**Unit:** Understand Addition & Subtraction of Integers

**Domain:** The Number System (NS)

**Class:** 7th Grade Math

**Teacher:** Mrs. Mack

**Objective: 7. NS.** Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

**Standard:**

**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 number line diagram.

**a.** Describe situations in which opposite quantities combine to make 0.

**b**. Understand that *p* + *q* as the number located a distance $\left|q\right|$ 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 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

**c.** Understand subtraction of rational numbers as adding the additive inverse, p − q = p + (-q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

**Essential Question:** How can mathematics be used to provide models that help us represent addition and subtraction?

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| **Day** | **Focus Questions** | **By the end of the lesson, I can…** |
| **M** | How can mathematicians use a horizontal number line to add integers? | -Use a horizontal number line to add integers.-Explain that a sum of a number and its opposite is zero. |
| **T** | How can mathematicians find the distance between two integers using addition and absolute value?  | Find the distance between two integers using addition and absolute value. |
| **W** | How mathematicians create models to solve real-world problems involving addition of integers? | Create and use models to solve real-world problems involving addition of integers. |
| **R** | How can mathematicians use a horizontal number line to subtract integers? | Use a horizontal number line to subtract integers |
| **F** | How can mathematicians use subtraction and absolute value to find the distance between two integers on a number line? | Use subtraction and absolute value to find the distance between two integers on a number line |

**Interventions:** The teacher will assess the exit tickets completed daily. TTW deliver interventions the following day to students as needed.

**Notes:**

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**Monday**

**Lesson Duration: 50 minutes**

**Pre-Class:** Students will work on their bell ringer assignment and get out the appropriate materials for class.The students will complete five 6th grade review questions from each domain. **(5 minutes)**

**Review:** The teacher will quickly review the bell ringer questions. **(5 minutes)**

**Anticipatory Set (5 minutes)**

**Hook:**

**Focus Question:** How can mathematicians use a horizontal number line to add integers?

**Real World Connection:**

**Importance/Relevance:**

**Prerequisite Information:**

**Teaching: Input (10 minutes)**

*The teacher will…*

1. Inform students to turn in their instruction workbooks to pages 2 and 3.
2. Introduce lesson vocabulary while pointing at the word wall (absolute value, additive inverse, and integer)
3. Ask for a volunteer to read the opening problem at the top of page 2.
4. Draw a Popsicle stick of a random student and ask, “What is this problem about?”
5. Draw a Popsicle stick of another random student and ask, “What are we trying to find out”
6. Ask for a volunteer, “What information is important?” Ask the class if they agree or disagree. Discuss.
7. Ask a volunteer to read the bottom of page 2. “Ask, what is the problem about? What are we trying to find out? And what information is important?” Tell students to discuss with a partner.

**Teaching: Modeling (5 minutes)**

*The teacher will…*

1. Tell students to look at page 3. Choose volunteers to read through the text.
2. Present question 1 at the bottom of page 3. Do a think-aloud while asking volunteers to help answer the question.
3. Give every student a card that has an integer.

**Educational Brain Break: (5 minutes)**

*The student will…*

* Get out of their seats and find the classmate that has their additive inverse. (There will only be one person that has it.)

**Guided Practice: (10 minutes)**

**The student will…**

* Turn to page 3 and 4 in their practice workbook.
* Complete questions 1-10. *(What they do not finish is homework.)*

**Closure:** The teacher will review the main points of the lesson. Give students an exit ticket answering the focus question. **(5 minutes)**

**Assessment:** Teacher observation and exit tickets.

**Materials**: instruction & practice workbooks, 30 integer notecards, PowerPoint

**Tuesday**

**Lesson Duration: 50 minutes**

**Pre-Class:** Students will work on their bell ringer assignment and get out the appropriate materials for class.The students will complete five 6th and 7th grade review questions from each domain. **(5 minutes)**

**Review:** The teacher will quickly review the bell ringer questions. **(5 minutes)**

**Anticipatory Set (5 minutes)**

**Hook:**

**Focus Question:** How can mathematicians find the distance between two integers using addition and absolute value?

**Real World Connection:**

**Importance/Relevance:**

**Prerequisite Information:**

**Teaching: Input (3 minutes)**

*The teacher will…*

1. Review the lesson vocabulary and providing real work examples.
2. Inform students to turn in their instruction workbooks to pages 4 and 5 in their instruction workbook.

**Independent Practice (12 minutes)**

*The student will…*

1. Complete questions 1-7 in their instruction workbook.
2. TTW draw random names to answer questions 1-7.
3. Complete questions 8-14 in their instruction workbook.
4. TTW draw random names to answer questions 8-12.

**Teaching: Modeling (10 minutes)**

*The teacher will…*

1. Tell students to look at questions13 & 14 the bottom of page 5.
2. Complete these two problems incorrectly. Ask the class what she did wrong? Discuss.
3. Present question 1 at the bottom of page 3. Do a think-aloud while asking volunteers to help answer the question.
4. Tell students to tear out pages 5 & 6 out of their practice workbook and put it in their backpack for homework.
5. Give half the kids in a class a sum and the other half of the students in class an adding integer’s equation.

**Educational Brain Break: (5 minutes)**

*The student will…*

* Get out of their seats and find the classmate that make the equation true. (There will only be one person that has it.)

