Teacher(s): Mrs. Breazeale (Dr. Streeter) \& Mr. Contreras (Ms. Moran)
Subject/Grade: $7^{\text {th }}$ /Grade Math Week of: July 31, 2023
Lesson Plan Title: Adding \& Subtracting Integers

|  | MATHEMATICS - Mississippi College and Career Readiness Standards for ${ }^{\text {th }}$ Grade |
| :---: | :---: |
| Numbers \& Operations | 7.NS. 1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addi... 7.NS.1a Describe situations in which opposite quantities combine and make 0 . -) <br> 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 directi... NA |

ACROSS CURRICULUM STANDARDS

## ELA - Mississippi College and Career Readiness Standards for 7 $^{\text {th }}$ Grade

## Reading Informational Text

CCR.R. 10 Read and comprehend complex literary and informational texts independently and proficiently.
RI.7.10 By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

## Writing

W.7.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.7.2e Establish and maintain a formal style.
W.7.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
W.7.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
Language
CCR.L.1: Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
CCR.L.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.7.2b Spell correctly.
L.7.6 Acquire and use accurately grade-appropriate general academic and domain specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

## ESSENTIAL OUESTION: What strategies can I use to add and subtract rational numbers?

| Date | Day | Objective | Focus Question | I will... |
| :---: | :---: | :---: | :---: | :---: |
| 7/31 | M | TSWBAT add integers from their RCC workbook using tools and strategies with $80 \%$ accuracy by the end of the lesson. | (1)How do I use a number line to add integers? <br> (2)How can I use additive inverses to add integers without a number line? | (1) Understand that absolute value is the distance from zero and will NEVER be negative. <br> (2) Model addition of integers on a number line. <br> (3) Use additive inverses to add integers |
| 8/1 | T | TSWBAT complete 35 questions playing the Math prodigy game with $80 \%$ accuracy by the end of the lesson. | How do mathematicians use Math Prodigy to enhance their mathematical skills? | Use Math Prodigy to enhance my mathematical skills. |
| 8/2 | W | 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. <br> -In writing, explain the silly mistake and rework the problems that contain silly mistakes. <br> -Use resources to help correct mistakes where mastery is not yet obtained. |
| 8/3 | Th | TBA based on MPT data. | TBA | TBA |
| 8/4 | F | TSWBAT add and subtract integers using integer chips and number lines with $80 \%$ accuracy by the end of the lesson | (1)How is adding integers different from subtracting integers? <br> (2)Which strategies can I use to subtract integers? | (1)Use a horizontal or vertical number line to model subtracting integers. <br> (2)Subtract integers without a number line. |

## MONDAY_ Jul 31, 2023

ESSENTIAL QUESTION: What strategies can I use to add and subtract rational numbers?

| Focus Questions | I will... |
| :---: | :---: |
| 1. How do I use a number line to add integers? | $\square$ Understand that absolute value is the |
| 2. How can I use additive inverses to add | distance from zero and will NEVER be |
| integers without a number line? | negative. |
|  | $\square$ Model addition of integers on a number line. |
|  | $\square$ Use additive inverses to add integers. |

ASSESSMENT: Teacher observation and completed scenarios.

MATERIALS: notecards with opposite quantities, small sheets of paper, number lines, projector, \& presentation
Bell Ringer: TSW will complete two MAAP test questions 7.NS.1a \& 7.NS.1b. (5 minutes) TTW review. (3 minutes)
ANTICIPATORY SET: TTW Present the essential and focus questions. Explain the lesson goals. Show the video "Adding Integers | How to Add Positive and Negative Integers," at https://www.youtube.com/watch?v=CfkaifC7tGY (7 minutes). TTW stop during key points during the video so students can take notes on different strategies to add integers.

## TEACHER INPUT: (15 minutes)

The teacher will...

