

## Anchor Paper Scoring and Rationales - Task: Bracelet Task

**Name: Student A**

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Advanced	The student demonstrates an understanding that the solution requires “equal” numbers and that the “not equal” numbers won’t work. The student makes a generalization that “only the equal numbers will work”.
<b>Problem Solving</b>	Advanced	The student’s strategy of drawing a bracelet with alternating green/blue beads results in the same number of both colors with a total between 20 and 30 which shows an understanding of the underlying concepts.
<b>Communication and Reasoning</b>	Proficient	The student communicates the numbers that will work by circling solutions on the number line. The student also uses the mathematical language of “equal” and “not equal” to communicate the reasoning used to communicate why the solutions work.
<b>Representations and Connections</b>	Advanced	The student’s drawing demonstrates the use of a representation that accurately models the task. The number line represents the use of multiple representations to extend the solution and deepen understanding.

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**Name: Student B**

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Advanced	The student demonstrates an understanding that the solution requires an “even” number. The student includes the equation $14+14=28$ , along with a picture and description of how the related operation was used to check the work.
<b>Problem Solving</b>	Advanced	The student’s strategy of selecting an even number between 20 and 30 and using a known doubles fact to make that number demonstrates an efficient strategy. The student confirmed the use of this strategy by checking the solution using subtraction.
<b>Communication and Reasoning</b>	Advanced	The student uses precise mathematical language to communicate the solution had to be an “even” number. The student provided a comprehensive justification for the solution by describing how subtracting 14 from 28 would equal 14 (an equal number of both colors).
<b>Representations and Connections</b>	Proficient	The student uses multiple representations including an equation, picture and verbal description to model the problem.

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**Name: Student C**

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Advanced	The student applies an understanding of the properties of even and odd numbers to create a list of solutions that are true and false. The “true” equations demonstrate an understanding of the concept of even numbers split into two equal addends. The “false” equations demonstrate two unequal addends that will not result in a solution that works.
<b>Problem Solving</b>	Advanced	The student presents a well-developed list of examples and non-examples to demonstrate the patterns among even and odd numbers. This strategy confirms the reasonableness of the solutions.
<b>Communication and Reasoning</b>	Advanced	The student creates a list of “true” and “false” equations to communicate comprehensive reasoning about the solutions that will and will not work. The ideas are presented in an organized way and include non-examples that provide evidence to support the solution.
<b>Representations and Connections</b>	Advanced	The student uses a list of equations relevant to the mathematical concepts of odd and even to model the problem solutions. The use of examples and non-examples represents an analysis of the relationship between solutions and extends thinking to make connections and deepen understanding.

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**Name: Student D**

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Emerging	The student's inaccurate equation of $20+30 = 22$ does not demonstrate an understanding of the task or the mathematical concepts of odd and even.
<b>Problem Solving</b>	Developing	The student uses an equation to solve the problem. The strategy produces a relevant solution but does not confirm the reasonableness of the solution or the strategy as evidenced by the inaccurate computation.
<b>Communication and Reasoning</b>	Emerging	There is no evidence to justify the student's solution or to communicate student's reasoning.
<b>Representations and Connections</b>	Emerging	The student uses an equation that does not accurately model the problem.

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Name: Student E

<b>Criteria</b>	<b>Performance Level (Advanced, Proficient, Developing, Emerging)</b>	<b>Rationale</b>
<b>Mathematical Understanding</b>	Proficient	The student's pictures demonstrate an understanding of equal pairs to solve the problem. The student also uses equations to represent that the sum of two equal numbers will result in a valid solution.
<b>Problem Solving</b>	Proficient	The student's strategy of drawing pairs of beads up to a total between 20 and 30 consistently produces an accurate solution and confirms the reasonableness of the corresponding equations.
<b>Communication and Reasoning</b>	Proficient	The student uses equations to communicate problem solutions. Pictures provide evidence to support solutions.
<b>Representations and Connections</b>	Proficient	The student uses multiple representations including equations and pictures to explore and model the problem. The student uses labels in the equations to accurately model the problem.

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Name: Student F

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Proficient	The student's drawings and equation demonstrate an understanding that two equal numbers will result in a valid solution to the problem.
<b>Problem Solving</b>	Proficient	The student's strategy of creating two equal groups shows an understanding of the underlying concept of even numbers.
<b>Communication and Reasoning</b>	Proficient	The student's picture provides supporting evidence to justify the corresponding equation of $12 + 12 = 24$ .
<b>Representations and Connections</b>	Proficient	The student uses multiple representations including pictures and equations to explore and model the problem.