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| **NC.4.NBT.5****Greatest Product** |
| **Domain** | Number and Operations in Base Ten |
| **Cluster** | Use place value understanding and properties of operations to perform multi-digit arithmetic. |
| **Standard(s)** | **NC.4.NBT.5** Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm. |
| **Materials** | activity sheet, pencil, additional paper to work out problems |
| **Task** | **Greatest Product**Patrick and Danielle are playing a card game. The goal of the game is to arrange cards to make a multiplication equation and to see who can make the greatest product.Patrick draws the following cards: 4, 7, 2, and 1. He makes the equation 174 x 2 = \_\_\_.Danielle draws the following cards: 3, 5, 2, and 8. She makes the equation 352 x 8 = \_\_\_\_.**Part 1:** 1. What was Patrick’s product? (348)
2. What was Danielle’s product? (2,816)
3. Which player had the greatest product? (Danielle)

**Part 2:** 1. Could Patrick have rearranged his cards to get a greater product? If so, find the greatest product Patrick could have made. (421 x 7 = 2,947)
2. Could Danielle have rearranged her cards to get a greater product? If so, find the greatest product Danielle could have made. (532 x 8 = 4,256)
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| **Rubric** |
| **Level I****Not Yet** | **Level II****Progressing** | **Level III****Meets Expectation** |
| Student answers 0-1 parts of the problem correctly. | Student answers 2-4 parts of the problem correctly. | Student answers all 5 parts of the problem correctly. |

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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 |

**Greatest Product**

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Patrick and Danielle are playing a card game. The goal of the game is to arrange cards to make a multiplication equation and to see who can make the greatest product.

Patrick draws these cards: 4, 7, 2, and 1. He makes the equation 174 x 2 = \_\_\_.

Danielle draws these cards: 3, 5, 2, and 8. She makes the equation 352 x 8 = \_\_\_.

**Part 1:**

1. What was Patrick’s product?
2. What was Danielle’s product?
3. Which player had the greatest product?

**Part 2:**

1. Could Patrick have rearranged his cards to get a greater product? If so, find the greatest product Patrick could have made.
2. Could Danielle have rearranged her cards to get a greater product? If so, find the greatest product Danielle could have made.

**Scoring Examples**

**Not Yet:** The student answers 1 of the questions correctly for this task. The student was able to use repeated addition to solve 174 x 2, but was unable to use the algorithm to solve 352 x 8. In Part 2, the student rearranged the cards in a way that would have provided a larger product, but did not find the product.



**Progressing:** The student answered all of Part 1 correctly, but was unable to use the guess and check strategy effectively to find the greatest products for Part 2.





**Meets Expectation:** The student was able to solve all parts of the task correctly and used the guess and check strategy effectively in Part 2.



