Cobb County School District
5/20/21

Third Grade Mathematics Teaching & Learning Framework 2021-22

Quarter 1		Quarter 2	Quarter 3	Quarter 4		
Unit 1 4 weeks	**Unit 2** 5 weeks	**Unit 3** 9 weeks	**Unit 4** 9 weeks	**Unit 5** 2 weeks	**Unit 6** 2 weeks	**Unit 7** 5 weeks
Numbers and Operations in Base Ten	**The Relationship Between Multiplication and Division**	**Patterns in Addition and Multiplication**	**Representing and Comparing Fractions**	**Geometry**	**Measurement**	**Review, Mastery and Extend**
Topic 1: Addition and subtraction ***MGSE3.NBT.2** ***(Fluently add and subtract within 1000)*** **MGSE3.NBT.1** (Round to the nearest 10 or 100) ***MGSE3.OA.8** (Solve 2 step word problems with addition and subtraction) **MGSE3.OA.9** (Patterns with addition and multiplication)	**Topic 1: Represent and solve problems involving multiplication and division** **MGSE3.OA.3** (Solve word problems with multiplication/division) ***MGSE3.OA.1** (Interpret multiplication) ***MGSE3.OA.2** (Interpret division) **MGSE3.OA.4** (Unknown number in multiplication/division) **Topic 2: Understand properties of multiplication and the relationship between multiplication and division** **MGSE3.OA.7** ***(Fluently multiply and divide within 100)*** **MGSE3.OA.5** (Commutative, associative, distributive properties) **MGSE3.OA.6** (Understand division)	**Topic 1: Multiplication and division** ***MGSE3.OA.3** (Solve word problems with multiplication/division) ***MGSE3.OA.7** ***(Fluently multiply and divide within 100)*** ***MGSE3.OA.5** (Distributive properties) ***MGSE3.NBT.3** (Multiply 1 digit numbers by multiplies of 10) **Topic 2: Problem solving and arithmetic patterns** ***MGSE3.OA.8** (Solve 2 step word problems) **MGSE3.OA.9** (Patterns with addition and multiplication) **Topic 3: Area** ***MGSE3.MD.7** (Relate area to multiplication and addition) **MGSE3.MD.5** (Understand concepts of area) **MGSE3.MD.6** (Measure area by counting units) **Topic 4: Represent and interpret data** **MGSE3.MD.3** (Scaled picture and bar graph)	**Topic 1: Representing and comparing fractions** ***MGSE3.NF.3** (Fractions-equivalence and compare) ***MGSE3.NF.1** (Unit fractions) **MGSE3.NF.2** (Fractions on a number line) ***MGSE3.G.2** (Partition of shapes) **Topic 2: Telling time and line plots** ***MGSE3.MD.4** (Line plot with fractions) **MGSE3.MD.1** (Time to the nearest minute) **Topic 3: Perimeter** **MGSE3.MD.8** (Perimeter of polygons) *Additional standards assessed on the report card: OA.4,8*	**Topic 1: Geometry** ***MGSE3.G.1** (Reason about shapes) **MGSE3.G.2** (Partition of shapes)	**Topic 1: Measure-ment Units** ***MGSE3.MD.1** (Elapsed time) **MGSE3.MD.2** (Liquid volume and mass) *Additional standards assessed on the report card: OA.7-8, NBT.2, NF.2-3*	**Review all standards based on student needs.** **Mastery:** **MGSE3.NBT.2** ***(Fluently add and subtract within 1000)*** **MGSE3.OA.7** ***(Fluently multiply and divide within 100)*** **MGSE3.OA.8** (Solve 2 step word problems) **MGSE3.NF.3** (Fractions-equivalence and compare) **Extend:** **MGSE4.NBT.2** (Read, write and compare) **MGSE4.NBT.4** (Add and subtract/algorithm) **MGSE4.MD.2** (Word problems-only time)

These units were written to build upon concepts from prior units, so later units contain tasks that depend upon the concepts and standards addressed in earlier units.
All units include the Mathematical Practices and indicate skills to maintain.

NOTE: *Mathematical standards are interwoven and should be addressed throughout the year in as many different units and tasks as possible in order to stress the natural connections that exist among mathematical topics.*

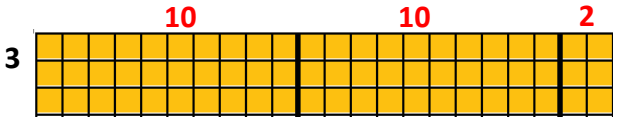
Grades 3-5 Key: MGSE= Mathematics Georgia Standards of Excellence G= Geometry, MD=Measurement and Data, NBT= Number and Operations in Base Ten, NF = Number and Operations, Fractions, OA = Operations and Algebraic Thinking

*Assessed on the report card

Revised 5/20/21

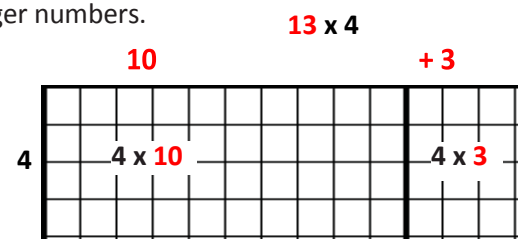
By the <u>end</u> of grade 3 all students should know from memory, all products of two 1-digit numbers.

Students move to building larger arrays (also called the *area model of multiplication).*



A student has shaded an array, **22 x 3**, on grid paper.

Third graders progress to diagrams that explain the *area model of multiplication* with larger numbers.



Familiarity with the area model above allows students to move to working with partial products.

4 x 13
4 x (10 + 3)
(4 x 10) + (4 x 3)
40 + 12 = 52

Third graders begin division by sharing.
Three students need to share 12 trapezoids equally.

The most important division concept is the understanding of equal shares.

20 ÷ 5

Students explore division using strategies. One such strategy involves *repeated subtraction*.

