FREEHOLD BOROUGH SCHOOL DISTRICT
280 Park Avenue
Freehold, NJ 07728
Monmouth County

Office of Curriculum & Instruction

Course Title: Mathematics

Grade: 3

Board of Education Adoption Date: November 10, 2014
Document F #4

Freehold Borough Board of Education

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Freehold Borough School District

District Mission

We will inspire the creativity and imagination of all students and empower them as knowledgeable, skillful, and confident learners who flourish and contribute willingly in a changing world.

Core Beliefs

We believe that:

- All people have inherent worth.
- Life-long learning is basic to the survival and advancement of society.
- The primary influence on the individual's development is the family in all its forms.
- Valuing diversity is essential to individual growth and the advancement of society.
- All individuals have strengths and human potential has no known limits.
- Democracy thrives when individuals accept responsibility for their choices.
- Being trustworthy builds trust.
- Creativity and imagination are essential for society to flourish.
- A safe environment is essential for the well-being of the individual and for society to flourish

Freehold Borough School District

Philosophy

The philosophy for our curriculum is developed with a democratic system of beliefs and values. Believing that our students deserve the best education, our curriculum is aligned to the most current New Jersey Core Curriculum Content Standards and current statewide assessments. Our scope and sequence is vertically and horizontally aligned. The progression of objectives embraces decades of rigorous research, conducted both independently and at the university level, and acknowledges that children develop differently and that learning experiences and strategies for performance are differentiated. Our borough is a diverse community, rich in tradition and spirit. Knowledge is a fusion balancing authentic experience and content, which language arts literacy skills are integrated with other content areas. Our curriculum contains common expectations that are rigorous and student centered, and teachers, who are most proximal to the children, will use this document as an instrument to ensure student success.

To ensure that our children are successful and receive the best education, this curriculum document, our staff will continuously collaborate on this living document. We will develop purposeful and effective formative and summative assessments which measure growth of our curriculum and inform our instruction. Finally, we will continuously seek to grow professionally through professional development, which is aligned to statewide regulations, but specifically geared to benefit our curriculum, school, and children.

General Curriculum & Instruction Objectives

- Teachers will employ lessons that are aligned to our curriculum and framed utilizing current research-based methods and techniques that focus on student achievement
- Our lessons will be structured according to statewide and district standards and our teachers will have flexibility to ensure that lessons meet the needs of all learners
- Units and lessons will be differentiated
- Curriculum is be student focused on success and balances developmental theory and psychometric standards
- Democratically developed benchmarks and assessments will be utilized to gauge student and curricular growth. Assessment will be multidimensional and developed according to student need.

Freehold Borough School District
Mathematics – Grade 3

Pacing Guide (Scope & Sequence – M43, M44)

Marking Period 1	Marking Period 2	Marking Period 3	Marking Period 4
Multiplication • Multiplication as equal groups • Multiplication within 100 • Multiplication word problems involving equal groups, arrays, and measurement quantities • Unknown whole number in a multiplication equation relating three whole numbers • Multiplication problems represented using a variety of models **Division** • Division as equal shares • Division within 100 • Division word problems involving equal shares, arrays, and measurement quantities • Unknown whole number in a division equation relating three whole numbers • Division problems represented using a variety of models	**Multiplication & Division** • Properties of operations (Commutative, Associative, and Distributive) • Unknown whole number in multiplication and division equations • Fluently multiply and divide within 100 • Relationship between multiplication and division **Number patterns in arithmetic and the four operations** • Order of operations • Rounding and Estimating • Two-step word problems • Patterns **Number and Operations in Base Ten** • Rounding to the nearest 10 and 100 • Adding and subtracting within 1000 • Relationship between addition and subtraction • Place value: expanded form, value of digits • Use place value to multiply one digit numbers by multiples of 10	**Fractions** • Unit fractions (one part of the whole) • Fractions when a shape is partitioned into equal parts • Accumulated unit fractions to represent numbers equal to, less, than or greater than 1 • Equivalent fractions • Fractions on a number line • Nnumerators and denominators • Compare fractions (with the same numerator/with the same denominator) • Record results with comparative signs (<,>,=) **Geometry** • Area • Perimeter • Polygons • Quadrilaterals **Data and Graphing** • Bar Graphs • Picture Graphs • Line Plots • Scales of graphs • Analyze graphs	**Measurement – volume and mass** • Liquid volume in liters • Mass in grams and kilograms • Word problems for liquid volume or mass in the same unit • Add, subtract, multiply, or divide units in liters, grams, or kilograms **Time** • Time to the minute on analog and digital clocks • Estimate intervals of time • Time on a number line • Add or subtract intervals of time in minutes

