

Wilson County Schools



3rd Grade Community Resource Framework

Mathematics

2017-2018



Parent Roadmap for [3rd Grade](#) Common Core Math Grade Level [View](#)

Questions to Ask When Helping Your Child with Math Homework

Keep in mind that homework in elementary schools is designed as practice. If your child is having problems, please let the classroom teacher know. When helping your child with his/her math homework, you don't have to know all the answers! Instead, we encourage you to ask probing questions so your child can work through the challenges independently.

What is the problem you're working on?

What do the directions say?

What do you already know that can help you solve the problem?

What have you done so far and where are you stuck?

Where can we find help in your notes?

Are there manipulatives, pictures, or models that would help?

Can you explain what you did in class today?

Did your teacher show examples that you could use?

Can you go onto another problem & come back to this one later?

Can you mark this problem so you can ask the teacher for an explanation tomorrow?

Numbers in Base Tens (NBT) 5%-10% of EOG			
Vocabulary Addend: a number that is added to another in an addition problem (Example: in $2 + 3 = 5$, 2 and 3 are addends) Addition: to join two or more groups (Example: $2 + 3 = 5$) Approximate: to find a result that is close to the exact answer Compose: to join numbers to create tens, hundreds, or thousands; to join or put together parts to create a whole Decompose: to break apart or break down into smaller parts Difference: the answer to a subtraction problem (in $8 - 3 = 5$, 5 is the difference) Digit- one of the symbols 0,1,2,3,4,5,6,7,8, and 9 used to write numbers Equation: a number sentence that uses the equal sign to show that two amount have equivalent value Estimate: an answer tht is close to the exact answer Factor: a number that is multiples by another number to find a product Inverse Operations: operations that undo each other (opposite operations) for example multiplication and division or addition and	Standards Included 3.NBT.1- Use place value understanding to round whole numbers to the nearest 10 or 100. 3.NBT.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.NBT.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.	Parent Activities - Model rounding numbers. When you fill the car with gasoline, make comments such as, It took 19 gallons of gas to fill the car. That is almost 20 gallons. It cost \$48 to fill the car. That is almost \$50. - Look for 2-, 3-, and 4- digit numbers in the real world. Ask your child to round the numbers to the nearest 10 or 100. Ask your child to explain how he/she determines the rounded numbers. - Locate numbers in catalogs or newspapers, then practice rounding them to the nearest tens and hundreds - Have your child sort a handful of alphabet cereal letters by vowels and consonants. Subtract to see how many more consonants there are than vowels. - While traveling, have your child record the numbers on automobile license plates. Use the numbers to practice addition and/or subtraction. - Practice skip counting by 10 both forward and backward. - Organize dimes into equal stacks and ask your child the value of dimes. For example, 4 stacks of 8 dimes is equivalent to 4×80 or 360 cents or \$3.60. Continue with different combinations of dimes.	Online Activities Rounding rules 3rd grade Math games Hundreds Rounding Chart Parent Toolkit - How You Can Help Parent Toolkit - Math Resources Kahn Academy Place Value Strips Place Value Blocks Rapid Rounding Game   Kahn Academy LearnZillion Engage NY Parent Resources  Video- Math Studio Talk

subtraction

Multiple: the product of a given number and any whole number

Operation: an arithmetic procedure used to solve a mathematical problem, such as addition, subtraction, multiplication, or division

Place value: the location of a digit in a number

Product: the answer to a multiplication problem

Regroup: to rename a number

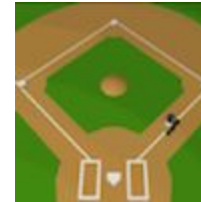
- **10 ones= 1 ten, 10 tens = 1 hundred**
-

Round: to estimate a number to the nearest ten, hundred, thousand, etc.

