MP4b-Geometry

Content Area: **Math**
Course(s): **Algebra 1 Accelerated**
Time Period: **Marking Period 4**
Length: **enVision Chapter 6-8, 20 days**
Status: **Published**

Essential Questions

- How can you show that two figures are either congruent or similar to one another?
- How can you use the Pythagorean Theorem to solve problems?
- How are the formulas for volume of a cylinder, cone, and sphere related to one another?

Big Ideas

- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- The formulas for volume of a cylinder, cone, and sphere are related.

CSDT Technology Integration

8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.

8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.

Activity: The Algebra College Slope Project encourages students to learn about college choices and decisions. Students have the opportunity to research colleges and universities, and select one based on possible majors they would be interested in, as well as a budget. Students then research possible high school jobs in an effort to earn money to use for college tuition. Students create electronic descriptions of their research, spreadsheets on the computer, and develop linear functions electronically.

Enduring Understandings

Geometry

8.G.1 Verify experimentally the properties of rotations, reflections, and translations.

8.G.1a Lines are transformed to lines, and line segments to line segments of the same length.

8.G.1b Angles are transformed to angles of the same measure.

8.G.1C Parallel lines are transformed to parallel lines.

8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.

8.G.6 Explain a proof of the Pythagorean Theorem and its converse.

8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. Students may solve real-world mathematical problems involving the physical properties of the principle gasses that cause climate change molecules.

Mathematical Practices Focus

1. Make sense of problems and persevere in solving them. - Lesson 2, 4, and page 333

- Page 391

2. Reason abstractly and quantitatively. - Lesson 2, 3, 4, 5, 6, 7, 8, 9, 10, and page 333

- Lesson 3 and page 391

3. Construct viable arguments and critique the reasoning of others. - Lesson 1, 2, 3, 5, 6, 7, 10, and page 333

4. Model with mathematics. - Lesson 1, 2, 3, 4, 9, and page 333

- Lesson 2, 4, and page 391

5. Use appropriate tools strategically. - Lesson 8

6. Attend to precision. - Lesson 1, 4, 7

7. Look for and make use of structure. Lesson 1, 2, 5, 6, 7, 8, 9, and page 333

- Lesson 1, 2, 3, 4, and page 391

8. Look for and express regularity in repeated reasoning.- Lesson 1, 2, 6, 7, 9, and page 333

- Lesson 1, 2, 3, 4, and page 391