High School Geometry FCPS 2025-2026 Math Unit Framework Topic 1

Geometry Topic 1: Foundations of Geometry	Estimate Time Frame: 7 Block Days
Essential Standards: G.1, G.23, G.6 Assessment Resource: End of Unit Common Assessment Folder and Topic 1 Assessment in PDF	

FCPS Supporting Links	Additional Supporting Links
Pacing Guide enVision Geometry 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 1 - Foundations of Geometry** ***enVision Geometry Teacher Guide: page 2A to 2D for specific Topic 1 Focus-Coherence-Rigor*** Day One to include Introductory Activities and the option for enVision Pre-Assessment or Algebra One Review For teachers wanting to use a cumulative review throughout the year for Algebra I skills, the following Formative Assessment Lessons **(FALs)** are recommended: **Formative Assessment Lesson (FAL) -** (one per semester as a minimum) examples: **FAL -** Interpreting Algebraic Expressions **FAL -** Solving Linear Equations in One Variable **—** Solving Linear Equations in One Variable

	FAL - Solving Linear Equations in Two Variables
Big Idea	
Geometric figures are named based on their properties.	
Essential Questions	**Common Preconceptions/Misconceptions**
•In what ways can congruence be used? •How can relationships between angles be used to solve problems? •How can relationships between segments be used to solve problems? Essential Theorems/Postulates: •Segment Addition Postulate •Angle Addition Postulate •Vertical Angle Theorem •Linear Pair Theorem	• Students may have intuitive but limited ideas of basic geometric terms. For example, they may consider a point a “dot.” Teachers should challenge these notions. Students should recognize that the dot represents a point and is an exact location. • Students in high school start formalizing the intuitive geometric notions they developed in grades 6–8 and give specificity to geometric concepts that can serve as a reasonable basis for developing precise definitions and arguments. • Students should understand the essential properties of parallel and perpendicular lines before connecting them and determining how they relate to their calculated or given slope.

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 2D for specific Math Practice suggestions***	1. Recognize that text is anything that communicates a message. 2. Employ, develop, and refine schema to understand and create text. 3. View literacy experiences as transactional, interdisciplinary, and transformational. 4. Use 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: Experiment with transformations in the plane.		
KY.HS.G.1 Know and apply precise definitions of the language of Geometry: a. **Understand** properties of line segments, angles, and circles. b. **Understand** the properties of and differences between perpendicular and parallel lines. **MP.3, MP.6, KILP.3, KILP.5**	We are learning to apply definitions in the language of Geometry. • I can define point, line, and plane definitions. • I can apply the Ruler and Segment Addition Postulate • I can apply the Protractor and Angle Addition Postulate • I can identify and apply the properties of line segments, angles, and circles.	• Topic 1-1 a • Topic 1-1 b Include noncollinear and noncoplanar points • Formative assessment - Lesson Quiz 1 a • Let's Make A Poster Task (MILC) • I Have, Who Has Vocabulary Game (MILC)