20
- 5
15
- 5
10
- 5
5
- 5
0

This third grader has used the multiply up strategy. This involves finding the solution to a division problem through multiplication.

45 ÷ 3
3 x 10 = 30
3 x 5= 15
30 + 15 = 45

10 + 5 = 15 so, 3 x 15 = 45

Another strategy a third grader may use is the *partial quotient* strategy.

3 ⟌ 45	
– 30	10
15	
– 15	5
0	=15

45 ÷ 3 = 15

Parent Math Strategy Guide Grade 3

Strategies for Addition, Subtraction, Multiplication, and Division

Cobb County Schools

Math

Addition and Subtraction Strategies

248 + 345 =
500 + 80 + 13
500 + 80 = 580
580 + 13 = 593

248
+345
500
80
+ 13
593

Here, two students used the *partial sums* strategy and recorded their thinking in two different ways. Breaking apart the numbers helps make it easier to compute.

326 + 247 =
(326 – 3) + (247 + 3) =
323 + 250 = 573

This example shows how a student could use *compensation* to solve an addition problem.

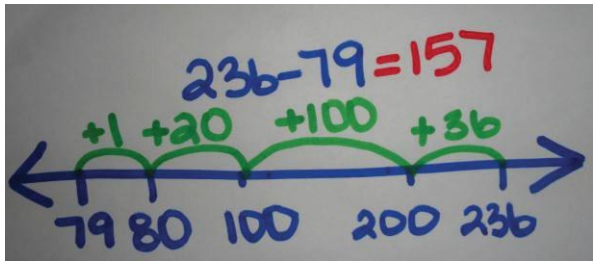
216 + 149 =

Third graders can also use the strategy *adding up in chunks.*

216 + (100 + 40 + 9)
216 + 100 = 316
316 + 40 = 356
356 + 9 = 356 + (4 + 5)
356 + 4 = 360 + 5 = 365

One number is kept whole, and the second number is broken into easy-to-use chunks.

236 – 79 =



1 + 20 + 100 + 36 = 157

This third grader used an *open number line* by adding up in chunks. He started at 79 and counting up to 236 in order to subtract.
Students are encouraged to use this strategy in a way that makes sense to them.

Students choose to use friendly numbers to make it easier when doing mental computation.

Students may solve a subtraction problem by *keeping a constant difference*.

236 – 79 =

(236 + 1) – (79 + 1) =
237 – 80 = 157

By adding 1 to 236 and making 237, as well as adding 1 to 79 to make 80 (*keeping the difference constant*) this student makes it easier to subtract.

Multiplication and Division Strategies

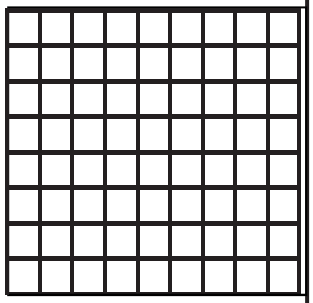
4 x 9

9 + 9 + 9 + 9 = 36

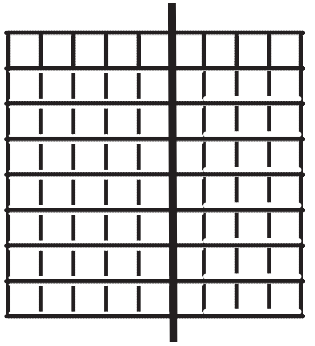
9 + 9 = 18	**OR**	**9 + 9 = 18**
18 + 9 = 27		**9 + 9 = 18**
27 + 9 = 36		**18 + 18 = 36**

Students have opportunities to show their thinking in multiple ways that make sense to them.

Once students understand the concept of repeated addition, they move to understanding how arrays represent multiplication facts.



This grid shows an 8 x 9 array. Students soon recognize that facts can be made up of smaller facts.



Here a student has split 8 x 9 into two arrays, namely 8 x 5 and 8 x 4. This helps to make the computation easier.

Grade 3 Unit 1
Numbers and Operations in Base Ten

Volume 1 Issue 1

References

Helpful Links:

Math Facts Interactive Game
https://www.varsitytutors.com/aplusmath/flashcards/flashcard-creator

http://www.fun4thebrain.com/addition.html

http://www.fun4thebrain.com/subtraction.html

http://www.sheppardsoftware.com/math.htm#placevalue

Dear Parents,

Welcome to the new school year! We are eager to work with you and your students as we learn new mathematical concepts. Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly.

Concepts Students will Use and Understand

- Estimate sum and/or difference of numbers
- Apply estimation to solve problems, and determine when it is necessary or appropriate to apply estimation strategies
- Add and subtract numbers within 1000 fluently, accurately, efficiently (using a reasonable amount of steps and time), and flexibly using a variety of strategies BEYOND the standard algorithm
- Add and subtract both vertically and horizontally and apply the commutative and associative properties.
- Understand how to use an inverse operation to verify computation accuracy.
- Demonstrate place value understanding beyond algorithms or procedure for rounding.
- Round numbers to the nearest 10s and 100s
- Solve 2-step word problems with addition and subtraction

Vocabulary

- **Addend**: a number being added. In 5 + 9 = 14, 5 and 9 are addends and 14 is the sum.
- **Associative Property of Addition**: when there are three addends, the sum does not change regardless of which two numbers you group together first.
- **Commutative Property of Addition**: the order in which two numbers are added does not change the sum. As in: 9 + 7 = 16 and 7 + 9 = 16
- **Difference**: the answer obtained when you subtract two numbers
- **Operations**: addition, subtraction, multiplication and division
- **Sum**: the answer obtained when you add two numbers
- **Inverses**: operations that undo each other, such as addition and subtraction

Try http://www.amathsdictionaryforkids.com/ for further examples.