- Pass out "Adding Positive \& Negative Integers" pages 4 \& 5 (Old RCC workbook)
- Direct students to look at question 2 on page 4 of their handout (MS_RCC).
- Say, "[Student 5], read and answer question 2?" (Answer: 8 feet.) "[Student 6], How many zero pairs are in the integers 8 and -8?" (Answer: 8)
- Say, "[Student 7], read and answer question 3?" (Answer: -7 feet.) "[Student 8], What is -7's additive inverse?" (Answer: 7) "[Student 9], What is the absolute value of -7?" (Answer: 7). "[Student 10], What is the absolute value of 7?" (Answer: 7)
- Say, "[Student 13], read and answer question 4?" \{Allow this student to bring their work to the podium so their work can be projected.\} (Answer: 0.) "[Student 14], How many zero pairs are in the integers 6 and -6?" (Answer: 6)
- Read question 5: $11+(-8)$. Remind students that we look at the first term. That is where we start. We then look to see if the second term has a positive or negative sign. Since it is negative, we will move to the left 11 units. Our ending number is our answer which is 3.
- "[Student 15], How many zero pairs are in the integers 11 and -8?" (Answer: 8)
- So when we take those away, we are left with what, [Student 16]? (Answer: 3) This is a strategy you can use when adding integers. Subtract all the zero pairs and whatever is left is your sum. If you have more positives than negatives, the sum will be positive. If you have more negatives than positives, your sum will be negative.

Independent Practice: ( 10 minutes)
The student will...

- Complete problems 6-14 (Productive Struggle is BEAUTIFUL!!!) while the teacher laps the room.
- TTW review problems 6-14.

Small Group Activity: 7 minutes
The student will...

- Complete "Adding Integers" practice sheet
- TTW review the problems.

CLOSURE: TSW complete an exit ticket similar to the Bell ringer. : (5 minutes)
Homework: Read over any and all notes for at least 10 minutes.

## TUESDAY_ Aug 1, 2023

## MPT 1.2 will be given this morning.

ESSENTIAL QUESTION: What strategies can I use to add and subtract rational numbers?
WARM-UP/HOOK: The student will login to Math Prodigy and choose. ( 5 minutes)

## TEACHER INPUT: ( 5 minutes)

The teacher will ...

- Present the lesson objectives.
- Review the requirements to receive help - I need to see evidence that the students attempted to work out the current problem on paper.


## INDEPENDENT PRACTICE: ( 30 minutes)

The student will ...

- Complete 35 questions on MS standard 7.NS.1a \& b

STUDENT REFLECIION/EXIT TICKET: The student will complete an exit ticket based on today's learning target. The teacher will use this data to determine which students need extra support. ( 5 minutes)

MATERIALS: notebook paper, computers, projector ASSESSMENT(S): Completed Questions

MPT 1.2 Results

| Class | $\mathbf{0 \%}-\mathbf{4 9 \%}$ (Critical) | $\mathbf{5 0 \%}-\mathbf{6 9 \%}$ (Emerging) | $\mathbf{7 0 \% - 1 0 0 \%}$ (Proficient) |
| :--- | :--- | :--- | :--- |
| 1st |  |  |  |
| 3rd |  |  |  |
| 4th |  |  |  |
| 5th |  |  |  |
| 7th |  |  |  |

## WEDNESDAY_ Aug 2, 2023

ESSENTIAL QUESTION: What strategies can I use to add and subtract rational numbers?
FOCUS QUESTION: How do mathematicians analyze and correct their graded tests in order to reflect on knowledge needed to master 7th grade math standards

WARM-UP/HOOK: The student will grab a data analysis sheet and a class set of Tuesday's test. Write their name, date, etc. The teacher will pass back their Tuesday tests. ( 5 minutes)

## TEACHER INPUT: ( 2 minutes)

The teacher will ...

- Direct student to mark an " $X$ " on the questions that the students missed.
- Explain that they will use the class set of the test that includes "Teacher Notes" to rework the problems and/or explain what silly mistake they made.


## INDEPENDENT PRACTICE: ( 30 minutes)

The student will ...

