

Teacher(s): Mrs. Breazeale & (Ms. DeBlanc)

Subject/Grade: 7<sup>th</sup> /Grade Math

Week of: Dec 4, 2023

Domain: Expressions & Equations

Lesson Plan Title: Equations

MATHEMATICS - Mississippi College and Career Readiness Standards for 7 <sup>th</sup> Grade	
Numbers & Operations	7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addi...
Ratios & Proportions	7.RP Analyze proportional relationships and use them to solve real-world and mathematical problems.
Expressions & Equations	<p>7.EE Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</p> <p>7.EE.1 Apply properties as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>7.EE.2 Understand that rewriting an expression in different, yet equivalent, forms in a problem can show how the quantities in it are ...</p> <p>7.EE.3 Write an expression from a real world context possibly involving sales tax, tip, discount, gratuity, markup, selling price, perim...</p> <p>7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequaliti...</p> <p>7.EE.4a Solve word problems leading to equations of the form <math>px + q = r</math> and <math>p(x + q) = r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbe...</p> <p>7.EE.4b Solve word problems leading to inequalities of the form <math>px + q &gt; r</math> or <math>px + q &lt; r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers...</p>
Geometry	<p>7.G Draw, construct, and describe geometrical figures and describe the relationships between them.</p> <p>7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructin...</p> <p>7.G.5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simpl...</p>

**ESSENTIAL QUESTION(S):** How will I use variables to represent quantities in a real-world mathematical problem, and construct simple equations to solve problems by reasoning about quantities?

Date	Objective	Focus Question	I will...
12/4 M	TSWBAT solve two-step equations with integers by practicing a variety of problems with 70% accuracy.	How do I solve two-step equations?	-Use inverse operations to isolate the variable. -Check solutions
12/5 T	TSWBAT complete an iReady math lesson by taking notes on key vocabulary and at least three	How do mathematicians use iReady to enhance their mathematical skills?	Use iReady to enhance my mathematical skills.

	example problems with 80% accuracy by the end of the lesson.		
<b>12/6 W</b>	TSWBAT examine, analyze, and correct their current mixed practice test (MPT) by reviewing resources provided by the teacher, consulting with peers, and/or asking the teacher for help with 100% accuracy by the end of the lesson.	How do mathematicians analyze and correct their graded tests in order to reflect on knowledge needed to master 7th grade math standards?	-Differentiate between silly mistakes and lack of knowledge. -In writing, explain the silly mistake and rework the problems that contain silly mistakes. -Use resources to help correct mistakes where mastery is not yet obtained
<b>12/7 TH</b>	TBA	TBA based on DCA data.	TBA based on DCA data.
<b>12/8 F</b>	TSWBAT solve two-step equations with fractions by practicing a variety of real-world problems with 70% accuracy.	How do I solve equations with fractions?	-Use inverse operations to isolate the variable. -Check solutions

### REMEDICATION & ENRICHMENT

Students	Skill(s) & Activity
<b>P25</b>	<p><b>M - Mrs. Breazeale &amp; Ms. DeBlanc</b> will take turns helping students individually at their desk while the other one demonstrates problems to the whole group.</p> <p><b>W - Ms. DeBlanc</b> will invite individual students to her desk to discuss their most recent MPT results and clear up any misconceptions and offer support.</p>
<b>Bubbles</b>	<p><b>M - Mrs. Breazeale &amp; Ms. DeBlanc</b> will take turns helping students individually at their desk while the other one demonstrates problems to the whole group.</p> <p><b>W - Bubbles</b> will also be given opportunities to help students in the P25 group as a peer tutor.</p> <p><b>W - Ms. DeBlanc</b> will invite individual students to her desk to discuss their most recent MPT results and clear up any misconceptions and offer support.</p>

T25

M - Mrs. Breazeale will help students individually at their desk and whole group based on students needs.  
W - T25 will also be given opportunities to help students in the P25 & Bubble groups as a peer tutor.

