RETHINK EDUCATION
North Carolina Department of Public Instruction

An At-Home Guide for Families

3rd Grade Math in North Carolina Public Schools

Course Outline

At the end of the course, my child will know…

- how to estimate numbers on the front end and round numbers
- how to use a number line to determine sums and differences
- how to expand numbers into hundreds, tens and ones to solve addition and subtraction problems
- how to estimate the difference by rounding numbers
- how to use strategies to solve problems that involve addition and subtraction
- how to represent and write an equation with a symbol for the unknown
- how to describe triangles using informal geometric terminology
- how to manipulate sides and angles to form triangles
- how to compose shapes with triangles and describe them
- how to identify and describe quadrilaterals based on their properties
- how to manipulate quadrilaterals to compose other shapes
- how to categorize quadrilaterals based on their properties
- how to identify and name factors and products
- how to use the commutative property and how it applies to factors and addition
- how to use arrays and repeated addition to show multiplication
- how to decompose a factor and create two area representations to show the distributive property
- how to represent problems with equations using a letter for unknown quantities
- how to use the partition/fair share model to show equal amounts of objects in each group.
- how to use the quotative/measurement model to solve problems
- how to use arrays and repeated subtraction to demonstrate the concept of division
- how to decompose a factor to represent equal groups for division
- how to use various methods (arrays, repeated addition, decomposing, etc.) to represent and solve word problems
- how to use the relationship between multiplication and division to determine the missing factor in an equation
- how to use strategies to solve two-step problems that involve addition, subtraction, and multiplication
- how to use the associative property to group numbers when decomposing
- how to apply the commutative and distributive properties when solving problems
- how to use concrete models (base 10 blocks) to find the product of one digit whole number by a multiple of 10

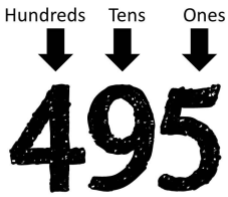
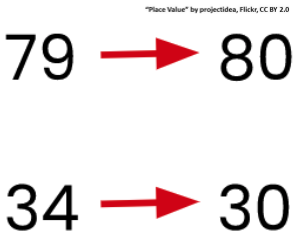
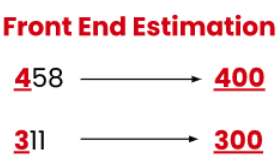
- how to use pictorial models (base 10 blocks and properties of operation) to find the product of one digit whole number by multiple of 10
- how to represent numbers in groups of ten and combine them to represent the product.
- how to use different strategies to build fluency with multiplication and division.
- how to use the zero and identity property of the multiplication
- how to represent, Illustrate, and explain relationships between numbers in a multiplication or division equation
- how to find the unknown number in a multiplication or division problem
- how to use a hundreds board and multiplication table to discover patterns for different multiplication factors
- how to recognize the length and width of the rectangle based on the unit squares
- how to count the given unit squares to determine the area of a rectangle and explain how columns and rows relate to area
- how to tile a rectangle given the length and width, show how many columns and rows are in the rectangle and understand that there should be no gaps or overlaps when tiling
- how to explain that the area of a rectangle is found by multiplying length times width and solve word problems related to finding area
- how to recognize that the product of multiplication is the same as the area of a rectangle
- how to decompose bigger rectangles into two smaller rectangles and recognize that the sum of the area of two small rectangles equals the area of the bigger rectangle
- how to understand that the perimeter is the distance around the edge of a shape and find the perimeter by adding all sides
- how to use the given perimeter of a rectangle to find the missing side
- how to create rectangles of different lengths and widths having the same perimeter
- how to explain that a fraction represents a part (one unit) of a whole using an area model and a length model (number line)
- how to represent and identify unit fraction using area and length models.
- how to use area and length models to explain that the numerator is the sum of unit fractions
- how to use area and length models to create equivalent fractions using halves, thirds, fourths, sixths and eighths
- how to explain that fractions with the same numerator and denominator are equal to a whole and recognize when fractions are equivalent to whole numbers
- how to use area and length models to compare fractions
- how to use the >, < and = symbols to compare fractions of different sizes
- how to understand that the big hand on a clock indicates minutes in an hour and the little hand indicates the hour and how much of an hour has passed.
- how to understand that the hours 1-12 on a clock indicate the hours in a day and also 5 minute chunks of time
- how to tell time to the nearest minute
- how to use a number line to count single minutes, five minute chunks, or 10 minute chunks to determine elapsed time within the same hour
- how to measure objects using inches, feet and yards, and estimate beyond an inch to ¼ inch or ½ inch

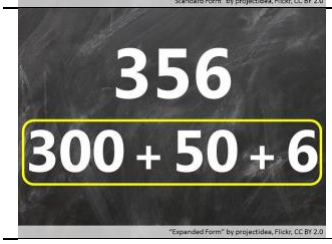
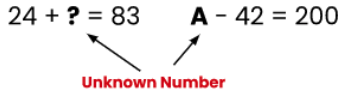
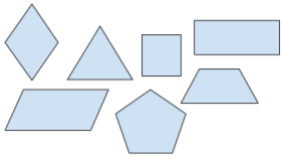
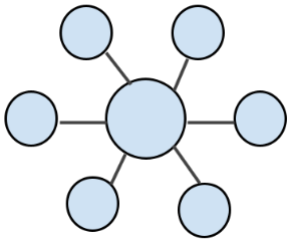
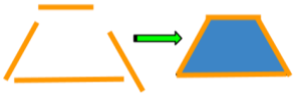
- how to use understanding of capacities in cups, pints, quarts and gallons to estimate capacities of various objects
- how to use understanding of weights in ounces and pounds to estimate weights of various objects
- how to use strategies to solve one step word problems involving customary measurement
- how to collect categorical data by asking a question and represent data using a frequency table with each category and its data listed and label the table correctly with title, headings, and categories
- how to represent data using a scaled picture graph with pictures that represent data sets and label the graph with a title, categories, and key
- how to represent data using scaled bar graphs with axes to represent data for each category (vertical and horizontal graph)
- how to use data from graphs and charts to answer questions involving addition and subtraction

