SCAFFOLDING TASK: What's My Product?

STANDARDS OF MATHEMATICAL CONTENT

MCC.3.OA.1. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

Traditionally multiplication tables are emphasized when students begin learning about multiplication. Students are sent home with flash cards without a true understanding of what multiplication is. This way of learning multiplication can be difficult for students to understand. Naturally, students make groups and groups of groups. The creation of groups is a way to find the total of something in the most efficient way. The following activity allows students to build on their natural ability to form groups and learn multiplication without memorizing facts in isolation, but as number facts that can be related to each other in a multitude of ways (Frans van Galen and Catherine Twomey Fosnot, 2007, Context for Learning Mathematics).

ESSENTIAL QUESTIONS

- What are the strategies for learning multiplication?
- How can we practice multiplication facts in a meaningful way that will help us remember them?
- How is the commutative property of multiplication evident in an array model?

MATERIALS

- Colored tiles or two-sided counters
- Something to help organize groups such as paper plates, cups, bowls, etc.
- "What's My Product" recording sheet

GROUPING

Individual/Partners

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

This task allows students to interpret products of whole numbers by creating equal groups with manipulatives.

Task Directions

Part I

Discuss with students how to group objects. Show a container of 20 counters. Discuss with students an easy way to count the total number of counters in the container. Have students arrange the counters into equal groups. As students discuss how to put the 20 counters into groups write their thinking on the board. Explain to students that in a multiplication problem one number represents the number of groups and the other number represents the number of objects in a group.

Part II

Provide students with a given a set of counters or tiles to separate into equal groups.
The students will continue to rearrange tiles into different groupings that are equal. As each group is arranged, write a multiplication fact to match the arrangement. Students will record their thinking in the "What's My Product?" recording Sheet.

FORMATIVE ASSESSMENT QUESTIONS

- How many ways were you able to organize the number of counters you were given?
- Can you think of another way to organize your counters?
- What does your number sentence look like?
- How can you explain your picture and number sentence in words?

DIFFERENTIATION

Extension

- Increase the numbers of counters in the students' baggies.

Intervention

- Provide smaller numbers of counters and allow students to work with a partner.

Name_____Date_____

What's My Product?

Directions: Arrange counters into equal groups. Complete the table below with your arrangements.

Groups	# of Tiles/Counters	Multiplication Fact	Total