Math Weekly Lesson Preparation Guide

Teacher Name: E. ADJEI, J. DOMFEH, S. ANYIMADU	**Grade:** Algebra 1
Week of: September 3 to September 6	**Unit:** Solving Equations and Inequalities **Lesson Numbers:** 1-6 and 1-7

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 1-6** **Compound Inequalities**	**Lesson 1-7** **Absolute Value Equations and Inequalities**	
Do Now: **Topic Readiness Assessment can be given as well for the Do Now.**	Date: 9.3- 9.4 What are compound inequalities and how are their solutions represented?	Date: 9.5 - 9.6 Why does the solution for an absolute value equation or inequality typically result in a pair of equations or inequalities?	Possibly Friday, 9-6. Practice Assessment Remediation Further Application
Standard(s): What is the focus of this lesson? Which specific Tennessee standards are being addressed in this lesson?	A1.A.CED.A.1 A1.A.CED.A.3 A1.A.REI.B.2	A1.A.CED.A.1 A1.A.REI.B.2	
Objective(s): What is the purpose of this lesson and how will this lesson prepare students for success on the unit assessment? How does it coherently connect to previous lessons and build to future ones?	Students will create and solve a system of inequalities and interpret the solution to a compound inequality within a modeling context. In grade 7, students used variables to represent quantities in a real-world or mathematical problem and constructed simple equations and inequalities to solve problems by reasoning	Students will solve absolute value equations and inequalities and use absolute value equations and inequalities to solve problems. In grade 6, students learned that the absolute value refers to the distance of a number from zero, regardless of direction. Therefore $\|x\| = 5$, has two solutions, $x = 5$ and $x = -5$, because	

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	about the quantities. Students continued to analyze and solve linear equations in grade 8 In Algebra 1, students expand their learning to other equation types including absolute value equations and inequalities in one variable (A1.A.REI.B.2) and quadratic equations and inequalities (A1.A.REI.B.3).	both solutions represent the same distance from zero.	
How will this learning contribute to deep understanding of the essential ideas of the unit? What are the mathematical learning and performance goals of this lesson?	Students will understand that compound inequalities allow them to express and solve for situations where multiple conditions must be met simultaneously or alternatively. This deepens their understanding of how mathematical models can represent complex, real-world scenarios with layered constraints. The mathematical learning and performance goals of this lesson are for students to create and solve compound inequalities, interpret their solutions in real-world contexts, and understand how multiple conditions can be represented and solved using inequalities.	Students will understand that absolute value equations and inequalities provide a powerful tool for expressing and solving problems involving distance and deviations from a reference point. This deepens their understanding of how mathematical models can describe real-world situations where quantities are measured in terms of their magnitude, regardless of direction or sign. The mathematical learning and performance goals of this lesson are for students to solve absolute value equations and inequalities, and to apply these solutions to real-world problems involving absolute values.	
Modeling: 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?	Explore and Reason Hana has some blue paint. She wants to lighten the shade, so she mixes in 1 cup of white paint. The color is still too dark, so Hana keeps mixing in 1 cup of white paint at a time. After adding 4 cups, she decides the color is too light. Additional Practice #10 and #11	Model and Discuss Amelia is participating in a 60-mile spin-a-thon. Her spin bike keeps track of the simulated number of miles she travels. She plans to take a 15-minute break within 5 miles of riding 30 miles. Additional Practice #2 and #3	

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• 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)	Procedural Skill & Fluency, Application • **Create** – to produce or generate • **Variable** – a quantity that changes or can have different values • **Linear Inequality** – an inequality that contains a linear term • **Quadratic Inequality** – an inequality that contains a quadratic term • **Absolute Value Inequality** – an inequality that contains an absolute value • **Solve –** to apply an operation(s) in order to find a value; to find an answer • **Real-world** – relating to a concrete setting • **Context** – the surrounding or background information used to determine, specify, or clarify the meaning of an event or other occurrence • **Individual Equation –** containing one equation • **Individual Inequality** – containing one inequality • **System of Equations –** a collection of two or more equations with a same set of unknowns • **System of Inequalities** – two or more linear inequalities written with the same variables • **Constraint –** a limitation or restriction • **Assess –** to evaluate or estimate • **Reasonableness –** capable of reasoning; rationale	Procedural Skill & Fluency, Conceptual Understanding, • **Create** – to produce or generate • **Variable** – a quantity that changes or can have different values • **Linear Inequality** – an inequality that contains a linear term • **Quadratic Inequality** – an inequality that contains a quadratic term • **Absolute Value Inequality** – an inequality that contains an absolute value • **Solve –** to apply an operation(s) in order to find a value; to find an answer • **Real-world** – relating to a concrete setting • **Context** – the surrounding or background information used to determine, specify, or clarify the meaning of an event or other occurrence • **Use –** take, hold, or apply • **Process –** a series of actions or steps • **Reasoning –** the act of thinking carefully or logically • **Solve** – to apply an operation(s) in order to find a value; to find an answer • **Absolute Value Equation –** an equation that contains an absolute value • **One Variable** – containing one quantity that can have different values • **Represent –** to show or model; to express or to stand for	