Symbols

+ addition
- subtraction
× or • multiplication
÷ division

Examples 1

248 + 345 =
500 + 80 + 13
500 + 80 = 580
580 + 13 = 593

$$\begin{array}{r} 248 \\ +345 \\ \hline 500 \\ 80 \\ +\ 13 \\ \hline 593 \end{array}$$

Here, two students used the *partial sums* strategy and recorded their thinking in two different ways. Breaking apart the numbers helps make it easier to compute.

Example 2

326 + 247 =
(326 – 3) + (247 + 3) =
323 + 250 = 573

This example shows how a student could use *compensation* to solve an addition problem.

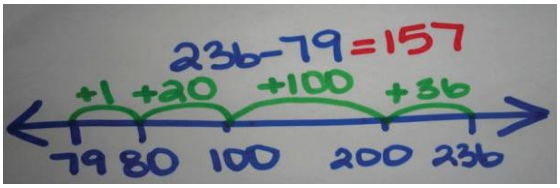
Example 3

216 + 149 =

216 + (100 + 40 + 9)
216 + 100 = 316
316 + 40 = 356
356 + 9 = 356 + (4 + 5)
356 + 4 = 360 + 5 = 365

Third graders can also use the strategy adding up in chunks. One number is kept whole and the second number is broken into easy-to-use chunks.

Example 4



This third grader used an *open number line* by adding up in chunks. He started at 79 and counting up to 236 in order to subtract.

1 + 20 + 100 + 36 = 157

Students are encouraged to use this strategy in a way that makes sense to them.

Example 5

There are 178 fourth graders and 225 fifth graders on the playground. What is the total number of students on the playground?

Home Activities:

Copy a license plate number as you are traveling or watching cars go by. Ask your child to read the license plate as a number (excluding the letters). For example, if the license were 62ab315, the number would be sixty-two thousand three hundred fifteen. Find other license plates and let your child read their numbers. Is the new number less than, greater than, or equal to your first license plate? Ask your child to estimate the difference between your first number and another license plate. Is it about 10, 100, 1,000, or 10,000 more or less? Find the license plate with the greatest and smallest number on it.

Play the game "What's the Difference?" The object is to make the smallest difference (answer in a subtraction problem). You will need at least two players and playing cards (Ace =1) through 10 (10=0). Place the deck face down. A player draws a card from the deck and places it face up. Each player selects a space on his game board and writes the number of the card on that space. Game boards can be drawn on paper as shown below:

Players draw five more cards to fill in their game cards. As shown below:

Player 1	**Player 2**
522	657
367	232

Players complete the subtraction. The player with the smallest difference is the winner for the round and scores 1 point. In the event of a tie, each player receives 1 point. Any negative difference causes that player to strike out for that round. The winner of the game is the player with the most points after a set number of rounds or a set time limit.

Grade 3 Unit 2
Beginning Multiplication and Division

Volume 1 Issue 1

References

Helpful Links:

http://www.aplusmath.com/Flashcards/Flashcard_Creator.html

http://www.funbrain.com/math/index.html

http://www.primarygames.com/flashcards/multiplication/start.htm

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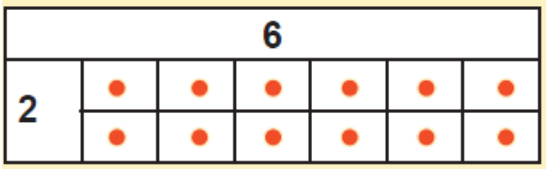
Concepts Students will Use and Understand

- Multiply and divide within 100, using concrete manipulatives to demonstrate arrays, equal groups and measurement
- Use estimation to determine reasonableness of products and quotients computed
- Understand how to use inverse operations to verify accuracy of computation
- Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.
- Apply 2 of the properties of operations (commutative, associative) as strategies to multiply and divide

Vocabulary

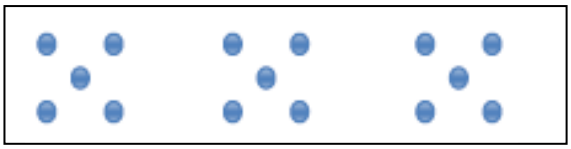
- **Factors**: two or more whole numbers multiplied together to get a given number called the product
- **Product**: the result of multiplication
- **Array:** the arrangement of objects in equal rows. Example:



- **Quotient**: the result of division
- **Dividend**: number being divided; total amount being dividing into groups. Ex. 24 8 =3; 24 is the dividend, 8 is the divisor, and 3 is the quotient.
- **Divisor**: number dividing into the total; may be the number of groups or the number of items in a specific number of groups.
- **Equal**: having the same value.
- **Commutative Properties**: numbers may be added or multiplied together in any order.
- **Associative Properties**: no matter how the numbers are grouped, the answers will always be the same.

Try http://www.amathsdictionaryforkids.com/ for further examples.

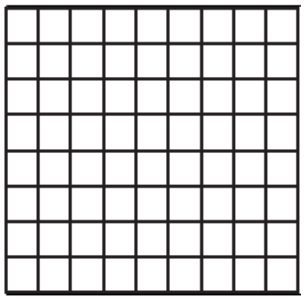
Examples of Multiplication Strategies



This shows multiplication using grouping with 3 groups of 5 objects and can be written as 3 × 5

Once students understand the concept of repeated addition, they move to understanding how arrays represent multiplication facts.

This grid shows an 8 x 9 array. Students soon recognize that facts can be made up of smaller facts.



Symbols

+ addition

- subtraction

× or • multiplication

÷ division

Examples of Division Strategies

The most important division concept is the understanding of equal shares.

20 ÷ 5

Students explore division using strategies. One such strategy involves *repeated subtraction*.

20
- 5
15
- 5
10
- 5
5
- 5
0

Third graders could use a multiply up strategy. This involves finding the solution to a division problem through multiplication.

