Algebra 1 Unit 4: Multiplying Binomials

1. Create a model of $6 \cdot 13$ on the grid below

2. Explain to your partner how your model represents $6 \cdot 13$

3. Create a model of $6(10 + 3)$ on the grid below that clearly shows the 6, 10 and the 3.

4. Explain to your partner how your model represents $6(10 + 3)$

5. How does your model show the factors and the product?

6. What mathematical property does your model of $6(10 + 3)$ show?

CA Algebra 1 Standard 10.0 Students add, subtract, multiply and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.
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INVESTIGATION 1

1. With your partner, use algebra tiles to create a model for $6(x + 3)$ and sketch your model in the space below.

2. With your partner explain to another pair how your model represents $6(x + 3)$.

3. What is the product of $6(x + 3)$?

4. What are the factors of $6(x + 3)$?

5. How does your model show the factors and the product of $6(x + 3)$?

6. How could you use algebra tiles to represent the product of $15(x + 4)$?

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INVESTIGATION 2

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1. With your partner, use algebra tiles to create a model for \((x + 3)(x + 2)\) and sketch your model in the space below.

2. With your partner explain to another pair how your model represents \((x + 3)(x + 2)\).

3. What is the product of \((x + 3)(x + 2)\)?

4. What are the factors of \((x + 3)(x + 2)\)?

5. One of the students in the last class left these tile models on the desk. What two binomials were being multiplied and what is the resulting trinomial?

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6. Use your algebra tiles to find the products of the expressions below. Sketch each of your tile models and clearly label the factors and the product of each one.

a) \((x+5)(x+1)\)  

b) \((3x+2)(2x+4)\)

7. Use your answers to question 6 above to look for patterns relating the factors and products. List all the patterns that you notice.

8. Jessica wants to multiply the binomials \((15x+12)(3x+10)\) but because the numbers are larger she does not have enough algebra tiles. Use the patterns you found above to explain how Jessica can multiply binomials without using the tiles.