Math 8 Honors (2 of 2)

Course Description:

Math 8 Honors (2 of 2) explores multi-step equations and proportions, applies knowledge of proportional relationships to geometry to perform transformations on figures, and prove similarity of figures through a series of transformations. Topics include: analyzing linear relationships and functions, solving systems of linear equations using different methods, application of algebraic skills to statistics, analyze and interpret patterns in bivariate data, and finding volumes of circular three-dimensional objects.

Course Objectives:

- Solve and interpret equations using the form of the equations, inverse operations, and properties of equality.
- Solve and interpret real-world problems using equations, graphs, or tables.
- Identify congruent and similar figures using transformations.
- Identify and describe dilations using coordinates and mapping statements.
- Identify, interpret, and compare properties of linear relationships given as graphs, tables, equations, or verbal descriptions.
- Determine equations for lines using proportions, graphs, verbal descriptions, or points on the line.
- Solve systems of two linear equations.
- Identify and interpret relationships in data in scatter plots and tables.
- Solve problems related to lengths and volumes in three-dimensional figures.

Required Materials:

In course.

Course Overview:

Unit 1: Single-Variable Equations

- Prepare to Learn (Lessons 1-5)
- Learn (Lessons 1-5)
    - Key Terms
    - Text and Videos: Review Solving Equations; Review Equations for Situations; Solving Multi-Step Equations; Number of Solutions; Solving Proportions
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Practice: Lessons 1, 3, and 4; Word Problem Investigation: Lessons 2, 5)
- Discussion (Lessons 1-5)
- Check Your Understanding (Lessons 1-5)
- Checkpoint (Lessons 1-4)

- Unit 1 Exam (Lesson 5)
- Project (Lessons 1-5)

Unit 2: Proportional Relationships

- Prepare to Learn (Lessons 6-10)
- Learn (Lessons 6-10)
    - Key Terms
    - Text and Videos: Rigid Transformations and Congruence; Dilations; Similarity; Similar Triangles and Slope; Comparing Proportional Relationships
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Interactive: Lessons 6 and 8; Practice: Lesson 9; Exploration: Lessons 7 and 10)
- Discussion (Lessons 6-10)
- Check Your Understanding (Lessons 6-10)
- Checkpoint (Lessons 6-9)
- Unit 2 Exam (Lesson 10)

Unit 3: Linear Equations and Functions

- Prepare to Learn (Lessons 11-15)
- Learn (Lessons 11-15)
    - Key Terms
    - Text and Videos: Slopes of Lines; Slope-Intercept Form; Writing Equations of Lines; Linear Functions; Comparing Properties of Linear Functions
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Practice: Lessons 11, 12, and 13; Interactive: Lesson 14; Exploration: Lesson 15)
- Discussion (Lessons 11-15)
- Check Your Understanding (Lessons 11-15)
- Checkpoint (Lessons 11-14)
- Unit 3 Exam (Lesson 15)
- Project (Lessons 11-15)

Unit 4: Systems of Linear Equations

- Prepare to Learn (Lessons 16-20)
- Learn (Lessons 16-20)
    - Key Terms
    - Text and Videos: Solving Systems by Graphing; Solving Systems by Substitution; Solving Systems by Elimination; Systems of Equations for Situations; Analyzing Systems of Equations
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Practice: Lessons 16, 17, 18, and 20; Word Problem Investigation: Lesson 19)
- Discussion (Lessons 16-20)
- Check Your Understanding (Lessons 16-20)
- Checkpoint (Lessons 16-19)
- Unit 4 Exam (Lesson 20)

Unit 5: Bivariate Data

- Prepare to Learn (Lessons 21-25)
- Learn (Lessons 21-25)
    - Key Terms
    - Text and Videos: Bivariate Data and Scatter Plots; Associations; Lines of Fit; Frequency Tables; Interpreting Frequency Tables
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Practice: Lesson 21, 22, 24, and 25; Word Problem Investigation: Lesson 23)
- Discussion (Lessons 21-25)
- Check Your Understanding (Lessons 21-25)
- Checkpoint (Lessons 21-24)
- Unit 5 Exam (Lesson 25)
- Project (Lessons 21, 22, 23, and 25)

Unit 6: Volumes

- Prepare to Learn (Lessons 26-29)

- Learn (Lessons 26-29)
    - Key Terms
    - Text and Videos: Cubes and Cube Roots; Cylinders and Cones; Spheres; Solving Problems with Volume
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Practice: Lessons 26, 27, and 28; Word Problem Investigation: Lesson 29)
- Unit 1-Unit 6 Reviews (Lesson 30)
- Discussion (Lessons 26-30)
- Check Your Understanding (Lessons 26-29)
- Checkpoint (Lessons 26-28)
- Unit 6 Exam (Lesson 29)
- Course Final Exam (Lesson 30)
- Course Summary (Lesson 30)
- Course Bibliography (Lesson 30)