45 ÷ 3
3 x 10 = 30
3 x 5= 15
30 + 15 = 45

10 + 5 = 15 so, 3 x 15 = 45

Home Activities:

A Fair Share. Give your child the responsibility of sharing a box of markers, a bag of candy, or a package of baseball cards equally among two, three, or four family members or friends. Remember that it won't always work out equally and it is okay to have remainders.

Break My Eggs. This game can be played with two or more players. Write numbers (0-10) in the holes on the bottom of an empty egg carton. Label one hole BONUS for 10 extra points. Put two manipulatives (marbles, dried beans, etc.) in the egg carton. Close the lid and let your child shake the carton. Using the numbers on which the manipulatives landed, the player multiplies. The answer is the points earned for that turn. If one or both of the manipulatives land on the hole labeled BONUS, add 10 points to the score and shake again. Keep a total of points. Players may play as teams or keep score individually.

Grade 3 Unit 3
Extending Multiplication and Division

Volume 1 Issue 3

References

Helpful Links:

A+ Math Flashcard Creator (create flashcards at home to practice your skills)
https://www.varsitytutors.com/aplusmath/flashcards/flashcard-creator

Math Baseball (practice addition, subtraction, multiplication, and division while playing Math Baseball -- where every correct answer scores a homerun)
http://www.funbrain.com/math/index.html

Two Minute Warning (race against the clock to see how many problems you can answer in two minutes)
http://www.primarygames.com/flashcards/multiplication/start.htm

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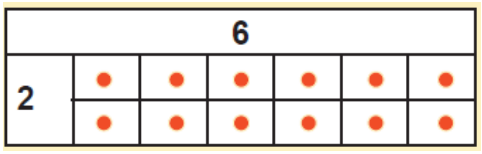
Concepts Students will Use and Understand

- Use mental math to multiply and divide
- Demonstrate fluency with the multiplication facts up to 10 x10
- Use estimation to determine reasonableness of products and quotients
- Read, interpret, solve, and compose simple word problems dealing with multiplication and division.
- Use inverses to verify accuracy of computation
- Write and solve expressions using symbols in place of numbers
- Apply patterns and rules to describe relationships and solve patterns

Vocabulary

- **Factors**: two or more whole numbers multiplied together to get a given number called the product
- **Product**: the result of multiplication
- **Array:** the arrangement of objects in equal rows. Example:



- **Quotient**: the result of division
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- **Commutative Properties**: numbers may be added or multiplied together in any order.
- **Associative Properties**: no matter how the numbers are grouped, the answers will always be the same.
- **Distributive Properties**: The sum of two addends multiplied by a number is the sum of the product of each addend and the number

Try http://www.amathsdictionaryforkids.com/ for further examples.

symbols

+ addition

- subtraction

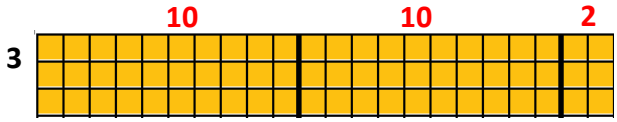
× or • multiplication

÷ division

Example Strategies of Multiplication

Example 1

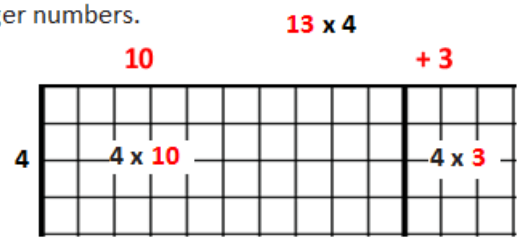
Students move to building larger arrays (also called the *area model of multiplication).*



A student has shaded an array, **22 x 3**, on grid paper.

Example 2

Third graders progress to diagrams that explain the *area model of multiplication* with larger numbers.



Example 3

Familiarity with the area model above allows students to move to working with partial products.

4 x 13
4 x (10 + 3)
(4 x 10) + (4 x 3)
40 + 12 = 52

Example Strategies for Division

Example 1

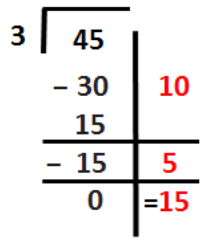
This third grader has used the multiply up strategy. This involves finding the solution to a division problem through multiplication.

45 ÷ 3
3 x 10 = 30
3 x 5= 15
30 + 15 = 45

10 + 5 = 15 so, 3 x 15 = 45

Example 2

Another strategy a third grader may use is the *partial quotient* strategy.



45 ÷ 3 = 15

Home Activites:

Here are some story problems and activities that students could see in the classroom.

1. Tyler and Hailey are playing a game called "Chance". They get three points every time they draw a blue card and five points every time they draw a red card. Whoever gets 75 points first wins the game. Tyler has 41 points now and he has 9 cards. How many cards does he have of each color? Explain your thinking using words, numbers or pictures.

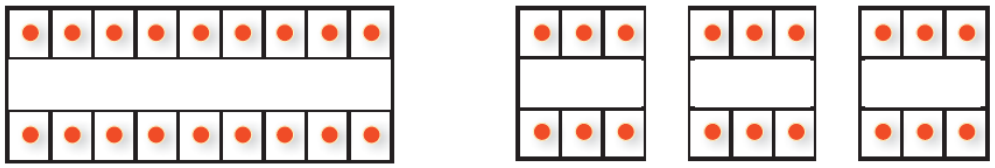
Possible solutions:
I thought of multiples of 3 and multiples of 5 and added them together to try to get 41.
3: 3, 6, 9, 12, 15, 18, 21 5: 5, 10, 15, 20, 25, 30, 35, 40, 45

Tyler could have two blue cards and seven red cards because 2×3=6, 7×5=35, and 6+35 =41 points, and 2+7= 9 cards.

2. There are 24 slices of pizza. How many slices would each person get if there were: Three people? Four people? Six people? Eight people? Twelve people?

