Math Weekly Lesson Preparation Guide

Teacher Name: Martin Asare	**Grade:** 10
Week of: August 26-30, 2024	**Unit: Chapter 1** **Lesson Numbers:** 1-4, 1-5

Purpose: The Weekly Lesson Preparation Guide is to provide a structure that encourages teachers to think through and internalize the daily/weekly instructional expectations.

Planning Questions	**Lesson 1-4**	**Lesson 1-4**	**Lesson 1-4**	**Lesson 1-5**	**Lesson 1-5**
1. Complete an initial read of the lesson plan to build an understanding of the "gist" of the lesson and the models and strategies students will use.	Understanding functions, key feature			Identifying complementary and supplementary angles Identify linear pairs and vertical angles Find angle measures in pairs of angles	
2. What is the focus of this lesson? Which specific Tennessee standards are being addressed in this lesson?	**G.GPE.A.3** Understand the relationship between the Pythagorean Theorem and the distance formula and use an efficient method to solve problems on the coordinate plane **G.MG.A.1** Use geometric shapes, their measures, and their properties to model objects found in a real-world context for the purpose of approximating solutions to problems			**G.CO.A.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.	
3. How will this learning prepare students for success on the unit assessment(s)?	This section focuses on basic key features (areas) needed to fully classify and describe polygons			This section focuses on being able to distinguish between complementary and supplementary angles.	
4. What is the purpose of this lesson? How does it coherently connect to previous lessons and build to future ones?	Lesson's purpose is for students to use previous knowledge on distance formula, area to classify polygons in the coordinate plane.			Lesson's purpose is for students to use a verbal description to explain why a given angle is complementary or supplementary.	

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5. How will this learning contribute to deep understanding of the essential ideas of the unit?	The unit helps students determine the kind of polygon provided based on the number of sides, and they will be able to find the area of some regular polygons.	The learning will allow students to be able to sketch a graph of a functions from the features as well as understand real-world problems.
6. Complete all tasks included in the lesson and review the sample/anticipated student responses. For each task consider: • What are the multiple solution paths students might take to solve this problem? • What is the purpose of this task? Specifically, which aspect(s) of rigor are being addressed (conceptual understanding, procedural fluency, and/or application)? How does this differ based on the solution path • Given this purpose, what key concepts and vocabulary might students need to understand to access the task? (Consider concepts and vocabulary from the prior grade that might need to be re- addressed)	Students will work together on activities displayed on the smart board from the Big Ideas Geometry lessons. Students will compare the area of a parallelogram to the rectangle and triangles that compose it and extend that to other polygons Students will find the area of a quadrilateral on a coordinate plane and classify quadrilaterals. Students will classify two polygons by the number of sides and identify whether each is convex or concave. Students will reflect on their understanding of finding areas of polygons in the coordinate plane and summarize the skills and strategies they use. Concave Convex Polygon Vertex	Students will look at samples of different graphs, discuss with a partner and determine if the graph is symmetric and the type of symmetry. Students will practice identifying types of symmetry, odd/even functions by looking at the graph as well as algebraically, Students will review the definition of linear then students will use stated assumptions and definitions to classify functions as linear or nonlinear. Upon completion students will explain how the intercepts of a graph correspond to its graph or table. (Problems displayed on board, students will discuss with a partner/small group)
7. What evidence of student learning will you look for to reveal understanding of the grade-level standard(s)? (refer to the	Proper classification of polygons based on the number of sides. Description of the polygon by use of the area. Graph a regular polygon and name it. What is the area of the polygon?	Identification of all evident key features when provided a table, graph or information imbedded in a real-world problem and be able to interpret their meaning.

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Instructional Focus Document Evidence of Learning Statements)		Graph the function, identify key features of the graph, and interpret the meaning of the key features in relationship to the context of the problem, Create a real-world context that would generate a function with the provided attributes, given key features
8. What are the mathematical learning and performance goals of this lesson?	Learning goal is to be able to determine the kind of polygon based on the number of sides. Also, students will be able to find the areas of polygons in the coordinate plane.	Learning goal is for students to be able to determine the linearity, intercepts and symmetry of a function.
9. In what ways will students use the Standards for Mathematical Practice to develop mathematical understandings?	Completing the lessons students will be able to make sense of the problem after understanding the key features in turn being able to look for and make use of structures. They should be able to compare polygons and non-polygons and find some real world objects that have polygonal surfaces.	Completing the lessons students will be able to make sense of the problem after understanding the key features in turn being able to look for and make use of structures. They should be able to compare functions and construct viable arguments and model a real-world situation with mathematics.
10. What supports will you build into the lesson to ensure all students have the opportunity to experience success in this grade level work? How can you ensure all students will have access to grade level opportunities in the lesson? (refer to the Instructional Focus Document's Instructional Focus Statements)	Lesson should build from student's algebra 1 knowledge of area, practice on the x and y axis and understanding of the coordinate plane. Students will be given coordinate plane practice work, teacher will review all vocabulary prior to the lessons and teacher will demonstrate each step and the expected outcomes of the lesson for the students.	Lesson should build from student's algebra 1 knowledge of functions. practice on the x and y axis and understanding of the coordinate plane. Students will be given coordinate plane practice work, teacher will review all vocabulary prior to the lessons and teacher will demonstrate each step and the expected outcomes of the lesson for the students.
11. Where might your students struggle? What mathematical mistakes or misconceptions do you anticipate?	Students may struggle with understanding the vocabulary, students may still misunderstand the difference between perimeter and area.	Students may struggle with understanding the vocabulary, students may still misunderstand the difference between the supplementary and complementary angles.

