Grade: 8 FCPS 2025-2026 Math Grade 8 Topic 6

8th Grade Topic 6: Congruence and Similarity	Estimate Time Frame: 25 days
Essential Standards: 8.G.1, 8.G.2, 8.G.4, 8.G.5 Supporting Standards: 8.G.3 Assessment Resource: enVision Topic 6	

FCPS Supporting Links	Additional Supporting Links
Pacing Guide 8th Grade Topic 6 Standards Resource with Sample Formative Assessments enVision 8th Grade Topic 2 Standards Crosswalk Resource FCPS P-12 Mathematics Guidance Document FCPS Achievement & Trauma Informed Strategies in the Classroom	Kentucky Academic Standards KSA Blueprint Target of the Standards - conceptual, procedural & application Three-Reads Routine Notice and Wonder Routine **MILC Resources Topic 6: Congruence and Similarity** ***enVision Teacher Guide: page 302A to 302D for specific Topic 6 Focus-Coherence-Rigor***

Big Ideas
Understand congruence and similarity using physical models, transparencies, or geometric software.

Essential Questions	Common Preconceptions/Misconceptions
How can you show that two figures are either congruent or similar to one another? What do transformations represent? How can I use a model to show that congruences exist when a transversal cuts parallel lines?	Geometric Transformations- Identifying a rule when given the PreImage and the Image; Fails to verify that the shape remained the same (example- plot one point one space too far) Dilations- Students assume a fraction means the shape will get smaller (Example: 3/2) Angles of a Triangle- identifying remote interior angles Parallel Lines and Transversals- a graphic organizer will assist with vocabulary

Standards for Mathematical Practices	Kentucky Interdisciplinary Literacy Practices (KILP)
MP.1. Make sense of problems and persevere in solving them. **MP.2. Reason abstractly and quantitatively.** **MP.3. Construct viable arguments and critique the reasoning of others.** **MP.4. Model with mathematics.** **MP.5. Use appropriate tools strategically.** MP.6. Attend to precision. **MP.7. Look for and make use of structure.** **MP.8. Look for and express regularity in repeated reasoning.** ***enVision Teacher Guide: page 302E for specific Topic 6 Math Practice suggestions***	1. Recognize that text is anything that communicates a message. 2. Employ, develop, and refine schemas to understand and create text. 3. View literacy experiences as transactional, interdisciplinary, and transformational. 4. Utilize receptive and expressive language arts to better understand self, others, and the world. 5. Apply strategic practices, with scaffolding and then independently, to approach new literacy tasks. **6. Collaborate with others to create new meaning.** **7. Utilize digital resources to learn and share with others.** **8. Engage in specialized, discipline-specific literacy practices.** **9. Apply high-level cognitive processes to think deeply and critically about text.** 10. Develop a literacy identity that promotes lifelong learning. *Incorporating texts into math instruction fosters interdisciplinary learning for a more engaging educational experience.*

Essential Standards	Sample Learning Intentions & Success Criteria	HQIR/Resource Considerations
Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software.		
KY.8.G.1 Verify the properties of rotations, reflections, and translations experimentally: • Lines are congruent to lines. • Line segments are congruent to line segments of the same length. • Angles are congruent to angles of the same measure. • Parallel lines are congruent to parallel lines. ☐ **Conceptual** ❑ Procedural ❑ Application	We are learning to experimentally verify the properties of rotations, reflections, and translations. • I can describe and perform rotations, reflections, and translations on a coordinate plane. • I can use tools to experimentally verify the properties of rotations, reflections, and translations. • I can explain why these transformations preserve the congruence of lines, line segments, angles, and parallel lines.	• Topic 6: Let's Investigate! Copy That (replaces Topic 6 Lesson 6-1) • Brainingcamp Task (Lesson 6-1) "Outsmarting an Obstacle" • Topic 6 Lesson 6-2 • Brainingcamp Task (Lesson 6-2) "Where Does the Polygon Go?" • Topic 6 Lesson 6-3 • Brainingcamp Task

Supporting Standard KY.8.G.3 Clarifications: Emphasis is that congruence transformations preserve corresponding congruent lines, segments, and angles. Coherence KY.8.G.1→ KY.HS.G.3(+) **MP.5, MP.6, KILP.7, KILP.8**	• I can use coordinates on a coordinate plane to describe the rules of translation, reflection, rotation, or dilation (mapping).	(Lesson 6-3) "Spin the Triangle" • Topic 6 Lesson 6-4 • Brainingcamp Task (Lesson 6-4) "Combining Transformations" • 3-Act Task: Tricks of the Trade • enVision Language Support Handbook • MILC - Transformations Matching Sort • MILC - Mira Reflection Activity with the MIRA manipulatives
KY.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 exhibiting congruence between them. ☐ **Conceptual** ☐ **Procedural** ❑ Application *Supporting Standard KY.8.G.3* Clarifications: Students understand that a figure, called a pre-image, is congruent to another figure, called the image, if the second figure can be obtained by a sequence of congruence transformations performed on the first figure. Students describe the sequence of congruence transformations necessary to transform one figure to a congruent second figure.	We are learning to understand congruent figures on a coordinate plane. • I can describe a pre-image and an image. • I can use a sequence of translations, reflections, and rotations to show that figures are congruent. • I can describe the sequence of transforming one figure into a congruent second figure. • I can use coordinates on a coordinate plane to describe the rules of translation, reflection, rotation, or dilation (mapping).	• Topic 6 Lesson 6-5 • enVision Language Support Handbook • MILC - 3 in a Row Reflection Partner Game • MILC - Flocabulary Rigid Transformations • MILC - Dilations Graphing Match

