Math 8 Honors (1 of 2)

Course Description:

Math 8 Honors (1 of 2) explores rational and irrational numbers, solving linear equations from contextual situations, analyzing properties of functions with a focus on linear functions, and scientific notation. Geometric topics include rigid transformations on figures and proving congruence of figures through a series of rigid transformations.

Course Objectives:

- Classify real numbers as rational numbers, irrational numbers, integers, whole numbers, or counting numbers.
- Identify and convert between equivalent forms of numbers and expressions.
- Solve simple equations in one or two variables.
- Solve real-world and mathematical problems.
- Identify, interpret, and compare functions and their properties.
- Represent linear relationships in graphs, equations, and tables.
- Simplify and interpret numbers and expressions in scientific notation.
- Estimate and compare irrational numbers and expressions.
- Find side lengths related to right triangles using the Pythagorean Theorem and its converse.
- Identify rigid transformations and their properties.
- Describe transformations using mapping statements and coordinates.
- Relate congruent figures to transformations.
- Identify and justify geometric relationships in triangles and parallel lines.

Required Materials:

In course.

Course Overview:

Unit 1: Rational Numbers

- Prepare to Learn (Lessons 1-5)
- Learn (Lessons 1-5)
    - Key Terms
    - Text and Videos: Equivalent Forms of Rational Numbers; Multiplying and Dividing Rational Numbers; Adding and Subtracting Rational Numbers; Working Backward; Solving One- and Two-Step Equations
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Practice: Lessons 1, 2, 3, and 5; Word Problem Investigation: Lesson 4)
- Discussion (Lessons 1-5)
- Check Your Understanding (Lessons 1-5)

- Checkpoint (Lessons 1-4)
- Unit 1 Exam (Lesson 5)
- Project 1 (Lessons 1-5)

Unit 2: Algebra Fundamentals

- Prepare to Learn (Lessons 6-10)
- Learn (Lessons 6-10)
    - Key Terms
    - Text and Videos: Equations for Situations; Two-Dimensional Solutions; Two-Dimensional Relationships; Analyzing Graphs of Situations; The Concept of a Function
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Word Problem Investigation: Lessons 6 and 9; Interactive: Lesson 7; Exploration: Lesson 8; Practice: Lesson 10)
- Discussion (Lessons 6-10)
- Check Your Understanding (Lessons 6-10)
- Checkpoint (Lessons 6-9)
- Unit 2 Exam (Lesson 10)
- Project—Close Reading (Lessons 7 and 8)

Unit 3: Algebraic Strategies

- Prepare to Learn (Lessons 11-15)
- Learn (Lessons 11-15)
    - Key Terms
    - Text and Videos: Properties of Linear Functions; Integer Exponents; Properties of Integer Exponents; Very Large and Very Small Numbers; Operations with Large and Small Numbers
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Interactive: Lessons 11 and 14; Practice: Lessons 12, 13, and 15)
- Discussion (Lessons 11-15)
- Check Your Understanding (Lessons 11-15)
- Checkpoint (Lessons 11-14)

- Unit 3 Exam (Lesson 15)
- Project 3 (Lessons 12-15)

Unit 4: Real Numbers

- Prepare to Learn (Lessons 16-20)
- Learn (Lessons 16-20)
    - Key Terms
    - Text and Videos: Classifying Numbers; Squares and Square Roots; Rational and Irrational Numbers; Approximations; Applying the Pythagorean Theorem
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Interactive: Lessons 16, 18 and 19; Practice: Lesson 17; Word Problem Investigation: Lesson 20)
- Discussion (Lessons 16-20)
- Check Your Understanding (Lessons 16-20)
- Checkpoint (Lessons 16-19)
- Unit 4 Exam (Lesson 20)
- Project—Close Reading (Lessons 16, 18, and 20)

Unit 5: Rigid Transformations

- Prepare to Learn (Lessons 21-25)
- Learn (Lessons 21-25)
    - Key Terms
    - Text and Videos: Translations; Reflections; Rotations; Transformations and Angles; Transformations and Parallel Lines
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Exploration: Lessons 21-25)
- Discussion (Lessons 21-25)
- Check Your Understanding (Lessons 21-25)
- Checkpoint (Lessons 21-24)
- Unit 5 Exam (Lesson 25)
- Project 5 (Lessons 21-25)

Unit 6: Geometric Relationships

- Prepare to Learn (Lessons 26-29)
- Learn (Lessons 26-29)
    - Key Terms
    - Text and Videos: Congruence; Angle Pair Relationships; Angle Relationships in Triangles; Dissecting the Pythagorean Theorem; Final Exam
    - Step-by-Step Example Problem(s)
    - Try It! Problem(s)
- Enrichment (Interactive: Lessons 26 and 27; Practice: Lessons 28 and 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)