Freehold Borough School District
Mathematics – Grade 3

Content Guide

Mathematics – Grade 3	Unit Title: **Multiplication**	Suggested Timeline: **MP 1**	Suggested Duration: **20-30 days**

Big Ideas

- Multiplication as equal groups
- Multiplication within 100
- Multiplication word problems involving equal groups, arrays, and measurement quantities
- Unknown whole number in a multiplication equation relating three whole numbers
- Multiplication problems represented using a variety of models

Standards

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.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.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
• Multiply within 100 • Find the product of multiple groups of objects • Interpret products of a whole number as a total number of objects in a number of groups • Solve word problems in situations involving equal groups, arrays, and measurement quantities. • Represent a word problem using a picture, an equation, with a symbol for the unknown, or in other	• **3.OA.1** • **3.OA.1** • **3.OA.1** • **3.OA.3** • **3.OA.3** • **3.OA.3**	Activities ▪ Use manipulatives to determine the total number of objects when there are a specific number of groups with the same number of objects in each group. ▪ Use a variety of representations for creating and solving one-step word problems, i.e, numbers words, pictures, physical objects, or equations. ▪ Use multiplication of whole numbers up to 10x10. Students explain their thinking, show their work by using at least one representation, and verify that their answer is reasonable. ▪ Represent word problems in multiple ways: ○ Equations; 3x4=?, 4x3=? ○ Array ○ Equal groups ○ Repeated addition ○ Equal jumps forward from 0 on a number line ▪ Have students create word problems with appropriate	• Multiplication Tables • Arrays • Counters/blocks • Flash Cards • Timed multiplication drills • District Text Resources: *EnvisionMath* • Topics #5 and #6 • Instructional Math websites Assessments • Given the products of 2 whole numbers A and B, students interpret A x B as the total number of objects in A groups of B objects each. • Interpret problem situations requiring multiplication using pictures, objects, words, numbers, and equations. • Use drawings and equations with a symbol

ways • Solve to find the unknown whole number in a multiplication equation		questions for a partner to solve by using strategies and writing a multiplication equation. ▪ Show equal groups on the board, have one student write the total using repeated addition and another write it using multiplication.	for the unknown number to represent the problem. • Teacher created assessments/worksheets • Textbook assessments from lessons in *EnvisionMath*

Mathematics – Grade 3	Unit Title: **Division**	Suggested Timeline: **MP1**	Suggested Duration: **20-30 days**

Big Ideas

- Division as equal shares
- Division within 100
- Division word problems involving equal shares, arrays, and measurement quantities
- Unknown whole number in a division equation relating three whole numbers
- Division problems represented using a variety of models

Standards

3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.

3.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.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
• Divide within 100 • Explain what division means and how it relates to equal shares • Interpret quotients as the number of shares or groups when a set of objects is divided equally • Solve word problems in situations involving equal groups, arrays, and measurement quantities.	• 3.OA.2 • 3.OA.2 • 3.OA.2 • 3.OA.3 • 3.OA.3	Activities ▪ Recognize the operation of division in two different types of situations. One situation requires determining how many groups and the other situation requires sharing. ▪ Use division of whole numbers within 100. Students explain their thinking, show their work by using at least one representation, and verify that their answers are reasonable. ▪ Have students use objects or manipulatives to divide a number of objects into equal groups or a number of objects evenly into a certain number of groups. ▪ Have students create word problems with appropriate questions for a partner to solve by using strategies and writing a division equation.	• Counters/blocks • Flash Cards • Timed division drills • District Text Resources: EnvisionMath • Topics #7 and #8 Assessments • Interpret a problem situation requiring division using pictures, objects, words, numbers, and equations. • Given a division expression, such as 24 ÷ 6, interpret the expression in contexts that require both interpretations of division. • Use drawings and equations with a symbol

• Represent a word problem using a picture, an equation, with a symbol for the unknown, or in other ways • Solve to find the unknown whole number in a division equation	• 3.OA.3		for the unknown number to represent the problem. • Determine the unknown whole number in a division equation relating three whole numbers. • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

Mathematics – Grade 3	Unit Title: **Multiplication and Division**	Suggested Timeline: **MP2**	Suggested Duration: **20-30 days**

Big Ideas

- Properties of operations (Commutative, Associative, and Distributive)
- Unknown whole number in multiplication and division equations
- Fluently multiply and divide within 100
- Relationship between multiplication and division

Standards

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× ? = 48, 5 = □ ÷ 3, 6 × 6 = ?

