

FRANKLIN-SIMPSON HIGH SCHOOL

Course Name: Geometry **Unit Name: Congruent Triangles: Shortcuts**

Quality Core Objectives:

Unit 6 Congruent Triangles: Shortcuts	
B.1. Mathematical Processes	a. Apply problem-solving skills (e.g., identifying irrelevant or missing information, making conjectures, extracting mathematical meaning, recognizing and performing multiple steps when needed, verifying results in the context of the problem) to the solution of real-world problems
	b. Use a variety of strategies to set up and solve increasingly complex problems
	d. Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
	f. Make mathematical connections among concepts, across disciplines, and in everyday experiences
	h. Apply previously learned algebraic concepts in geometric contexts
C.1. Logic and Proof	a. Use definitions, basic postulates, and theorems about points, segments, lines, angles, and planes to write proofs and to solve problems
	b. Use inductive reasoning to make conjectures and deductive reasoning to arrive at valid conclusions
	c. Identify and write conditional and biconditional statements along with the converse, inverse, and contrapositive of a conditional statement; use these statements to form conclusions
	d. Use various methods to prove that two lines are parallel or perpendicular (e.g., using coordinates, angle measures)
	e. Read and write different types and formats of proofs including two-column, flowchart, paragraph, and indirect proofs
	f. Prove that two triangles are congruent by applying the SSS, SAS, ASA, AAS, and HL congruence statements
	g. Use the principle that corresponding parts of congruent triangles are congruent to solve problems
D.1. Points, Lines, Planes, and Space	a. Identify and model plane figures, including collinear and noncollinear points, lines, segments, rays, and angles using appropriate mathematical symbols
	b. Identify vertical, adjacent, complementary, and supplementary angle pairs and use them to solve problems (e.g., solve equations, use in proofs)

	c. Identify corresponding, same-side interior, same-side exterior, alternate interior, and alternate exterior angle pairs formed by a pair of parallel lines and a transversal and use these special angle pairs to solve problems (e.g., solve equations, use in proofs)
	f. Apply properties and theorems of parallel and perpendicular lines to solve problems
D.2. Polygons	a. Identify and classify triangles by their sides and angles
	b. Identify medians, altitudes, perpendicular bisectors, and angle bisectors of triangles and use their properties to solve problems (e.g., find points of concurrency, segment lengths, or angle measures)
E.1. Similarity and Congruence	b. Identify congruent figures and their corresponding parts
G.1. Coordinate Geometry	c. Use coordinate geometry to solve problems about geometric figures (e.g., segments, triangles, quadrilaterals)

Purpose of the Unit: To use the relationships learned about triangles in order to find ways to prove that triangles are congruent.

Prerequisites: Students should be able to solve multi-step equations, use the distance and midpoint formula, and use postulates and theorems about parallel lines.

Daily Lesson Guide

Day	Lesson Content and Objectives	Focus Questions	Critical Thinking (High Yield / Literacy /LTF/etc.)	Engagement	Assessment and/or Accommodations
1	B.1.a, B.1.b, B.1.d, B.1.h, C.1.a, C.1.b, C.1.g, E.1.b	How do I recognize congruent figures and their corresponding parts? How do I write congruent statements?	<i>Look For and Make Use of Structure: In the discussion of congruent figures and transposing them, students will shift their perspective of geometric figures.</i>	Clear/Modeled Expectations: <i>Teacher will model examples of congruent figures and their corresponding parts.</i>	Bellringer: ACT question 4-1 Additional Vocabulary Support Homework: p222-223 (8-42 even)

