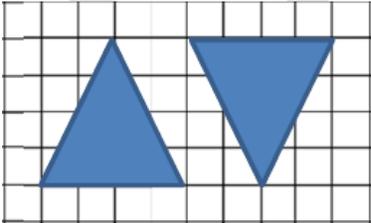## Core Content

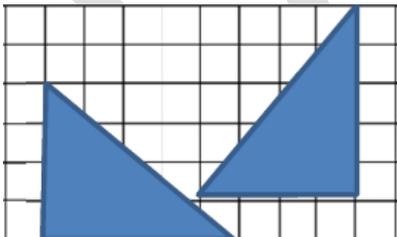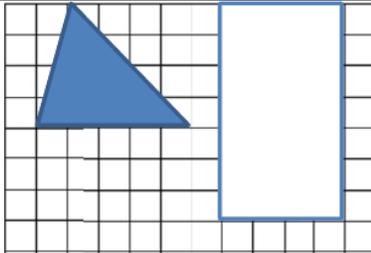| Cluster Title: Understand congruence in terms of rigid motions. |
| --- |
| **Standard:** G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. |
| **Concepts and Skills to Master** |
| Transform figures using geometric descriptions of rigid motions. Predict the effect of rotating, reflecting or translating a given figure. Justify the congruence of two figures using properties of rigid motions. |

Supports for Teachers

Critical Background Knowledge	
Understand and use reflections, translations, and rotations.	
Academic Vocabulary	
rigid motion, congruent, rotate, translate, reflect	
Suggested Instructional Strategies	**Resources**
- Use graph paper, tracing paper, physical models and geometry software to verify predictions regarding rigid motion and congruence. - Use frieze patterns and Escher art to explore congruency in transformations.	Polystrips Math Open Reference: http://www.mathopenref.com/congruenttriangles.html http://illuminations.nctm.org Frieze Patterns
Sample Formative Assessment Tasks	
Skill-based Task Describe a series of transformations that would generate the second triangle from the first. What is the relationship between the two triangles?	**Problem Task** Create frieze patterns and tessellations using transformations that preserve congruence.

Core Content

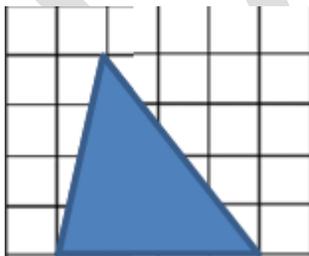| Cluster Title: Understand congruence in terms of rigid motions. |
| --- |
| **Standard:** G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. |
| **Concepts and Skills to Master** |
| Identify corresponding parts of two triangles. Show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent (CPCTC). |

Supports for Teachers

Critical Background Knowledge	
- Define congruence in terms of rigid motions. - Understand that rigid motion is any combination of reflection, translation, and rotation preserving angle measure and side length.	
Academic Vocabulary	
if and only if (iff), corresponding, rigid motion, congruent	
Suggested Instructional Strategies	**Resources**
- Match pairs of cardboard congruent triangles and justify congruence. - Measure angles and side lengths of triangles resulting from rigid transformations using a variety of technology and paper based methods (e.g. patty paper).	Math Open Reference: http://www.mathopenref.com/congruenttriangles.html
Sample Formative Assessment Tasks	

Skill-based Task	**Problem Task**
Identify the corresponding parts of the two congruent triangles.	How many ways can you construct a triangle congruent to the given triangle inside the rectangle? Demonstrate each.

I.5.G.CO.7

Core Content

Cluster Title: Understand congruence in terms of rigid motions.
Standard: 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.
Concepts and Skills to Master
- Identify the minimum conditions necessary for triangle congruence (ASA, SAS, and SSS).   - Understand, explain, and demonstrate why ASA, SAS, or SSS are sufficient to show congruence.   - Understand, explain, and demonstrate why SSA and AAA are not sufficient to show congruence.

Supports for Teachers

Critical Background Knowledge
- Definition of congruence in terms of rigid motions   - Definition of corresponding pairs of sides or angles
Academic Vocabulary
ASA, SAS, SSS, AAA, SSA, included angle, included side, corresponding parts

Suggested Instructional Strategies	Resources
- Explore the minimum conditions necessary to show triangles are congruent using technology, reflective devices, patty paper, spaghetti, or grid paper. - Establish triangle congruence criteria using properties of rigid motion.	*Making it Happen* (NCTM)

Sample Formative Assessment Tasks

Skill-based Task	**Problem Task**
Use rigid motions to transform three segments or angles of the triangle and determine whether or not the resulting triangle is congruent. Explain your conclusion.	Demonstrate visually why some conditions like SSA or AAA are not sufficient to show congruence.

I.5.G.CO.8