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# Mississippi Mathematics Manipulatives Manual Featured Activity



**“Can You Count?”**

**6.NS.5**

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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).

[Special Thanks:](#)  
**Deloris Scott, Ed.S.,**  
**Yazoo County School District**

# Can You Count?



## MANIPULATIVE(S):

- Two-colored counters

## GRADE LEVEL OR COURSE

### TITLE:

CCR Mathematics Grade 6

## DOMAIN AND CLUSTER HEADING:

The Number System (NS):

Apply and extend previous understandings of numbers to the system of rational numbers

## STANDARD(S):

**6.NS.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

## PREREQUISITE SKILLS:

- Know numbers greater than 0, located to the right of 0 on the number line, are called positive numbers.
- Know numbers less than 0, located to the left of 0 on the number line, are called negative numbers.
- Know any negative number is less than any positive number.
- Know 0 is neither positive nor negative.
- Know how to reason abstractly and quantitatively.
- Know how to use appropriate tools strategically.

**ACTIVITY:**

**Note: Activity Sheet Attached**

**Note:** Prior to the activity, prepare Ziploc bags with at least ten two-color counters for each student in the class. As an alternative, the teacher may provide students, with access to a computer device, the link for the [Didax Two Color Counters Virtual Manipulative](#).

1. Explain to the class that the yellow side of the counter represents a positive one, and the red side represents a negative one. Explain that the negative one and positive one are opposite values, and when added the sum is zero. Therefore, they are called “zero pairs”. Then, model for students how to represent a positive, a negative, and a zero pair using the counters.



*Figure 1: Red-Negative; Yellow-Positive*

2. Next, provide each student with a number from -5 to 5 and have students model the assigned number and its opposite with their counters.



*Figure 2: The opposite of negative four (-4) is positive four (4).*

3. Once students are done working, randomly select students to model and explain their work.
4. In whole group, model how to describe quantities having opposite directions or values by using positive and negative numbers to represent real-world values in contexts related to temperature, elevation, electric charge, and credits/debits. Ensure to model explaining the meaning of “0” in each situation.

- a. **Temperature**-(Celsius Scale-measured in degrees): 0=freezing point,  $>0$  = positive (above freezing),  $<0$  = negative (below freezing)
  - b. **Elevation**-(measured in lengths, either U.S. customary or metric; or floors): 0=sea level/ground floor,  $>0$  = positive (above sea level/above ground),  $<0$  = negative (below sea level/below ground)
  - c. **Credit/Debits**-(measured in dollars & cents): 0=no money and no money owed;  $>0$  = positive (received or earned money),  $<0$  = negative (spent, gave away, or borrowed money)
  - d. **Electric charge**- (measured in atomic particles): 0 or no charge=neutrons;  $+1$  charge = positive charge (protons),  $-1$  charge = negative charge (electrons)
5. Once students have a working knowledge of each real-world context, allow students to work in cooperative groups and use the bag of color counters or the Didax color counters virtual manipulative to complete the activity sheet.



*Figure 3: Modeling of Scenario. Student borrows \$4, then student gets a \$5 allowance. How much does the student have after paying back the friend?*

#### QUESTIONS TO CONSIDER:

- What is the integer result when there are more positive counters than negative counters, negative or positive?
- What is the integer sum when there are more positive counters than negative counters, negative or positive?
- What is the integer sum when there are more negative counters than positive counters, negative or positive?

## RESOURCES:

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- [Mississippi Mathematics Scaffolding Document](#) (Grade 6, Page 12)
- [2016 MCCRS for Mathematics](#)
- [Two Color Counters Virtual Manipulative-](#) Didax

**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](#)
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# Can You Count?

## Activity Sheet

### Part 1

Use counters to represent temperature.

If the temperature outside is 5 degrees Fahrenheit, and then the temperature drops 7 degrees, how cold is it outside?

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Do you think 2 degrees below zero is colder than 5 degrees below zero, or is 5 degrees below zero colder than 2 degrees below zero? Explain your answer.

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Can you think of another way to write 2 degrees below zero?  
(This would be located 2 units to the left of 0.)

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Can you think of another way to write 5 degrees below zero? \_\_\_\_\_

### Part 2

Use counters to represent credits and debits (money).

First, let's pretend that you have been given \$6.00, to spend on anything that you want. You go to the store and buy a bag of candy for \$2.00. Looking around, you also see a toy you like that cost \$5.00.

Can you buy the toy? Why or why not? Explain your answer.

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If you do not have enough money to buy both the candy and the toy, you may try to borrow enough money to buy both items. How much money will you have, after borrowing that money? \_\_\_\_\_

**Note: Owing money is the same as having a negative amount of money.**

After buying the toy and the candy, you could say,

"I owe \$ \_\_\_\_\_",

or "I have - \$ \_\_\_\_\_" (**negative** \_\_\_\_\_ dollars).