**Geometry Units Outline**

**2024-2025**

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| **Unit 0** |  Geometric Constructions |
| **Learning Targets:** | **Learning Target 0A: Make Geometric Constructions (G-CO.D)** ¨ I can construct perpendicular bisectors and angle bisectors. (Lessons 3, 5) ¨ I can construct a parallel and perpendicular line through a given point and line. (Lesson 6) ¨ I can construct equilateral triangles or squares. (Lessons 4, 7) ¨ I can follow instructions to create a construction. (Lessons 1-8)  **Learning Target 0B: Explain Geometric Constructions (G-CO.D)** ¨ I can use precise mathematical language to describe a construction. (Lessons 1-9) ¨ I can identify and explain why parts in a construction are congruent. (Lessons 3-9) ¨ I can identify and explain why a point is equidistant from two other points. (Lessons 1, 3, 4 5) |
| **Assessment(s) for Evidence** | Unit QuizzesUnit TestsCool DownsActivities/Teacher Observation |
| **Resources/Links** | Illustrative Mathematics online textbook @ [im.kendallhunt.com](https://im.kendallhunt.com/HS/students/2/index.html) Teacher Canvas PageStudent Companion Guide linked [here](https://livedmpsk12ia-my.sharepoint.com/%3Aw%3A/g/personal/kimberly_wermerskirchen_dmschools_org/EX9ydB7VXHFJpQZsX2FJ1xYBpolKxIM32tAf4rJjSfM73Q?e=PGlv65)How to use a [compass video](https://www.youtube.com/watch?v=G8r3qacVdKw)How to construct a [perpendicular bisector video](https://www.youtube.com/watch?v=hhjujo8XFkA&list=PLHRatQsym1_gRLx7yYs5-64jBvH238jKj&index=12)How to construct an [angle bisector video](https://www.youtube.com/watch?v=VYbRcqXQ_W4&list=PLHRatQsym1_gRLx7yYs5-64jBvH238jKj&index=1)Online video source [Unit 1 Geometry](https://www.youtube.com/watch?v=Rupj6TuOeAY&list=PLxIInkhOzP8FaMP6qzRjcKbaMIMYekA-t) Online video [review Unit 1](https://youtu.be/A5QxrHkWUt4?si=3J4xXIM1G9pTBHXp) |

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| **Unit 1** |  Rigid Transformations |
| **Learning Targets:** | **Learning Target 1A: Describe Rigid Transformations****Given a figure and the description of a transformation**, * I can determine the figure's image after the transformation. (Lessons 10, 13)
* I can describe the sequence of transformations necessary to take a figure onto another figure. (Lessons 10, 13, 17)
* I can describe a reflection by specifying the line of reflection and noticing reflection symmetry. (Lesson 11, 15)
* I can describe a translation by stating the directed line segment. (Lesson 12)
* I can describe a rotation by stating the center, direction, and angle of rotation and notice rotational symmetry. (Lesson 14, 15, 16)

**Learning Target 1B: Prove theorems about lines, angles, and triangles.*** I can label and make conjectures from diagrams. (Lesson 19)
* I can use transformations or angle measurements to prove why vertical angles are always congruent and, when lines are parallel, corresponding angles and alternate interior angles are congruent. (Lesson 19, 20)
* I can prove the angles in a triangle sum to 180 degrees. (Lesson 21)

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| **Unit 2** |  Congruence |
| **Learning Targets:** | **Learning Target 2A: Use rigid motion to prove figures are congruent (not using measurements such as distances and angle measures, or the coordinate plane). (G.CO.B)** * I can identify parts that correspond in congruent figures from a visual and from a congruence statement (Lessons 1, 2, 3, 5)
* I can write congruence statements (Lessons 1, 2, 3, 5)
* I can determine if a series of rigid transformations will map one figure to another. (Lessons 1, 3, 5, 6, 7, 9)
* I can explain that if all corresponding sides and angles are congruent, then two triangles are congruent. (Lesson 3)