Coherence KY.8.G.2→ KY.HS.G.5 **MP.2, MP.6, MP.7, KILP.2, KILP.7** **KY.8.G.4** 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 exhibiting congruence between them. ☐**Conceptual** ☐**Procedural** ❑ Application Coherence KY.8.G.4→ KY.HS.G.10 **MP.2, MP.5, MP.7, KILP.2, KILP.7** Clarifications: If similar, non-congruent figures are given, students understand that a dilation must occur in the sequence of transformations to obtain the image from the preimage. *Supporting Standard KY.8.G.3*	We are learning to understand similar figures. ● I can show that figures are similar by using a sequence of reflections, translations, dilations, and rotations. ● I can explain why a figure is similar to another. ● I can use coordinates on a coordinate plane to describe the rules of translation, reflection, rotation, or dilation (mapping).	● Topic 6 Lesson 6-6 ● Topic 6 Lesson 6-7 ● enVision Language Support Handbook
KY.8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when a transversal cuts parallel lines, and the angle-angle criterion for the similarity of triangles. ☐**Conceptual** ❑ Procedural ❑ Application Clarifications: Students use technology or physical tools to explore triangles. They arrange three copies of the same	We are learning about the angle sum and exterior angles of triangles. ● I can explain why the sum of the interior angles of a triangle is 180 degrees using informal arguments. ● I can explain using informal arguments why the measure of an exterior angle of a triangle is equal to the sum of the measures of the two non-adjacent interior angles.	● Topic 6 Lesson 6-8 ● Topic 6 Lesson 6-9 ● Topic 6 Lesson 6-10 ● enVision Language Support Handbook

triangle so that the sum of the three angles appears to form a line and give an argument regarding transversals of why this is so. Coherence KY.7.G.5→ KY.8.G.5→ KY.HS.G.10 **MP.3, KILP.1, KILP.6**	We are learning about the relationship between angles created when transversals cut parallel lines. ● I can identify angle pairs created when a transversal cuts parallel lines. ● I can explain the relationships between these angles. We are learning about the angle-angle criterion to determine triangle similarity. ● I can explain if triangles are similar using the angle-angle criterion.	

Attending to the Standards for Mathematical Practice

Students construct arguments around the properties of rigid motions.
Students make assumptions about parallel and perpendicular lines and use properties of rigid motions to directly or indirectly prove their assumptions.
Students use definitions to describe a sequence of rigid motions to prove or disprove congruence. Students build a logical progression of statements to show relationships between angles of parallel lines cut by a transversal, the angle sum of triangles, and properties of polygons like rectangles and parallelograms (MP.3).
With the aid of physical models, transparencies, and geometry software, grade eight students gain an understanding of transformations and their relationship to shape congruence (MP.5, MP.6).
Through experimentation, students verify the properties of rotations, reflections, and translations, including discovering that these transformations change the position of a geometric figure but not its shape or size (MP.7).
Finally, students understand that congruent shapes are precisely those that can be “mapped” one onto the other by using rotations, reflections, or translations (MP.2).

Supporting Standards

KY.8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. **MP.3, MP.5, MP.6**
Clarifications: Emphasis on noticing patterns across examples and noting how the x and y values change for different transformations.

Conceptual ❑ Procedural ❑ Application

Lessons 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7

Vocabulary

adjacent angles - Two angles that share both a side and a vertex.
alternate interior angles - When two lines are crossed by another line (called a transversal), the pairs of angles on opposite sides of the transversal but inside the two lines are called alternate interior angles.
Congruent - Two planes or solid figures are congruent if one can be obtained from the other by rigid motion. Having the same size and shape.
corresponding angles - When a transversal crosses two lines, the angles in matching corners are called corresponding angles.
dilation - A transformation that moves each point along the ray through the point emanating from a fixed center and multiplies distances from the center by a common scale factor.
exterior angle - An exterior angle is the angle between one side of a polygon and the extension of an adjacent side. A triangle's exterior angle equals the sum of the opposite interior angles.
interior angle - An angle whose sides are determined by two consecutive sides of a polygon.
line of symmetry - A line across the figure such that the figure can be folded along the line into matching parts; a line that divides a geometric figure into two congruent portions.
parallel lines - Coplanar lines that do not intersect.
perpendicular lines - A line that forms a right angle with another line or segment.
reflection - A transformation resulting from a flip.
rotation - A transformation in which a figure is rotated through a given angle, about a point.
similar polygons - Two polygons are similar if their corresponding sides are proportional.
supplementary angles - Two angles are supplementary if their sum is 180 degrees.
transformation - A change in a geometric figure's position, shape, or size.
translation - A transformation, or change in position, resulting from a slide with no turn.
transversal - A line that intersects two other lines

*****Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. This example is not comprehensive.
** Mathematical Practices (A.MP. 1- 8) should be evidenced at some point throughout each unit, depending on the explored tasks. It is important to note that MP. 2 should support learning in every lesson.
******* Modeling Standards: Modeling is best interpreted not as a collection of isolated topics but rather with other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards

indicated by a star symbol (★). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to *all* standards in that group.