Subtraction: to find the difference when two groups are compared or to find out how many are left when items are taken away from a group

Sum: the answer to an addition problem
(Example: in $2 + 3 = 5$, 5 is the sum)

Value: the value of a digit based on its place value



Operations and Algebraic Thinking (OA)

30%-35% of EOG

Vocabulary

Addition: to join two or more groups

Addend: a number that is added to another in an addition problem (in $2 + 3 = 5$, 2 and 3 are addends)

Array: an arrangement that shows objects in columns and rows

Difference: the answer to a subtraction problem (in $8 - 3 = 5$, 5 is the difference)

Division: to make equal groups

Dividend: a number that is divided by another number

Equation: a mathematical statement containing an equal sign, to show that two expressions are equal

Estimation: a number close to an exact amount

Factor: a number that is multiplied by another number to get a product

Mental Computation: the calculation of something mentally

Multiplication: an operation on two numbers to find their product (It can be thought of as repeated addition.)

Partition: to divide into parts

Product: the result of multiplication

Standards Included

3.OA.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 .*

3.OA.2 - Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ 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 $56 \div 8$.*

3.OA.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.

3.OA.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 $8 \times ? = 48$, $5 = _ \div 3$, $6 \times 6 = ?$*

3.OA.5- Apply properties of operations as strategies to multiply and divide. *Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) =$*

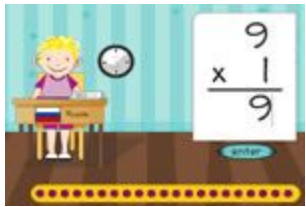
Parent Activities

- Make arrays out of household items (e.g., pennies, beans, blocks).
- Select multiplication or division facts to illustrate or write a word problem.
- Hunt for multiple sets of objects in the home. Use repeated addition and multiplication to find the totals.
- Sort coins according to type, count the number of coins and then multiply to find the total value of pennies ($\times 1$), nickels ($\times 5$), dimes ($\times 10$) and quarters ($\times 25$).
- Count quantities of items by 2's, 3's, 5's, and 10's.
- Roll 2 number cubes to determine the factors. Make an array to find the product.
- Act out division problems with counters. For example, Brad has 12 rabbits. He puts the same number of rabbits into each of 4 cages. How many rabbits does Brad put in each cage?
- Roll 2 number cubes and write the fact families. For example, for rolls of 4 and 6, write: $4 \times 6 = 24$, $6 \times 4 = 24$, $24 \div 6 = 4$, $24 \div 4 = 6$.
- Ask your student to find the missing factor. For example, $5 \times \text{what number} = 35$?
- Look at 3 pairs of shoes and show that 3 groups of 2 shoes equal 6 shoes. Challenge your child to find other equal groups of things, such as candy in a bowl, eggs in a carton, or flowers in a flower bed.

Online Activities

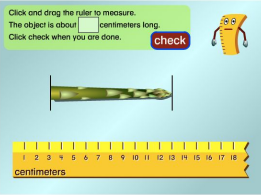


[Best Friend Math Word Problem Game](#)



Multiple: a product of two whole numbers Quotient: the number, not including the remainder, that results from dividing Grouping: dividing things into equal groups (sets) Remainder: the amount left over when a whole number cannot be divided into equal whole numbers Subtraction: to find the difference when two groups are compared or to find out how many are left when items are taken away from a group Sum: the answer to an addition problem (in $2 + 3 = 5$, 5 is the sum)	$(8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (<i>Distributive property.</i>) 3.OA.6- Understand division as an unknown-factor problem. <i>For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.</i> 3.OA.7- Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. 3.OA.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.OA.9- Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. <i>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.</i>		The product game Concentration Video Additional Help
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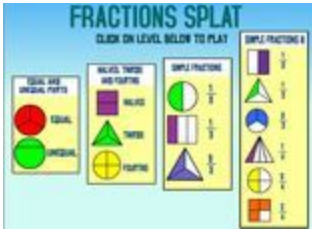
Measurement and Data (MD) 22%-27% of EOG			
Vocabulary analog clock: a clock with a minute hand and	Standards Included 3.MD.1- Tell and write time to the nearest minute	Parent Activities Work with your child to associate times with	Online Activities https://learnzillion.com/

