Grade 3 Progression of Multiplication Strategies

Circles and Stars	Area Model	Partial-Products

Circles and Stars

4 × 16
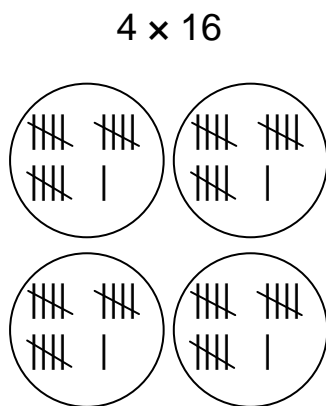
This is a good visual model for multiplication and division. This picture shows 4 groups of 16. This strategy is intended to help build a conceptual understanding of multiplication / division, but it is not efficient for larger numbers.

Students must transition to one of the other two strategies on this progression before the end of grade 3.

Area Model

4 × 16

```
      10      6
   ┌──────┬──────┐
 4 │  40  │  24  │
   └──────┴──────┘

              24
          +   40
          ──────
              64
```
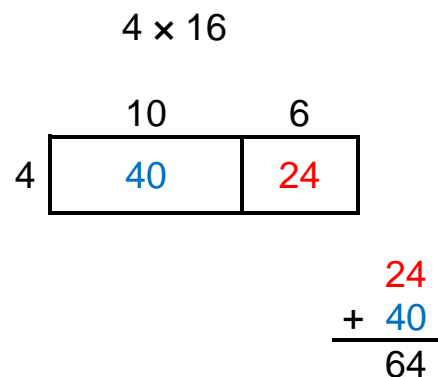
This strategy is required in third grade. It depicts standard 3.MD.7, where students break apart one of the factors by place value and multiply each part by the other factor (using the distributive property). The area of the whole rectangle is equal to the sum of each of the partial areas, showing that area "is additive."

Students <u>must</u> be able to do this by the end of grade 3.

Partial-Products

4 × 16

```
      16
   ×   4
   ───────
      24   (4 ×  6)
   +  40   (4 × 10)
   ───────
      64
```

Like the *Area Model*, this strategy uses the distributive property. Students multiply one factor by each place value 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 will master this in grade 4. Those who are ready for a more abstract strategy should be encouraged to use this one.

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