- Rework problems on their test paper.
- 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.
- 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.

SIUDENT 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, data analysis sheets, Tuesday tests

THURSDAY_Aug 3, 2023

To Be Announced based on the most recent MPT Math data.
Materials Needed: $\qquad$

| Most Missed <br> Standard(s) | Objective(s) | Activity |
| :--- | :--- | :--- |
|  | TSWBAT |  |
|  | TSWBAT |  |
|  | TSWBAT |  |

## Meanwhile...

TEACHER CONFERENCES: TTW will finish inviting individual students to her desk to discuss their most recent MPT and clear up any misconceptions and offer support. ( 30 minutes)
STUDENT REFLECIION/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)

## FRIDAY_Aug 4, 2023

Essential Question: What strategies can I use to add and subtract rational numbers?

## Focus Questions Day 1:

1. How is adding integers different from subtracting integers?
2. Which strategies can I use to subtract integers?

I will...Use a horizontal or vertical number line to model subtracting integers.Subtract integers without a number line.

ASSESSMENT: Teacher observation and completed scenarios.

MATERIALS: notebook paper, MS_RCC workbooks pages 8-11, scaffolding document 7.NS.1c, KWL charts, individual number lines for each student, video

## New Skill Self Reflection/Bell Ringer: (10 minutes)

The student will...

- Grab a copy of a page from the scaffolding document for 7.NS.1c and a KWL chart upon entry to the classroom.
- Read the document carefully.
- Focus on "A student should know" and record any of these items in the K-Know section of the KWL chart and the skills they do not know in the W-Want to Know section of the KWL chart.

The teacher will...

- Lead a class discussion on what students need to know to master this skill. Invite students to record what they know and want to know on the K-W-L chart.


## ANTICIPATORY SET (5 minutes)

[HOOK] Show the video "Bill Engvall - Here's your Sign Remastered" at https://www.youtube.com/watch?v=ighZGJCYWE0
[REAL WORLD CONNECTION] Remember when I told you that all numbers technically have signs, but since positive is a default, we do not show it. It is always understood that if a number does not have a sign, it is positive. Show students the examples $10+9,4+(-8),-7+12$ and say, "All numbers have signs. The mathematicians of the world decided that we do not always have to write a sign in front of the positive numbers. This expression can actually be written like this: $+10+(+9),+4+(-8),-7+(+12)$.
[IMPORTANCE/RELEVANCE] Say, "Subtracting integers is the process of finding the difference of two or more integers. It may result in a positive or a negative value, depending on whether the integers are positive or negative or a mixture. Since every number we encounter will NOT be positive, we need to learn how to subtract numbers that are negative also.