an hour hand area: the number of square units needed to cover a surface without gaps or overlaps attribute: a characteristic or property of a shape or thing capacity: a measure of the amount of liquid a container will hold compose: to join numbers to create tens, hundreds, thousands, etc.; to join or put together parts to create a whole decompose: to break into smaller parts digital clock: clock that shows time in number gram (g): a metric unit used to measure mass key: part of a map, picture, or diagram that shows what the symbols mean kilogram (kg): metric unit used to measure mass line plot: graph that shows data on a number line with Xs liquid volume: amount of liquid in a container liter (L): metric unit used to measure capacity mass: measure of the amount of matter in an object milliliter (mL): metric unit used to measure capacity perimeter: distance around a closed figure	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. 3.MD.2 - Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). 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. 3.MD.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. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i> 3.MD.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. 3.MD.5- Recognize area as an attribute of plane figures and understand concepts of area measurement. 3.MD.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). 3.MD. 7 - Relate area to the operations of multiplication and addition. 3.MD.8 - Solve real world and mathematical	events (go to school at 7:30 am, bedtime 8:30 pm, lunch at 11:30 am) • Ask your child questions about time. For example, "It is 3:45. It takes 35 minutes to get home. What time will it be when we get home?" • Together, look at pictures of clocks and watch advertisements in magazines. Discuss what you about about the times on the watches and clocks. • Read labels on milk, juice, and water containers. Discuss how many liters and/or milliliters the containers hold. • Gather several different canned items and have your child calculate the total mass of all the cans in grams. • The grocery store is a great place to estimate measurements. This can be done with fruits (grams/kilograms) or vegetables. Use the scales to see the actual masses. • Make family graphs of information (shoe sizes, heights, arm spans). You are your child write questions that can be answered by the graphs. • Have your child use a ruler to measure the heights of different items in your home. Record the heights to the nearest quarter inch. Then ask questions such as, "how many items are between 2 and 5 inches tall?" • Help your child find the area of the tops of different items in your home (coffee table, kitchen table, end table) by covering them with square sticky notes. • Help your child measure the length and width of his/her bedroom to the nearest foot. Calculate the area, in square feet, by multiplying the dimension. • Talk to your child about situations that might require finding perimeter, such as building a fence or framing a picture.	• understand-volume-and-how-volume-is-measured • measure-volume-in-liters • understand-mass-and-how-mass-is-measured • solve-word-problems-about-mass-by-adding-and-subtracting-on-a-number-line • solve-word-problems-about-volume-by-adding-and-subtracting-on-a-number-line • solve-multiplication-and-division-word-problems-about-mass-by-drawing-pictures • solve-multiplication-and-division-word-problems-about-volume-by-drawing-pictures • creating-and-reading-a-ruler-to-measure-objects-to-the-nearest-quarter-inch • measure-an-object-to-the-nearest-quarter-inch-using-a-ruler • display-data-in-fractional-amounts-by-creating-a-line-plot • collect-and-show-data-on-a-line-plot  Grid Paper  Kahn Academy
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polygon: closed figure made of line segments scale: tool used to measure weight or mass; a number line that marks at fixed intervals standard units: units of measure that are accepted as a standard used in graphing time interval: amount of time that passes between two events (seconds, minutes, hours, days, weeks, etc.)	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.		
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Number and Operations- Fractions (NF) 20%-25% of EOG			
Vocabulary denominator: the bottom number in a fraction; the total number of equal parts equivalent fractions: two or more fractions that are equal fraction: number that names a part of a whole or part of a group fraction bar: horizontal line that separates the numerator from the denominator in a fraction numerator:the top number in a fraction; how many equal parts are being considered partition: to divide or seperate a whole into parts	Standards Included 3.NF.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 $1/b$. 3.NF.2 - Understand a fraction as a number on the number line; represent fractions on a number line diagram. 3.NF.3 - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	Parent Activities • Use foods that are already divided or scored (chocolate bars, graham crackers, pizzas, pies) and discuss with your child examples of fractions in the real world. • Make fraction dominoes with denominators of 2, 3, 4, 6, and 8. On one end draw a shaded fraction model, and on the other end write a different fraction in numeral form. Make sure that each pictorial fraction model has a matching written fraction on a different domino. Through a process of drawing and matching a fraction model with its correct symbol, the game proceeds until all dominoes have been played. • Draw a number line that is equally divided into six parts. Have your child roll a die, use that digit as a numerator, and find the fraction on the number line. For example, if 4 is rolled the child locates $4/6$ on the number line. • Let your child explore equivalent fractions with dry measuring cups. Allow them to help you when using a recipe to cook.	Online Activities Fraction Workshop Sand Dollar Exchange Measurement Workshop Identify Fractions Bowling for Fractions Concentration 