Three people would each get 8 slices; four people would each get 6 slices; six people would each get 4 slices; eight people would each get 3 slices; twelve people would each get 2 slices.

3. There are 18 people coming for dinner. How can we set up tables to seat everyone? No one will sit at the head or the foot of the tables. Draw rectangles to represent the tables and mark to show where someone will sit.



4. Find the missing number in the function

Input	Output
7	49
3	21
10	70
5	?
?	56

I noticed that 7 x 7 =49 and 7 x 3 = 21 and 7 x 10 =70. So I decided that 7 x input = output. Then I multiplied 7 x 5 to get 35 and worked backwards to get 8 by dividing: 56 ÷ 7.

5. Look for patterns in nature and environment, such as, "If one chair has 4 legs, how many legs do 5 similar chairs have?

Grade 3 Unit 4:
Representing and Comparing Fractions

Volume 4 Issue 1

References

Helpful Links (Fractions):

http://mrnussbaum.com/tonyfraction/

http://www.primarygames.com/fractions/2a.htm

http://www.mathplayground.com/Scale_Fractions.html

http://www.mathsisfun.com/numbers/fractions-match-words-pizza.html

Helpful Links (Area & Perimeter):

http://interactivesites.weebly.com/areaperimeter.html

http://www.mathplayground.com/area_perimeter.html

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Concepts Students will Use and Understand: Fractions

- Develop an understanding of fractions, beginning with unit fractions.
- Understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one.
- Solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.
- Recognize that the numerator is the top number (term) of a fraction and that it represents the number of equal-sized parts of a set or whole; recognize that the denominator is the bottom number (term) of a fraction and that it represents the total number of equal-sized parts or the total number of objects of the set
- Compare common fractions with like denominators and tell why one fraction is greater than, less than, or equal to the other
- Represent halves, thirds, fourths, sixths, and eighths using various fraction models
- Interpret line plots
- Partitions shapes in several different ways into equal parts of halves, thirds, fourths, sixths, and eighths and recognizes the partitioned parts have the same area.

Concepts Students will use and understand: Perimeter

- Students develop an understanding of the concept of perimeter by walking around the perimeter of a room, using rubber bands to represent the perimeter of a plane figure on a geoboard, or tracing around a shape on an interactive whiteboard. They find the perimeter of objects; use addition to find perimeters; and recognize the patterns that exist when finding the sum of the lengths and widths of rectangles.
- Given a perimeter and a length or width, students use objects or pictures to find the missing length or width. They justify and communicate their solutions using words, diagrams, pictures, numbers, and an interactive whiteboard.
- Students use geoboards, tiles, graph paper, or technology to find all the possible rectangles with a given area (e.g. find the rectangles that have an area of 12 square units.) They record all the possibilities using dot or graph paper, compile the possibilities into an organized list or a table, and determine whether they have all the

Area	Length	Width	Perimeter
12 sq. in.	1 in.	12 in.	26 in.
12 sq. in.	2 in.	6 in.	16 in.
12 sq. in	3 in.	4 in.	14 in.
12 sq. in	4 in.	3 in.	14 in.
12 sq. in	6 in.	2 in.	16 in.
12 sq. in	12 in.	1 in.	26 in.

possible rectangles. Students then investigate the perimeter of the rectangles with an area of 12.

- The patterns in the chart allow the students to identify the factors of 12, connect the results to the commutative property, and discuss the differences in perimeter within the same area. This chart can also be used to investigate rectangles with the same perimeter. It is important to include squares in the investigation.

Vocabulary: Fractions

- **Common Fraction**: A number used o name a part of a group, or a whole containing a fraction bar, a numerator and a denominator.
- **Unit Fraction**: any common fraction with a numerator of one
- **Numerator:** the top number in a common fraction representing the number of equal parts of a whole or group under consideration.
- **Denominator**: the bottom number of a fraction that represents the number of equal parts of a whole or set that has been divided into.
- **Equivalent**: equal amount

Vocabulary: Area & Perimeter

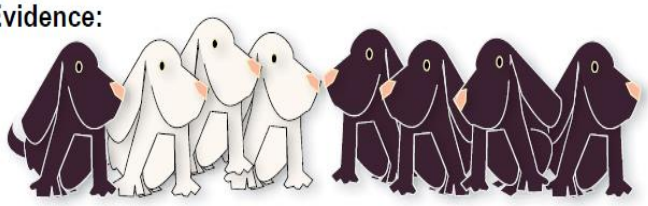
- **Perimeter**: is the distance around a two dimensional shape, or the measurement of the distance around something; the length of the boundary.
- **Area**: the amount of surface the 2D covers. It is measured in square units.

Try http://www.amathsdictionaryforkids.com/ for further examples.

Examples: Fractions

1. Kim's dog had eight puppies. Five of the puppies are dark brown, the rest of them are white. What fraction of the puppies is dark brown? What fraction of the puppies is white?

Case Closed - Evidence:



There are 8 puppies in all so $\frac{5}{8}$ of the puppies are dark brown and $\frac{3}{8}$ of the puppies are white.

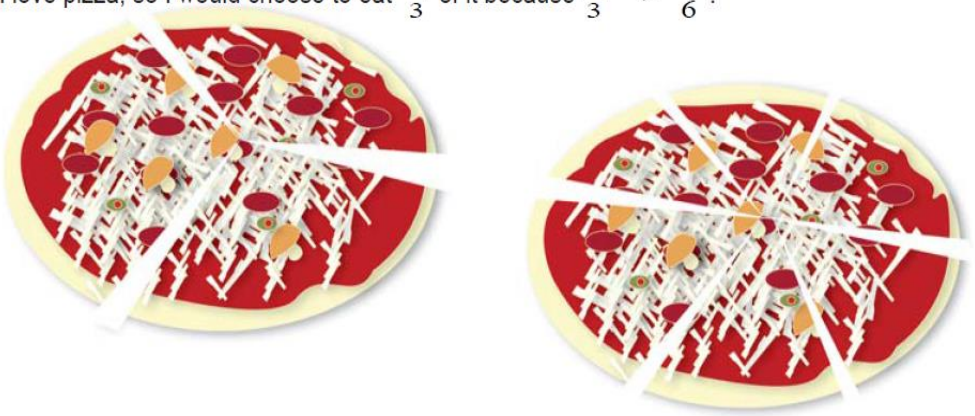
2. You and your two best friends are going to share a chocolate bar. How could you share the chocolate bar so everyone has an equal share? What fraction of the chocolate bar would each person get to eat? Use pictures, words and numbers to explain your answer.

