

Anchor Paper Scoring and Rationales - Task: Packing Pencils

Name: Student A

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Proficient	The student demonstrates an understanding of the concepts and skills associated with the task. The student organizes their work and uses their understanding of place value to determine three accurate ways to package the pencils.
Problem Solving	Proficient	The student's solution shows an understanding of the underlying math concepts. For each additional method of packing the pencils, the student ungroups a 100 into ten 10s. The student produces a solution that is relevant to the problem.
Communication and Reasoning	Emerging	<p>While it seems that the student understands the problem, there is no correct reasoning or justification for the solution. In addition, the student does not use mathematical language to communicate their thinking.</p> <p>To move to the <i>Developing</i> level, the student should provide a written explanation of the strategies used to find each way of packing the pencils, including any place value connections that were used.</p>
Representations and Connections	Proficient	The student uses the graphic organizer to organize their solution. The student uses an accurate representation to model the problem and finds three accurate solutions.

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Name: Student B

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Developing	The student demonstrates a partial understanding of the concepts and skills associated with the task. Although the student organizes their work, they are only able to find one accurate way to pack the pencils, leading to an incomplete solution.
Problem Solving	Developing	The student does choose a strategy that displays an understanding of the underlying mathematical concepts. However, the student was only able to find one correct way to pack the pencils. Additionally, the solution does not confirm the reasonableness of the solution.
Communication and Reasoning	Emerging	<p>The student provides no reasoning or justification for their solution. They do not provide any evidence to support their claims. They do not use any mathematical language to communicate their thinking.</p> <p>To move to the <i>Developing</i> level, the student should provide recorded or written communication of their solution steps. This should include labeling their pictures and clarifying any connections to place value that were used.</p>
Representations and Connections	Developing	The student uses an accurate representation to find one way to pack the pencils. However, they were unable to find three different ways, leading to an incomplete representation. The student makes a partial mathematical connection by ungrouping a case (1,000 pencils) into 10 boxes (ten 100s).

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Name: Student C

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Proficient	The student demonstrates an understanding of concepts and skills associated with the task. They are applying their knowledge of place value to produce four different, accurate methods for packing the pencils.
Problem Solving	Proficient	The student's problem solving strategy of drawing pictures displays an understanding of the underlying mathematical concepts. In addition, they use equations to confirm the reasonableness of their solution.
Communication and Reasoning	Developing	<p>The student uses a limited justification of their solution by including equations to check each method.</p> <p>The student could move to the <i>Proficient</i> level by including a written explanation of their solution steps. This should include clearly explaining any connections or place value relationships that were used to find multiple ways to pack the pencils.</p>
Representations and Connections	Proficient	The student uses pictures to accurately model the problem. The student makes mathematical connections relevant to the problem when they ungroup thousands into 10 hundreds and hundreds into 10 tens.

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Name: Student D

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Emerging	<p>While the student wrote place values at the top of each column, the columns are labeled incorrectly. The student does not understand the concepts or skills associated with the task. The student does not attempt to find a solution.</p> <p>To move to the <i>Developing</i> level, the student should be able to accurately label the place value columns.</p>
Problem Solving	Emerging	<p>Although the student draws one square in the “Boxes” column, the student does not attempt a problem solving strategy. The student is not able to produce a solution that is relevant to the problem.</p> <p>To move to the <i>Developing</i> level, the student should attempt to find a single way to pack 2,342 pencils.</p>
Communication and Reasoning	Emerging	<p>The student provides no correct reasoning or justification. The student uses no mathematical language to communicate their thinking.</p>
Representations and Connections	Emerging	<p>The student attempts to use the graphic organizer to display their representation. However, the representation does not model the problem. In addition, the student makes no mathematical connections.</p> <p>To move to the <i>Developing</i> level, the student should attempt to find a single way to pack 2,342 pencils using the graphic organizer.</p>

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Name: Student E

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Advanced	The student uses an organized list to demonstrate an understanding of the concepts and skills associated with the task. The student applies mathematical concepts which lead to a correct solution. In addition, the student uses relationships among place value concepts to provide more than three ways to pack the pencils.
Problem Solving	Advanced	The student's problem solving strategy of creating a list displays an understanding of the underlying mathematical concepts. The student produces a solution that is relevant to the problem and confirms the reasonableness by using equations to check each method. In addition, the student's problem solving strategy is efficient and well-developed.
Communication and Reasoning	Developing	<p>The student's strategy of checking each method with an equation demonstrates some reasoning. However, the student does not use precise mathematical language to communicate thinking.</p> <p>To move to the <i>Proficient</i> level, the student should provide a written explanation of the patterns used to generate each new method.</p>
Representations and Connections	Advanced	The student uses their representations to analyze relationships between place values and is able to make generalizations about place value. The student uses mathematical connections to extend their solution to deeper understanding.

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Name: Student F

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Developing	The student's work demonstrates an understanding of the concepts and skills associated with the task. However, the student's solution is incorrect because the third method does not equal 2,342 pencils.
Problem Solving	Developing	The student's strategy of drawing pictures demonstrates a partial understanding of the underlying mathematical concept. The student's solutions are relevant, however the third method is not reasonable as it includes one 1,000 and fourteen 100s.
Communication and Reasoning	Emerging	<p>The student provides no reasoning or justification for their solution. They do not provide evidence to support their solutions. They do not use mathematical language to communicate their thinking.</p> <p>To move to the <i>Developing</i> level, the student should communicate their thinking process of how they know each method is equivalent to 2,342 pencils. This explanation could include words or numbers.</p>
Representations and Connections	Developing	The student's solution uses pictures to model the problem. However, the representation is limited because it uses no labels or description.