CONSTRUCTING TASK: Skittles Cupcake Combos

STANDARDS FOR MATHEMATICAL CONTENT

MCC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

STANDARDS OF 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

When students are given trivial word problems, they often just ask themselves what operation is called for; the context becomes irrelevant as they manipulate numbers, applying what they know. True context keeps students focused and interested in making sense of the math. Students begin to notice patterns and ask questions about what is going in the problem. Then students begin to defend their math to one another. The following activity allows students to build on their knowledge of grouping materials in order to divide more efficiently. (Frans van Galen and Catherine Twomey Fosnot, 2007, Context for Learning Mathematics).

This task assesses students' understanding of division and their ability to organize data.

ESSENTIAL QUESTIONS

- How are multiplication and division related?

MATERIALS

- paper
- graph paper
- counters, interlocking cubes

GROUPING

Individual/Partner Task

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Students will follow directions from the "Skittles Cupcake Combo" recording sheet.

> I love Skittles and cupcakes! I decided to bake some cupcakes. I put a bag of Skittles, 45 in all, into my batter and baked a dozen cupcakes. Each cupcake had at least three Skittles and no more than five. What are the different possible combinations of Skittles?

FORMATIVE ASSESSMENT QUESTIONS

- What combinations of blocks have you tried so far?
- How will you know when you find the right combination?
- Do you think there is more than one right solution for this task? Why do you think so? Do you have a way of finding out?

DIFFERENTIATION

Extension

- Using 45, or another appropriate number. Ask students to develop a strategy to solve the problem. Then allow students to share their strategies.
- Replace 50, 75, 90 for students who can work with larger numbers.

Intervention

- Replace 45 with a smaller number such as 12, 24, or 36. Model this task or a similar one in a small group setting.

Name _____ Date _____

Skittles Cupcake Combos

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1. Draw pictures to show all the ways you can arrange the Skittles.
2. Label and write matching number sentences for each arrangement.