Course Description:

This course is designed to prepare students for mathematics coursework in postsecondary settings. Topics addressed in this course include problem solving with two- and three-dimensional geometry figures, measurement systems, and basics of financial mathematics.

Course Objectives:

- Analyze contextual problems to determine appropriate models and find solutions.
- Analyze units in contextual situations to solve contextual problems.
- Calculate the annual interest rate and the annual yield for an account.
- Convert measurements within and between different systems of measurement.
- Explain problem solving processes, solutions, and rationale used in solving mathematical and contextual problems.
- Solve problems related to loan values or costs and amortization schedules.
- Solve problems related to values of annuities.
- Solve real-life problems related to the return on investments that earn compound interest.
- Solve real-life problems related to two- and three-dimensional figures.

Required Materials:

In course.

Schedule of Work:

Unit 1: Math Practices

- Texts (Lessons 1-5)
    - A Process for Solving Problems
    - Developing a Problem-Solving Plan
    - Types of Math Models
    - Solving Problems with Modeling
    - Choosing Formulas
    - Solving Problems Using Formulas and Equations
    - Evaluating Problem-Solving Plans
    - Problem-Solving Example
    - Multiple Solutions
    - Justifying Solutions
- Workbook Assessments (Lessons 1-5)
- Discussion Board: Modeling Problems (Lesson 2)
- Checkpoints (Lesson 2, Lesson 4)
    - Modeling and Solving Problems
    - Formulas and Evaluating Problem-Solving Plans
- Unit Exam: Math Practices (Lesson 5)

Unit 2: Composite Figures

- Texts (Lessons 6-10)
    - Two-Dimensional Figures
    - Measurements and Finding Perimeter

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    - Perimeters of Composite Figures
    - Measurements and Finding Area
    - Areas of Composite Figures
    - Three-Dimensional Figures
    - Finding Surface Area
    - Surface Areas of Composite Figures
    - Measurements and Finding Volume
    - Volumes of Composite Figures
    - Problem Solving: Composite Figures
    - Example: Composite Figures
- Workbook Assessments (Lessons 6-10)
- Checkpoints (Lessons 6-9)
    - Perimeter
    - Area
    - Surface Area
    - Volume
- Unit Exam: Composite Figures (Lesson 10)

Unit 3: Unit Analysis

- Texts (Lessons 11-15)
    - Types of Measurements and Units
    - Using Appropriate Units
    - Converting US Customary Units
    - More Than One Conversion Factor (US Customary Units)
    - Converting Metric Units
    - More Than One Conversion Factor (Metric Units)
    - Converting US Customary Units to Metric Units
    - Converting Metric Units to US Customary Units
    - Unit Conversions with Problem Solving
    - Using Units to Guide Problem Solving
- Workbook Assessments (Lessons 11-15)
- Checkpoints (Lessons 12-14)
    - Measurements and US Customary Units
    - Metric Units
    - Converting between Systems
- Unit Exam: Unit Analysis (Lesson 15)

Unit 4: Investments

- Texts (Lessons 16-20)
    - Basics of Money
    - Basics of Investments
    - Simple Interest
    - Return on Investment
    - Exponential Growth
    - Compound Interest
    - Comparing Investments
    - Problem Solving: Choosing an Investment
    - Calculating Annual Percentage Yield

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    - Calculating Annual Interest Rate
- Workbook Assessments (Lessons 16-20)
- Checkpoints (Lessons 17-19)
    - Investments, Simple Interest, and Return on Investment
    - Interest and Exponential Growth
    - Compound Interest and Choosing Investments
- Project: Rent or Own a Home (Lesson 18, Lesson 19)
- Unit Exam: Investments (Lesson 20)

Unit 5: Loans

- Texts (Lessons 21-25)
    - Basics of Loans
    - Amortization
    - Basics of Car Loans and Mortgages
    - Calculating Loan Payments
    - Interest on Loans
    - Down Payments
    - Problem Solving with Loans
    - Example: Choosing a Loan
    - Basics of Credit Cards
    - Costs of Credit Cards
- Workbook Assessments (Lessons 21-25)
- Checkpoints (Lesson 22, Lesson 24)
    - Loans and Monthly Payments
    - Interest, Down Payments, and Problem Solving
- Project: Rent or Own a Home (Lesson 23, Lesson 24)
- Unit Exam: Loans (Lesson 25)

Unit 6: Annuities

- Texts (Lessons 26-28)
    - Basics of Annuities
    - Annuities as Investments
    - Future Value of an Ordinary Annuity
    - Future Value of an Annuity Due
    - Present Value of an Ordinary Annuity
    - Present Value of an Annuity Due
- Workbook Assessments (Lessons 26-28)
- Checkpoints (Lesson 27, Lesson 28)
    - Future Values of Annuities
    - Present Values of Annuities
- Course Review (Lesson 29)
- Final Exam (Lesson 30)

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