Case Closed - Evidence:

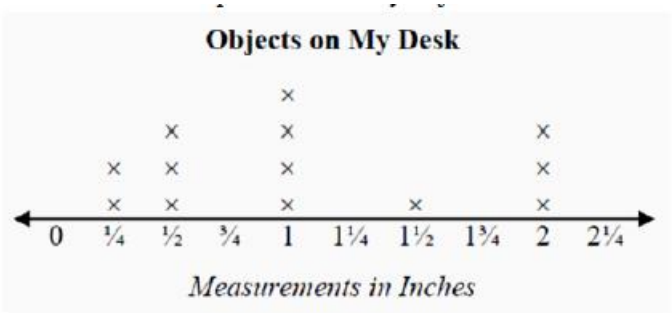
Since there are three of us altogether, there would need to be three equal shares. That means that the denominator will be 3. Each one of us would get one share, so the top number, the numerator, will be 1. Each of us will get 1/3 of the chocolate bar.

3. Your big brother bought a pizza. He said you can have either 2/3 or 3/6 of the pizza. Which would you choose? Why? Use pictures, words, and numbers to explain your answer.

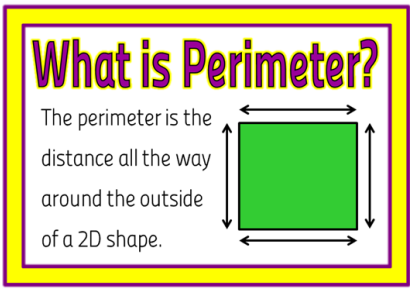
Case Closed - Evidence:
I love pizza, so I would choose to eat $\frac{2}{3}$ of it because $\frac{2}{3} > \frac{3}{6}$.

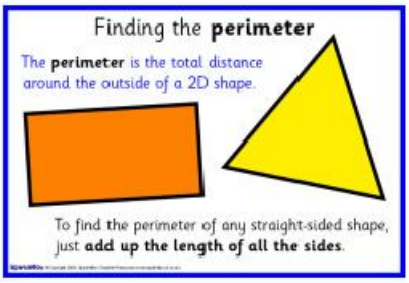


Examples of Line Plots



Examples of Area & Perimeter:





Home Activities: Fractions

Drop a handful of pennies (or other coins) on a table. Ask your child, "How many coins landed heads-up? How many coins landed tails-up? What fraction of the total coins is heads-up? What fraction is tails-up?"

Make a favorite recipe with your child. Help your child do the measuring.
Try these No-Bake Cookies:
3 ½ tablespoons butter
4 tablespoons golden syrup
4 ounces semisweet chocolate, chopped
2 ¾ cups cornflakes cereal
In a saucepan over low heat, combine the butter, golden syrup and chocolate. Cook and stir until butter and chocolate have melted and everything is well blended. Mix in the cornflakes cereal.
Drop by heaping spoonfuls onto waxed paper or a buttered baking sheet. Place in the refrigerator until set, about 15 minutes.

Make a pan of brownies and let your child share them equally with your family or friends. Ask your child what fraction of the total batch each person will get.

Empty a small bag of M&M's on a table. Allow your child to estimate what fraction of the candies are red, yellow, green, orange, and brown. Have them separate by colors and determine the correct fractio for each color.

Home Activities: Area & Perimeter

1. Using straws cut into lengths of 2, 4, and 6 inches, along with pipe cleaners cut into 2-inch pieces, students explore perimeter by making polygons with sides of various lengths. They measure and record the lengths then draw the shapes in their math notebooks, annotating the length of each side along with the total perimeter.

2. The fence around the garden is a triangle. Each side measures 8 feet. How long is the fence? Draw and explain.

3. On your little league baseball team, you run the bases pretty fast. The distance between each base is 40 feet. How far do you run when you hit a home run?

4. The route from home to school is 6 blocks, from school to soccer practice is 8 blocks, from soccer practice to Tommy's is 7 blocks, and then 5 more blocks to home again. What is the round trip distance?

5. The garden at church measures 13 feet wide by 18 feet long. What is the perimeter?

6. The stop sign at the corner measure 12 inches on a side. What is the measure around the octagon?

Grade 3 Unit 5
Geometry

Volume 5 Issue 1

References

Helpful Links:

http://www.mathcats.com/explore/polygons.html - exploring polygons

http://www.math-play.com/Polygon-Game.html - name the shape

https://www.turtlediary.com/games/third-grade/geometry.html - geometry games

Dear Parents,

We are eager to work with you and your students as we learn new mathematical concepts. Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly.

Concepts Students Will Use and Understand

- Further develop understandings of geometric figures by focusing on identification and descriptions of plane figures based on geometric properties.
- Identifies examples and non-examples of plane figures based on geometric properties.
- Identify differences among quadrilaterals.
- Understand that shapes in different categories may share attributes and those attributes can define a larger category (example: rhombuses, rectangles, and others have four sides and are all called quadrilaterals).
- Can draw plane figure shapes based on attributes.
- Develop an understanding of fractions, beginning with unit fractions, by partitioning shapes into equal parts and area.