3.OA.5 Apply properties of operations as strategies to multiply and divide.2 Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)

3.OA.6 Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.

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

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
• Fluently multiply and divide within 100 • Explain how the properties of operations work (Commutative, Associative, Distributive) • Apply properties of operations as strategies	• 3.OA.4 • 3.OA.5 • 3.OA.5	Activities ▪ Model and show how two numbers can be multiplied in any order and the product remains the same. ▪ Model using multiplication to find the answer to division problems. ▪ Any division problem can be thought of as a multiplication fact showing a missing factor. ▪ Manipulate arrays to see that no matter how you set up a multiplication problem, the product will remain the same	• Multiplication Tables • Arrays • Counters/blocks • Flash Cards • Timed multiplication/division drills • District Text Resources: EnvisionMath • Topics #5, #6, #7 and #8 • Instructional Math websites

to multiply and divide • Identify the multiplication problem as related to the division problem • Identify the unknown factor in the related multiplication problem • Use multiplication to solve division problems • Know from memory all products of two one-digit numbers	• 3.OA.6 • 3.OA.6 • 3.OA.7 • 3.OA.7	(comm.. and assoc. properties). ▪ Break apart arrays to demonstrate the distributive property (i.e. 8 x 7 = 8 x (5+2) = 8 x 5 + 8 x 2 = 40+16) ▪ Have students find missing numbers in a multiplication table to relate division to multiplication (i.e. 15 ÷ 3 = 3 x ?). ▪ Create the fact families for multiplication and division. ▪ Identify patterns that demonstrate multiplication facts for 1's, 2's, 5's, 9's, and 10's. ▪ Apply multiplication facts of 1's, 2's, and 5's to 3's, 4's, 6's, 7's, and 8's.	Assessments • Apply all three properties of multiplication and explain why each works. • Utilize multiplication facts to understand division as an unknown factor problem. • Complete times multiplication and division tests to show fluency of both. • Solve word problems and choose multiplication or division strategies as a way to solve. • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

Mathematics – Grade 3	Unit Title: **Number patterns in arithmetic and the four operations**	Suggested Timeline: **MP2**	Suggested Duration: **20-25 days**

Big Ideas

- Order of operations
- Rounding and Estimating
- Two-step word problems
- Patterns

Standards

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. 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.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
• Know the order of operations • Know strategies for estimating • Solve two-step word problems using the order of operations • Construct an equation	• 3.OA.8 • 3.OA.8 • 3.OA.8 • 3.OA.8	Activities ▪ Use reasoning skills to break multi-step problems into first-step/second step problems. ▪ Teach ways to memorize the order of operations and apply to word problems by solving in the correct order. ▪ Use rhymes, poems, and number lines to teach rounding and estimation. ▪ Identify patterns that demonstrate multiplication facts for 1's, 2's, 5's, 9's, and 10's.	• Multiplication Tables • Arrays • Counters/blocks • Timed multiplication drills • District Text Resources: EnvisionMath • Topics #5, #6 and #9 • Instructional Math websites Assessments

with a letter standing for the unknown quantity • Identify arithmetic patterns such as even/odd numbers, patterns in an addition/multiplication table, and patterns regarding multiples and sums • Explain rules for a pattern using properties of operations • Explain relationships between the numbers in a pattern	• 3.OA.9 • 3.OA.9 • 3.OA.9		• Be able to break apart multi-step word problems into sub-problems and solve in the correct order. • Apply patterns to know whether products are reasonable. • Identify and explain the rule of patterns. • Apply patterns and the distributive property to break apart all even factor single-digit multiplication problems into two equivalent multiplication problems that can be added together to get the original product (i.e. 7 x 4 = 7 x (2+2) = 7 x 2 + 7 x 2 = 14 + 14). • Use rounding to estimate numbers and check for reasonableness. • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

Mathematics – Grade 3	Unit Title: **Number and Operations in Base Ten**	Suggested Timeline: **MP2**	Suggested Duration: **15-25 days**

