Mathematics Curriculum Guide

Plane Geometry ~ Senior Campus

2017-18

Topic 5: Similarity

Transfer Goals
1) Demonstrate perseverance by making sense of a never-before-seen problem, developing a plan, and evaluating a strategy and solution. 2) Effectively communicate orally, in writing, and using models (e.g., concrete, representational, abstract) for a given purpose and audience. 3) Construct viable arguments and critique the reasoning of others using precise mathematical language.

Essential Questions:

- How can you prove properties of similar triangles?
- How can similarity transformations be used to explain similarity of triangles?
- How so you determine whether two triangles are similar?

Standards: G-SRT 2, G-SRT 3, G-SRT 4, G-SRT 5

Suggested Timeframe: 3 weeks/15 days
Start Date: January 22, 2018
Assessment Dates: February 8-9, 2018

Time	Lesson/ Activity	Focus Questions for Lessons	Understandings	Knowledge	Skills	Resources
2 days	**Lesson 9-7: Similarity Transformations** SMP 1, 2, 3, 4 (pp. 594-600) **G-SRT-2**	**Focus Questions:** • What does it mean for figures to be similar? **Inquiry Question:** 9-7 Solve It! Pg 594	• Figures are similar if all pairs of corresponding angles are ≅ and the lengths of corresponding sides are proportional • Figures are similar if there is a similarity transformation that maps one to the other.	**Vocabulary:** similar, similarity transformation, dilation **Concepts:** similar figures	• Identify similarity transformations • Graph similarity transformations in the coordinate plane	**Common Core Problems:** **9.7:** #3,4,16,17, 18, 25, 29
1 day	**Lesson 7.1: Ratios and Proportions** SMP 1, 3, 4, 6, 7 (pp. 432-438) **G-SRT-5**	**Focus Question:** • How do you solve a proportion? **Inquiry Question:** 7-1 Solve It! Pg 432	• Students will know how to write and solve a proportion.	**Vocabulary: r**atio, proportion, extended ratio, extremes, means **Concepts:** Cross-Product Property, Properties of Proportions	• Set up and solve proportions • Use ratios to represent quantities and find equivalent ratios	Students may see problems that require them to convert between units **Common Core Problems:** **7-1:** #5,6,7,37, 45, 46, 47, 48

Common Core Practices

- ☐ Instruction in the Standards for Mathematical Practices
- ☐ Use of Talk Moves
- ☐ Note-taking
- ☐ Use of Manipulatives
- ☐ Use of Technology
- ☐ Use of Real-world Scenarios
- ☐ Project-based Learning
- ☐ Thinking Maps

Time	Lesson/ Activity	Focus Questions for Lessons	Understandings	Knowledge	Skills	Additional Resources
3 Days	**Lesson 7-2: Similar Polygons** SMP: 1,3,4,6 (pp. 440-447) **G-SRT 5**	**Focus Question:** • How can you determine if two figures are similar? • How can you find missing side lengths of similar figures? **Inquiry Question:** 7-2 Solve It! Pg 440	• Ratios and proportions can be used to decide whether two polygons are similar and to find unknown side lengths of similar figures.	**Vocabulary:** Scale factor, scale drawing, scale **Concepts:** Similar Polygons	• Use side lengths to decide if given figures are similar. • Write similarity statements with the proper notation. • Find missing side lengths of similar figures.	**Common Core Problems:** **7-2:** #5,6,7,32,33,34,36
1 day	**Review Lesson 9.7, 7.1, and 7-2 Concepts & Skills** Use Textbook Resources and/or Teacher Created Items					
3 days	**Lesson 7-3: Similar Polygons and Triangles** SMP: 1,3,4 (pp. 450-458) **G-SRT 3**, **G-SRT 5**	**Focus Questions:** • How can you prove triangles are similar? **Inquiry Question:** 7-3 Solve It! Pg 450	• Triangles can be proven similar by AA, SAS, and SSS Similarity • Similar triangles can be used to find unknown measurements	**Vocabulary:** Indirect measurement **Concepts:** AA Postulate, SAS Theorem, SSS Theorem	• Use the properties of similarity transformations to establish AA~ criterion for two triangles to be similar. • Prove triangles are similar. • Use indirect measurement to solve problems.	LearnZillion lesson LZ2361 has short video (>3 min) using transformations to establish AA~ www.learnzillion.com **Common Core Problems:** **7.3:** #4,5,6,22,29,31,32-35
1 day	**Lesson 7-5: Proportions in Triangles** SMP: 1,3,4 (pp. 471-478) **G-SRT 4**	**Focus Questions:** • How can you use similar triangles to show that a line parallel to one side of a triangle divides the other two proportionally? **Inquiry Question:** 7-5 Solve It! Pg 471	• A line parallel to one side of a triangle divides the other two sides proportionally	**Vocabulary/Concepts:** Parallel, corresponding angles, proportion **Concepts:** Side-Splitter Theorem, Corollary to the Side-Splitter Theorem, Triangle-Angle-Bisector Theorem	• Prove the Side-Splitter Theorem (Pg 472) • Use Side-Splitter Theorem to solve problems.	**Common Core Problems:** **7.5:** #6,7,8,23, 36, 37, 42, 43, 46, 47

Time	Lesson/ Activity	Focus Questions for Lessons	Understandings	Knowledge	Skills	Additional Resources
2 Days	**Review Topic 5 Concepts & Skills** Use Textbook Resources and/or Teacher Created Items					
2 Days	**Topic 5 Assessment** (Created and provided by PUSD)					

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- ☐ Project-based Learning
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