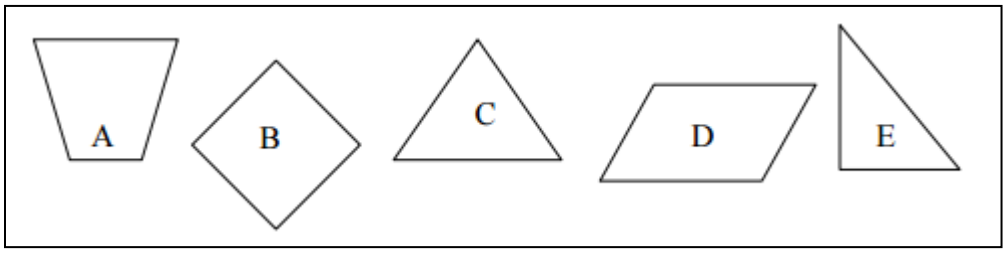
Vocabulary

- **Parallelogram**: A quadrilateral with opposite sides that are parallel and of equal length and with opposite angles that are of equal measure.
- **Plane figure**: A two-dimensional shape such as a rectangle or a square.
- **Polygon**: A closed plane figure made with three or more sides and angles.
- **Quadrilateral**: A four sided polygon.
- **Rectangle:** A quadrilateral with four right angles and two pairs of opposite, equal parallel sides.
- **Rhombus**: A parallelogram with four equal sides and equal opposite angles.
- **Square**: A quadrilateral with four equal sides, four right angles, and opposite sides parallel.
- **Triangle**: A polygon with three sides.
- **Trapezoid**: A quadrilateral with one pair of parallel sides.

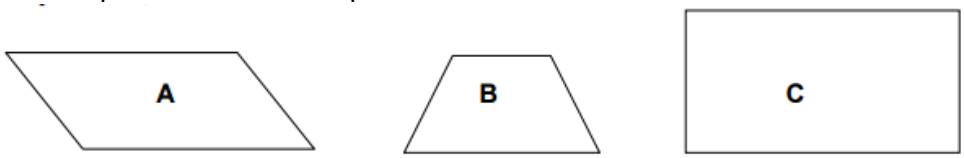
Try http://www.amathsdictionaryforkids.com/ for further examples.

Examples: Geometry

Sort shapes into groups by attributes. Identify the shape and describe it.

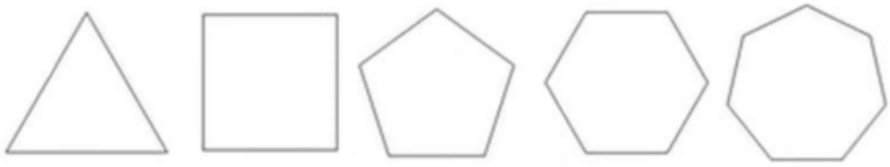


Use these shapes to answer the questions.



1. I have 4 sides. My opposite sides are equal. I have 4 right angles. Which shape am I? Why?
2. I have 4 sides. I have only 1 pair of parallel sides. Which shape am I? Why?

What do these shapes have in common?



Name the shape, describe the attributes of each.

Activities at Home

- Use grid paper to create congruent shapes.
- Identify, describe, and classify different household objects as solid figures.
- Use tangrams to make plane figures.
- Cut pieces of yarn to make line segments. Measure each segment in inches (to the nearest quarter inch) and centimeters.
- Go stargazing and make imaginary line segments by connecting the stars (points). Create geometric shapes.
- Go on a shape hunt! Look for geometric shapes in your home and community. Create a chart to show your findings.

Grade 3 Unit 6
Measurement

Volume 6 Issue 1

References

Helpful Links:

https://www.splashlearn.com/measurement-games-for-3rd-graders

Which Metric Unit is Appropriate? http://www.ixl.com/math/grade-3/which-metric-unit-is-appropriate

Dear Parents,

We are eager to work with you and your students as we learn new mathematical concepts. Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly.

Concepts Students Will Use and Understand

- Tell and write time to the nearest minute and measure time intervals in minutes.
- Solve elapsed time, including word problems, by using a number line diagram.
- Reason about the units of mass and liquid volume.
    - Understand that larger units can be subdivided into equivalent units (partition).
    - Understand that the same unit can be repeated to determine the measure (iteration).
    - Understand the relationship between the size of a unit and the number of units needed (compensatory principle).

Vocabulary

- **Elapsed Time** – the amount of time that passing between one time and another time
- **Hour**- unit of time, 60 minutes equals an hour
- **Minute**- unit of time, 60 seconds equals a minute
- **Liquid volume** – quantity of 3-Dimensioanl space occupied by a liquid
- **Mass**- quantity of matter in an object

Try http://www.amathsdictionaryforkids.com/ for further examples.

Examples: Time

1. Create a T-Chart with the start time and end time. Then work in increments, listing the amount of time on the side. Add up the times when finished.

Ashley starts eating at 11:30 p.m. She finished eating lunch 35 minutes later. Which clock shows the time Ashley finishes eating lunch?

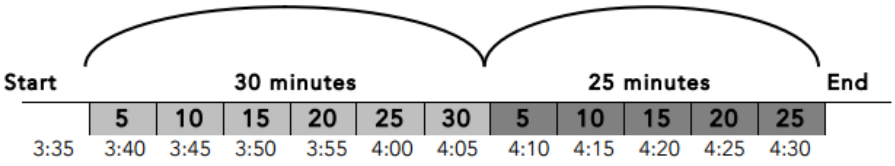
Time	Minutes
11:30	
12:00	+ 30 min.
12:05	+ 5 min.

> 35 minutes

2. Hold students accountable for their time. If you say that they have five minutes to finish a task, set a timer and stick to it. Students have to own a sense of time for elapsed time to make any sense. Start engraining time in your day, every day, and students will start to internalize it themselves. Ask a time question every day

3. Use a number line to illustrate elapsed time.

Jen started her homework at 3:35. She read her chapter book for 30 minutes and studied her multiplication facts for 25 minutes. What time did Jen finish her homework?