**Learning Target 2B: Prove Geometric Theorems about triangles and quadrilaterals (not using measurements such as distances and angle measures, or the coordinate plane). (G.CO.B, G.CO.C)** * I can prove triangles are congruent using Triangle Congruence Theorems (Lessons 4,6,7,9,10)
* I can justify the statements I make in a proof using math vocabulary. (All lessons)
* I can critique and correct the reasoning in a proof. (Lesson 10, 11, 12, 14, 15)

**Learning Target 2C: Apply Geometric Theorems and Definitions to find missing measurements in figures. (G.CO.B, G.CO.C)** * I can identify congruent angles and justify my reasoning using mathematical theorems. (for example: vertical angles, parallel lines and a transversal, corresponding parts of congruent triangles, the definition of bisect, and properties of isosceles triangles and parallelograms) (Lesson 2, 6, 7, 8, 9, 12, 13, 14)
* I can identify congruent segments and justify my reasoning using mathematical theorems. (for example: corresponding parts of congruent triangles, the definition of bisect, properties of isosceles triangles and parallelograms) (lesson 2, 6, 7, 8, 9, 12, 13, 14)
* I can determine the measurement of angles and justify my reasoning using mathematical theorems. (for example: parallel lines and a transversal, the definition of a linear pair, properties of parallelograms, and the triangle-angle sum theorem) (Lessons 2, 6, 7, 8, 9, 12, 13, 14)
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| **Unit 3** |  Similarity |
| **Learning Targets:** | **Learning Target 3A: Describe dilations and use properties of dilations. (G.SRT.A)*** **I can use the scale factor (k) and center to describe and sketch a dilation. (Lessons 1, 3)**
* **I can recognize that when a figure is dilated, the corresponding segments are proportional. (Lesson 3, 5)**
* **I can recognize that when a figure is dilated, the corresponding lines are parallel. (Lesson 4, 5)**
* **I can recognize that when a figure is dilated, the corresponding angles are congruent. (Lesson 4, 5)**

 **Learning Target 3B: Determine and prove figures are similar. (G.SRT.A)*** **I can write similarity statements. (Lesson 6)**
* **I understand the relationship between corresponding sides and angles in similar figures. (Lesson 7)**
* **I can write proportions to describe the relationship of sides in similar figures. (Lesson 7, 8)**
* **I can critique and write proofs that use similarity. (Lesson 8)**
* **I can use similarity theorems to show triangles are similar such as: AA, SAS, and SSS (Lessons 9, 10, 11)**

**Learning Target 3C: Use properties of similar figures to solve problems. (G.SRT.B.5)** * **I can use proportions and scale factors to find lengths in similar figures. (Lesson 12- 16)**
* **I can find similar triangles formed by the altitude to the hypotenuse of a right triangle. (Lesson 13)**

* **I can find unknown values in right triangles using similarity. (Lesson 15)**
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| **Unit 4** | Right Triangle Trigonometry |
| **Learning Targets:** | **LT4A: I can work with steepness and ratios in right triangles. (G-SRT.C.6)** * 1. I can understand how the ratio of two sides defines a specific acute angle in a right triangle (Lessons 1, 4)
* 2. I can determine side-lengths in special right triangles (45-45-90 and 30-60-90) (Lessons 2, 3)
* 3. I can use a table of ratios of side lengths of right triangles to estimate unknown angles and side lengths. (Lesson 5)

**LT4B: I can solve problems involving right triangles using trigonometry (G-SRT.C.7; G-SRT.C.8)*** 4. I can use cosine, sine, and tangent to find lengths. (Lessons 6-8, 10, 11)
* 5. I can explain the relationship between sine and cosine of complimentary angles. (Lesson 8)
* 6. I can use arccosine, arcsine, and arctangent to find angle measures. (Lessons 9-11)
* 7. I can use the Pythagorean Theorem to find distances and determine if a triangle is a right triangle. (all)
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