MONDAY\_ Dec 4, 2023

## 1st, 3rd, & 4th Periods ONLY

**WARM-UP/HOOK:** TSW solve an MAAP style problem on a notecard given to them by the teacher. (5 minutes).

TTW review. (2 minutes)

**TEACHER INPUT:** (15 minutes)

*The teacher will ...*

- Pass out notebook paper so the students can take notes.
- Display the equation  $mx + b = y$  with each term being identified.
- "Last week, we learned how to construct equations in the form of  $mx + b = y$  where  $x$  is the variable; It represents the unknown value we want to find.  $m$  is the coefficient of the variable  $x$ .  $mx$  is the rate in the problem, and  $b$  is the constant term.
- We also learned last week how to find the unknown value, the variable, by using reason and models. I am going to show you how to determine the unknown value by isolating the variable.
- Present the lesson goal and direct students to side A.
- Say, "The goal is to get the variable on one side of the equation by itself. We must isolate the variable. We can do that with two easy steps.
- Step 1: Undo Addition/Subtraction. If  $b$  is added to  $mx$ , subtract  $b$  from both sides. If  $b$  is subtracted from  $mx$ , add  $b$  to both sides."
- Demonstrate on the equations  $3x + 5 = 11$  (subtract 5 from both sides to get  $3x = 6$ ) and  $x/3 - 5 = 11$  (add 5 to both sides to get  $x/3 = 16$ )
- Say, "Step 2: Undo Multiplication/Division. If  $x$  is multiplied by a number ( $m$ ) divide both sides by that number. If  $x$  is divided by a number ( $m$ ), multiply both sides by that number."
- Demonstrate on the equations  $3x = 6$  (divide both sides by 3 to get  $x = 2$ ) and  $x/3 = 11$  (multiply both sides by 3 to get  $x = 33$ )

- Say, “Step 3: Substitute the value you found for  $x$  back into the original equation and make sure both sides are equal.”
- Demonstrate on the two previous examples.

**MODELED INSTRUCTION:** ( 15 minutes)

*The teacher will ...*

- Pass out “Solving Equations” drill and practice sheet and direct students to side A.
- Demonstrate as many examples that are needed to ensure student understanding while referencing the steps.

**INDEPENDENT PRACTICE:** ( 10 minutes)

*The student will ...*

- Complete side A of the activity sheet while **TEACHER 1** laps the room and **TEACHER 2** pulls struggling students.

**CLOSURE** *The teacher will reflect on important vocabulary and the steps to solve two-step equations and how they can avoid silly mistakes.* (5 minutes)

**MATERIALS:** notebook paper, activity sheets, lesson presentation, calculators, pencils.

**ASSESSMENT(S):** Teacher observation, completed activity sheets

**HOMEWORK:** notebook paper, activity sheets, lesson presentation, calculators, pencils.

## **5th. & 7th Periods ONLY**

**BEGINNING:** *TSW* observe recent teacher feedback from previous assignments and begin working on their leveled iReady lesson in their purple folder. (10 minutes).

**MIDDLE:** *TTW* direct student to a lesson video (See TEACHER INPUT & MODELED INSTRUCTION above) (30 minutes).

**END:** *TSW* compete side A (showing all steps) of the activity sheet while **TEACHER 1** laps the room and **TEACHER 2** pulls struggling students. (12 minutes).

**CLOSURE** *The teacher will reflect on important vocabulary and the steps to solve two-step equations and how they can avoid silly mistakes.* (5 minutes)

**MATERIALS:** notebook paper, activity sheets, lesson presentation, calculators, pencils.

**ASSESSMENT(S):** Teacher observation, completed activity sheets

**HOMEWORK:** notebook paper, activity sheets, lesson presentation, calculators, pencils, purple folders, leveled RCC workbook pages based on individual student needs

**TUESDAY\_ Dec 5, 2023**

**MPT 2.6 will be given this morning.**

**WARM-UP/HOOK:** *The student will* login to iReady and choose a lesson on their path. Write down the lesson title, class period, and date on the recording sheet. Take notes on lesson vocabulary and lesson goals. **(3 minutes)**

**TEACHER INPUT:** **(2 minutes)**

*The teacher will ...*

- Remind students to take notes on lesson vocabulary and lesson goals.
- Review the requirements to receive help on the lesson quiz - all vocabulary with definitions must be written down, at least 3 examples recorded from the lesson, and I need to see evidence that the students attempted to work out the current problem on paper.

