Mississippi Mathematics Manipulatives Manual
Featured Activity

"Number Line Slide"

7.NS.1b

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As we continue our efforts to develop high-quality instructional materials (HQIM) and resources, the Mississippi Department of Education (MDE), through the Academic Education Office, would like to showcase instructional practices and activities that foster conceptual understanding through the use of manipulatives in the mathematics classroom.

The **Mississippi Mathematics Manipulatives Manual** features activities meant to serve as short, hands-on procedures that may be implemented before, during, or after a lesson to support the teaching and learning process of the Mississippi College- and Career-Readiness Standards (MCCRS) for Mathematics. Alignment with the MCCRS Scaffolding Document has been included for additional support. Teachers may contact staff at the MDE if they would like to borrow manipulatives for classroom use.
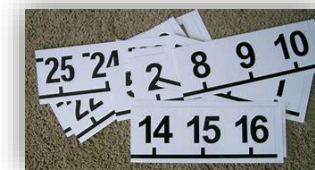
Teachers may modify these activities to meet the needs of the students they serve and their instructional delivery model (virtual, in-person, or hybrid).

<u>Special Thanks:</u>
Deloris Scott, Ed.S.
Yazoo County School District

Number Line Slide

MANIPULATIVE(S):

- Life-size Number Line with Integers (+/-)

GRADE LEVEL OR COURSE TITLE:

CCR Mathematics Grade 7

DOMAIN AND CLUSTER HEADING:

The Number System (NS):

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

STANDARD(S):

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.1b**: Understand $p + q$ as the number located a distance $|q|$ 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 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

PREREQUISITE SKILLS:

1. Know the absolute value of a number is the distance it is from zero and shown by | |.
2. Know the definition of opposites.
3. Know two numbers that are an equal distance from zero on a number line; is also called the additive inverse.
4. Know the commutative property for addition which states, $a + b = b + a$.

ACTIVITY:

1. Prior to this activity, create integer task cards. Task cards should include rational numbers, their opposites, and zero. Ensure there are enough task cards for each student in the class to have their own task card or value. Also, number the cards so that each student will have a partner with the opposite value of their card.
2. As students enter the classroom, have them to randomly select an integer task card.
3. Using a life-size number line (see Figure 1), have students to line up according to the task card they have selected. *(Note:* if a life-size number line is not available, students can line up in numerical order by their task card and place their task card at their feet on the floor.)

Figure 1

4. Explain to students the concept of absolute value.
5. Have each student identify the absolute value of their task card. Students that appear to be struggling, have them find zero and count the units back to their integer.
6. Explain to students the concept of opposite values; reiterating that opposites have the same absolute value whether positive or negative due to their distance from zero. Also, explain to students that opposite values when added result in zero. If students are ready, you may choose two students that have opposite values to model additive inverse for the class.
7. Next, have each student to find their opposite (this will be another student in the class). Once paired, have students to discuss and answer the following questions.
    a. What are each of their absolute values?
    b. Why are they opposites?
    c. What happens when they are added?
    d. Are they additive inverses? Why or why not?

QUESTIONS TO CONSIDER:

- Why is the person holding the number zero standing alone when it comes to finding their opposite?
- Can absolute value be a negative value? Why or why not?

RESOURCES:

- [Mississippi Mathematics Scaffolding Document](#) (Grade 7, Page 8)
- [2016 MCCRS for Mathematics](#)
- [Virtual Number Line-](#) Coolmath4kids

Optional: The University of Mississippi's Center for Mathematics and Science Education has an extensive inventory of math (and science and technology) tools and manipulatives that teachers may borrow for classroom use at no charge. Click the link below to access the inventory list and complete a check-out request.

- [CMSE Manipulatives](#)

BEYOND THE ACTIVITY:

- **Assessment(s):** Give students a list of cities and their temperatures and have them to create a thermometer with the temperatures from warmest to coolest. Next, have students select one of the temperatures and identify its absolute value and opposite value.   Lastly, have students to write an additive inverse number sentence proving the integers are opposites.