Unit 4a-Congruence and Similarity

Content Area: **Mathematics**
Course(s): **Math 7 PRE-ALGEBRA**
Time Period: **Marking Period 4**
Length: **Wk 2-5 Envisions Mathematics Topic 11**
Status: **Published**

Essential Questions

- How can you show that two figures are either congruent or similar to one another?

Big Ideas

- Understand congruence and similarity using physical models, transparencies, or geometry software.

Cross Curricular Integration

Integration Area: Language Arts

LA.W.AW.7.1 Write arguments on discipline-specific content (e.g. social studies, science, technical subjects, English/Language Arts to support claims with clear reasons and relevant evidence

LA.W.AW.7.1.A Introduce claim(s),about a topic or issue, acknowledge alternate or opposing claims, and organize the reasons and evidence logically

LA.W.AW.7.1.B Support claim(s) with logical reasoning and relevant accurate data and evidence, that demonstrate an understanding of the topic or text using accurate, credible sources and demonstrating an understanding of the topic or text.

LA.W.AW.7.1.C Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.

LA.W.AW.7.1.D Establish and maintain a formal style/academic style, approach, and form.

LA.W.AW.7.1.E Provide a concluding statement or section that follows from and supports the argument presented.

LA.W.WP.7.4 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning,; flexibly making editing and revision , revision choices and sustaining effort to complete complex writing tasks; and focusing on how well purpose and audience have been addressed.

LA.W.WR.7.75 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

LA.W.SE.7.6 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and

conclusions of others while avoiding plagiarism and following a standard format for citation. Students may determine the credibility of multiple digital and print data sources that can be used as supporting evidence in constructing a model for describing the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

LA.W.RW.7.7 Write routinely over extended time frames (time for research, reflection, metacognition/self-correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

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 coordinate.

Activity: Write a biography of a mathematician or of an artist who uses mathematics to make art. In the biography, highlight the mathematics the person used or developed. Include illustrations.

CSDT Technology Connection

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

Enduring Understandings

Geometry

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

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

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

8.G.1C[M] Parallel lines are transformed to parallel lines.

8.G.2[M] 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[M] 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.

Mathematical Practices

1. Make sense of problems and persevere in solving them. Lesson 2, 4, and page 333
2. Reason abstractly and quantitatively. Lesson 2, 3, 4, 5, 6, 7, 8, 9, 10, and page 333
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
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
8. Look for and express regularity in repeated reasoning. Lesson 1, 2, 6, 7, 9, and page 333