MISSISSIPPI DEPARTMENT OF EDUCATION

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Mississippi Mathematics Manipulatives Manual

Featured Activity

"Quack & Count to Make 7"

(Based on the Book "Quack and Count," by Keith Baker)

K.OA.3

Spring 2021

Carey M. Wright, Ed.D.
STATE SUPERINTENDENT OF EDUCATION

Nathan Oakley, Ph.D.
CHIEF ACADEMIC OFFICER

Wendy Clemons
EXECUTIVE DIRECTOR
Office of Secondary Education, Dropout Prevention, & Professional Development

Marla Davis, Ph.D.
STATE DIRECTOR OF CURRICULUM AND INSTRUCTION
Office of Secondary Education

Tommisha Johnson
K-12 MATHEMATICS CONTENT DIRECTOR
Office of Secondary Education

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:
Dr. Alice Steimle,
Center for Mathematics and Science Education, University of Mississippi

Quack & Count to Make 7

MANIPULATIVE(S):

- Linking Cubes

GRADE LEVEL OR COURSE TITLE:

CCRS Mathematics Grade K

DOMAIN and CLUSTER HEADING:

Operations and Algebraic Thinking (OA):
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

STANDARD(S):

K.OA.3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).

PREREQUISITE SKILLS:

- Have rapid recognition of numbers to 10 on their fingers.
- When counting, to say the number names in order, each object represents one number name (one-to-one correspondence).
- When counting a number of objects, the last number name tells the number of objects counted.

ACTIVITY:

1. Before the lesson, place single linking cubes into a brown bag (enough for each student in the class to get one). If possible, provide a different color for each student.
2. Have students draw a colored linking cube from the bag. Ask them how many more they need to make 7.
3. Provide students with 6 of the same colored linking cubes as their drawn cube.
4. Read the book "*Quack and Count*" by Keith Baker.
5. As you read, have students act out the different arrangements for making seven with their colored linking cubes.
6. Ask students to name, write or draw all of the combinations that were created during the story. (For example, 2 and 5 make 7 or 6 and 1 make 7.

7. Discuss the different representations for making 7.
8. Now, have students connect all seven of their linking cubes.
9. Ask students how many more cubes they need to make 10.
10. Give each student three more cubes. Now each student should have a stick of 10 linking cubes.
11. Have students break the stick of 10 with a partner and record the decomposition. Repeat this task several times, allow students to make observations.
12. Have partner groups share with you different decompositions until you receive them all. List all decomposition combinations for 10 for the entire class to see. If you do not receive all combinations, ask students to investigate further.

Additional Variation:

13. Ask each student to hold out their stick of 10 linking cubes.
14. Monitor progress and have each student break the stick of 10 with you. You take your part that was broken off and quickly place it into a bag that cannot be seen through (ex., brown paper bag). Choose one or more students from which you take none and leave them with all ten but pretend you placed some in your bag and identify one student as your "secret helper" from which you take their entire stick of 10 and put it in your bag.
15. Have students think about how many of their color linking cubes are in your bag.
16. Record the equations or number sentences on the board or have students record them by drawing or using part-part-whole or number bond models.

QUESTIONS TO CONSIDER:

- What does “equal” mean?
- What symbol means to put “together” or “join”?
- What does “decompose” mean?
- What are “number pairs”?
- What are all the number pairs that equal 7?

RESOURCES:

- Mississippi Mathematics Scaffolding Document (Grade K, Page 12)
- Quack and Count by Keith Baker
- 2016 MCCRS for Mathematics

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:

- **Extension:** **(**Working with three addends) Working in partner groups, each student will hold each side of a stick made of 10 linking cubes. The teacher removes some cubes from the middle of their stick and places them in a brown paper bag. Students must think about how many cubes they have together and how many of their cubes are in your bag to make 10.