

Mathematics Grade 3

In Grade 3, students will learn to multiply and divide: (1) multiply a whole number of tens by a whole number of tens (e.g., 20×3), (2) multiply a whole number of tens by a whole number (e.g., 20×3), (3) multiply a whole number by a whole number of tens (e.g., 2×30), and (4) divide a whole number of tens by a whole number of tens (e.g., $20 \div 2$).

(1) Students will learn to multiply a whole number of tens by a whole number of tens (e.g., 20×3). For example, $20 \times 3 = 60$. Students will also learn to multiply a whole number of tens by a whole number (e.g., 20×3). For example, $20 \times 3 = 60$. Students will also learn to multiply a whole number by a whole number of tens (e.g., 2×30). For example, $2 \times 30 = 60$. Students will also learn to divide a whole number of tens by a whole number of tens (e.g., $20 \div 2$). For example, $20 \div 2 = 10$.

(2) Students will learn to multiply a whole number by a whole number (e.g., 2×3). For example, $2 \times 3 = 6$. Students will also learn to divide a whole number by a whole number (e.g., $6 \div 2$). For example, $6 \div 2 = 3$.

Operations and Algebraic Thinking

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Maa

Operations and Algebraic Thinking

3.OA

Represent and solve problems involving multiplication and division.

1. Use objects to represent a multiplication or division problem, e.g., use 5 groups of 7 objects to represent $5 \times 7 = 35$. For example, describe a context in which a total number of objects can be expressed as 5×7 .
2. Use objects to represent a division problem, e.g., use 56 objects to represent $56 \div 8 = 7$ or $8 \times 7 = 56$. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.
3. Use objects to represent a multiplication or division problem involving 100, e.g., use 100 objects to represent $100 \div 10 = 10$ or $10 \times 10 = 100$.
4. Determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 \times ? = 35$, $6 \times ? = 42$.

Understand properties of multiplication and the relationship between multiplication and division.

5. Apply properties of multiplication and division. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 = 15$ can be found by $3 \times 5 = 15$, then $15 \div 3 = 5$, or by $5 \times 3 = 15$, then $15 \div 5 = 3$.

Number and Operations in Base Ten

3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.⁴

1. $10 \quad 100.$
2. F 1000
3. M $10 \quad 0 \quad (\quad \times 70, \quad \times 0)$

2. Measure area by counting unit squares (aligned with length and width of the shape). Record measurements in square units (e.g., square centimeters, square inches, square feet, square meters). Measure the same figure by a different unit square (e.g., by the side of a square meter, by the side of a square foot, by the side of a square inch). Explain how the number of units used to measure the same figure varies with the size of the unit square used. Express the area in both square units and in terms of the side length of the unit square (e.g., 36 square inches is the area of a square with side length 6 inches).

Represent and interpret data.

3. Draw a picture to represent a data set. Explain how the picture represents the data set. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.

4. Generate a data set from a context. Represent the data set in a dot plot. Describe the data set. For example, draw a dot plot for the number of pages in each book in a library. Explain how the dot plot represents the data set.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

5. Recognize area as an attribute of two-dimensional figures. Measure the area of a rectangle by counting unit squares (aligned with length and width of the rectangle). Express the area in terms of unit squares (e.g., 36 square inches is the area of a square with side length 6 inches).

a. A square with side length 1 unit has an area of 1 square unit. A square with side length n units has an area of n^2 square units. A rectangle with side lengths n and m units has an area of $n \times m$ square units.

b. A square with side length n units has an area of n^2 square units. A rectangle with side lengths n and m units has an area of $n \times m$ square units.

6. Measure the area of a rectangle by counting unit squares (aligned with length and width of the rectangle). Express the area in terms of unit squares (e.g., 36 square inches is the area of a square with side length 6 inches).

7. Recognize area as an attribute of two-dimensional figures. Measure the area of a rectangle by counting unit squares (aligned with length and width of the rectangle). Express the area in terms of unit squares (e.g., 36 square inches is the area of a square with side length 6 inches).

a. Find the area of a rectangle with side lengths n and m units. Express the area in terms of unit squares (e.g., 36 square inches is the area of a square with side length 6 inches).

b. Measure the area of a rectangle with side lengths n and m units. Express the area in terms of unit squares (e.g., 36 square inches is the area of a square with side length 6 inches).

Geometry

3.G

Reason with shapes and their attributes.

- Understand congruence and similarity using informal arguments (e.g., using physical models, drawings, cutouts) and transformations (e.g., translation, reflection, rotation) to describe the congruence and similarity of figures. Recognize angle bisectors, perpendicular bisectors, and medians. Understand that the area of a shape is not changed when the shape is translated, rotated, or reflected.
- Partition a shape into regions of equal area. Explain how the area of each part is $\frac{1}{4}$ of the area of the shape.