

## Performance-Based Task

| <b>Name of Task:</b><br><b>Party Table Problem</b>  | <b>Grade Level: 2</b>  |
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| <p><b>BEGIN WITH THE END IN MIND:</b> What will we learn about the students' mathematical understanding from this task?</p> <p>Students will create rectangles from squares. Each square will represent one seat. Students will arrange squares into rectangles to accommodate different numbers of people.</p> <p>Overview: Students will be creating rectangles from squares to create an arrangement of seating for a given number of people. Students will then explain in writing how they completed the task.</p> |  |
| <p><b>Common Core Content Standards assessed through this task:</b> (choose 3-5 standards at your grade level that can be clearly assessed through this task. Standards need not be from the same domain but should relate to the task).</p> <p>2.G.1<br/>2.G.2<br/>2.OA.4<br/>Extension: 2.NBT.5, 2.MD.8</p>   | <p><b>Standards for Mathematical Practice assessed through this task:</b> (choose 2-3 Standards for Mathematical Practice that can be clearly assessed through this task.)</p> <ol style="list-style-type: none"><li>1. Make sense of problems and persevere in solving them.</li><li>7. Look for and make use of structure.</li></ol> |

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Use the space below to outline your task. Keep the following in mind...

Ms. Brown's class is planning a party. There are 23 students and the teacher. Each person needs a chair. They can't decide how to arrange the chairs and tables. The teacher gives the students a bag of  $\frac{1}{2}$  inch square tiles and  $\frac{1}{2}$  inch square paper. A student decides that they should sit at rectangular tables. Students get into pairs to arrange squares into rectangular shapes to represent the tables. Each square stands for one person. When the squares are arranged the students can glue or color the square paper to share with the group. The class will then vote on the arrangement that they feel will work best.

Extensions: Increase the number of people to 100.

Flip the problem and give the number of tables and students to find out how many people there will be.

Party cost: Given a number of people, how much will the party cost if each person pays \$5.00?

### Does this task...

- reflect a real-world task/scenario-based problem?
- require application of mathematical concepts and assess related Common Core content Standards?
- Require students to engage in 2-3 Standards for Mathematical Practice?
- Allow for multiple approaches?
- Require a high level of cognitive demand?

**Assessment:** How will you evaluate student work? Create a task-specific rubric. Apply the Exemplars levels– Novice, Apprentice, Practitioner, Expert – when creating your rubric.

### Novice

No strategy is chosen or a strategy is chosen that will not lead to a solution.  
Little or no evidence of engagement in the task.  
Neither correct reasoning nor justification for reasoning is

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|              | <p>present.<br/>Little or no communication of an approach is evident with mathematical language.<br/>No connections are made.<br/>No attempt is made to construct mathematical representations.</p> <p>The student can identify a square and a triangle.<br/>The student cannot identify the specific attributes of given shapes.<br/>The student cannot partition a rectangle into squares.</p>   |
| Apprentice   | <p>A partially correct strategy is chosen.<br/>Evidence of previous knowledge.<br/>Arguments are made with some mathematical basis.<br/>Some formal math language is used, and examples are provided to communicate ideas.<br/>Some effort is made to relate to own interests and experiences.<br/>An attempt is made to construct mathematical representations to record and communicate problem solving.</p> <p>The student identifies given shapes and recognizes their given attributes.<br/>They can partition rectangles into squares and create an arrangement of seating for a given number of people.<br/>No explanation.</p> |
| Practitioner | <p>A correct strategy is chosen.<br/>Evidence of applying prior knowledge is present.<br/>Arguments are constructed with adequate mathematical knowledge.<br/>Systematic approach or correct reasoning is present.<br/>Precise math language is used with audience in mind.<br/>Mathematical connections are recognized.<br/>Appropriate mathematical presentations are used.</p> <p>Same as apprentice with the addition of including an explanation.<br/>The student uses precise mathematical language to support his or her argument.</p>  |
| Expert       | <p>An efficient strategy is used.<br/>A correct answer is given.<br/>Evidence is used to justify and support decisions.<br/>Precise math language is used to communicate to an appropriate audience.<br/>Mathematical connections or observations are used to extend the solution.<br/>Abstract or symbolic mathematical representations are constructed to analyze relationships, extend thinking and clarify or interpret phenomenon.</p> <p>The student correctly extends understanding of partitioning rectangles and demonstrates fluency in addition.<br/>The student evaluates his/her answer by extending his/her</p>          |

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thinking.

# NCTM Process Standards and the CCSS Mathematical Practices

| NCTM Process Standards     | CCSS Standards for Mathematical Practice   |
|----------------------------|--|
| <b>Problem Solving</b>     | 1. Make sense of problems and persevere in solving them.<br>5. Use appropriate tools strategically.  |
| <b>Reasoning and Proof</b> | 2. Reason abstractly and quantitatively.<br>3. Critique the reasoning of others.<br>8. Look for and express regularity in repeated reasoning |
| <b>Communication</b>       | 3. Construct viable arguments  |
| <b>Connections</b>         | 6. Attend to precision.<br>7. Look for and make use of structure   |
| <b>Representations</b>     | 4. Model with mathematics.   |