**2-Week Calendar: [8/20-8/31]**

**Teacher: Cutler
Unit: Rational Numbers**

**2-Week Submission:**

* Formative Assessment at the lesson cycle level for the lesson cycles included in your 2-week plan
* The Lesson Cycle Calendar, with agendas for each day of instruction.

**Lesson Cycle Calendar**

*Include:*

* Plan for Investment and Tracking
* Daily Agenda:
	+ Daily Objectives
	+ Specific texts to be taught (chapters/pages of a novel, title and hyperlink for RI texts, primary sources, secondary sources)
	+ Instructional methods, integrated across days (inquiry, DI, performance-based, literacy-based, practice)

*If you teach on a block schedule (MS), merge the boxes for Monday/Tuesday and Wednesday/Thursday.*

**Lesson Cycle Calendar**

*Include:*

* Computational Fluency (CF) and Math Minute (MM), if Applicable
* Plan for Investment and Tracking
* Daily Agenda:
	+ Daily Objectives
	+ Mathematical Practices of Focus
	+ Instructional methods, integrated across days (inquiry, DI, performance-based, literacy-based, practice)

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| **LESSON CYCLE CALENDAR** |
| **Week of: August 20-24** |
| **Weekly Computational Fluency:** representation of values on a number line**Weekly Math Minute:** Mixed addition and subtraction problems 1-20 |
| **LC Topic #1: negative numbers and sums of zero****LC Standards: 7.NS.A.1a** –Opposites and sums of zero**LC Questions:** *Unit-Level Questions that this lesson cycle will drive toward and answer (at least in part); and/or include a more specific lesson cycle question that students will be able to answer by the end of the lesson cycle:*Unit Level Question:What patterns are created through manipulating rational numbers with each operation on a number line?**Core conceptual understandings to be extended through LC:** Negative numbers are an abstract concept that can be represented using a number line or visual model. Negative integers can be thought of as resulting from the subtraction of a larger number from a smaller. We need to know situations in which opposite quantities combine to make zero because equal values of opposite inverse equal zero.  |
| **Mathematical Practices of Focus** (highlight any MPs of focus)**:**MP1: Make sense of problems and persevere in solving them.MP2: Reason abstractly and quantitatively.MP3: Construct viable arguments and critique the reasoning of others.MP4: Model with mathematics.MP5: Use appropriate tools strategically.MP6: Attend to precision.MP7: Look for and make use of structure.MP8: Look for and express regularity in repeated reasoning. |
| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **Objectives:** SWBAT identify negative numbers SWBAT identify opposites with sums of zero**Standards:** 7.NS.A.1, 7.NS.A.1a**Driving Questions:** What is a negative number? How do we represent negative numbers on a number line? **Do Now:** representation of whole numbers on a number line. Incorporate a few negatives to see what students already know (FA)**Presentation:** Discuss with students that negative numbers are numbers that are less than zero, or go past zero to the left on the number line. Model for students how to go to the left on the number line. **GP:** Guided notes for negative numbers on the number line. Create your own example in notes and share with partner. Teacher walks around and checks as students are working.**Presentation:** Discuss with students looking at the number 7 on the number line. Model for students looking at the number line and drawing a line through the zero. Tell students that when showing a number is opposite it will be the same distance from zero on the number line (in the opposite direction).\*Use two colors. Model counting 7 spaces from zero on the number line to the left of zero. What number did we end up at? -7. **GP**: Guided notes for opposites numbers represented on the number line. Use two colors to represent counting the same value in different directions. Teacher walks around while students work with a partner to make their own example in their notes. Share out responses.**IP:** Representations of Negatives on a number line and opposites on a number line. **HW:** | **Objectives:** SWBAT identify negative numbers SWBAT identify opposites with sums of zeroSWBAT identify absolute value**Standards:** 7.NS.A.1a,7.NS.A.1, 7.NS.A.3**Driving Questions:** How can we represent opposites have a sum of 0? On a number line? In other forms?What does it mean to have an absolute value?**Do Now:** Review HW from previous class.**Presentation:** Model for students thinking a loud about how we have previously discussed how opposites are the same value from zero, in opposite directions. Knowing this, when a number is within $\left|\right|$ brackets to represent absolute value we are referring to the distance away from zero. The absolute value sign cancels out any negative (or positive) symbol within the brackets. It is actual distance from zero.**GP:** Students will add to guided notes. Students will draw an example in their notes. Teacher will talk around as students are working. Share out examples. **Presentation/GP:** Ask students, so if the absolute value brackets cancel out the negative within, what happens if there is a negative symbol outside of the brackets? Will it be negative or positive? Have students discuss with their partner then share out.Fill in section of notes and have students draw an example. Have students share out examples.**IP:** Representations of absolute values on number lines, and review questions about opposites using absolute values**HW:** | **Objectives:** SWBAT identify negative numbers SWBAT identify opposites with sums of zeroSWBAT identify absolute value**Standards:** 7.NS.A.1a,7.NS.A.1, 7.NS.A.3**Do Now:** Review HW from previous class **Formative Assessment Lesson Cycle 1** |
| **LESSON CYCLE CALENDAR** |
| **Week of: August 27-31** |
| **Weekly Computational Fluency:** representing rational numbers on a number line**Weekly Math Minute:** Addition Problems 1-30 |