Supporting Standard: KY.HS.G.8, KY.HS.G.22, KY.HS.N.5, KY.HS.N.6 ☐ Conceptual ❑ Procedural ❑ Application	• I can demonstrate **understanding** by applying the properties of points, lines, and planes to segments, angles, and circles to solve problems.	
Cluster: Use coordinates to prove simple geometric theorems algebraically.		
KY. HS.G.23 Find measurements among points within the coordinate plane. a. **Use** points from the coordinate plane to find the coordinates of the midpoint of a line segment and the distance between the endpoints of a line segment. b. **Find** the point on a directed line segment between two given points that partitions the segment in a given ratio. **MP.2, MP.8, KILP.6, KILP.7, KILP. 9** *Supporting Standards: KY.HS.G.7, KY.HS.G.31* ☐ Conceptual ☐ Procedural ❑ Application	We are learning to find measurements among points in the coordinate plane using the midpoint and distance formula. • I can locate points on the coordinate plane and understand the concept of a line segment. • I can calculate the midpoint of a line segment using points from the coordinate plane. • I can calculate the distance between the endpoints of a line segment using the distance formula. • I am learning to find the point on a directed line segment between two given points that partitions the segment in a given ratio. • I can use the distance formula and ratios to partition a segment to find a point.	• Topic 1-3 • 3-Act Task as Intro for Topic 1.3 Include angle bisector problems with this section (covered a little in 1-2, but you must supplement) and partitioning a segment. **3 ACT Math Task** The Mystery Spokes (use with review or as "anytime" activity after 1-3) $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
Cluster: Prove geometric theorems.		
KY.HS.G.6 Apply theorems for lines, angles, triangles, and parallelograms. **MP.2, MP.3, KILP.6, KILP.9**	We are learning to apply previously learned definitions, theorems, postulates, and properties of lines, angles, and triangles to draw conclusions and make inferences.	• Topic 1-5 • Lesson Quiz 1-1b • Course Pre-Test • Desmos Activity

Supporting Standards: KY.HS.G.7, KY.HS.G.11, KY.HS.G.22, KY.HS.G.29 □ Conceptual □ Procedural ❑ Application	• I can write congruence statements identifying corresponding parts of congruent figures. • I can use properties when a transversal crosses parallel lines, alternate interior angles are congruent, and corresponding angles are congruent. • I can use the properties of isosceles triangles to find missing sides and angles. • I can use the properties of equilateral triangles to find missing sides and angles. • I can prove that two triangles are congruent. • I can determine if three segments can form a triangle.	Option 1 (MILC) • Desmos Activity Option 2 (MILC) • Topic 1-7 Review supplements and complements with the properties of vertical angles • Lesson Quiz 1-3 Include finding complements and supplements (students should know this from middle school standards, but we recommend reviewing) • Lesson Quiz 1-5

Attending to the Standards for Mathematical Practice

- Students experiment with lines, angles, triangles, and parallelograms to make connections and conjectures about their properties (MP.7), using dynamic software when appropriate (MP.5).
- Students describe the connections between geometric theorems and their algebraic formulas (MP.2).
- They intentionally manipulate coordinates appropriately, fluently selecting criteria and formulas for a given context (MP.7).

Supporting Standards

Emphasis is on congruence transformations that preserve corresponding congruent lines, segments, and angles.
KY.HS.N.5 Define appropriate units in context for descriptive modeling. ★ **MP.1, MP.6**

KY.HS.N.6 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities**.** ★ **MP.2, MP.6**

KY.HS.G.7 Prove theorems about geometric figures.
a. Construct formal proofs to justify lines, angles, and triangle theorems.

b. (+) Construct formal proofs to justify theorems for parallelograms. **MP.6, MP.7**

KY.HS.G.8 Create and apply geometric constructions.
a. Make formal geometric constructions with a variety of tools and methods.
b. Apply basic construction procedures to construct more complex figures.

KY.HS.G.11 Understand theorems about triangles.
a. Apply theorems about triangles. **MP.1, MP.3**

KY.HS.G.29 Use geometric shapes, their measures, and their properties to describe objects in real-world settings. **MP.1, MP.4**

KY.HS.G.31 Apply geometric methods to solve design problems. ★ **MP.1, MP.4**

Vocabulary

Foundational:
congruent, collinear points, coplanar points, line, segment, angle, ray, point, Postulate, Theorem, midpoint, perpendicular, bisect, angle bisector, perpendicular bisector, conditional statement, hypothesis, conclusion, Vertical angles, linear pair, complementary, supplementary, right angle, acute angle, obtuse angle

Lines:
parallel, coplanar, transversal, corresponding angles, alternate exterior angles, alternate interior angles, same-side interior angles

*****Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. This example is not comprehensive.
** Mathematical Practices (AA.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 in relation to 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.