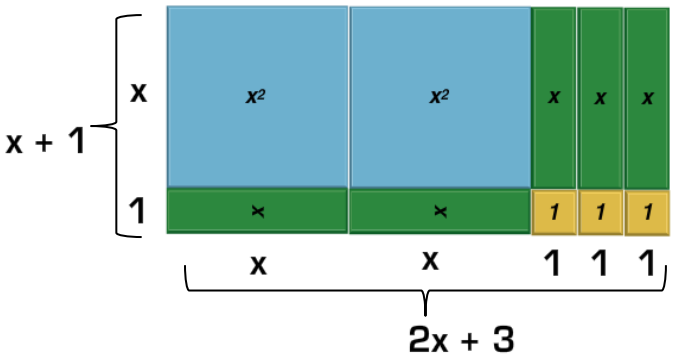
UNIT 6 Project

Demonstrate your knowledge by giving clear, concise solutions to each problem. Be sure to include all relevant drawings and justify your answers (show all your work). You may show your solution in more than one way to investigate beyond the requirements of the problem.

1. Rectangular areas can be used to represent the product of binomials.



a. Find the product of $(2x + 3)(x + 1)$. Tell how the product and the area at the right are related.

b. Draw an area model demonstrating the product $(3x + 1)(x + 2)$. Find the product algebraically to verify your model.

2. Simplify $\frac{(-3a^3b^2)(4ab)}{2a^7b}$ in at least two ways. Explain each step.

3. Pascal's triangle is shown to the right. Each number in the triangle is found by adding the two numbers above it.

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          1
        1   1
      1   2   1
    1   3   3   1
  1   4   6   4   1
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a. Describe how to create the 6th row of Pascal's triangle.

b. Write the numbers for rows 6 through 10 of the triangle.

c. Multiply to find the expanded form of each product.

i. $(a + b)^2$

ii. $(a + b)^3$

iii. $(a + b)^4$

d. Describe the relationship between the expanded form of $(a + b)^n$ and Pascal's triangle.

e. Use Pascal's triangle to write the expanded form of $(a + b)^6$.