| **LC Topic #2: addition and subtraction of integers****LC Standards: 7.NS.A.1a** –opposite quantities to create 0**7.NS.A.1b** –adding integers**LC Questions:** *Unit-Level Questions that this lesson cycle will drive toward and answer (at least in part); and/or include a more specific lesson cycle question that students will be able to answer by the end of the lesson cycle:*Unit Level Question:What patterns are created through manipulating rational numbers with each operation on a number line?Unit Level Question:How do integer rules and operation-based patterns relate to other representations of rational numbers?**Core conceptual understandings to be extended through LC:** Number lines will aid in representing addition of rational numbers. Rational numbers incorporate fractions, decimals, and mixed numbers. |
| **Mathematical Practices of Focus** (highlight any MPs of focus)**:**MP1: Make sense of problems and persevere in solving them.MP2: Reason abstractly and quantitatively.MP3: Construct viable arguments and critique the reasoning of others.MP4: Model with mathematics.MP5: Use appropriate tools strategically.MP6: Attend to precision.MP7: Look for and make use of structure.MP8: Look for and express regularity in repeated reasoning. |
| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **Objectives:** SWBAT use a number line to model the addition of integers**Standards:** 7.NS.A.1a, 7.NS.A.1b**Driving Questions:** If a negative number has a value greater than the positive number, will the answer be positive or negative? What patterns can we create for adding positive and negative numbers?**Do Now:** addition facts 1-20**Presentation:** Remind students about negative numbers and absolute values we discussed last week. Remind students when we are adding we are combining to numbers to get bigger. Ask students, on a number line what does addition look like? Turn and talk to partners and share out. **GP:** Turn to guided notes about adding integers (use negative and positive values). Model for students solving the first problem using a number line adding two positive values (ex: 12+6). Students will then work through an example their table partner. Teacher will walk around and observe then share out responses. Students will explain their reasoning. *Ask students whether or not their answer was less than zero. Why?* Add this pattern to notes. Move onto adding a positive and negative value (ex. 10+(-6)). Have students draw out an example with their partner, teacher walks around, and share out. *Ask students whether or not their answer was less than zero. Why?* Add this pattern to notes. Now model adding a positive and an absolute value (ex: 4+$\left|-5\right|$). Think aloud that the absolute value bracket make the 5 positive, and draw it out on the number line. Students will work with a partner to create an example; teacher will walk around and observe, students will share out responses. *Ask students whether or not their answer was less than zero. Why?* Add this pattern to notes.**IP:** adding integers using a number line**HW:** | **Objectives:** SWBAT add integers and other rational numbers**Standards:** 7.NS.A.1a, 7.NS.A.1b**Driving Questions:** What is the difference between an integer and a rational number? Can we add values together that have different denominators? How?**Do Now:** Review HW. Addition facts 1-30 math minute.**Presentation:** Remind students that integers are whole number values. Rational numbers are also mixed numbers and fractions. **GP:** *\*Use Number line for visual\**Model for students how to add fractions with like denominators (ex: $\frac{6}{7}$ + $\frac{4}{7}$). Model reading and solving this expression and think a loud how the numerator is greater than the denominator so we have more than 1. Convert to a mixed number. Students will copy this down then create an example with their partner. Teacher will walk around room while students are creating examples to check for understanding. Share out answers. *Ask students whether or not their answer was greater than one. Why?* Add this pattern to notes. Now model an example where the denominators are different (ex: $\frac{3}{8}+\frac{1}{4}$). Model by thinking aloud how to convert the fractions to have the same denominators. Have students create an example with a partner and share out. *Ask students whether or not their answer was greater than one. Why?* Add this pattern to notes. Continue on by modeling using mixed numbers (ex: 2 $\frac{1}{4}$ + 1). Model thinking aloud how to convert both numbers so they have common denominators, then solve. Have students create an example with their partner and share out responses. *Ask students whether or not their answer was greater than one. Why?* Add this pattern to notes. Continue on by modeling using numbers with decimals (ex: 4.1 + (-2.3). Model using the number line to solve. Have students create an example with their partner and share out responses. *Ask students whether or not their answer was greater than one. Why?* Add this pattern to notes. **IP:** adding rational numbers**HW:** | **Objectives:** SWBAT add integers and other rational numbers and use a number line to model addition of integers**Standards:** 7.NS.A.1a.7.NS.A.1a**Driving Questions:** **Do Now:** Review problems for adding integers and other rational numbers using number lines and word problems**IP:** Formative Assessment |

**Anticipated Misconceptions:**

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| **State the misconception** | **Correction of Misconception: What is the understanding students need?** |
| Negative symbol and subtraction symbols look a lot alike and could be confusing for students | Make sure students understand the negative symbol belongs to the numerical value and represents a value less than zero. A subtraction symbol is taking away from another value. |
| Adding fractions without creating common denominators | Making sure students understand they need to have like denominators to create a whole. |
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