Using the Array Model to Develop Prospective Teachers' Understanding of Multiplication and its Properties

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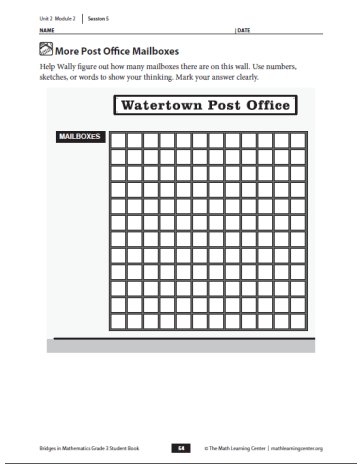
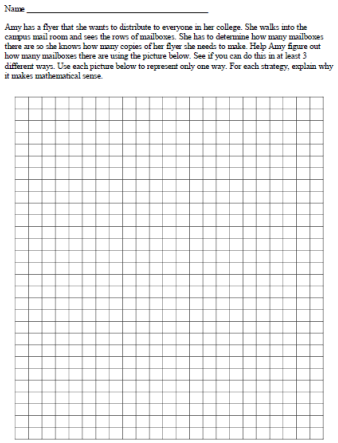
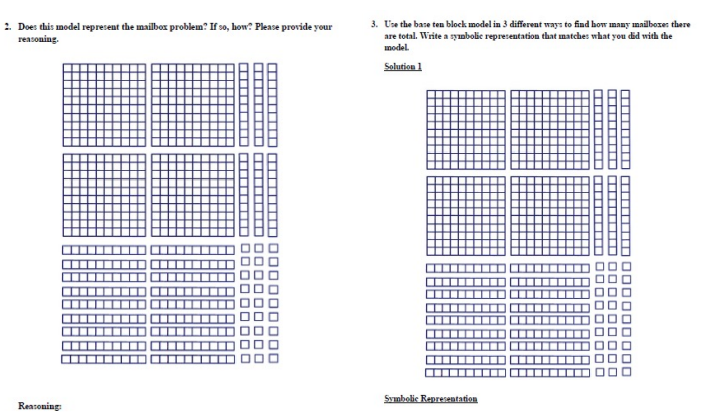
Task Goals: For prospective teachers to:

1) Recognize that a product can be found by summing, or combining, partial products, and that this procedure can be modeled by decomposing a rectangular array into different regions.

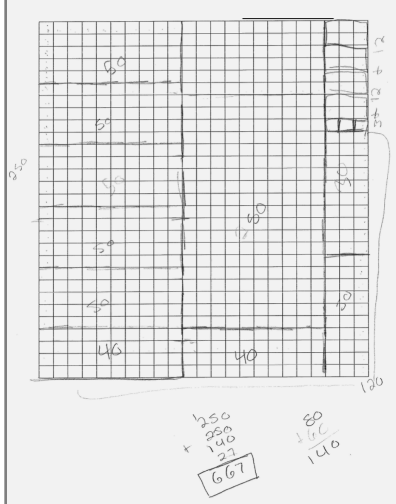
2) Use a rectangular array model to make sense of the distributive property of multiplication over addition as a driving force behind the partial products (by place value) and the standard algorithms.

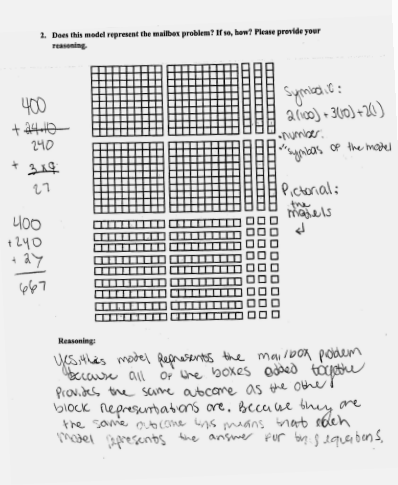


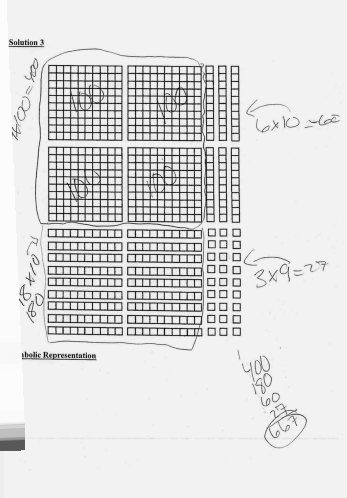




Examples







Key Findings:

1) Most PTs recognized that a product can be found by summing, or combining partial products by breaking the rectangular array into different regions.

2) While some PTs were successful in making the connection between the factors and their representation using the base-ten blocks, many struggled to make this connection and instead focused on the total number of squares represented in the array model.