Common Core Math Standards for Third Grade
Numbers and Operations

The standards explain what children should be able to understand and do by the end of each grade. The box on the left lists the standards teachers are using, and the box on the right is what you can do at home to support what children are learning in the classroom.

Number and Operations in Base Ten — 3.NBT

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

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Number and Operations—Fractions[5] — 3.NF

Develop understanding of fractions as numbers.

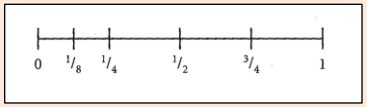
1. Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
   a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
   b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
   a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
   b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
   c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*
   d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

What does this mean and what can I do at home to help my child develop these skills?

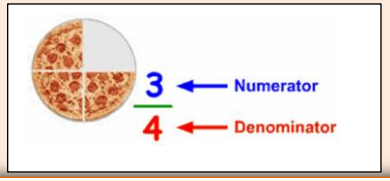
- Practice place value with your child. Help your child understand that a three-digit number represents amounts of hundreds, tens, and ones. For example, 706 equals 7 hundreds, o tens, and 6 ones

hundreds	tens	ones
7	0	56

- Give your child practice in adding and subtracting numbers up to 1000.
- Show your child how to multiply numbers in multiples of 10 (10, 20, 30…up to 90) by a one digit number.
- Help your child understand simple fractions. For example, if a pizza is divided into 4 equal sections and your child has 1 section, he has 1/4. Show him how to place those fractions on a number line.

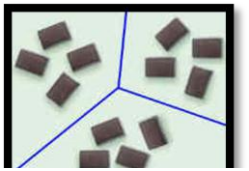


- Help your child see that two fractions may be equal. For example, if your child has two pieces of a pizza that has been divided into 4 equal pieces, he has 2/4, which is the same as 1/2.
- Show your child that whole numbers can be shown as fractions. 3 can be written as 3/1, and 6 can be seen as 6/1.
- Help your child understand that the numerator is the top number in a fraction and shows how many parts we have, and the denominator is the bottom number, and shows how many parts there are in all.



Common Core Math Standards for Third Grade
Algebra and Patterns

The standards explain what children should be able to understand and do by the end of each grade.
The box on the left lists the standards teachers are using, and the box on the right is what you can do at home to support what children are learning in the classroom.



Operations and Algebraic Thinking 3.OA

Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*
2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*
3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, 6 × 6 = ?.*

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

5. Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*
6. Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*

Multiply and divide within 100.

7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.[3]
9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

What does this mean and what can I do at home to help my child develop these skills?

- Help your child understand what the product of two numbers means. For example, 5 x 7 = 35 means there are 5 groups of 7 items, and altogether there are 35 items.
- Help your child understand that a quotient is the answer you get when you divide one number by another. For example, if you have 35 items and you divide them between 7 people, each person gets 5. 35 ÷ 7 = 5.
- Help your child "see" multiplication an division by using real items like raisins, coins, or paper squares, or by letting him draw items to represent the equations.
- Explain to your child the commutative property of multiplication – when you swap numbers around you still get the same answer. 5 x 4 = 4 x 5.
- Help your child understand that division is like solving a mystery – he can find the answer to 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.
- Show your child the relationship between multiplication and division. Knowing that 8 x 5 = 40, we also know that 40 ÷ 5 = 8.
- Help your child practice multiplying and dividing number within 100.
- Help your child practice using all 4 operations – addition, subtraction, multiplication, and division. Have him use a letter for the unknown answer. 6 + 3 = a, or 9 x 3 = b.
- Help your child see evens and odds, and that multiplying by even numbers will give you an even numbered answer.

Common Core Math Standards for Third Grade
Measurement

The standards explain what children should be able to understand and do by the end of each grade. The box on the left lists the standards teachers are using, and the box on the right is what you can do at home to support what children are learning in the classroom.

Measurement and Data **3.MD**

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[6] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[7]

Represent and interpret data.