Big Ideas

- Rounding to the nearest 10 and 100
- Adding and subtracting within 1000
- Relationship between addition and subtraction
- Place value: expanded form, value of digits
- Use place value to multiply one digit numbers by multiples of 10

Standards

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.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
▪ Round a whole	• 3.NBT.1	Activities ▪ Use number line to round to the	• Place value cards • Place value rods

number to the nearest 10 ▪ Round a whole number to the nearest 100 ▪ Fluently add and subtract within 1000 using known strategies ▪ Apply knowledge of place value to multiply one-digit whole numbers by multiples of 10 and the range 10-90	• 3.NBT.1 • 3.NBT.2 • 3.NBT.3	nearest 10 or 100. ▪ Use the value of the digits in the number to round up or down to the nearest 10 or 100. ▪ Break apart numbers by place value; expanded form. ▪ Practice addition and subtraction of numbers within 1000 with place value materials: ones cubes, tens rods, hundreds flats, and thousands cube (Model using overhead; document camera [ELMO], or interactive white board). ▪ Use place value charts and graph paper to organize numbers in tens, ones, hundreds, and thousands. ▪ Use pictorial models and abstract models to represent addition and subtraction with number sentences. ▪ Use a variety of strategies to add and subtract: ▪ Partial sums ▪ Column addition/subtraction ▪ Adding up ▪ Regrouping ▪ Look for patterns when multiplying one digit numbers by 10. ▪ Use place value cards	• District Text Resources: EnvisionMath Topics #1, #2 and #4 • National Library of Virtual Manipulatives • Number Club: A Game of Place Value http://edweb.sdsu.edu/courses/edtec670/cardboard/card/n/numberclub.html • http://www.mathwire.com/numbersense/placevalue.html • http://www.mathwire.com/numbersense/morepv.html Assessments ➢ Round whole numbers to the nearest 10 or 100 using the given rule of place value for rounding up or down. ➢ Explain an efficient strategy for adding and subtracting within 1000, and be able to accurately apply that strategy. ➢ Teacher created assessments/worksheets ➢ Textbook assessments from lessons in *EnvisionMath*

Freehold Borough School District
Mathematics – Grade 3

Mathematics – Grade 3	Unit Title: **Fractions**	Suggested Timeline: **MP3**	Suggested Duration: **15-20 days**

Big Ideas

- Unit fractions (one part of the whole)
- Fractions when a shape is partitioned into equal parts
- Accumulated unit fractions to represent numbers equal to, less, than or greater than 1
- Equivalent fractions
- Fractions on a number line
- Numerators and denominators
- Compare fractions (with the same numerator/with the same denominator)
- Record results with comparative signs (<,>,=)

Standards

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.

3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
▪ Recognize a unit fraction such as 1/4 as the quantity formed when the whole is partitioned into 4 equal parts ▪ Identify a fraction such as 2/3 and explain that the quantity formed when the whole is partitioned into 4 equal parts ▪ Use accumulated unit fractions to represent numbers equal to, less, than, and greater than one (1/3 and 1/3 is 2/3; 1/3, 1/3, 1/3, 1/3, and 1/3 is 4/3) ▪ Recognize simple equivalent fractions ▪ Recognize whole numbers written in fractional parts on a number line ▪ Explain what the numerator/denominator in a fraction represents and its location on a number	• 3.NF.1, 3.G.2 • 3.NF.1, 3.G.2 • 3.NF.1 • 3.NF.1 • 3.NF.1 • 3.NF.2 • 3.NF.2 • 3.NF.3	Activities ▪ Use various shapes divided into equal parts to model writing a fraction with numerator and denominator based on how many are shaded. ▪ Divide shapes into equal parts and have students shade in the correct part to model a fraction. ▪ Show how to add fractions by only changing the numerator. ▪ Model placing various fractions on a number line by dividing into equal parts.	• Fraction Tiles • Fraction Circles • Pizza Fractions • District Text Resources: EnvisionMath • Topic #12 • Fraction Games • http://www.oswego.org/ocsd-web/games/fractionflags/fractionflags.html • http://www.oswego.org/ocsd-web/games/fractionflags/ffthirds.html • http://resources.oswego.org/games/ • http://gamequarium.com/fractions2.html

line ▪ Recognize whether or not different fractions refer to the same whole ▪ Compare fractions if they refer to the same whole ▪ Compare fractions with the same numerator ▪ Compare fractions with the same denominator ▪ Record results of comparisons using <, >, =	• 3.NF.3 • 3.NF.3 • 3.NF.3		Assessments ➢ Add fractions and compare to 1 ➢ Recognize one unit fraction of a shaded figure ➢ Teacher created assessments/worksheets ➢ Textbook assessments from lessons in *EnvisionMath*

Mathematics – Grade 3	Unit Title: **Geometry**	Suggested Timeline: **MP3**	Suggested Duration: **15-20 days**
Big Ideas ➢ Area	➢ Perimeter	➢ Polygons	➢ Quadrilaterals

Standards

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 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.