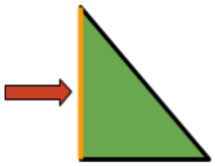
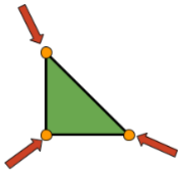
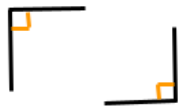
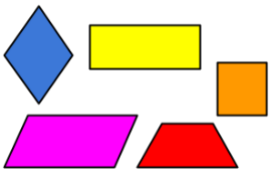
Curious what the specific standards are for 3rd Grade Math in North Carolina?

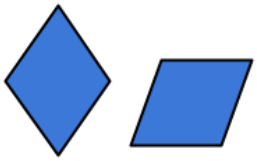
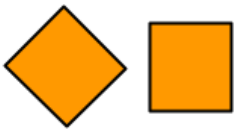
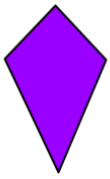
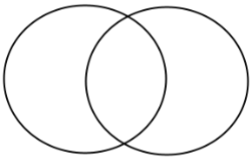
Check out the **North Carolina Standard Course of Study** Looking for additional explanations about what students should be able to do at the end of this course? Check out **NC DPI's unpacked contents document**

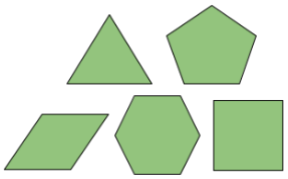
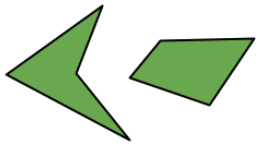
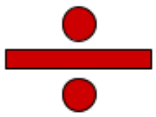
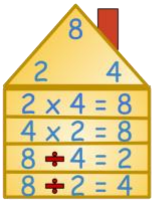
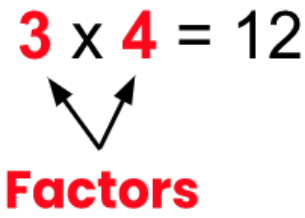
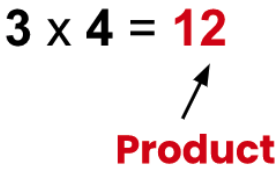
Key Vocabulary

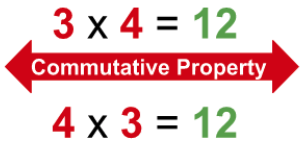
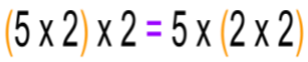
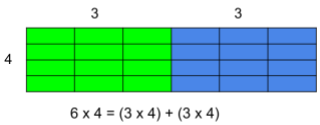
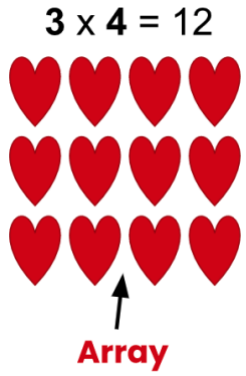
Visual	Term	Definition
	**Place value**	The value of where a digit is in the number
	**Round(ing)**	Changing a number to make it simpler to use and understand
	**Front-end estimation or estimating on the front end**	Estimating the highest place value

Visual	Term	Definition
	**Estimate**	Making an educated/reasonable guess of the actual value Finding the number close to the correct number
	**Standard form**	A way of writing numbers using digits
	**Expanded form**	Expanding a number to show the value of each digit
	**Unknown number**	A number that is missing from an equation, represented with a symbol
	**Inverse operation**	The opposite operation, operations that undo each other
	**2-Dimensional**	A flat shape having only 2 measurable dimensions (length and width).
	**Polygon**	A 2-dimensional figure that is closed, made up of 3 or more straight lines (sides), and has no intersecting (crossing) lines and no curves.
	**Attribute**	The characteristics or properties of an object. The attributes of shapes are their sides and angles.
	**Compose**	To put the parts or pieces together

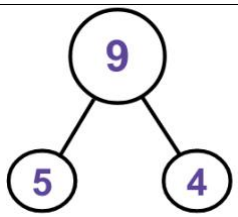
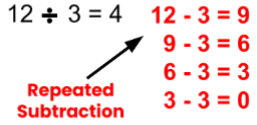
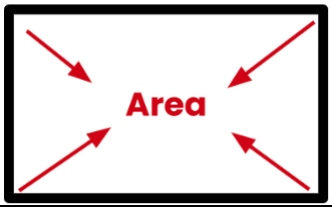
Visual	Term	Definition
	**Side**	A line segment that is used to compose figures. It is always straight.
	**Vertex (Vertices)**	The endpoint where two or more line segments meet. (The plural is vertices)
	**Angle**	An angle, or corner, is a figure that is formed when two or more line segments (sides) meet at a common vertex (endpoint).
	**Right angle**	An angle that measures exactly 90 degrees. It can also be called a square corner.
	**Triangle**	(1) A 2-dimensional, closed shape with exactly 3 sides that do not cross or curve, (2) A polygon with 3 sides and 3 angles.
	**Equal**	When things have the same value or amount or measurements, exactly the same or identical.
	**Equilateral triangle**	A triangle with 3 equal sides that are equal in length
	**Quadrilateral**	A quadrilateral is a polygon with four sides.