**INDEPENDENT PRACTICE:** **(45 minutes)**

*The student will ...*

- Listen and complete two lessons on their path to the best of their ability.
- Complete the lesson quiz with 80% or higher accuracy.

**STUDENT REFLECTION/EXIT TICKET:** *The student will* reflect on what they learned from the iReady lesson they just took based on their individual learning target. The teacher will use this data to determine which students need extra support. **(5 minutes)**

**MATERIALS:** notebook paper or “iReady Notes template,” computers, projector, exit tickets

**ASSESSMENT(S):** Teacher observation, exit tickets, iReady lesson quiz results

WEDNESDAY\_ Dec 6, 2023

## **1st, 3rd, & 4th Periods ONLY**

**WARM-UP/HOOK:** TSW solve an MAAP style problem on a notecard given to them by the teacher. (5 minutes).

TTW review. (2 minutes)

**REVIEW** TTW review Monday's homework. (10 minutes)

**TEACHER INPUT:** (2 minutes)

*The teacher will ...*

- Pass out data analysis sheet and a class set of Tuesday's test with teacher notes.
- Direct student to mark an “X” on the questions that the students missed.
- Students will be given their test back with the answer key and reference materials.

**INDEPENDENT PRACTICE:** (20 minutes)

*The student will ...*

- Rework problems on their test paper to obtain the correct answer on the key. (Must show the work that leads to the answer.)
- Justify why they missed certain problems.
- Compare their graded test to the teacher's class set/guided notes and questions.
- Identify careless mistakes and correct them.
- Use the UNRAVEL test taking strategy for math for questions not understood.
- Notify the teacher when they think they are finished for feedback/review.
- Staple data analysis sheet to the top of their test.
- Get it signed by their parents or guardian and return the following day

## Meanwhile...

**TEACHER CONFERENCES:** The teacher will invite individual students to her desk to discuss their most recent MPT and clear up any misconceptions and offer support. (30 minutes)

**EARLY FINISHERS:** The student will get iReady or Math Prodigy and wait patiently to be called to the teacher's desk to discuss the test and any misconceptions.

**TEACHER INPUT:** (10 minutes)

*The teacher will ...*

- Review the most missed problems or take any questions the students have.
- Check over student work and provide feedback.
- Choose a student to staple the remainder of the student's paper.
- Explain that it is mandatory to bring their tests back signed by tomorrow.

**STUDENT REFLECTION/EXIT TICKET:** *The student will* complete an exit ticket based on the most missed question(s). The teacher will use this data to determine which students need extra support. (5 minutes)

**MATERIALS:** graded Tuesday tests, test analysis sheets, stapler, staples, exit tickets

**ASSESSMENT(S):** Teacher observation, exit tickets, Tuesday test

## **5th, & 7th Periods ONLY**

**BEGINNING:** *TSW* observe recent teacher feedback from previous assignments in their purple folder. (*TTW* collect homework to check, then return to students with a detailed key so they can recognize mistakes.) (5 minutes).

**MIDDLE:** *TTW* direct students to a data analysis sheet that is in their folder and their graded Tuesday test. Instruct students to mark an "X" on the questions that the students missed and use the teacher notes to rework missed problems. **TEACHER 1** will lap the room and **TEACHER 2** will pull struggling students. (35 minutes).

**END/EARLY FINISHERS:** TSW work on leveled lessons in their purple folder. (12 minutes).

**MATERIALS:** graded Tuesday tests, test analysis sheets, stapler, staples, homework answer keys, individualized leveled RCC lessons, purple folders

**ASSESSMENT(S):** Teacher observation, completed assignments

**THURSDAY\_ Dec 7, 2023**

Most Missed Standard(s)	Objective(s)	Activity
	TSWBAT	
	TSWBAT	
	TSWBAT	

**To Be Announced based on the most recent DCA Math data. We will rework most missed problems.**

**FRIDAY\_ Dec 8, 2023**

## 1st, 3rd, & 4th Periods ONLY

**WARM-UP/HOOK:** TSW solve an MAAP style problem on a notecard given to them by the teacher. (5 minutes).

TTW review. (2 minutes)

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## 5th, & 7th Periods ONLY

**BEGINNING:** TSW observe recent teacher feedback from previous assignments and begin working on their leveled iReady lesson in their purple folder. (10 minutes).