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. 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.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
1. Define area as unit squares 2. Use unit squares on a plane figure to identify area	1. 3.MD.5 2. 3.MD.5 3. 3.MD.6 4. 3.MD.6	Activities ▪ Use graph paper to measure/count the area of a shape. ▪ Draw and cut out arrays of different areas.	• District Text Resources: EnvisionMath • Topic #5, #6, and #16 • Perimeter and Area Web Activities http://mathgoodies.com/lessons/toc_vol1.html http://www.funbrain.com/cgi-

3. Find the area of a rectangle by tiling it in unit squares 4. Use unit squares of cm, m, in, and ft to measure area 5. Compare area when tiling a rectangle to multiplying side lengths 6. Find area using an array 7. Add areas of rectangles 8. Solve real world math problems by multiplying to find area 9. Decompose rectilinear figures to find the area of each rectangle. 10. Define a polygon and perimeter 11. Find perimeter when given the side lengths 12. Find perimeter with an unknown side length 13. Exhibit rectangles with the same perimeter and different areas 14. Exhibit rectangles with the same area and different perimeter 15. Identify and define rhombus, rectangle, and squares as examples of quadrilaterals based on their attributes 16. Describe and compare	5. 3.MD.7 6. 3.G.2 7. 3.G.2 8. 3.MD.8 9. 3.G.2 10. 3.MD.8 11. 3.MD.8 12. 3.MD.8 13. 3.MD.8 14. 3.MD.8 15. 3.G.1 16. 3.G.1 17. 3.G.1 18. 3.G.1	▪ Create a multiplication chart using an array. ▪ Model the solution of one-digit and two-digit multiplication problems with an array model. ▪ Use floor tiles to create shapes and determine area by counting unit squares or multiplying l x w. ▪ Using color tiles, estimate the area of a rectangular shape. ▪ Using graph paper, estimate the area of an irregular shape, such as a leaf. ▪ Solve real world problems involving area of rectangular shapes. ▪ Use pattern blocks to find the perimeter of polygons using the side length. ▪ Use pattern blocks to find an unknown side of a polygon when given the perimeter on all but one side. ▪ Use a geoboard to construct rectangles with the same perimeter and different areas or with the same area and different perimeters. ▪ Identify/sort attributes that classify a shape as a quadrilateral. ▪ Use real world objects to categorize shapes into quadrilaterals and non-quadrilaterals. ▪ Use geoboards or dot paper to construct quadrilaterals.	bin/poly.cgi?A1=s&A2=0&A15=1&submit=Start+digging%2521 http://mathplayground.com/area_perimeter.html • Quadrilaterals Activities http://www.mathsisfun.com/quadrilaterals.html http://www.crickweb.co.uk/ks2numeracy-shape-and-weight.html#quad www.vectorkids.com/vkgeomatching.htm Assessments • Solve two-digit multiplication problems using the array model. • Accurately find the area of shapes by using square units or side lengths. • Solve real life world problems involving area of rectangular shapes. • Find the perimeter given the side lengths. • When perimeter is given find an unknown side length. • Solve real world and mathematical problems involving perimeters of polygons. • Recognize quadrilaterals and non-quadrilaterals. • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

properties of two-dimensional shapes 17. Compare and classify shapes by attributes, sides, and angles 18. Draw examples of quadrilaterals		▪ Use pattern block and dot paper to show fractional parts of a quadrilateral.	

Mathematics – Grade 3	Unit Title: **Data and Graphing**	Suggested Timeline: **MP3**	Suggested Duration: **15-25 days**

Big Ideas

- Bar Graphs
- Picture Graphs
- Line Plots
- Scales of graphs
- Analyze graphs

Standards

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. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.