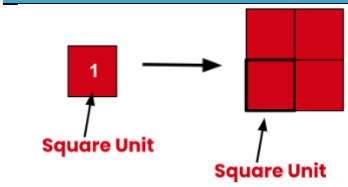
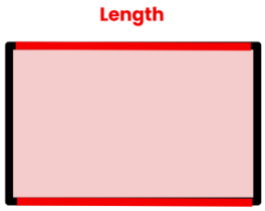
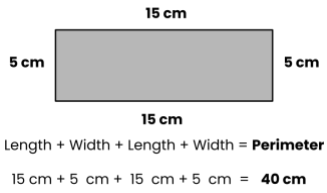
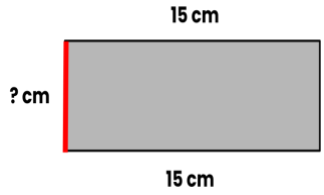
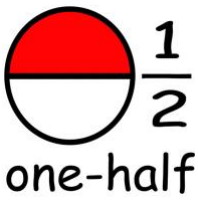
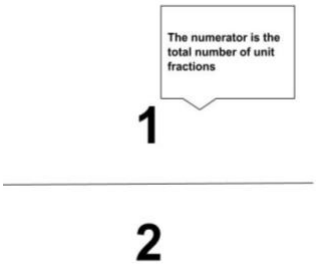
Visual	Term	Definition
	**Parallelogram**	A parallelogram is a quadrilateral with two pairs of parallel sides.
	**Rhombus**	A rhombus is a parallelogram that has four equal sides.
	**Square**	A square is a parallelogram that has four equal sides and four right angles.
	**Trapezoid**	A trapezoid is a quadrilateral with only 1 pair of parallel sides
	**Rectangle**	A rectangle is a parallelogram with four right angles.
	**Kite**	A kite is a quadrilateral with two pairs of equal length sides. The two lines that go together to make a pair are next to each other (they share an endpoint). We call these lines adjacent.
	**Classify**	To sort or put into groups based on shared attributes.
	**Pair**	Two things that go together or match. In 2-D shapes it refers to two lines opposite of each other that match in length and direction.
	**Parallel line**	Parallel lines or sides always stay the same distance apart from each other and never intersect, or cross, like train tracks.

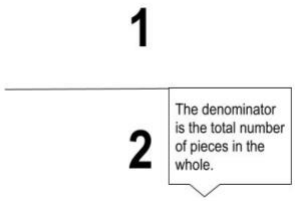
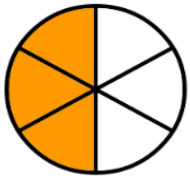
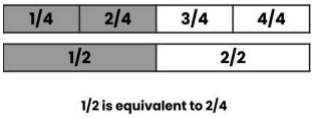
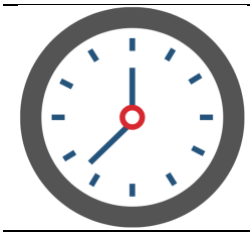
Visual	Term	Definition
	**Regular polygon**	A regular polygon has all equal sides and all equal angles.
	**Irregular polygon**	A polygon that does not have all equal sides and does not have all equal angles
	**Multiplication**	When you take a number and add it over and over
	**Division**	The process of separating a whole amount into equal parts or equal groups so that each group has a fair share
	**Fact family**	A fact family shows all the related multiplication and division facts for a set of numbers.
	**Factors**	Numbers you multiply together to get a product
	**Product**	The result of multiplying two numbers together

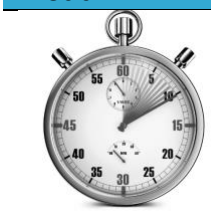
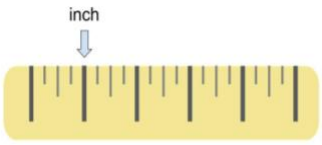
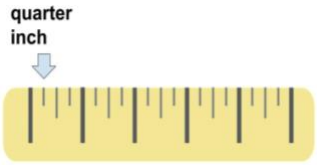
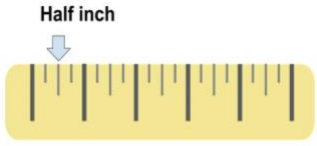
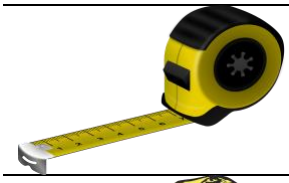
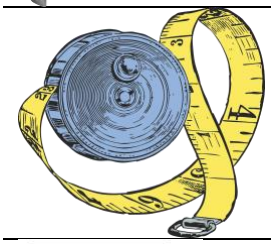
Visual	Term	Definition
	**Commutative property**	The order of numbers does not matter when you are adding or multiplying numbers
	**Associative Property of Multiplication**	When three or more numbers are multiplied, the product is the same regardless of the groupings of the factors
	**Distributive Property of Multiplication**	A multiplication fact can be broken apart and rewritten into the sum of two other multiplication facts. When you break down a factor as a sum of two numbers and then distribute the other factor to those addends the total remains the same.
5 x 0 = 0	**Zero Property of Multiplication**	The product of any number and zero equals zero
225 x 1 = 225	**Identity Property of Multiplication**	The product of 1 and any number is that number
	**Array**	A combination of rows and columns to show a product

