Math Connections for Parents

Grade 3 Module 4
Multiplication and Area

Welcome to Third Grade Module 4. Newark City Schools is using the EngageNY curriculum, which is aligned with Ohio's New Learning Standards. In Module 4, students will explore area with two-dimensional figures and relate that to understanding multiplication. Students will draw area models with rectangles and arrays in order to solve problems involving area.

Important Words and Concepts

- Area: the amount of two-dimensional space inside a figure
- Area model: model for multiplication that relates rectangular arrays to area (see second page)
- Square unit: a unit of area, could be square centimeters, inches, feet and meters
- Tile: square used to cover a region with no gaps or overlaps
- Unit square: given a length unit, it is a 1 unit by 1 unit square
- Whole number: number with fractions
- Array: set of numbers or objects that follow a specific pattern or matrix
- Commutative Property: rotate a rectangular array 90 degrees to show that factors in a multiplication sentence can switch places; 3 x 2 = 2 x 3
- Distributive Property: 2 x (3 + 4) = 2 x 3 + 2 x 4
- Rows: horizontal lines
- Columns: vertical lines

Multiplication and Division within 100

Fluency of multiplication and division facts, up to 100 will continue to be stressed in third grade. As this module ties area to multiplication, students will continue to work with basic multiplication facts for mastery. Students will begin to see that multiplication is commutative (5 x 4 = 4 x 5) but that the arrays will be rotated on the page.

KEY STANDARDS

- Recognize area in plane figures. A square with side length 1 unit is said to have "one square unit" or area.
- Measure area by counting squares (square cm, square in, square ft)
- Relate area to multiplication and addition.
- Find area by using square tiles and area models.
- Find area by using multiplication of the side lengths.

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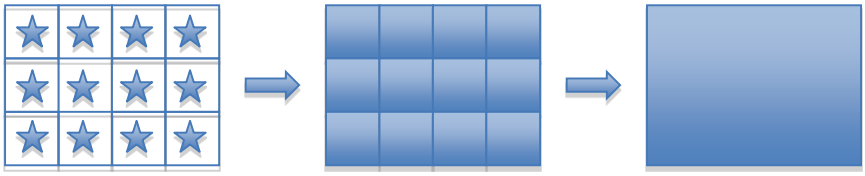
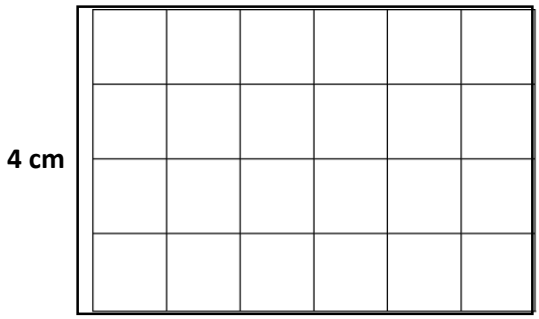
Graphics and Strategies you may see…

Students will work with arrays, and relate these arrays to area models, as in the example of 3 x 4 below:



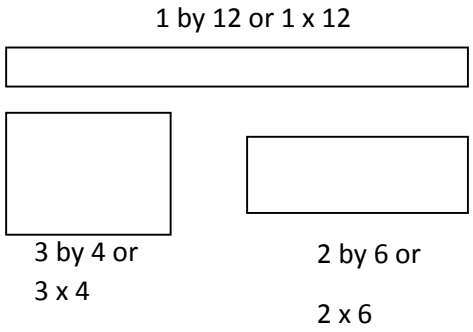
Array Area Model

Area: **24** square centimeters.

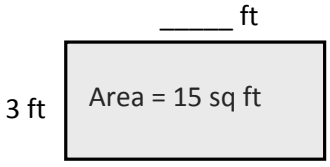


4 × 6 = 24

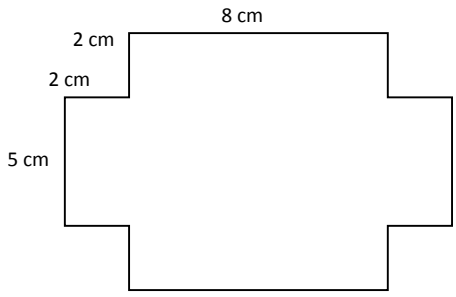
Students will use multiplication and counting tiles to find area.



Eventually, students will find the area without counting tiles, but instead by thinking of area as multiplication.



In this problem, the area is given, but a side is missing. Students use their knowledge of multiplication to find the missing length.



Finally, students apply their knowledge of area to find areas of rooms with different floor plans.