

Anchor Paper Scoring and Rationales - Task: Planning a Dog Park

Name: Student A

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. The student knows that the perimeter divided by four will give him/her the side length for a square but the student does not have an understanding of area and how to calculate it. Therefore, while the student has the correct answer, they did not apply the concepts associated with the task to reach the correct solution.
Problem Solving	Developing	The student had a problem solving strategy that displayed a limited understanding of the concept. The student drew the picture on the graph paper of the square but does not use it to determine the area.
Communication and Reasoning	Developing	The student provides reasoning of the solution steps, however the reasoning contains misconceptions related to area. Additionally, the reasoning does communicate how the student knows that the square has the largest area and there is no evidence of other figures being modeled or explored.
Representations and Connections	Developing	The student uses limited representation to model the problem. While there is a model of the square, there are not models of other figures to accurately determine the student found the largest area.

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Name: Student B

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Advanced	The student demonstrates a deep understanding of the relationship between area and perimeter. In addition to applying these concepts to reach a valid and correct solution, the student makes mathematical generalizations about dimensions of a rectangle and its effect on area when the student states, "The farther the numbers were getting... the smaller the area was."
Problem Solving	Advanced	The student uses estimation which shows an understanding of the underlying math concept and produces a solution relevant to the problem. The student confirms the reasonableness of the solution by using other lengths and widths and finding the area of these rectangles. The student uses an organized list to show different areas which is a well-developed strategy for keeping track of the work.
Communication and Reasoning	Proficient	The student justifies the solutions and steps in the written explanation. The student communicates that the areas found are "examples of different dimensions." Throughout the writing, the student uses mathematical vocabulary like area and dimensions appropriately in the reasoning.
Representations and Connections	Proficient	The student uses labels in the work to show what her math represents.

This student work shows an acceptable answer for the sequel by using estimation. The student was able to reach the intended conclusion that the area of a circle will be larger than the area of the square when the circumference and perimeter are equivalent.

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Name: Student C

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Advanced	The student work shows an understanding of area and perimeter through calculations and drawings. This understanding leads the student to a valid and correct solution. Additionally, the student generalizes the relationship between the dimensions and area by stating, "The greater the distance between length and width... the less the area will be."
Problem Solving	Proficient	The student uses guess and check to find the best answer. The student uses the strategy of drawing a picture and using formulas which shows an understanding of the underlying mathematical concepts.
Communication and Reasoning	Advanced	The student clearly states the solution in the context of the problem to justify why the solution makes sense. The student accurately uses mathematical language like length, width, area, and perimeter and uses them in context consistently and precisely to communicate the thinking.
Representations and Connections	Advanced	The student uses multiple representations (pictures and equations) to show the understanding. The representations are clearly labeled. Mathematical connections are used to extend the student's thinking when the student says, "To get the largest area you have to take all the sides equal or closest in value to each other."

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Name: Student D

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Emerging	While the student knows the formula for area and perimeter, the student does not apply it to provide a solution.
Problem Solving	Emerging	The student does not produce a solution that is relevant to the problem.
Communication and Reasoning	Developing	The student uses limited mathematical language to communicate their thinking such as dimensions, area, and perimeter. The student additionally tries to communicate what was done to solve the problem but the reasoning is limited.
Representations and Connections	Emerging	The student does not provide evidence of a model being used to solve the problem. There is not a clear connection made between the problem and the dimensions provided.

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Name: Student E

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Proficient	The student demonstrates an understanding of area and perimeter which leads to the correct solution.
Problem Solving	Proficient	The student uses the strategy of drawing pictures on graph paper which leads the student to a correct and relevant solution. By drawing multiple rectangles that fit the context of the problem, the student is confirming the reasonableness of the solution.
Communication and Reasoning	Developing	While the student drew pictures, he/she did not communicate the meaning or the reasoning behind the method used. Therefore, the work was difficult to follow. Limited vocabulary was uses.
Representations and Connections	Proficient	The student uses the drawings to represent the problem. The drawings are clearly labeled.

This student work shows an acceptable answer for the sequel by using estimation. The student identified the circle as having the largest area when using the same amount of fence but does not clearly communicate his/her understanding.

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Name: Student F

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Developing	The student has a partial understanding of the underlying mathematical concepts which leads to an incomplete solution.
Problem Solving	Developing	The student uses linking cubes to build a model as their problem solving strategy. The student does not confirm the reasonableness of the solution as only one model is provided.
Communication and Reasoning	Developing	The student communicates the steps that were taken to arrive at the solution but there is limited evidence in the claims. The student states, "In the picture the area looks big." This does not communicate clear and convincing mathematical evidence.
Representations and Connections	Developing	The student uses a model but the length and width provided do not match the model.