			
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Geometry (G) 10%-15% of EOG			
Vocabulary attribute: characteristic or property of a shape or thing hexagon: polygon with six sided and six angles octagon: polygon with eight sides and eight angels parallelogram: quadrilateral with opposite sides that are parallel and congruent partition: to divide or separate a whole into parts pentagon: polygon with five sides and five angles polygon: closed figure made of line segments quadrilateral: polygon with four sides and four angles rhombus: parallelogram whose four sides are congruent and whose opposite angles are congruent trapezoid: quadrilateral with one pair of parallel sides	Standards Included 3.G.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. 3.G.2 - Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. <i>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.</i>	Parent Activities - Play “I Spy” with your child. Locate quadrilaterals, and give your child clues such as “I spy a quadrilateral in the kitchen.” As your child guesses different objects ask him/her to explain attributes that help solve the riddles. - Give your child modeling clay. Help him/her roll out the clay and create shapes of specific quadrilaterals (parallelogram, rectangle, square, rhombus, trapezoid). - Use paper plates to explore different ways to divide circles into equal parts. Place a healthy snack into one or more of the equal parts. Then have your child tell what fraction of the plate contains food. - Look for shapes in your community. It is amazing how geometry is all around us! Take pictures and create a shape book.	Online Activities  Partition a Shape into equal shares Write unit fraction as a number Describe a fraction as equal shares of a whole Virtual Geoboard

unit fraction: fraction with a numerator of 1 such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ vertex/vertices: point where two rays meet, where two sides of a polygon meet, or where the edges of a polyhedron meet; the top point of a cone or pyramid			
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EOG Practice

[Released Form](#)

[Free practice](#) online and downloadable

[Houghton Mifflin](#)

[Vocabulary Practice](#)

K-5 WEBSITE RESOURCES

[Math at Home](#)

[www.mathplayground.com](#)

[XL Math Practice](#)

[Online Math Games](#)

[Math Activities online](#)

[Online Manipulatives](#)

[Math Activities](#)

[Math Challenges for the Family](#)

[Math Zone](#)

[Common Core for Parents with students with disabilities](#)

TABLE 2. Common multiplication and division situations.⁷

	Unknown Product	Group Size Unknown ("How many in each group?" Division)	Number of Groups Unknown ("How many groups?" Division)
	$3 \times 6 = ?$	$3 \times ? = 18$, and $18 \div 3 = ?$	$? \times 6 = 18$, and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? <i>Measurement example.</i> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? <i>Measurement example.</i> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? <i>Measurement example.</i> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays, ⁴ Area ⁵	There are 3 rows of apples with 6 apples in each row. How many apples are there? <i>Area example.</i> What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? <i>Measurement example.</i> A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? <i>Measurement example.</i> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? <i>Measurement example.</i> A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

⁴The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.

⁵Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.