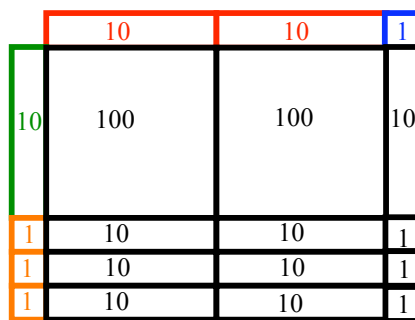


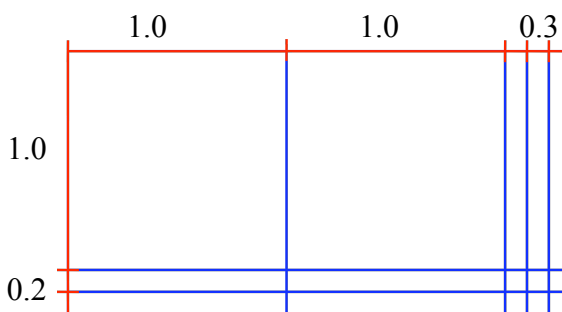
Area Model of Multiplication Through the Grades

Connecting geometry (area) to number sense (multiplication) by connecting area of a rectangle to partial products. Connecting mathematical strands as well as strengthening student understanding of place value by providing nontraditional algorithms.



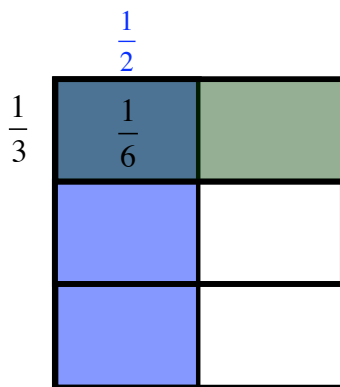
$$\begin{array}{r}
 21 \\
 \times 13 \\
 \hline
 63 \quad (3 \times 1) \\
 210 \quad (3 \times 20) \\
 \hline
 273 \\
 \hline
 \end{array}$$

Connecting area models of multiplying decimals. Helping students gain a deeper understanding of what it means to multiply decimals.



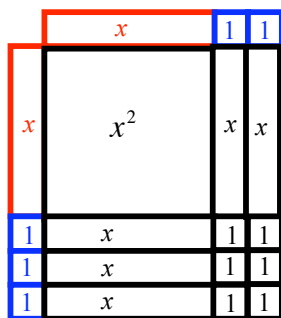
$$\begin{array}{r}
 2.3 \\
 \times 1.2 \\
 \hline
 .06 \\
 .4 \\
 \hline
 2.76 \\
 \hline
 \end{array}$$

Students can transfer their prior mathematical knowledge of area models for multiplication to multiplication of fractions.



$$\begin{aligned}
 & \frac{1}{2} \text{ of } \frac{1}{3} \\
 &= \frac{1}{2} \cdot \frac{1}{3} \\
 &= \frac{1}{6} \quad \leftarrow \text{the intersection of the areas}
 \end{aligned}$$

Building on the connection between area and multiplication teachers can assist students in discovering the connection between area and binomial multiplication as well as “see” the relationship between multiplication and factoring.



$$\begin{aligned}
 & (x+2)(x+3) \\
 &= x^2 + 2x + 3x + 6 \\
 &= x^2 + 5x + 6
 \end{aligned}$$