**Math Weekly Lesson Preparation Guide**

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| **Teacher Name: Martin Asare, Abigail Cobbinah** | **Grade:** 10 |
| **Week of:** September 9-13, 2024 | **Unit: Chapter 2** **Lesson Numbers:** 2-4, 2.5 |

*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 2-4 Monday 9/9** | **Lesson 2-4 Tuesday 9/10** | **Lesson 2-4 Wednesday 9/11** | **Lesson 2-5 Thursday 9/12** | **Lesson 2-5 Friday 9/13** |
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| 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. | Using properties of equality to solve problems in the real world | | | Using properties of equality to solve prove geometric relationships | |
| 2. What is the focus of this lesson? Which specific Tennessee standards are being addressed in this lesson? | **G.CO.C.8** Use definitions and theorems about lines and angles to solve problems and to justify relationships in geometric figures | | | **G.CO.C.8** Use definitions and theorems about lines and angles to solve problems and to justify relationships in geometric figures | |
| 3. How will this learning prepare students for success on the unit assessment(s)? | This section focuses on the ability to use principles of arithmetic to change subject in a linear equation or find the value of a variable given the values of other variables in an expression. | | | This section focuses on the ability to use principles of arithmetic to prove the relationship between distances and 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 identify algebraic properties of equality, and use them to solve for geometric measures and equations | | | Lesson's purpose is for students to identify algebraic properties of equality, and use them to solve for geometric measures and equations | |
| 5. How will this learning contribute to deep understanding of the essential ideas of the unit? | This lesson helps solidify students skill of reasoning and proofs, which is fundamental to most topics in Geometry. | | | This lesson helps solidify students skill of reasoning and proofs, which is fundamental to most topics in Geometry. | |

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| 6. Complete all tasks included in the lesson and review the sample/anticipated student responses.<br><br>For each task consider:<br>• What are the multiple solution paths students might take to solve this problem?<br><br>• 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<br><br>• 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.<br><br>Students will isolate a variable in a given mathematical expression. ( changing of subject)<br><br>Students will find the value of a quantity given the relation between that quantity and others, and their respective values.<br><br>Students will reflect on their understanding of the concept learned to identify errors in a presented solution. Students are expected to identify and describe the errors found.<br><br>Equation<br>Equality<br>Subject<br>Substitute<br>Inverse Operations | Students will work together on activities displayed on the smart board from the Big Ideas Geometry lessons.<br><br>Students will isolate a variable in a given mathematical expression. ( changing of subject)<br><br>Students will find an expression to represent the relationship between distances<br><br>Students will reflect on their understanding of the concept learned to identify errors in a presented solution. Students are expected to identify and describe the errors found.<br><br>Equation<br>Equality<br>Subject<br>Substitute<br>Inverse Operations |
| 7. What evidence of student learning will you look for to reveal understanding of the grade-level standard(s)? (refer to the Instructional Focus Document Evidence of Learning Statements) | Identify algebraic properties of equality.<br>Use algebraic properties of equality to solve equations.<br>Use properties of equality to solve for geometric measures | Identify algebraic properties of equality.<br>Use algebraic properties of equality to solve equations.<br>Use properties of equality to solve for geometric measures |
| 8. What are the mathematical learning and performance goals of this lesson? | Learning goal is to be able to solve equations for a given variable or quantity. Also, students will be able to express a quantity in terms of other quantities | Learning goal is to be able to solve equations for a given variable or quantity. Also, students will be able to express a quantity in terms of other quantities |

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| 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 identify and describe errors in solution presented to them. | 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 identify and describe errors in solution presented to them. |
| 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 using the distributive, commutative and associative properties of numbers to solve a problem.<br><br>Students will be provided with step-by-step solution to a work with an error to identify. Students are expected to identify the error and describe how the error can be corrected. | Lesson should build from student's algebra 1 knowledge of using the reflexive, transitive and symmetric properties of congruent segments to solve a problem.<br><br>Students will be provided with step-by-step solution to a work with an error to identify. Students are expected to identify the error and describe how the error can be corrected. |
| 11. Where might your students struggle? What mathematical mistakes or misconceptions do you anticipate? | Students may struggle with understanding the vocabulary, students may also have difficulty justifying their steps and solution.<br><br>Students may initially struggle with the concept of 'inverse operations' | Students may struggle with understanding the vocabulary, students may also have difficulty justifying their steps and solution.<br><br>Students may initially struggle with the concept of 'inverse operations' |
| 12. What skills/concepts and/or mathematical vocabulary may need reinforcement? | There will need to be reinforcement of inverse mathematical operations, and the rules of equality. Whatever operation is carried out on one side of an equation needs to be repeated on the other side as well. | There will need to be reinforcement of inverse mathematical operations, and the rules of equality. Whatever operation is carried out on one side of an equation needs to be repeated on the other side as well. |

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| 13. What probing questions might you ask to encourage perseverance or push students to new understanding? | How can algebraic properties help you solve an equation? | How is a theorem different from a postulate? |
| 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? | Solve $3(x + 1) - 1 = -13$ using two different methods. Justify each step for each method. Compare your answers with those of your classmates. | Solve $3(x + 1) - 1 = -13$ using two different methods. Justify each step for each method. Compare your answers with those of your classmates. |
| 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? | Identify another method you can use to solve the equation. Use this method to solve and justify each step.<br><br>Why is it helpful to justify each step of a solution? | Identify another method you can use to solve the equation. Use this method to solve and justify each step.<br><br>Why is it helpful to justify each step of a solution? |
| 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.<br>It may be a thumbs up/thumbs down, fist to five after each example.<br>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.<br>It may be a thumbs up/thumbs down, fist to five after each example.<br>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?<br>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<br>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<br>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.<br>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.<br>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.) |
| What additional materials do you need to prepare for this lesson? | N/A | N/A |

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