3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*
4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

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

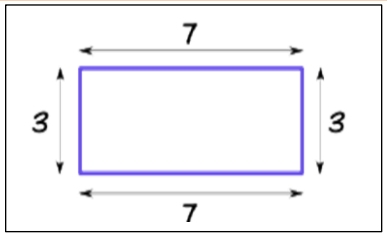
5. Recognize area as an attribute of plane figures and understand concepts of area measurement.
   a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
   b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
7. Relate area to the operations of multiplication and addition.
   a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
   b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
   c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
   d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

What does this mean and what can I do at home to help my child develop these skills?

- Help your child understand time. Show him how to write time, and help him learn how to add and subtract minutes and hours.
- Show your child how to estimate and measure volume using standard units of measurement – ounces, cups, pints, quarts, and gallons, as well as grams, kilograms, and liters. Use a beaker or measuring cup.
- Show your child how to create and read a scaled picture graph and bar graph and a scaled line graph. Use items you have on hand to create date, for example, red, green, and brown M&Ms.
- Show your child how to use a ruler to measure whole numbers and fractions. Help him to place the measured numbers on a number line.
- Help your child understand that a plane figure is the one-dimensional face of a shape, and that the area of the plane can be measured. A square with a side length of 1 unit can be called a unit square. A plane figure that can be measured without gaps or overlaps by a number (*n*) of unit squares is said to measure *n* unit squares – that is the area.
- Show your child how to find the area of a rectangle by multiplying the length and the width. Of the rectangle. Then you can show your child that the number he got for the area by multiplying is correct by using paper tiles/squares to show how many units make up the plane.
- Show your child what the word perimeter means – the distance around a 2-dimensional shape. Then help him find the perimeters of various shapes.



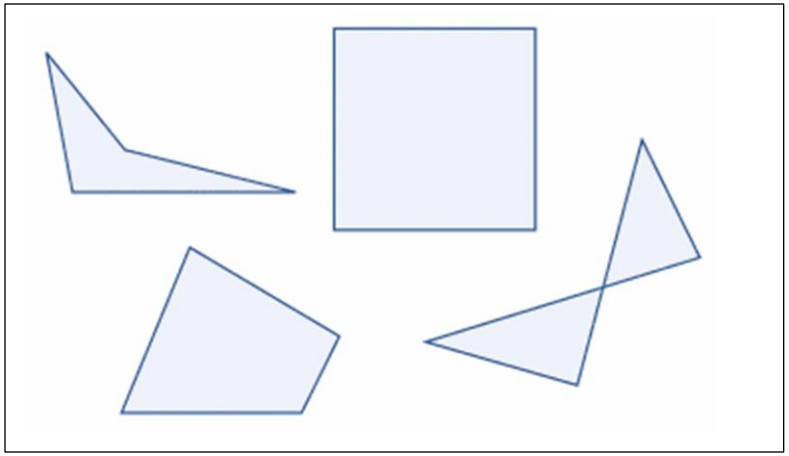
Speaking and Listening Standards for Third Grade
Geometry and Spatial Sense

The standards explain what children should be able to understand and do by the end of each grade. The box on the left lists the standards teachers are using, and the box on the right is what you can do at home to support what children are learning in the classroom

Geometry 3.G

Reason with shapes and their attributes.

1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*



What does this mean and what can I do at home to help my child develop these skills?

- Help your child understand shapes in different categories. For example, these shapes are examples of quadrilaterals, which are flat shapes with four straight sides.
  - Rhombus - four-sided shape where all sides have equal length. Also, opposite sides are parallel and opposite angles are equal. A square would be a rhombus but a rectangle with unequal sides would not.
  - Rectangle - rectangle is a four-sided polygon (a flat shape with straight sides) where every angle is a right angle (90°). A rectangle might be a square, but often is not a square.
  - Square - A 4-sided polygon (a flat shape with straight sides) where all sides have equal length and every angle is a right angle (90°). A square is always a rectangle.
  - Parallelogram - Opposite sides are parallel and equal in length, and opposite angles are equal (angles "a" are the same, and angles "b" are the same)
  - Trapezoid - trapezoid (UK: trapezium) is a quadrilateral with one pair of opposite sides parallel.
- Partition shapes into parts that have equal areas, and ask your child to tell you what fraction of the area each part includes. For example, a section of a square with four parts would be ¼ of the area of the shape.