Visual	Term	Definition
3 x 4 = 12 4 + 4 + 4 = 12 Repeated Addition	**Repeated addition**	Adding the same number over and over
24 + ? = 83 A − 42 = 200 Unknown Number	**Unknown number**	A number that is missing from an equation, represented with a symbol
7 x ? = 14 7 x *n* = 14 unknown number variable	**Variable**	A letter that stands in the place of an unknown number, it is usually lowercase
20 ÷ 4 = 5 Dividend	**Dividend**	The number being separated or split apart
20 ÷ 4 = 5 Divisor	**Divisor**	The number of groups the number is divided into
20 ÷ 4 = 5 Quotient	**Quotient**	The number of items in the group
12 ÷ 3 = 4 Partition	**Partition**	To separate or divide a whole amount into equal parts or equal groups.
	**Row**	The part of the array that goes from left to right (horizontal)

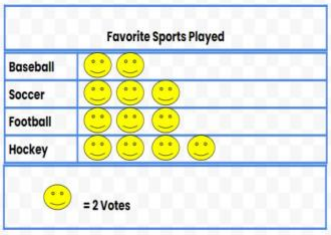
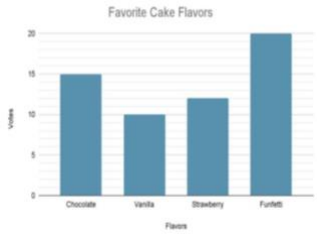
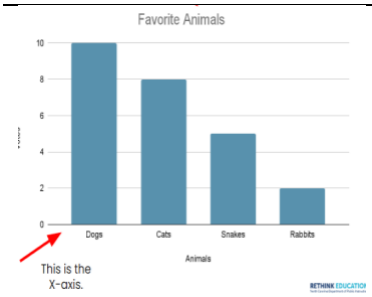
Visual	Term	Definition
	**Column**	The part of the array that goes up and down (vertical)
$7 \times n$	**Expression**	A mathematical phrase of numbers and symbols grouped together
$7 \times n = 14$	**Equation**	A math sentence that has an equal symbol between two expressions of the same value
	**Decompose**	To break apart; to break into smaller pieces that are easier to manage
	**Repeated subtraction**	Subtracting the same number over and over until you get to zero
6: 6, 12, 18, 24, 36	**Multiple**	The result of multiplying one number by another whole number, you also get multiples when you skip count
8 + 8 = 16 **8 x 2 = 16**	**Doubles**	To multiply by 2 or you add the same number twice
	**Area**	The space inside of the shape

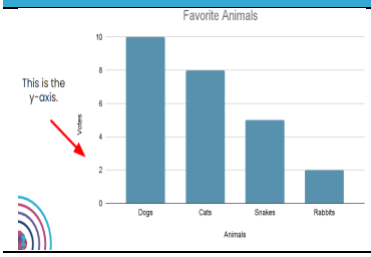
Visual	Term	Definition
	**Square unit**	A square that has an area of 1.
	**Length**	Usually the longer side of the shape
	**Width**	Usually the shorter side of a shape
	**Perimeter**	Distance around a shape
	**Unknown side length**	A side measurement on a polygon that is unknown
	**Fraction**	An amount that is broken into equal size pieces that can have a value of less than one whole, equivalent to one whole, or greater than one whole.
	**Numerator**	The top portion of the fraction that represents how many equal parts in the whole unit being described.

Visual	Term	Definition
	**Denominator**	The bottom portion of the fraction the represents the total number of equal parts in the whole
$\frac{1}{2}$	**Unit fraction**	A unit fraction is a fraction where the numerator is 1, because the term “unit” means one, and the denominator represents how many pieces the fraction is divided into.
 $\frac{3}{6}$	**Area model**	In fractions, area models are visual representations of circles, rectangles, and other shapes that can be divided into equal sections.
	**Length model**	A length model is a fraction written in a linear way. The fraction represents how far away from 0 the line is before it gets to 1. The 1 represents a whole.
	**Equivalent**	Two amounts that are identical in one way
$>$	**Greater than symbol**	This symbol means the number is greater than the other number
$<$	**Less than symbol**	This symbol means the number is less than the other number
	**Hour**	A unit of time that is equivalent to sixty minutes. One day is equivalent to twenty-four hours

Visual	Term	Definition
	**Minute**	A unit of time that is equivalent to sixty seconds. One hour is equivalent to sixty minutes
	**Elapsed time**	How much time has passed
	**Length**	The distance from one point to another point
	**Inches**	A measure of length or distance. There are 12 inches in a foot. A ruler measures up to 12 inches. The abbreviation is in
	**Quarter inch**	A quarter inch is one fourth on a inch
	**Half inch**	A half inch is one half of an inch.
	**Feet**	Feet are a measure of length, a foot is 12 inches
	**Yards**	A yard is a measure of length. 3 feet are equal to one yard. A football field is 100 yards in length.
	**Capacity**	The maximum amount that something can hold

Visual	Term	Definition
	**Weight**	How heavy an object is
	**Cup**	A cup is a unit of measurement used in cooking. A small glass is a cup, and it holds 8 fluid ounces.
	**Pint**	A pint is equal to two cups.
	**Quart**	A quart is the same as two pints or four cups. A quart is also a quarter or one fourth of a gallon.
	**Gallon**	The largest unit of liquid measurement, there are four quarts in a gallon.
	**Ounces**	A measure of mass, there are 16 ounces in one pound.

