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| **NC.3.OA.2**  **Ray’s Hamster Run** | |
| **Domain** | Operations and Algebraic Thinking |
| **Cluster** | Represent and solve problems involving multiplication and division. |
| **Standard(s)** | **NC.3.OA.2** For whole-number quotients of whole numbers with a one-digit divisor and a one-digit quotient:   * Interpret the divisor and quotient in a division equation as representing the number of equal groups and the number of objects in each group. * Illustrate and explain strategies including arrays, repeated addition or subtraction, and decomposing a factor. |
| **Materials** | Paper, pencils, counters, white boards and dry-erase markers (optional) |
| **Task** | Use a picture to model your array and write an equation for each task. Write a sentence explaining how you solved the problem.  Ray wants to make a run for his hamster. He can get tubes in 6 inch lengths or 4 inch lengths to build a hamster run.  Which size should he buy if he wants the hamster run to be 54 inches? How many pieces would he need to buy? Use the counters to make an array that shows your answer.  Which size should he buy if he wants the hamster run to be 32 inches? How many pieces would he need to buy? Use the counters to make an array that shows your answer.  If he wanted to use 6 inch tubes to make a hamster run bigger than 32 inches and smaller than 54 inches, what sizes could it be? Make an array to show this hamster run. |

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| **Rubric** | | |
| **Level I**  Not Yet | 1. **Level II** 2. Progressing | **Level III**  Meets Expectation |
| * Incorrect answer and work are given. | * Finds the correct answer, but there may be inaccuracies or incomplete justification of solution   **OR**   * Has partially correct work but does not have a correct solution. | * Accurately finds the answers (9, 8 and for part 3- 36, 42 or 48). **AND** * Accurate division or multiplication equation **AND** * The sentence clearly and accurately states student’s strategies. |

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| **Standards for Mathematical Practice** |
| **1**. **Makes sense and perseveres in solving problems.** |
| **2. Reasons abstractly and quantitatively.** |
| 3. Constructs viable arguments and critiques the reasoning of others. |
| **4. Models with mathematics.** |
| 5. Uses appropriate tools strategically. |
| **6. Attends to precision.** |
| **7. Looks for and makes use of structure.** |
| 8. Looks for and expresses regularity in repeated reasoning. |

**Ray’s Hamster Run**

Use a picture to model your array and write an equation for each task. Write a sentence explaining how you solved the problem.

Ray wants to make a run for his hamster. He can get tubes in 6 inch lengths or 4 inch lengths to build a hamster run.

Which size should he buy if he wants the hamster run to be 54 inches? How many pieces would he need to buy? Use the counters to make an array that shows your answer.

Which size should he buy if he wants the hamster run to be 32 inches? How many pieces would he need to buy? Use the counters to make an array that shows your answer.

If he wanted to use 6 inch tubes to make a hamster run bigger than 32 inches and smaller than 54 inches, what sizes could it be? Make an array to show this hamster run.