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### ALL CLASS PERIODS

**TEACHER INPUT:** (15 minutes)

*The teacher will ...*

- Review Monday's lesson [Step 1: Undo Addition/Subtraction. If  $b$  is added to  $mx$ , subtract  $b$  from both sides. If  $b$  is subtracted from  $mx$ , add  $b$  to both sides. Step 2: Undo Multiplication/Division. If  $x$  is multiplied by a number ( $m$ ) divide both sides by that number. If  $x$  is divided by a number ( $m$ ), multiply both sides by that number. Step 3: Substitute the value you found for  $x$  back into the original equation and make sure both sides are equal.]
- Pass out the activity sheet "Solve Two-Step Equations with Fractions."

**INDEPENDENT PRACTICE:** (35 minutes)

*The student will ...*

- Complete the activity sheets while **TEACHER 1** will lap the room and **TEACHER 2** will pull struggling students.

**MATERIALS:** practice problems activity sheets.

**ASSESSMENT(S):** Completed activity sheets.

# **MISSISSIPPI STATE STANDARDS ACROSS CURRICULUM**

## **Math Standards**

### **Numbers & Operations:**

**7.NS.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

**7.NS.1a** Describe situations in which opposite quantities combine and make 0.

**7.NS.1b** Understand that  $p + q$  is the number located a distance from the absolute value of  $q$  from  $p$ , in the positive or negative direction depending on whether  $q$  is positive or negative. Show that a number and its opposite have a sum of 0. Interpret sums of rational numbers by describing real-world contexts.

**7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse. Show that the distance between two rational numbers on a number line is the absolute value of their difference, and apply this principle in real-world contexts.

**7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers.

**7.NS.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

**7.NS.2a** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as  $(-1)(-1) = 1$  and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

**7.NS.2b** Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-p/q = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real-world contexts.

**7.NS.2c** Apply properties of operations as strategies to multiply and divide rational numbers.

**7.NS.2d** Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

**7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers.

### **Ratios & Proportions:**

**7.RP** Analyze proportional relationships and use them to solve real-world and mathematical problems.

**7.RP.1** Compute unit rates associated with ratios and fractions, including ratios or lengths, areas and other quantities measured in like of different units.

**7.RP.2** Recognize and represent proportional relationships between quantities.

**7.RP.2a** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

**7.RP.2b.** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

**7.RP.2c.** Represent proportional relationships by equations.

**7.RP.2d .** Explain what a point  $(x, y)$  on the graph of a proportional relationship means in terms of the situation, with special attention to the points  $(0, 0)$  and  $(1, r)$  where  $r$  is the unit rate.

**7.RP.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

### **Expressions & Equations:**

**7.EE** Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

**7.EE.1** Apply properties as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

**7.EE.2** Understand that rewriting an expression in different, yet equivalent, forms in a problem can show how the quantities in it are related.

**7.EE.3** Write an expression from a real world context possibly involving sales tax, tip, discount, gratuity, markup, selling price, perimeter, area, and angle measures of a triangle. • Evaluate an expression given a value for the variable. • Translate a verbal expression into an algebraic expression. • Use manipulatives such as algebra tiles to factor expressions.

**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

**7.EE.4a** Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

**7.EE.4b** Solve word problems leading to inequalities of the form  $px + q > r$  or  $px + q < r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.

### **Geometry:**

**7.G** Draw, construct, and describe geometrical figures and describe the relationships between them.

**7.G.1** Solve problems involving geometric figures, including actual lengths and areas of a scale drawing.

**7.G.2** Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

**7.G.5.** Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.