# Grades 4 & 5 Progression of Multiplication Strategies

## Area Model

34 × 28

| | 20 | 8 |
|---|---|---|
| 30 | 600 | 240 |
| 4 | 80 | 32 |

32
80
240
+ 600
952

This strategy provides a good visual model for multiplication, relating it to the process for finding the area of a rectangle. The visual model helps ensure that students remember to multiply every digit of one factor by every digit of the other factor (using the distributive property).

## Partial-Products

34 × 28

28
× 34
32 ( 4 × 8)
80 ( 4 × 20)
240 (30 × 8)
+ 600 (30 × 20)
952

Like the *Area Model*, this strategy uses the distributive property. Students multiply every digit of one factor by every digit of the other factor; then add the "partial-products" together. This is a more abstract representation of the exact same steps shown in the *Area Model* and a more concrete representation of the exact steps shown in the *U.S. Standard Algorithm*.

Students should be able to do this by the end of grade 4.

## U.S. Standard Algorithm

34 × 28

23
28
× 34
112
840
+
952

This strategy is required in fifth grade by standard 5.NBT.5. It follows the exact same steps as "Partial-Products," but uses a more compact notation to make it more efficient. This efficiency, however, also obscures the place value of the numbers and the logic of the steps. Students will come to understand the logic of each step and the meaning of the shorthand much better when they follow the progression of strategies depicted here. **Therefore, this algorithm should not be introduced prematurely.**

Students must be able to do this by the end of grade 5.