Visual	Term	Definition
	**Pounds**	Pounds are a units that are used to measure weight
	**Tally mark**	A way to mark or record your counting
	**Frequency table**	A table that organizes data and tells the number of times something occurred
	**Picture graph**	A graph that uses pictures to show data
	**Bar graph**	A way of representing data that uses vertical or horizontal bars
	**X Axis**	The bottom or horizontal line of the graph

Visual	Term	Definition
	**Y Axis**	The side or vertical line of the graph

Learning in Action: Grade Level Skills

Examples of Grade Level Skills

Example 1 –
Add and subtract whole numbers up to and including 1,000. Use estimation strategies. Use expanded from to decompose numbers and then find sums and differences. Represent problems using equations with a symbol for the unknown number.

Problem: The gym has a total of 548 members. The gym can have a maximum of 678 members. How many more members can join the gym? About how many more members can join the gym?

It is important to note that the standard algorithm of carrying and borrowing is neither an expectation or focus in third grade. Students are expected to use expanded form or compatible numbers to add and subtract.

For the above problems students would do one of the following strategies…

Subtracting with Expanded Form

$$\begin{array}{r} 600 + 70 + 8 \\ -\ 500 + 40 + 8 \\ \hline 100 + 30 + 0 = 130 \end{array}$$

They could also use a number line to help them take away 500 then 40 and then 8 from 678. They will also be required to work out problems where they have to regroup by borrowing from the tens to get ten ones or borrowing from the hundreds to get ten tens.

In order to estimate, students could round or use front end estimation, but front end estimation is not as accurate.

Rounding would look like this…
678 could round to 700 or 680

548 could round to 500 to 550
and then students could subtract.

In addition, students have to represent problems with a symbol for the unknown number.

Problem:

What is the unknown number? 96 - n = 60

In order to solve, students could do the following..

$$\begin{array}{r} 90 + 6 \\ -\ 60 + 0 \\ \hline \end{array}$$

This problem requires students to take one 10 away from 90 and exchange it for 10 ones, which would give you 16 instead of 6.

$$\begin{array}{r} 80 + 16 \\ -60 \\ \hline \end{array}$$

20 + 16 = 36 n = 36

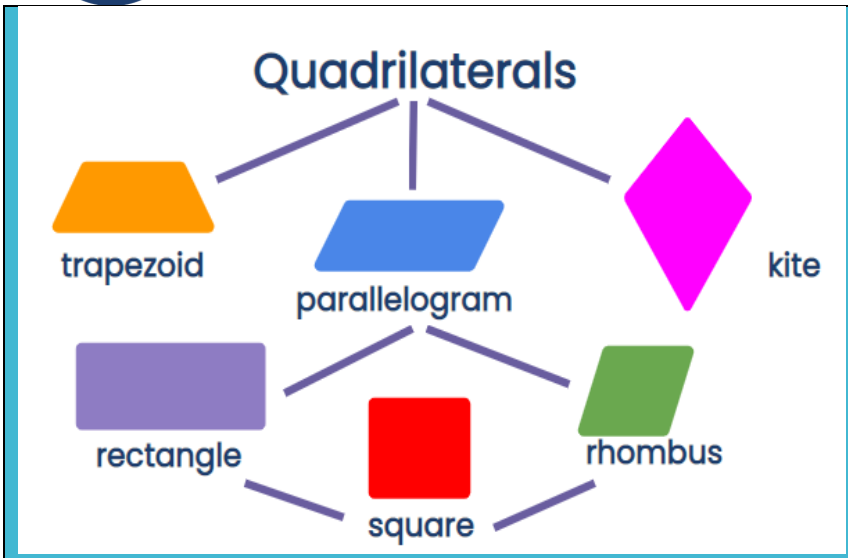
Students could also solve this problem by using a number line.

Example 2 –

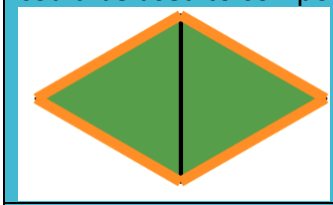
Reason with two-dimensional shapes and their attributes. Investigate, describe, and reason about composing triangles and quadrilaterals. Recognize and draw examples and non-examples of types of quadrilaterals including rhombuses, rectangles, squares, parallelograms, and trapezoids.

Problem: Eva wants to draw a quadrilateral with exactly two pairs of opposite sides that will never meet. Which shape might she draw?

In order to solve this problem students need to understand the characteristics of quadrilaterals. The diagram below shows how quadrilaterals are classified. All quadrilaterals have four sides. Parallelograms, rectangles, squares, and rhombi have two pairs or sets of parallel sides. Trapezoids have one set of parallel lines and kites have zero sets of parallel lines.



The answer to the problem above could be a square, rhombus, rectangle or parallelogram. Students are also expected to use triangles to form other shapes. For example, two triangles could be used to compose a rhombus.



