

### Course Description:

Geometry Honors (1 of 2) examines congruence, proofs, and constructions to prove statements about lines, angles, triangles, and quadrilaterals; applies the knowledge of transformations to learn a formal definition for similarity to write proofs; introduces trigonometry through its connection to the concept of similarity; derives and uses formulas for the areas and volumes of two- and three-dimensional figures; and investigates cross sections and solids of revolutions.

### Course Objectives:

- Identify and use formal definitions, properties, theorems, and postulates to solve problems and complete proofs.
- Identify, represent, and describe transformations.
- Prove theorems about geometric figures.
- Make formal geometric constructions using different tools and methods.
- Prove triangles are congruent or similar using transformations, definitions, theorems, properties, and postulates.
- Solve problems using geometric models.
- Identify and use trigonometric relationships to solve problems.
- Solve problems related to area and volume in two- and three-dimensional figures.
- Identify geometric relationships in two- and three- dimensional figures.

### Required Materials:

In course.

### Course Overview:

#### Unit 1: Origin Story (Congruence, Proof, and Constructions)

- Course Pretest (Lesson 1)
- Math Muscle Exercises (Lessons 2-5)
- Prologue
- Level Up
  - Key Terms
  - Text and Videos: The Undefined; Defining (from the Undefined); Comparing Transformations; Polygons; Transform It!
  - Workbook assessments
- Checkpoint assessments (Lessons 1-4)
- Epilogue
- Project 1: Geometric Constructions I (Lessons 1-4)
- Close Reading Project, part 1 (Lesson 5)
- To Be Continued...!
- Unit 1 Exam (Lesson 5)

#### Unit 2: The Power of 3 (Congruence, Proof, and Constructions continues)

- Math Muscle Exercises (Lessons 6-10)
- Prologue
- Level Up

- Key Terms
  - Text and Videos: Congruence and Transformations; Congruent Triangles; 3 Sides Are Better; Include an Angle; Include a Side
  - Workbook assessments
  - Checkpoint assessments (Lessons 6-9)
  - Epilogue
  - Project 2: Geometric Construction II
  - To Be Continued...!
  - Unit 2 Exam (Lesson 10)
- Unit 3: Where the Power Lies (Congruence, Proof, and Constructions completed)
- Math Muscle Exercises (Lessons 11-15)
  - Prologue
  - Level Up
    - Key Terms
    - Text and Videos: Lines and Angles; Perpendicular Bisectors; Triangle Basics; Segments in Triangles; Parallelograms
    - Workbook assessments
  - Checkpoint assessments (Lessons 11-14)
  - Epilogue
  - Project 3: Geometric Construction III (Lessons 11-14)
  - Close Reading Project, part 2 (Lesson 15)
  - To Be Continued...!
  - Unit 3 Exam (Lesson 15)
- Unit 4: Never Too Soon To Dilate! (Similarity, Proof, and Trigonometry)
- Math Muscle Exercises (Lessons 16-20)
  - Prologue
  - Level Up
    - Key Terms
    - Text and Videos: Dilations; Similarity; Similarity Postulates & Theorems; Similarity, Proportionality, and Triangles; Problem Solving and Modeling
    - Workbook assessments
  - Checkpoint assessments (Lessons 16-19)
  - Epilogue
  - Project 4: Modeling with Similar Triangles (Lessons 16, 18-20)
  - Close Reading, Part 3 (Lesson 17)
  - To Be Continued...!
  - Unit 4 Exam (Lesson 20)
- Unit 5: Give Me a Sine (Similarity, Proof, and Trigonometry completed)
- Math Muscle Exercises (Lessons 21-25)
  - Prologue
  - Level Up
    - Key Terms
    - Text and Videos: Right Triangles and Similarity; Sine and Cosine; Right Triangles in the Real World; Area and Sine; Laws of Sines and Cosines
    - Workbook assessments
  - Checkpoint assessments (Lessons 21-24)

- Epilogue
- Project 5: Modeling with Right and Non-Right Triangles (Lessons 21, 22, 24, 25)
- Close Reading, Part 4 (Lesson 23)
- To Be Continued...!
- Unit 5 Exam (Lesson 25)

Unit 6: The Biggest Adventure (Extending to Three Dimensions)

- Math Muscle Exercises (Lessons 26-28)
- Prologue
- Level Up
  - Key Terms
  - Text and Videos: Areas; Volumes; Cross Sections and Solids of Revolution; Modeling; Final Exam
  - Workbook assessments
- Checkpoint assessments (Lessons 26-29)
- Epilogue
- Project 6: Geometric Construction IV
- To Be Continued...!
- Course Final Exam (Lesson 30)