## TEACHER INPUT: (17 minutes)

## The teacher will...

- Pass out Lesson 2: Understand Subtraction of Positive and Negative Integers (MS_RCC _Lesson 2: Understand Subtraction of Negative Numbers)workbook pages.
- Say, "[Student 1], Read what's under the heading ‘What happens when you subtract positive and negative numbers?" Let the student read while their classmates are paying attention.
- Say, "[Student 2], based on the text that [Student 1] just read, what happens when you subtract positive and negative integers? (Sample Answer - You will get a difference that is positive or negative.)
- Say, "[Student 3], What is an integer? (Sample Answer - all the whole numbers and their opposites.)
- Say, "[Student 4], How are integers and whole numbers different? (Sample Answer - integers have negative numbers and whole numbers do not.)
- Say, "[Student 5], Read what's under the heading 'How is subtracting integers like adding integers?"" Let the student read while their classmates are paying attention.
- Say, "[Student 6], based on the text that [Student 5] just read, how is subtracting integers like adding integers?' (Sample Answer - Any subtraction problem can be written as an addition problem. You can use a number line to model both.)
- Say, "[Student 7], What are inverse operations? (Sample Answer - pairs of mathematical manipulations in which one operation undoes another.) [Student 8], Give an example of inverse operations? (Sample Answer addition and subtraction, multiplication and division). [Student 9], Give another example of inverse operations? (Sample Answer addition and subtraction, multiplication and division).
- Tell the students to circle the answers on the number line showing $5+(-3)$ and 5-3.
- Say, "Flip to page 9. [Student 10], How do you write a subtraction problem as an addition problem?'" Let the student read while their classmates are paying attention.
- Say, "[Student 11], based on the text that [Student 10] just read,how do you write a subtraction problem as an addition problem?"' (Sample Answer - The first number stays the same, use the opposite operation, and use the opposite of the second number.)
- [Student 12], Which operation is the opposite of subtraction? (Answer addition).[Student 13], What do we call operations that are opposites? (Answer inverse operations).
- Read the "Reflect" at the bottom of page 3. "Why can you write an addition problem as a subtraction problem? How do you write a subtraction problem as an addition problem?"
- Say, "This question is asking two questions. Look in the text we just read to find the answer to the first one."
- [Student 14], Where in the text is the answer to the first question?" (Sample Answer: The middle of page 8 where it says, "Because addition and subtraction are inverse operations.)
- Say, "To answer this question properly, let's restate the question and answer."
- Write on the board, " We can write an addition problem as a subtraction problem because..." [Student 15], Finish this sentence." (Sample Answer: ...addition and subtraction are inverse operations.
- Say," Let's look at the second part of this question - How do you write a subtraction problem as an addition problem?" You are going to complete this question on your own, Find the answer in the text, restate and then answer.
- Lap the room checking for understanding.
- "[Student 16], how do you write a subtraction problem as an addition problem?" (Sample Answers: To write a subtraction problem as an addition problem, first write the first number exactly how it is in the problem, then use the opposite operation, and finally use the opposite of the second number.)
- Direct students to record this on their paper if they have not already done so.


## Guided Instruction: (10 minutes)

The teacher will...

- Pass out Cornell Notes template with prewritten questions. At key points in the video, TTW stop and ask different students questions.
- Instruct students to write the title "Subtracting Integers using a Number Line," as the title.
- Show the video, https://www.youtube.com/watch?v=Dfytkh lYME\&t=0s
- Pause at 00:16. Instruct students to copy the notes from the video and write the problems from the video leaving space in between.
- Pause at 01:49 and say, "Let's try this a different way. We are going to change this to an addition problem.
- Write $5-7=$ on the board and rewrite it as $5+(-7)$. [Student 17], How many zero pairs do the integers +5 and -7 have?" (Answer: 5.) Say, so we can subtract 5 from 7 and we get 2 ." Write $5+(-5)+-2=-2$ on the board.
- Pause at 02:56-[Student 18], How many zero pairs do the integers -1 and 4 have? (Answer: 1) Say, "We can subtract 1 from 4 and get 3 . Write $-1+1+3=3$.
- Pause at 03:56-"[Student 19], How many zero pairs do -3 and -6 have? (Answer: 0)
- Draw a model on the board:

- Ask, [Student 20], How many negative integer chips do we have? (Answer: 9) So the answer is -9.
- Let the video finish playing, then ask, "[Student 1] How many zero pairs do -7 and 10 have? (Possible Answer: 3). So we can subtract 7 from 10. Write $-7+7+3=3$.

CLOSURE: Summarize the high points of today's lesson. (2 minutes)
Homework: Read over any and all notes for at least 10 minutes.

## 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.

## ELA Standards

## Reading Informational Text

CCR.R. 10 Read and comprehend complex literary and informational texts independently and proficiently.
RI.7.10 By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

## Writing

W.7.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.7.2e Establish and maintain a formal style.
W.7.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
W.7.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or
two) for a range of discipline-specific tasks, purposes, and audiences.
Language
CCR.L.1: Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
CCR.L.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.7.2b Spell correctly.
L.7.6 Acquire and use accurately grade-appropriate general academic and domain specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

