College- and Career-Ready Mathematics Standards. The course is designed to help students develop computational fluency, deepen their conceptual understanding, and apply mathematical processes. Students will explore applications and careers that utilize mathematical skills, including those in business and employment, architecture and design, and physics. They will also investigate interest and financial applications, probability, and real-world problems involving distance and area. The course supports student learning through guided instruction, interactive tools, and activities that provide opportunities for students to analyze real-world scenarios, construct arguments, critique reasoning, and communicate precisely.

There are no required materials for this course.

Length: Two Semesters

Unit 1: Math and Employment

- Employment Trends
- Business Careers
- Earning Money
- Wrap-Up: Math and Employment

Unit 2: Business Applications

- Starting a New Business
- Purchasing
- Business Insurance
- Business Applications of Variation
- Linear Systems
- Wrap-Up: Business Applications

Unit 3: Architecture Applications

- Units and Measurement
- Scale Drawings
- Architectural Drawings
- Dimensioning and Tolerancing
- Performance Task: Floor Plan
- Wrap-Up: Architecture Applications

Unit 4: Physics Applications

- Introduction to Vectors
- Vector Operations
- Matrix Addition and Scalar Multiplication
- Matrix Multiplication
- Transformations and Matrices
- Physics Applications Wrap-Up

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Unit 5: Semester Wrap-Up

- Semester Wrap-Up

Unit 6: Interest and Growth

- Simple Interest
- Growth Models
- Compound Interest
- CDs
- Wrap-Up: Interest and Growth

Unit 7: Financial Applications

- Credit Cards
- Car Payments
- Car Leasing
- Equity and Depreciation
- Wrap-Up: Financial Applications

Unit 8: Probability Applications

- Probability
- Using Probability to Make Decisions
- Discrete Random Variables
- Binomial and Poisson Distributions
- Normal Distributions
- Wrap-Up: Probability Applications

Unit 9: Trigonometry Applications

- Law of Cosines and Proofs
- Law of Sines and Proofs
- Right Triangles
- Area of a Triangle
- Performance Task: Three-Dimensional Solids
- Wrap-Up: Trigonometry Applications

Unit 10: Semester Wrap-Up

- Semester Wrap-Up

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