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.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
▪ Explain and identify the scale of a graph with a scale greater than one ▪ Analyze a graph with a scale greater than one ▪ Choose a proper scale for a bar or picture graph ▪ Create a scaled	• 3.MD.3 • 3.MD.3 • 3.MD.3 • 3.MD.3 • 3.MD.3	Activities ▪ Use tables from newspapers of magazines to create bar graphs and solve problems about data represented in those graphs. ▪ Have class votes to create data using tally marks and use the data to create picture and bar graphs. ▪ Use rulers to create increments on a graph in whole numbers, halves, and quarters. ▪ Use classroom materials to measure objects to the quarter inch, half inch, and whole inch. Represent those	▪ Cool Graphing Website http://mrnussbaum.com/coolgraphing.htm ▪ Create a Bar Graph http://www.amblesideprimary.com/ambleweb/mentalmaths/grapher.html ▪ Create Picture Graphs and Bar Graphs http://nces.ed.gov/nceskids/createagraph/default.aspx ▪ Interactive Bar Graph http://www.shodor.org/interactivate/activities/BarGraph/ ▪ District Text Resources: *EnvisionMath* Topic #20 ▪ Instructional Math websites Assessments • Draw a scaled picture graph and a scaled bar graph. • Answer questions about picture and bar graph data.

picture or bar graph ▪ Solve one- or two-step problems asking "how many more?" and "how many less?" ▪ Define horizontal and vertical axis in a line plot ▪ Identify each plot on the line as data or a number of objects ▪ Analyze data from a line plot ▪ Read and create line plots with scales marked in whole, halves, and quarters	• 3.MD.4 • 3.MD.4 • 3.MD.4 • 3.MD.4	objects on a line plot where the horizontal scaled in marked in appropriate units <u>Interdisciplinary Connections</u> ▪ Use tables and graphs from Science and Social Studies textbooks to solve real-world problems from data and graphs.	• Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. • Make a line plot with horizontal scale in whole numbers, halves, or quarters. • Solve one- and two-step problems using graphs. • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

Mathematics – Grade 3	Unit Title: **Measurement – volume and mass**	Suggested Timeline: **MP4**	Suggested Duration: **15-25 days**

<u>Big Ideas</u>

- ➢ Liquid volume in liters
- ➢ Mass in grams and kilograms
- ➢ Word problems for liquid volume or mass in the same unit
- ➢ Add, subtract, multiply, or divide units in liters, grams, or kilograms

<u>Standards</u>

3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).6 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
▪ Measure liquid volume in liters ▪ Measure mass in grams	• 3.MD.2 • 3.MD.2	<u>Activities</u> ▪ Measure liquid using various measuring cups. ▪ Use a scale to measure the mass of various objects. ▪ Solve one-step word problems involving masses or	• Scales measuring in grams/kilograms • Beakers with liter scales • District Text Resources: EnvisionMath • Topic #14 and #15

and kilograms ▪ Know strategies to represent a word problem involving liquid volume or mass ▪ Solve one-step word problems involving mass or volume in the same units ▪ Add, subtract, multiply, and divide units of liters, grams, and kilograms	• 3.MD.2 • 3.MD.2 • 3.MD.2	volumes that are given on the same unit. ▪ Represent masses or volumes in drawings using measurement scales. ▪ Use various containers used in the real world to measure liquid quantities.	• Instructional Math websites Assessments • Accurately measure masses of objects and miquid volumes using standard units of grams, kilograms, and liters. • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

Mathematics – Grade 3	Unit Title: **Time**	Suggested Timeline: **MP4**	Suggested Duration: **15-20 days**

Big Ideas

- ➢ Time to the minute on analog and digital clocks
- ➢ Estimate intervals of time
- ➢ Time on a number line
- ➢ Add or subtract intervals of time in minutes

Standards

3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Student Learning Objectives	**Standards Addressed**	**Suggested Student Experiences**	**Suggested Resources / Materials**
▪ Recognize minute marks on an analog clock face and minute position on a digital clock face ▪ Write and tell time to the minute ▪ Use a number line diagram to add and subtract time intervals in	• 3.MD.1 • 3.MD.1 • 3.MD.1 • 3.MD.1	Activities ▪ Use model clocks and student clocks to practice telling time to the minute. ▪ Review counting by 5's to tell time on the 5's and use benchmark times to add more minutes and tell the exact time to the minute. ▪ Solve elapsed time word problems to the minute. ▪ Create a timeline of typical day's activities.	• http://www.teacherled.com/resources/elapsedtime/elapsetimelineload.html • http://nlvm.usu.edu/en/nav/vlibrary.html • http://brainpop.com/math/numbersandoperations/elapsedtime/ • http://www.brainpopjr.com/math/time/timetotheminute/preview.weml • http://www.abcya.com/telling_time.htm • www.ehow.com/list_6525014_activities-elapsed-time-3rd-grade.html • Model clocks and student clocks • Number lines

