

## Math Domain

- |   |                                      |   |
|---|--------------------------------------|---|
| <input checked="" type="checkbox"/> Number/Quantity | <input type="checkbox"/> Shape/Space | <input type="checkbox"/> Function/Pattern |
| <input type="checkbox"/> Chance/Data                | <input type="checkbox"/> Arrangement |   |

## Math Actions (possible weights: 0 through 4)

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|--|--|
| <input type="checkbox"/> 2 Modeling/Formulating          | <input type="checkbox"/> 1 Manipulating/Transforming |
| <input type="checkbox"/> 3 Inferring/Drawing Conclusions | <input type="checkbox"/> 3 Communicating             |

## Math Big Ideas

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Scale         | <input type="checkbox"/> Reference Frame               | <input type="checkbox"/> Representation      |
| <input type="checkbox"/> Continuity    | <input type="checkbox"/> Boundedness                   | <input type="checkbox"/> Invariance/Symmetry |
| <input type="checkbox"/> Equivalence   | <input checked="" type="checkbox"/> General/Particular | <input type="checkbox"/> Contradiction       |
| <input type="checkbox"/> Use of Limits | <input type="checkbox"/> Approximation                 | <input type="checkbox"/> Other               |

The intent of this task is to have students demonstrate their ability to design counting schemes and to recognize the upper limits of a particular counting situation.

1. The number of children could be any odd number less than 35.
2. The number of children must be one more than a multiple of three (1,4,7,10,13.....34). When this finding is combined with the previous result, the only possible numbers are 1,7,13,19,25 and 31.
3. This tells us that the number of children must end in a 3 or an 8. When this finding is combined with the results of **1** and **2**, it eliminates all the numbers ending in 8 (answer must be odd) and all the numbers less than 35 ending in 3 except 13 (one more than a multiple of 3).
4. Since we are dealing with the same group of children in each question, the number of children in the group must appear in all the listed sets of possibilities; the only number that meets this requirement is 13.

	partial level	full level
<b>Modeling/ Formulating (weight: 2)</b>	Design a correct, organized counting scheme for some, but not all of the questions	Design a correct, organized counting scheme for each question.
<b>Transforming/ Manipulating (weight: 1)</b>	Calculate some responses correctly.	Calculate all responses correctly.
<b>Inferring/ Drawing Conclusions (weight: 3)</b>	Reach correct conclusions and recognize the upper limit while designing the counting scheme for each individual question.	Combine the results of <b>3</b> to deduce the correct number of children in <b>4</b> .
<b>Communicating (weight: 3)</b>	Write a letter that conveys the correct numerical answers for <b>1, 2 and 3</b> .	Write a letter which provides some explanation of the process leading to the final number of children in <b>4</b> .