

Congruent Triangles CPCTC Lesson Plan

GRADE/SUBJECT: GEOMETRY

TEACHER / AUTHOR: ALICIA GRAY

TIME: 1 PERIOD

Lesson Description:

In this lesson, students review different ways to prove triangle congruence and will be able to prove corresponding parts of congruent triangles are congruent by using CPCTC theorem.

Key Essential Questions:

- How do you show corresponding parts of congruent triangles are congruent?
- When can we use the CPCTC theorem?
- How can we use technology to better understand proofs?

Desired Results + Learning Outcomes: (Students will know that... / Students will be able to...)

- Prove triangle congruence and corresponding parts are congruent (CPCTC)
 - Justify corresponding parts are congruent by proving triangles are congruent and then CPCTC
 - Prove triangle congruence by SSS, SAS, ASA, AAS and HL parts are congruent using CPCTC
- Proofs lay the foundation of knowing how to explain what you are solving
- All types of solutions can be justified and solved

Prior Student Knowledge:

- Definition of congruence (All corresponding sides and angles are congruent)
- Median
- Definition of a midpoint
- Basic Reflexive Property of Congruency
- Understanding of CanFigureIt Geometry platform

Lesson Materials:

- [Quizziz.com](#) Access
- [Geogebra.org](#) Access
- [Formalized Notes](#) to hand out
- Individual Access to CanFigureIt Geometry (laptops, chromebooks, macbooks, or desktops only)
- CPCTC [Review Video](#)

Standards Alignment:

- G.CO.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
- G.CO.8: Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
- G.SRT.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- MP1: Make sense of problems and persevere in solving them.
- MP3: Construct viable arguments and critique the reasoning of others.
- MP5: Use appropriate tools strategically.
- MP6: Attend to precision.
- MP7: Look for and make use of structure.
- MP8: Look for and express regularity in repeated reasoning.

Lesson Plan Structure:

1. Warm-Up Quizziz.com Partner Activity
 2. Geogebra Partner Activity
 3. Formalized Class Notes
 4. CanFigureIt Geometry Homework
 5. CPCTC Review Video
-

Warm-Up Quizziz.com Partner Activity

1. Begin the warm-up by reviewing triangle congruence concepts
 - a. Review 4 ways to prove triangle congruence (SSS, SAS, ASA, AAS)
 - b. Have students partner up and complete the following online [quizziz link](#) using chromebooks, laptops, desktops, or macbooks.
 - i. If students have not created individual Quizziz accounts, create a teacher account and project onto board to work through quiz as a class

Geogebra Partner Activity

1. In pairs, have students open the following Geogebra activity and answer the following questions to facilitate classroom discussion, without describing CPCTC: <https://www.geogebra.org/geometry/dkkkm9f4>
 - a. What is the measure of segment A_1B_1 ? What is the measure of A_1C_1 ? What is the measure of Angle A_1 ?
 - b. What can you conclude about Triangle ABC and Triangle $A_1B_1C_1$?
 - c. What is the measure of segment BC and segment B_1C_1 ?
 - d. What is the measure of Angle C and Angle C_1 ? What can you conclude?

Formalized Class Notes

1. Handout the following notes for each student and define Corresponding Parts of Congruent Triangles are Congruent (CPCTC)
 - a. Emphasize you must show two triangles are congruent before using CPCTC
 - b. Work through examples on sheet as a class

Notes

Remember the definition of $\cong \Delta$'s ?

There's a simple phrase/letters we use in proofs whenever we have already shown two Δ 's are \cong .

C_____ **P**_____ of **C**_____ **T**_____ are **C**_____.

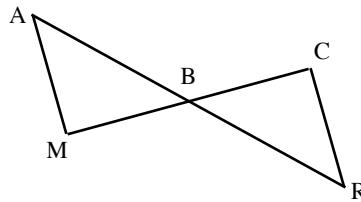
*** BEFORE you use _____ as a reason in a proof, you MUST show that the triangles are _____. ***

Given: \overline{AMPCR}

B is the midpoint of \overline{MC}

Prove: $\triangle ABM \cong \triangle RBC$,

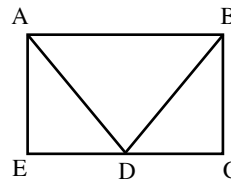
then $\overline{AB} \cong \overline{RB}$



Statements	Reasons
1. \overline{AMPCR}	
2.	
3.	
4. B is the midpoint of \overline{MC}	
5.	
6.	
7.	

Given: ABCE is a rectangle.

D is the midpoint of \overline{CE} .



Statements	Reasons
1. ABCE is a rectangle. D is the midpoint of \overline{CE} .	1. Given
2. $\angle AED \cong \angle BCD$	2. Definition of rectangle
3. $\overline{AE} \cong \overline{BC}$	3. Definition of rectangle
4.	4.
5.	5.
6.	6.

CanFigureIt Geometry Activities (if extra time needed, assign for homework)

1. Direct students to log into [CanFigureIt Geometry](#) using their individual username and password
 - a. Have students work through the following CPCTC activities:
 - i. CPCTC SSS1, CPCTC SSS2, CPCTC SAS 3, CPCTC SAS 4, and CPCTC SAS 6.

Review Video

1. Have students watch review video for additional explanation of CPCTC
 - a. <https://www.youtube.com/watch?v=D-mjxPcQxgA&feature=youtu.be>