Example 3 –

For products of whole numbers with two factors up to and including 10, students have to understand what the factors and products represent in multiplication problems. They also have to interpret the divisor and quotient in order to solve division problems. They apply the commutative property, arrays, repeated addition, repeated subtraction, partitioning, and decomposing to solve two step multiplication and division problems.

Problem: Zoey is putting a puzzle together. She has already put together 474 pieces. Zoey sorted the puzzle pieces that are left into 8 piles. Each pile has 6 puzzle pieces in it. How many puzzle pieces are in the whole puzzle?

This is an example of a two step problem that requires students to multiply factors and then add.

First, students have to recognize that they need to multiply the factors 8 and 6. They could solve by making an array to help or skip counting if they don't know their math facts.

XXXXXX

XXXXXX

XXXXXX
XXXXXX
XXXXXX
XXXXXX
XXXXXX
XXXXXX

This is an example of an array that shows 8 groups of 6, which equals 48. Students could also use the commutative property to multiple 6 x 8 instead.

Next, students have to add 48 to 474 to get the total number of puzzle pieces. They could use the expanded form strategy from above to get 522 as the final answer.

Problem: Audrey, Ruthie, and Jolie's mom gave them 27 nickels to share equally. Afterwards they decided to count how much their coins were worth. How much money did each girl get? Write an equation with a letter showing how many nickels each person received.

In this two step division problem, students have to divide 27 between 3 friends first. They would write 27 ÷ 3 = n n stands for the number of nickels.

In order to divide, students could partition 27 into 3 groups

They could also skip count by 3's until they get to 27

3,6,9,12,15,18,21,24,27

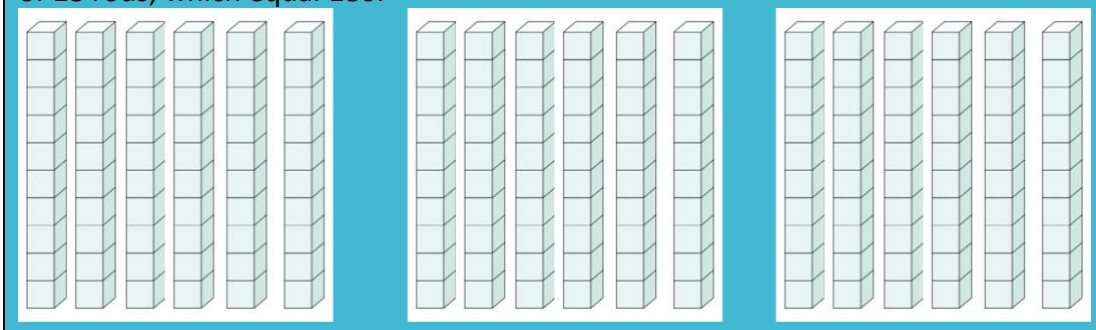
If they count the multiples, they will see that it took 9 times. so 27 ÷ 3 = 9. They could write the related multiplication fact to check their work as well. 9 x 3 = 27

Since this is a two step problem, next students need to multiply 9 by 5 to get the final answer because each nickel is worth 5 cents, which makes 45 cents total.

Example 4 –
Use concrete and pictorial models to build fluency with multiplication and division with factors, quotients, and divisors up to and including 10. Use hundreds and multiplication tables to discover patterns for different multiplication factors.

Problem: Jonah played video games for 3 hours on Saturday. There are 60 minutes in an hour. How many minutes did Jonah play video games?

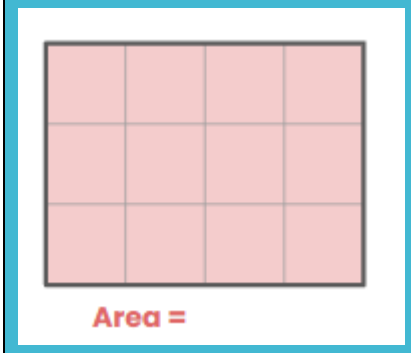
This problem requires students to multiply 3 by 60. Students could use groups of base ten blocks to solve. This shows 3 groups of 60 with 6 base ten rods in each group showing a total of 18 rods, which equal 180.



Students could decompose or break apart the factors to solve. For example, 3 x 60 could be broken into (3 x 6) x 10

Example 5 –
Find the area of rectangles and squares and relate area to multiplication and addition.

Problem: Find the area of a rectangle that measures 4 by 3.



In order to solve problems, students can count the square units. They can also do 4 x 3 to get 12 square units.

Problem: A rectangle has an area of 30 square units. The width of the rectangle is 5. What is the length of the rectangle?

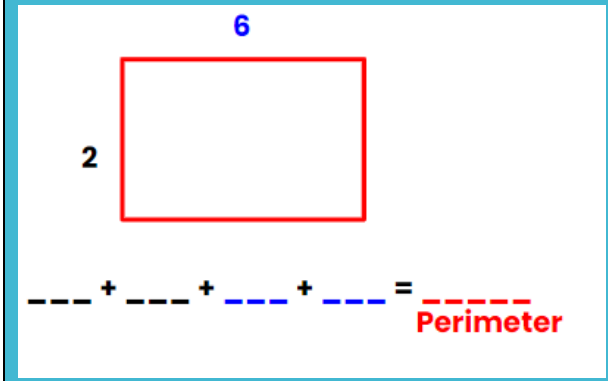
In order to solve this problem, students need to know that area = length times width. They can write an equation for the unknown length and solve 30 = 5 x ?
Using the fact family strategy, they can also write this as 30 ÷ 5 = ?