minutes ▪ Solve word problems involving addition and subtraction of time intervals in minutes		▪ Solve elapsed time word problems using an open number line.	• White boards/Dry erase markers • District Text Resources: EnvisionMath • Topic #17 • Instructional Math websites <u>Assessments</u> • Tell time to the minute on analog clocks • Solve elapsed time problems using an open number line • Teacher created assessments/worksheets • Textbook assessments from lessons in EnvisionMath

Appendix

Third Grade-Math

In this curriculum document, the 21st Century Themes and Skills are integrated in the following units:

Unit 1

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – 21st Century Themes			**Indicate whether these skills are: • E – encouraged • T – taught • A – assessed Standard 9.1 21st Century Life Skills**	
	Global Awareness		**E**	**Creativity and Innovation**
X	**Financial Literacy**		**A**	**Critical Thinking and Problem Solving**
	Health Literacy		**T**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**T**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 2

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – 21st Century Themes			**Indicate whether these skills are: • E – encouraged • T – taught • A – assessed Standard 9.1 21st Century Life Skills**	
	Global Awareness		**E**	**Creativity and Innovation**
X	**Financial Literacy**		**A**	**Critical Thinking and Problem Solving**
	Health Literacy		**T**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**T**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 3

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – 21st Century Themes			Indicate whether these skills are: • E – encouraged • T – taught • A – assessed Standard 9.1 21st Century Life Skills	
	Global Awareness		**E**	**Creativity and Innovation**
X	**Financial Literacy**		**A**	**Critical Thinking and Problem Solving**
	Health Literacy		**T**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**E**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 4

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – 21st Century Themes			Indicate whether these skills are: • E – encouraged • T – taught • A – assessed Standard 9.1 21st Century Life Skills	
	Global Awareness		**A**	**Creativity and Innovation**
X	**Financial Literacy**		**T**	**Critical Thinking and Problem Solving**
	Health Literacy		**E**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**E**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 5

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – **21st Century Themes**			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed** **Standard 9.1 21st Century Life Skills**	
	Global Awareness		**T**	**Creativity and Innovation**
X	**Financial Literacy**		**A**	**Critical Thinking and Problem Solving**
	Health Literacy		**E**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**A**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 6

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – **21st Century Themes**			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed** **Standard 9.1 21st Century Life Skills**	
X	**Global Awareness**		**A**	**Creativity and Innovation**
X	**Financial Literacy**		**T**	**Critical Thinking and Problem Solving**
	Health Literacy		**A**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**E**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 7

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – **21st Century Themes**			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed** **Standard 9.1 21st Century Life Skills**	
	Global Awareness		**A**	**Creativity and Innovation**
X	**Financial Literacy**		**T**	**Critical Thinking and Problem Solving**
	Health Literacy		**E**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**E**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 8

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – **21st Century Themes**			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed** **Standard 9.1 21st Century Life Skills**	
X	**Global Awareness**		**A**	**Creativity and Innovation**
X	**Financial Literacy**		**T**	**Critical Thinking and Problem Solving**
	Health Literacy		**T**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**A**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 9

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – **21st Century Themes**			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed** **Standard 9.1 21st Century Life Skills**	
X	**Global Awareness**		**T**	**Creativity and Innovation**
X	**Financial Literacy**		**A**	**Critical Thinking and Problem Solving**
	Health Literacy		**E**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**A**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**

Unit 10

In this unit plan, the following 21st Century themes and skills are addressed:				
Check ALL that apply – **21st Century Themes**			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed** **Standard 9.1 21st Century Life Skills**	
	Global Awareness		**T**	**Creativity and Innovation**
X	**Financial Literacy**		**A**	**Critical Thinking and Problem Solving**
	Health Literacy		**E**	**Communication (Interpersonal and Media Fluency)**
	Civic Literacy		**E**	**Collaboration and Teamwork**
	Career Awareness/Exploration		**E**	**Accountability, Productivity and Ethics**