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	• **Solution –** the answer to a problem; the value(s) of a variable that satisfies a given algebraic equation • **Inequality** • **Solution set** • **Boundary** • **Less than (<)** • **Greater than (>)** • **Less than or equal to (≤)** • **Greater than or equal to (≥)**	• **Solution –** the answer to a problem; the value(s) of a variable that satisfies a given algebraic equation • **Algebraic –** relating to, involving, or according to the laws of algebra • **Graphically –** in the form of a graph • **Number Line** – a straight line on which real numbers are marked at intervals, used to illustrate operations or make comparisons	
Check For Understanding: 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)	Additional Problem #6 and #7	Additional Problems #3, #4 and #5	
Engagement: In what ways will students use the Standards for Mathematical Practice to develop mathematical understandings?	Make Sense of Problem and Persevere in solving them Try It Exercise Aggressively Monitor to help shape grouping	Make Sense of Problem and Persevere in solving them Try It Exercise Aggressively Monitor to help shape grouping	
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)	1-6 Mathematical Literacy and Vocabulary (Compound Inequalities)	1.7- Mathematical Literacy and Vocabulary (Absolute Value Equations and Inequalities)	

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Check For Understanding: Where might your students struggle? What mathematical mistakes or misconceptions do you anticipate?	Vocabulary and Literacy	Vocabulary and Literacy	Always ensure that students understand the academic language embedded.
Check For Understanding/Engagement: What skills/concepts and/or mathematical vocabulary may need reinforcement?	Students will work the 3 problems from the "Reteach to Build Understanding" Worksheets can be uploaded to a Kahoot or Nearpod activity. Activity can be assigned through Savvas online platform.	Students will work the 3 problems from the "Reteach to Build Understanding" Worksheets can be uploaded to a Kahoot or Nearpod activity. Activity can be assigned through Savvas online platform.	
Check For Understanding/Engagement: What probing questions might you ask to encourage perseverance or push students to new understanding? What question would you use 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 do you notice about the solution set when you combine these two inequalities? How does it change if you use 'and' versus 'or'? How can you verify that your solution to the compound inequality is correct? What steps can you take to check your work? Think about situations where you've had to meet multiple conditions at once, like balancing time between school and extracurricular activities. How might you use inequalities to represent these kinds of situations? How would combining these conditions with 'and' or 'or' change the way you think about the solutions?	Why do we set up two separate equations when solving an absolute value equation? How does each equation reflect the meaning of absolute value What happens to the solution if you change the value inside the absolute value expression? How does it affect the results? How would you explain the solution of this absolute value inequality to someone who is unfamiliar with the concept? What key points would you include? Think about a time when you had to measure or account for distances or deviations, like when you're tracking how far you've run or how much a temperature varies from a certain point. How might you use absolute value to represent those measurements or differences?	

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What questions might you ask to foster discussions around mathematical connections between anticipated student strategies?	Can someone explain how they solved this compound inequality? How does your method compare to the one another student used?	Can someone share the approach they used to solve this absolute value equation? How does this strategy compare to another student's method? What similarities or differences do you notice?	
Individual Student Learning, Group Learning and/or Student to Student Learning. Check For Understanding/Engagement: How might you strategically group or partner students during discussion to support building understanding?	Grouping will take place according to the daily Check for Understanding responses. Tier 1 Students will be group according to quick response and achievement of task. Tier 2 will be group according to minimum gaps in the learning. Tier 3 will work with teacher support and merge out into the other tier as understanding progress.	Grouping will take place according to the daily Check for Understanding responses. Tier 1 Students will be group according to quick response and achievement of task. Tier 2 will be group according to minimum gaps in the learning. Tier 3 will work with teacher support and merge out into the other tier as understanding progress.	
How will you ensure that all students are responsible for this rigorous thinking?	Cold Calling Wait time Nearpod Activity Kahoot	Cold Calling Wait time Nearpod Activity Kahoot	
Closure/Assessment (Literacy Based) What strategy will you use to close the lesson?	Lesson summary will recap the days learning. Lesson Quiz	Lesson summary will recap the days learning. Lesson Quiz	

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What assessment will be used to assess the learning?			
What mathematical tools, technology tool and/or concrete manipulatives will the teacher and students need to support mathematical understanding?	TI Graphing Calculator	TI Graphing Calculator	
SPED/ESL/504: What modifications are being made to accommodate the students receiving special services?	Small Group Support Classroom Proximity Assignment Modification Extended Time	Small Group Support Classroom Proximity Assignment Modification Extended Time	
Enrichment Activities: What will I do with students who understand quicker than others?	Students will work on the Enrichment Exercise	Students will work on the Enrichment Exercise	
Homework: 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?	Complete Additional Practice	Complete Additional Practice	
Lesson Materials: What additional materials do you need to prepare for this lesson?	Textbook Computer	Textbook Computer	
Formative Assessment How will you & your students know if they have successfully met the outcomes?	80% mastery on Lesson Quiz	80% mastery on Lesson Quiz	
Summative Assessment The assessment given to determine at a particular point what students know and can do.	Unit Assessment	Unit Assessment	

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