Math Weekly Lesson Preparation Guide

Teacher Name: E. ADJEI, J. DOMFEH, S. ANYIMADU	**Grade:** Algebra 1
Week of: August 8.12- 8.23	**Unit:** Solving Equations and Inequalities **Lesson Numbers:** 1-1 to 1-4

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 1-1	Lesson 1-2	Lesson 1-3	Lesson 1-4	
Do Now: **Topic Readiness Assessment can be given as well for the Do Now.**	Dates: 8.12-8.16 #1 , #2, #5, #8	Dates: 8.12-8.16 Solve the equation $4+\frac{3x-1}{2}=9$. Explain the reasons why you chose your solutions.	Date: 8.19- 8.23 Explain the solution to the follow equations. 1. 6x-12 = 6x -12 2. 6x-12 = 3x-12 3. 6x -18 = 6x-12	Date: 8.19- 8.23 What is the 1st step when solving A= bh for b? Explain your answer.	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.REI.A.1	A1.A.REI.A.1 A1.A.REI.B.2 A1.A.CED.A.1	A1.A.REI.A.1 A1.A.REI.B.2 A1.N.Q.A.1 A1.A.CED.A.1	A1.A.CED.A.4	
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 find the sum or product of two rational numbers and explain why the sum or product is rational. Students will find the sum or product of a	Student will explain that each step in solving a linear equation follows from the equality in the previous step.	Student will use the properties of equality to solve linear equations with a variable on both sides. Students will identify whether linear	Student will rearrange formulas and equations to highlight a quantity of interest by isolating the variable using the same reasoning use to solve equations.	

	rational and an irrational number and explain when the sum or product is irrational.	Students will create and solve linear equations with one variable using the properties of equality.	equations have one solution, infinitely many solutions, or no solution.	Students will use formulas and equations to solve problems.	
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 a problem can have multiple entry points and instruction should be focused on solving equations using reasoning that is centered around inverse operation, order of operation, and properties of operation.	Student will build procedural fluency from conceptual understand to solve absolute value inequalities when given an opportunity to connect the visual representation of the number line to the verbal concept of distance to the abstract symbolic form	Students will have the opportunity to work with equations and context that includes multiple methods of solving a system of linear equations in two variables which will include rational numbers in a real-world situation.	Students will understand that a relationship between two or more quantities can be expressed in multiple ways by writing equivalent equations.	
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? • What is the purpose of this task? Specifically, which aspect(s) of rigor are being addressed (conceptual understanding, procedural	Example #1 (Understand sets and subsets) Example #2 Compare and order Real Numbers Procedural Skill & Fluency, Conceptual Understanding	Complete the model and Discussion exercise Procedural Skill &	1-3 Additional Practice Model #1-4 Procedural Skill & Fluency, Conceptual Understanding,	Model and Discuss Nora drew a nonsquare rectangle. Addition Practice #11 and #12 Procedural Skill & Fluency, Application	

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)	Irrational Number Rational Number Real Number Element of a Set Set Subset	Fluency, Conceptual Understanding Equivalent Equations Inverse Operation Isolate Solution of an Equation Variable	Like terms Properties of Equalities Solution of an Equation Identity	Like terms Properties of Equalities Solution of an Equation Identity	
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)	1-1 Additional Practice #1- #5	Solve Linear Equations and Try It Ex #1 1-2 Additional Practice Solving Linear Equations #1, 2, 8, 10, 12	1-3 Additional Practice #5 CFU	Additional Problem #9 and #10	
Engagement: In what ways will students use the Standards for Mathematical Practice to develop mathematical understandings?	Attention to Precision 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	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)	1-1 Mathematical Literacy and Vocabulary (Operations on Real Numbers)	1-2 Mathematical Literacy and Vocabulary	1-3 Mathematical Literacy and Vocabulary	1-4 Mathematical Literacy and Vocabulary (Literal Equations and Formulas)	

Check For Understanding: Where might your students struggle? What mathematical mistakes or misconceptions do you anticipate?	Vocabulary and Literacy	Vocabulary and Literacy	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?	Practice #16-21 from Text page 9 List all subsets of the real numbers from the list below that each number belongs to Real Irrational Rational Integers Whole	Students will work the 3 problems from the "Reteach to Build Understanding" Worksheet can be upload to a Kahoot or Nearpod activity. Activity can be assigned through Savvas online platform.	Students will work the 10 problems from the "Reteach to Build Understanding" Worksheet can be upload 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" Worksheet can be upload 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 questions might you ask to foster discussions around mathematical connections between anticipated student strategies?	How can you classify the results of operations on real numbers? Is the sum of a rational number and an irrational number is always irrational? Explain why the sum of a rational number and an irrational number is always irrational.	How do you create equations and use them to solve problems?	Why does it make sense to describe an equation that has infinitely many solutions as an identity?	How is the structure of the literate equation related to units for rates?	