Then they can partition 30 into 5 groups to get 6 as the answer.

Example 6 –

Solve problems involving perimeters of polygons, including finding the perimeter given the side lengths, and finding an unknown side length.

Problem: Find the perimeter of the rectangle below.



In order to solve, students need to add all of the sides together so the perimeter would be 6 + 6 + 2 + 2 = 16. They could also write this as (6 x 2) + (2 x 2) = 16

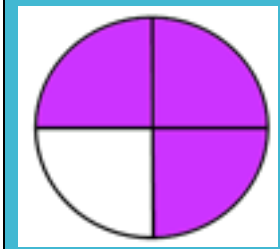
Problem: You draw a rectangle with a total perimeter of 28 . The length of the rectangle is 9. What is the width?

In order to solve, students need to create a number sentence like this. 28 = 9 + 9 + ? + ? to figure out the width. Then they need to subtract 18 from 28, which leaves them with 10. So w + w = 10 and each width would be five. It is important that they plug their answers back in to check. Does 5 + 5 + 9 + 9 = 28? Yes, it does, so the width is 5.

Example 7 -

Interpret fractions with denominators of 2, 3, 4, 6, and 8 using area and length models. Using area and length models, explain that the numerator is the sum of unit fractions.

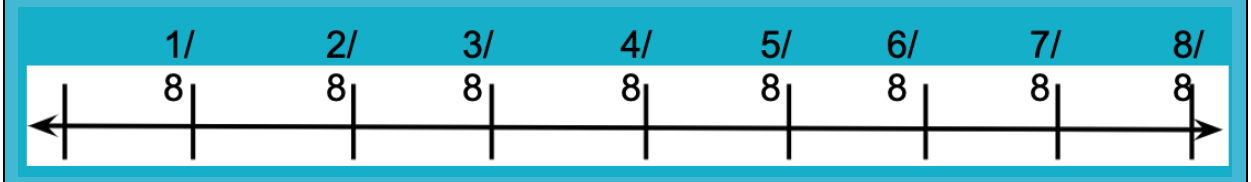
Problem: Label the fractional amounts on the area and length models.



For this example, students need to count the total number of parts and that is the denominator. The shaded parts would be the numerator, so the fraction shown is ¾.

This is a length model divided into eighths.

It would be labeled **like this..**



Problem: Serena bought some pizzas and she cuts each pizza into thirds. She has 9 total pieces of pizza. How many pizzas did she buy? In order to solve this problem, students would draw 9 thirds to see that would be 3 total pizzas and 9/3= 3

Example 8 –
Use area and length models to create equivalent fractions using halves, thirds, fourths, sixths and eighths. Explain that fractions with the same numerator and denominator are equal to a whole. Compare two fractions with the same numerator or the same denominator by reasoning about their size, using area and length models, and using the >, <, and = symbols. Recognize that comparisons are valid only when the two fractions refer to the same whole with denominators: halves, fourths and eighths; thirds and sixths.

Problem: Which symbol completes the number sentence? >,<, or =

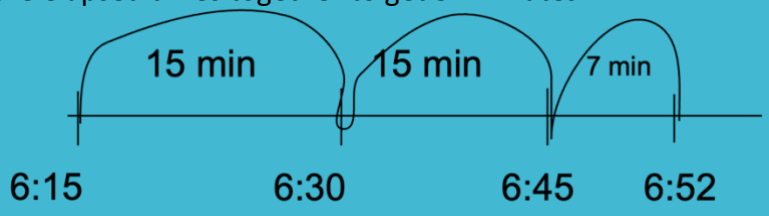
2/8 ____ 2/6 Students must understand that when the numerators are the same, the fraction with the smaller denominator has bigger pieces so 2/8 < 2/6

2/6 ___ 1/6 Students must understand that when the denominators are the same, the fraction with the greater numerator is greater so 2/6 > 1/6

Which fraction is greater 2/6 or 1/3?
Students can draw area or length models to help them compare fractions with >, <, or equal symbols and see equivalent fractions 2/6 = 1/3

Example 9 –
Tell and write time to the nearest minute. Solve word problems involving addition and subtraction of time intervals within the same hour.

Problem: Susan watched a tv show that started at 6:15 and ended at 6:52.
In order to order, students could draw a number line and hop time intervals. They would add the elapsed times together to get 37 minutes.



Example 10 –
Estimate and measure lengths in customary units to the quarter-inch and half-inch, and feet and yards to the whole unit. Estimate and measure capacity and weight in customary units to a whole number: cups, pints, quarts, gallons, ounces, and pounds. Add, subtract, multiply, or divide to solve one-step word problems involving whole number measurements of length, weight, and capacity in the same customary units.

Problem: If Ian is measuring the weight of his cat, which unit should he use?
Cups, Pints, Ounces, or Pounds
Students have to use reasoning to pick which unit makes the most sense. The answer would be pounds.