Example: Measurement

They will need to measure and estimate liquid volumes and masses as well as solve one-step word problems using addition, subtraction, multiplication, and/or division.

Activities at Home

- Share and discuss tables and graphs found in newspapers and magazines.
- Conduct a survey among family members or friends and construct a bar graph or
- pictograph.
- Make a physical pictograph using real objects (e.g., fruits, vegetables, cereal, kitchen tools). Record the graph on paper. Change the scale to create a new pictograph.
- Make records of important times of the day (wake-up, dinner, going to school, getting home from school, etc.) and practice telling how long between activities.
- Calculate elapsed time by finding out how long it takes to complete daily activities (soccer practice, homework, take a shower, etc.).
- Measure the perimeter and area of the rooms in your home to determine which rooms are the smallest and largest.
- Use grid paper to make rectangles with the same perimeters. Determine the area of each rectangle.
- Fill a small box with blocks (e.g., sugar cubes) to determine its volume. Brainstorm multiple strategies to determine the volume.

Third Grade Unit 7
Review, Mastery, and Extend

Volume 7 Issue 1

References

Helpful Links:
Links for Parents to build background knowledge to preview 4th Grade:

(4.NBT.2)
https://learnzillion.com/resources/72467-read-write-and-compare-multi-digit-whole-numbers-4-nbt-a-2

(4.NBT.3)
https://learnzillion.com/resources/72547-round-multi-digit-whole-numbers-to-any-place-4-nbt-a-3

(4.NBT.4)
https://learnzillion.com/resources/73029-add-and-subtract-using-the-standard-algorithm-4-nbt-b-4

(4.MD.2)
https://www.ixl.com/math/grade-4/find-start-and-end-times-multi-step-word-problems

Dear Parents,

Third Grade is coming to an end! At this time, students are reviewing standards learned, mastering standards, and possibly previewing standards for fourth grade. The third-grade focus was to:

- Multiply and divide within 100
- Represent and compare fractions

Concepts students may preview for 4th Grade

- 4.NBT.2 Read, write and compare multi-digit whole numbers using < = >
- 4.NBT.3 Use place value to round numbers
- 4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm
- 4.MD.2 Use four operations to solve word problems with intervals of time

Vocabulary

- **Digit:** any of the numerals from 0 to 9.
- **Expanded Form:** 463,732= 400,000 + 60,000 + 3,000 + 700 + 30 + 2
- **Place value:** value of a digit according to its place in a number
- **Standard Form:** 463,732-an amount represented using numerals
- **Whole numbers:** natural numbers including zero (0, 1, 2, 3, …)

Example 1

How is the 2 in the number 8,286 similar to and different from the 2 in the number 8,528?

Example 2

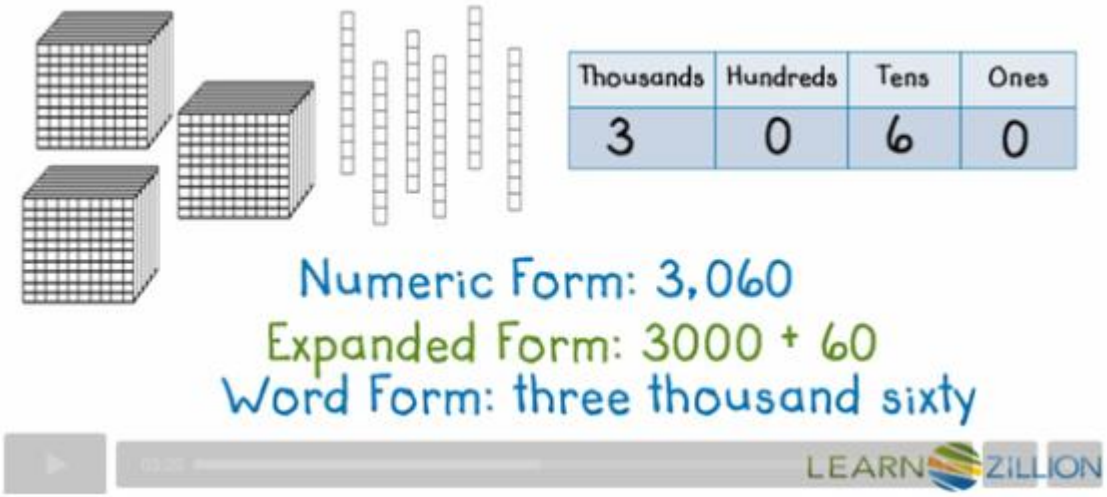
Students should be able to explain why the algorithm works.

Example: 3892
+ 1567

Student explanation for this problem:

1. Two ones plus seven ones is nine ones.
2. Nine tens plus six tens is 15 tens.
3. I am going to write down five tens and think of the10 tens as one more hundred.(*Denotes with a 1 above the hundreds column*)
4. Eight hundreds plus five hundreds plus the extra hundred from adding the tens is 14 hundreds.
5. I am going to write the four hundreds and think of the 10 hundreds as one more 1000. (*Denotes with a 1 above the thousands column*)
6. Three thousands plus one thousand plus the extra thousand from the hundreds is five thousand.

Example 3



Rounded to the nearest hundred=3100 and rounded to the nearest thousand= 3000.

Example 4

Your mother takes a 2 hour nap after work. If she went to sleep at 4:15pm, what time did she wake up?

Home Activities

- Before a car trip, ask your child to read the odometer. Write the number down. When you reach the new destination have your child read the odometer again and to subtract to find the distance traveled.
- Have your children compare whole numbers in daily routines by looking at the paper, watching the news, reading road signs, addresses etc.
- Incorporate time in everyday activities having your child tell you what time to get ready and leave to places etc.