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.	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	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? What assessment will be used to assess the learning?	Lesson summary will recap the days learning. Lesson Quiz	Lesson summary will recap the days learning. Lesson Quiz	Lesson summary will recap the days learning. Lesson Quiz	Lesson summary will recap the days learning. Lesson Quiz	
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	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	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 (Magic Square)	Students will work on the Enrichment Exercise	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	Complete Additional Practice	Complete Additional Practice	
Lesson Materials: What additional materials do you need to prepare for this lesson?	Textbook Computer	Textbook Computer	Textbook Computer	Textbook Computer	
Formative Assessment How will you & your students know if they have successfully met the outcomes?	80% mastery on Lesson Quiz (4/5 questions correct)	80% mastery on Lesson Quiz	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.	2-week Unit Assessment				

Math Unit Preparation Guide

Teacher: Algebra 1 Team August 12th – August 23rd A1.A.REI.A.1 Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method A1.A.REI.B.2 Solve linear and absolute value equations and inequalities in one variable. a. Solve linear equations and inequalities, including compound inequalities, in one variable. Represent solutions algebraically and graphically. A1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context. A1.A.CED.A.4 Rearrange formulas to isolate a quantity of interest using algebraic reasoning.	**Unit:** 1-1: Operations on Real Numbers 1-2: Solving Linear Equations 1-3: Solving Equations with a Variable on Both Sides 1-4: Literal Equations

A1.N.Q.A.1 Use units as a way to understand real-world problems « c. Define and justify appropriate quantities within a context for the purpose of modeling.	

Purpose: The Unit Preparation Guide provides a structure that encourages teachers to think through and internalize the unit expectations. This guide only needs to be completed one time before the beginning of each unit.

Step 1: Unit Orientation	***Step 2: What will students learn during this unit?***
Read and annotate the unit overview. Pay particular attention to what models/strategies will support student understanding in the addressed Tennessee Math Standard(s). Consider any misconceptions that might arise for students. Some mistakes are that students see numbers and focus on key words that may change from one situation to another rather than the meaning of the given context.	What is the focus of this unit? Solving and Reasoning with Equations and Inequalities What are the 1-3 most important essential understandings (big math ideas) students will gain from engaging in this unit? Understand solving equations as a process of reasoning and explain the reasoning. Student should have opportunities to utilize multiple methods of solving a system of linear equations in two variables – substitution and elimination.

	How does the learning in this unit connect to other concepts, either within this grade or from earlier grades? 7th grade, students used variables to represent quantities in a real world or mathematical problem. They constructed simple equations and inequalities to solve problems by reasoning about the quantities. In 8th grade they analyzed and solved linear equations. 8th grade students analyzed and solved systems of two linear equations graphically.

Step 3: How will students demonstrate their learning in this unit?

How does the end of unit assessment encompass:

- The breadth and depth of the standards?
- An appropriate balance of conceptual, procedural, and application questions?

Complete the end of unit assessment as a student, using multiple strategies for each task. Compare your assessment responses to the exemplar/answer key.

What part of this assessment was routine or expected for you?

What surprised you or caused you challenge this assessment?

Where might students struggle with this assessment?

- What evidence exists from previous assessments or data to predict this?

How will students need support in meeting the full expectations of this assessment?

What tasks, representations, models, and strategies will students engage with across the unit to ensure they are successful on the assessment?		
Step 4: What Learning Goals and Performance Goals will students need to master?		
From the Unit Assessment		
Create a T-Chart of the knowledge and understandings for the assessment in one column and the skills required in the other column.	**What do the tasks require students to KNOW?** How to define variables. How to translate algebraic and verbal expressions. How to solve multi-step equations and inequalities in one variable. How to solve equations and inequalities with variables on both sides. How to rewrite equations and formulas. How to simplify expressions involving rational numbers and coefficients. The order of operations and how to apply it How to solve equations and inequalities involving rational coefficients. Equations can have multiple solutions or no solutions	**What do the tasks require students to DO?** Build an equation or inequality from a mathematical situation. Determine when equations and inequalities are true sometimes, always, or never. Discern when to represent an equation and inequality using Interpret a situation and represent it mathematically. Deepen understanding of equations as statements about numbers that can be true always, sometimes, or never. Extend earlier work with solving linear equations/inequalities in one variable to solving literal equations that are linear in the variable being solved for.

Which three “KNOWs” and “DOs” do you anticipate will be most challenging for students, or create misconceptions for students?	**KNOWs** 1. How to solve equations and inequalities involving rational coefficients. 2. Equations can have multiple solutions or no solutions	**DOs** Deepen understanding of equations as statements about numbers that can be true always, sometimes, or never. Extend earlier work with solving linear equations/inequalities in one variable to solving literal equations that are linear in the variable being solved for.

What additional support may be necessary to help learners with these critical math concepts/ challenging math concepts/misconceptions?
Solving literal equations relates to solving numeric equations.

How do you know?

Students would begin to rewrite mathematical formulas in equivalent forms.

Step 5: How will the daily learning experiences in this unit build towards the Learning Goals and Performance Goals and support all students in engaging in on grade level work?

Review the sequence of lesson objectives.

How does student learning progress across lessons? One step to multiple step equations. Then solving for inequalities and the absolute value.

How do the lesson objectives compare to the language in the standards? How do they align with level three understanding from the Instructional Focus Documents?

Which lessons most closely target the critical mathematical concepts within the unit?

- What does student work look like within those lessons?

Which lessons most closely target the most challenging mathematics within the unit for teachers?

- What does student work look like within those lessons?

Which lessons most closely target the most challenging mathematics within the unit for students?

- What are students asked to do within those lessons? What does mastery look like within the lesson?

Step 6: What are the Critical Lessons within the Unit that must be a focus of Collaborative Lesson Prep?

What are the critical lessons in the unit that need collaborative prep?	Why is the lesson identified for collaborative prep?	When will collaborative prep occur for this lesson?	What student work will we analyze following the lesson?