2	B.1.a, B.1.b, B.1.d, B.1.f, C.1.a, C.1.b, C.1.c, C.1.f, D.1.a	<p>How do I show that two triangles are congruent by the SSS postulate?</p> <p>How do I show that two triangles are congruent by the SAS postulate?</p>	<p>Look For and Make Use of Structure: <i>Students will recognize the significance of elements in a triangle, such as the congruences of sides and angles, and will determine the congruence between two triangles using SSS and SAS.</i></p>	<p>Novelty and Variety: Students will investigate what information is needed in order to show that two triangles are congruent.</p>	<p>Bellringer: Question from Previous Assessment Congruent Triangle Exploration Activity Homework: p231-233 (11-15, 18, 20, 24, 26, 35)</p>
3	B.1.a, B.1.b, B.1.d, B.1.f, C.1.a, C.1.b, C.1.c, C.1.f, D.1.a	<p>How do I show that two triangles are congruent by the ASA postulate?</p> <p>How do I show that two triangles are congruent by the AAS theorem?</p>	<p>Look For and Make Use of Structure: <i>Students will recognize the significance of elements in a triangle, such as the congruences of sides and angles, and will determine the congruence between two triangles using ASA and AAS.</i></p>	<p>Novelty and Variety: Students will use a paper folding activity to investigate congruent triangles by ASA and AAS.</p>	<p>Bellringer: Modified Unit Six Test Question 4-3 Enrichment (Paper Folding) Homework: p238-241 (8-10, 13, 16-18, 24, 32)</p>
4	B.1.a, B.1.b, B.1.d, B.1.f, C.1.a, C.1.b, C.1.c, C.1.f, D.1.a	<p>How do I show that two triangles are congruent?</p>	<p>Look For and Make Use of Structure: <i>Students will recognize the significance of elements in a triangle, such as the congruences of sides and angles, and will determine the congruence between two triangles using SSS, SAS, ASA and AAS.</i></p>	<p>Learning with Others: Students will be placed in groups of three in order to solve problems related to congruent triangles.</p>	<p>Bellringer: ACT question Triangle Congruence Example Problems (Group Activity)</p>
5	B.1.a, B.1.b, B.1.d, B.1.f, C.1.a, C.1.b, C.1.c, C.1.f, C.1.g, D.1.a, E.1.b	<p>How do I use congruent triangles to show that corresponding parts are congruent?</p>	<p>Construct viable arguments and critique the reasoning of others: <i>Using the stated definition of congruence, students will show corresponding parts of triangles to be congruent.</i></p>	<p>Nonlinguistic Representation: <i>Students will develop a graphic organizer that compares the different ways of proving that two triangles are congruent.</i></p>	<p>Bellringer: Modified Test Question Assessment: Unit Six Quiz Homework: p246-247 (8, 11-13)</p>
6	B.1.b, B.1.d, B.1.f, B.1.h, C.1.a, C.1.b, C.1.c, D.1.a, D.1.b, D.2.a, G.1.c	<p>How do I use the properties of isosceles and equilateral triangles to show congruence?</p> <p>How do I use the properties of isosceles and equilateral triangles to solve problems?</p>	<p>Construct viable arguments and critique the reasoning of others: <i>Drawing on the definition of the congruence of triangles, students will construct algebraic equations.</i></p>	<p>Clear/Modeled Expectations: <i>Teacher will model examples of problems involving isosceles and equilateral triangles.</i></p>	<p>Bellringer: Question from Previous Assessment Congruent Triangle Graphic Organizer (Review) Homework: p254-255 (6-18 even, 27, 28)</p>
7	B.1.b, B.1.d, B.1.f, B.1.h, C.1.a, C.1.b, C.1.c, D.1.a, D.1.b, D.2.a, G.1.c	<p>How do I show congruence in right triangles?</p> <p>How do I show</p>	<p>Construct viable arguments and critique the reasoning of others: Students will use HL to prove right triangles congruent and will use counterexamples of nonright triangles to find</p>	<p>Learning with Others: Students will be paired up to perform a activity relating patterns to congruent</p>	<p>Bellringer: ACT Question 4-6 Enrichment (Patterns) Homework: p262 (9, 12, 13) p268 (8-13)</p>

		congruence in overlapping triangles?	why SSA is not an universal rule.	triangles.	
8	B.1.a, B.1.b, B.1.d, B.1.f, B.1.h, C.1.a, C.1.b, C.1.c, C.1.d, C.1.e, C.1.f, D.1.a, D.1.b, D.1.c, D.1.f, D.2.a, E.1.b, G.1.c	How do I show that two figures are congruent? How do I show that the corresponding parts of two triangles are congruent? How do I use the properties of triangles to solve problems?		Learning with Others: <i>Students will be grouped in threes to work problems.</i>	Bellringer: "Mini Assesment" Example Problems
9	B.1.a, B.1.b, B.1.d, B.1.f, B.1.h, C.1.a, C.1.b, C.1.c, C.1.d, C.1.e, C.1.f, D.1.a, D.1.b, D.1.c, D.1.f, D.2.a, E.1.b, G.1.c	How do I show that two figures are congruent? How do I show that the corresponding parts of two triangles are congruent? How do I use the properties of triangles to solve problems?			Assessment: Unit Six Summative Assessment
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