**Closure:** The teacher will review the main points of the lesson. Give students an exit ticket answering the focus question. **(5 minutes)**

**Assessment:** Teacher observation and exit tickets.

**Materials:** instruction & practice workbooks, 15 integer notecards & 15 equation that complete the integer notecards, PowerPoint

**Wednesday**

**Lesson Duration: 50 minutes**

**Pre-Class:** Students will work on their bell ringer assignment and get out the appropriate materials for class.The students will complete five 6th and 7th grade review questions from each domain. **(5 minutes)**

**Review:** The teacher will quickly review the bell ringer questions. **(5 minutes)**

**Anticipatory Set (5 minutes)**

**Hook:**

**Focus Question:** How mathematicians create models to solve real-world problems involving addition of integers?

**Real World Connection:**

**Importance/Relevance:**

**Prerequisite Information:**

**Teaching: Input (8 minutes)**

*The teacher will…*

1. Review the lesson vocabulary.
2. Review select problems of the homework.
3. Inform students to turn in their instruction workbooks to pages 6 and 7 in their instruction workbook.

**Independent Practice (7 minutes)**

*The student will…*

1. Complete questions 15-17 in their instruction workbook.
2. TTW draw random names to answer questions 15-17.

**Teaching: Modeling (15 minutes)**

*The teacher will…*

1. Tell students to look at question 18 on page 7. Select volunteers to read question 18 Part A.
2. Draw a random student and ask, “What is the problem about? Draw another student and ask, “What are we trying to find out? Ask, what information is important?”
3. Complete a think-aloud while solving the problem.
4. Tell students to work with a partner to solve 18 Part B.
5. Ask for a volunteer to share their response.
6. Instruct students to tear out pages 7-8 and put in their backpack for homework.

**Closure:** The teacher will review the main points of the lesson. Give students an exit ticket answering the focus question. **(5 minutes)**

**Assessment:** Teacher observation and exit tickets.

**Materials:** instruction & practice workbooks, PowerPoint

**Thursday**

**Lesson Duration: 50 minutes**

**Pre-Class:** Students will work on their bell ringer assignment and get out the appropriate materials for class.The students will complete five 6th and 7th grade review questions from each domain. **(5 minutes)**

**Review:** The teacher will quickly review the bell ringer questions. **(5 minutes)**

**Anticipatory Set (5 minutes)**

**Hook:**

**Focus Question:** How can mathematicians use a horizontal number line to subtract integers?

**Real World Connection:**

**Importance/Relevance:**

**Prerequisite Information:**

**Teaching: Input (10 minutes)**

*The teacher will…*

1. Inform students to turn in their instruction workbooks to pages 8 and 9.
2. Ask for volunteers to read the text on page 8.

**Teaching: Modeling (10 minutes)**

*The teacher will…*

1. Tell students to look at page 9.
2. Demonstrate how to turn a subtraction problem into an addition problem. Explain why it works.
3. Model how to complete the examples on page 9.
4. Present question 1 at the bottom of page 9. Do a think-aloud while asking volunteers to help answer the question.
5. Give half of the students a card that has a subtraction expression, and the other half of the class an equivalent addition equation.

**Educational Brain Break: (5 minutes)**

*The student will…*

* Get out of their seats and find the classmate that has an equivalent expression. (There will only be one person that has it.)

**Guided Practice: (10 minutes)**

**The student will…**

* Turn to page 11 and 12 in their practice workbook.
* Complete questions 1-7. *(What they do not finish is homework.)*

**Closure:** The teacher will review the main points of the lesson. Give students an exit ticket answering the focus question. **(5 minutes)**

**Assessment:** Teacher observation and exit tickets.

**Materials**: instruction & practice workbooks, 15 subtraction expressions & 15 equivalent addition expressions integer notecards, PowerPoint

**Friday**

**Lesson Duration: 50 minutes**

**Pre-Class:** Students will work on their bell ringer assignment and get out the appropriate materials for class.The students will complete five 6th and 7th grade review questions from each domain. **(5 minutes)**

**Review:** The teacher will quickly review the bell ringer questions. **(5 minutes)**

**Anticipatory Set (5 minutes)**

**Hook:**

**Focus Question:** How can mathematicians use subtraction and absolute value to find the distance between two integers on a number line?

**Real World Connection:**

**Importance/Relevance:**

**Prerequisite Information:**

**Teaching: Input (10 minutes)**

*The teacher will…*

1. Review select problems from the previous day’s practice workbook.
2. Inform students to turn in their instruction workbooks to pages 10 and 11 in their instruction workbook.

**Independent Practice (15 minutes)**

*The student will…*

1. Complete questions 1-5 in their instruction workbook.
2. TTW draw random names to answer questions 1-5.
3. Complete questions 6-11 in their instruction workbook.
4. TTW draw random names to answer questions 6-11.
5. Tear out pages 13 & 14 in their practice workbook and put in their backpack for homeowk.
6. Pass out notes to half the class with a whole number, and pass out note cards to the other half of the class with an absolute value expression.

**Educational Brain Break: (5 minutes)**

*The student will…*

* Get out of their seats and find the classmate that make the equation true. (There will only be one person that has it.)

**Closure:** The teacher will review the main points of the lesson. Give students an exit ticket answering the focus question. **(5 minutes)**

**Assessment:** Teacher observation and exit tickets.

**Materials:** instruction & practice workbooks, 15 whole number notecards & 15 absolute value expressions that are equivalent to the whole number notecards, PowerPoint