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12. What skills/concepts and/or mathematical vocabulary may need reinforcement?	There will need to be reinforcement of area and the idea of a polygon needing to have at least 3 sides.	There will need to be reinforcement of being able to identify all the linear pairs and all the vertical angles in a given diagram.
13. What probing questions might you ask to encourage perseverance or push students to new understanding?	How can analyzing a function help you understand the situation it models?	Find the measure of two angles in a linear pair given that the measure of one angle is five times the measure of the other.
14. What questions might you ask to elicit prior content knowledge, connect to students' experiences, and set up the task to ensure students understand the task without over-scaffolding or funneling?	What is the coordinate plane? How do you graph on the coordinate plane? What is the difference between a quadrilateral and a pentagon?	What is the coordinate plane? How do you graph on the coordinate plane/ How can you identify the domain and range and what do they represent? What is the difference between a relation and a function?
15. How might you strategically group or partner students during discussion to support building understanding?	In most activities during the lesson students will be strategically grouped to include 2 low students, 1 middle student and 1 high student (this also depends on the dynamics of the class and how much prior knowledge each student has)	In most activities during the lesson students will be strategically grouped to include 2 low students, 1 middle student and 1 high student (this also depends on the dynamics of the class and how much prior knowledge each student has)
16. What questions might you ask to foster discussions around mathematical connections between anticipated student strategies?	How can you find the length of a side on the coordinate plane? Is there a formula you can use for that?	Suppose angle EDF and angle CDF are congruent. What can you conclude about lines DF and EC?
17. How will you ensure that all students are responsible for this rigorous thinking?	Students will complete a lesson check after every few examples to determine their level of understanding of the concepts. It may be a thumbs up/thumbs down, fist to five after each example. Students will complete a final culminating problem at the end of the class to help assess their retention of the lesson's concepts.	Students will complete a lesson check after every few examples to determine their level of understanding of the concepts. It may be a thumbs up/thumbs down, fist to five after each example. Students will complete a final culminating problem at the end of the class to help assess their retention of the lesson's concepts.

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18. What will you have in your hands as you are teaching? What will students have in their hands?	Teacher will have dry erase marker in hands with examples of graphs, pen and clipboard to check off what students are doing during the CFU's Students will have the student companion, pencil, practice work, graph paper	Teacher will have dry erase marker in hands with examples of graphs, pen and clipboard to check off what students are doing during the CFU's Students will have the student companion, pencil, practice work, graph paper
19. What mathematical tools and/or concrete manipulatives will the teacher and students need?	Rulers, pencils, highlighters, student companion, graph paper, rulers	Rulers, pencils, highlighters, student companion, graph paper, rulers
20. What technology tools will be necessary to support mathematical understanding?	No technology is necessary besides the interactive smartboard and online book to give demonstrations of the graphing of functions expected outcomes.	No technology is necessary besides the interactive smartboard and online book to give demonstrations of the graphing of functions expected outcomes.
Additional Considerations		
If your lesson contains homework, how will you utilize the work? Will you need to send scaffolding notes home? Is there a strategy you can use to maximize homework?	Student homework (if assigned) is in the student companion book. Students will have scaffolded examples from taking notes in the Big Ideas Geometry Student companion. If companions are not available students will be asked to sketch and example of each of the graph characteristics that were covered in the lessons. If students have access to the 1 to 1 device, problems will be assigned to students through the online book portal and problems will be scaffolded. Students should have Student companions/notes to use as examples as well as the online book (if assessable.)	Student homework (if assigned) is in the student companion book. Students will have scaffolded examples from taking notes in the Big Ideas Geometry Student companion. If companions are not available students will be asked to sketch and example of each of the graph characteristics that were covered in the lessons. If students have access to the 1 to 1 device, problems will be assigned to students through the online book portal and problems will be scaffolded. Students should have Student companions/notes to use as examples as well as the online book (if assessable.)

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What additional materials do you need to prepare for this lesson?	N/A	N/A

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