1. For the product: 

a. Make a proportional array diagram for the product using either base 10 blocks (take a photo) or using this grid.



b. Write out the solution using the expanded algorithm. Indicate (by color coding or labeling) how the partial products in the expanded algorithm correspond to the parts of the diagram in a.

2. For the product: 

a. Sketch a by-hand (non-proportional) array diagram for the product.

b. Write out the solution using the expanded algorithm. Indicate how the partial products in the expanded algorithm correspond to the parts of the diagram in a.

3. Write out the solution to the following product using both the expanded and the standard algorithms (side by side). Draw in appropriate arrows, colors or labels to show which partial products in the expanded algorithm correspond with which parts of the standard algorithm.



4. Answer these questions about the multiplication problem  as though you were explaining the process and the reasons why to a student.

a. In the process of multiplying  using the standard algorithm, we insert a 0 place holder in the ones place of the second partial product. Explain where that 0 comes from and what it does.

b. In the process of multiplying  using the standard algorithm, we multiply the tens digit of 38 by the ones digit of 564.

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1. What place value should the digit 2 go in? Why should we write it there?
2. Where should we write the digit 1? Why should we write it there?