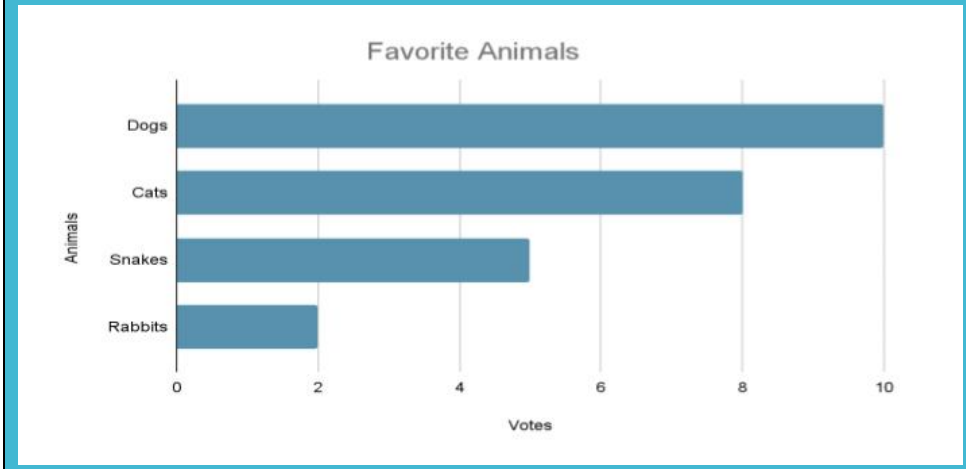
If you are planning on filling a hot tub, which unit might you use to measure the amount of water needed? Cups, Quarts, or Gallons
The answer would be gallons.

Problem: Keith and Violet are growing watermelons. Keith's watermelon weighs 30 pounds and Violet's watermelon weighs 6 pounds less than Keith's. What is the combined weight of the watermelons?

Students would have to figure out Violet's watermelon weight by subtracting 6 from 30, which is 24. Then k + v = the total weight of the watermelons, which is 30 + 24 = 54 pounds.

Example 11 –
Represent and interpret scaled picture and bar graphs. Collect categorical data by asking a question and using four categories for gathering data. Represent data using a frequency table with each category and its data listed. Solve one and two-step "how many more" and "how many less" problems using information from these graphs.

Problem: How many total students picked their favorite animals?



To solve, students have to look at the graph and figure the total for each animal and add. The answer would be 10 + 8 + 5 + 2 = 25 total votes.

Resources

Links and online resources to allow you to support your child's learning.

- Khan Academy
- Open Middle Problems
- Printable math games
- Online place value blocks to help with computation
- Math Antics
- Open Up Resources
- IXL Third grade math resources
- Math Chimp
- Virtual Nerd Third Grade

- Illustrative Math

At-Home Connections

- Tell me what you learned about in math class today.
- Tell me how you solved a problem in math class today.
- Where are some places we can apply area and perimeter in the real world?
- How can we apply fractions when we are cooking or baking?
- Can you skip count by 2's, 3's, 4's, 5's, etc. while we wait at the red light?
- What are the different ways you could estimate the answer?
- How many different ways can you subtract numbers?
- How many fact families can you write out in 5 minutes?
- Show me how you could use a hundreds chart to help.
- Show me how you could use a multiplication chart to help.
- Can you help me name the units of measurement that we are using to cook with?
- Let's measure how tall you are to the nearest quarter inch.
- Show me how much you weigh in pounds on the scale.
- While shopping at the grocery store, compare different amounts to figure out which is the better deal.
- While baking, can you show me how to divide the brownies into eighths?
- Let's calculate elapsed time, how much time do we have before we need to leave to go to the movies?
- What kind of graph should we use to show this data?
- Tell me how we could use area and perimeter to construct the new dog fence?
- How many quadrilaterals can you find around our house?

Challenges to Anticipate

It is hard to watch our children struggle but this is an important part of the learning process. Be supportive and encouraging when struggles happen.

- Try the problem even if you think it is too hard. Learning occurs through failure.
- Ask your child to explain an example to you they understood to help build confidence. Explaining to you will help with their understanding.
- Take a short break and come back to the problem with a clear head.
- Model growth mindset statements. If your child says they can't…teach them to say they can't yet. Growth mindset videos
- Being fluent with addition, subtraction, multiplication, and division facts will help your child feel more confident. Try this research based intervention to promote their mastery of math facts.

- Students struggle to remember the difference between finding the perimeter and area of rectangles and squares. Point out real world examples that will help them clearly see the difference.
- Resist the temptation to teach shortcuts with addition and subtraction problems. When students break the numbers down into expanded form (hundreds, tens, and ones) it helps them build conceptual understanding. They start to understand that you aren't carrying a one, it is actually a ten or hundred, etc.
- Many students can get confused when trying to solve for an unknown number. Encourage them to plug their answers back into the equation to make sure they are correct. For example, if the problem is ? divided by 2 = 6 and your child says the answer is three, explain to them that 3 divided by 2 is not 6 if they plug it back in. Also teach them to write the equation another way like 6 x 2 = ?
- Many students struggle with two step problems because they stop after the second step. Encourage them to reread the problem before they choose an answer and make sure they are giving the answer it is asking for instead of only the first step.
- When comparing fractions, students might struggle to draw area models that have the same size pieces. Model for them how to divide a circle into halves, thirds, fourths, sixths, and eighths evenly.
- When your child is struggling with a skill, find a math game to make learning fun. Use this link to help you find one that matches the math skill that your child is struggling with: Math Games

Communicating with Your Child's Teacher

Still feeling stuck? Reach out to your child's teacher to discuss what you can do further your child's learning. Some questions that might guide your discussion:

- What resources would you suggest I use to support my child?
- Where do you see my child struggling? What can we do together to help?
- What should my child practice at home?
- What collective message can we send together to help my child learn?

Need Technical Help?

Reach out to your student's home school for technical assistance. Include the type of device (PC, Mac, Chromebook, etc.) and browser (Chrome, Firefox, Safari, etc.).