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Revised on:	
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OCEAN COUNTY Mathematics Curriculum	
Content Area: Mathematics	
Course Title: Elementary	Grade Level: 3
Unit Plan 1: Number and Operations in Base Ten	Suggested: September-October Ongoing
Unit Plan 2: Operations and Algebraic Thinking	Suggested: October-November-December Ongoing
Unit Plan 3: Number and Operations-Fractions	Suggested: January-February Ongoing
Unit Plan 4: Measurement and Data	Suggested: March-April Ongoing
Unit Plan 5: Geometry	Suggested: May Ongoing

Standards for Mathematical Practice

The following standards for mathematical practice should be incorporated in all units.

MP.1 Make sense of problems and persevere in solving them.	<ul style="list-style-type: none"> ● Find meaning in problems ● Look for entry points ● Analyze, conjecture and plan solution pathways ● Monitor and adjust ● Verify answers ● Ask themselves the question: "Does this make sense?"
MP.2 Reason abstractly and quantitatively.	<ul style="list-style-type: none"> ● Make sense of quantities and their relationships in problems ● Learn to contextualize and decontextualize ● Create coherent representations of problems
MP.3 Construct viable arguments and critique the reasoning of others.	<ul style="list-style-type: none"> ● Understand and use information to construct arguments ● Make and explore the truth of conjectures ● Recognize and use counterexamples ● Justify conclusions and respond to arguments of others
MP.4 Model with mathematics.	<ul style="list-style-type: none"> ● Apply mathematics to problems in everyday life ● Make assumptions and approximations ● Identify quantities in a practical situation ● Interpret results in the context of the situation and reflect on whether the results make sense
MP.5 Use appropriate tools strategically.	<ul style="list-style-type: none"> ● Consider the available tools when solving problems ● Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools) ● Make sound decisions of which of these tools might be helpful
MP.6 Attend to precision.	<ul style="list-style-type: none"> ● Communicate precisely to others ● Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes ● Calculate accurately and efficiently
MP.7 Look for and make use of structure.	<ul style="list-style-type: none"> ● Discern patterns and structures ● Can step back for an overview and shift perspective ● See complicated things as single objects or as being composed of several objects
MP.8 Look for and express regularity in repeated reasoning.	<ul style="list-style-type: none"> ● Notice if calculations are repeated and look both for general methods and shortcuts ● In solving problems, maintain oversight of the process while attending to detail ● Evaluate the reasonableness of their immediate results

**Ocean County MATHEMATICS CURRICULUM
Unit 1 Overview**

Content Area: Mathematics

Domain: Number and Operations in Base Ten

Target Course / Grade Level: 3

Cluster:

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

Cluster Summary:

Prior to implementing rules for rounding, students need to have opportunities to investigate place value. A strong understanding of place value is essential for the development of number sense and the subsequent work that involves rounding numbers.

Building on previous understandings of the place value of digits in multi digit numbers, place value is used to round whole numbers. Dependence on learning rules can be eliminated with strategies such as the use of a number line to determine which multiple of 10 or of 100, a number is nearest (5 or more rounds up, less than 5 rounds down). As students' understanding of place value increases, the strategies for rounding are valuable for estimating, justifying, and predicting the reasonableness of solutions in problem solving.

Strategies used to add and subtract two digit numbers are now applied to fluently add and subtract whole numbers within 1000. These strategies should be discussed so that students can make comparisons and move toward efficient methods.

By applying understanding of place value, students extend their work in multiplication to multiply one-digit numbers with multiples of 10. They go beyond tricks that hinder understanding such as "just adding zeros". For example, the product 4×30 can be represented as 4 groups of 3 tens, which is 12 tens, which is 120.

Primary Interdisciplinary Connections:

Science	measurement (distance, weight, and growth), data analysis and collection, experiments relating to Molecules to Organisms and EcoSystems
Social Studies	economics & money, weather patterns, geography & map skills, and graphing
Language Arts	math journals, word problem comprehension, math stories, open-ended math questions, multi-step problems, math literature (<i>see list under</i>

	<i>Teacher Resources)</i>
Technology	8.1- Educational Technology: use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. interactive whiteboard lessons, independent centers, classroom websites, online resources and apps (<i>see list under Teacher Resources</i>)
21st Century Life and Careers:	
Number	NJ Core Curriculum Content Standard
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP6.	Demonstrate creativity and innovation.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Learning Targets	
Content Standards: NBT	
Number	Common Core Standard for Mastery
3.NBT.1	Use place understanding to round to the nearest 10 and 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.
Number	Common Core Standard for Introduction

4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.
4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
Unit Essential Questions: <ul style="list-style-type: none"> • How can numbers be expressed, ordered and compared? • How does understanding place value help us add and subtract large numbers? • How are the operations of addition and subtraction related? • What are efficient methods for multiplying by multiples of ten? 	Unit Enduring Understandings: <i>Students will understand that...</i> <ul style="list-style-type: none"> • building and taking apart numbers provides a deep understanding of the base 10 number system. • knowledge and use of place value for large numbers provides context for distances. • addition and subtraction are related • knowledge of place value and properties of operations can help when multiplying by multiples of ten.
Unit Objectives <i>Students will know...</i> <ul style="list-style-type: none"> • place value and properties of operations to add and subtract. • how to use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the result of computations to determine if something is reasonable. • multiples of ten are based on place value. 	Unit Objectives <i>Students will be able to...</i> <ul style="list-style-type: none"> • 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. • use place value to round whole numbers to the nearest 10 or 100. • multiply one digit whole numbers by multiples of 10.

Ocean County Mathematics Curriculum

Formative Assessments

- Teacher Observation
- Exit Slips
- Games
- Anecdotal Records

- Oral Assessments/Conferencing
- Portfolio/Math Journal
- Daily Classwork
- Pre-Assessment

Summative Assessments

- Tests
- Quizzes
- Performance Tasks
- National/State/District Wide Assessments

Modifications (ELLs, Special Education, Gifted and Talented)

Low Level Strategies

- Small Group Instruction
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Visual Models
- Multi-sensory materials
- Manipulatives
- Supplemental Aids (addition table, multiplication table, number line, etc.)
- Tiered Activities
- Modified Assignments and Assessments
- Study sheets/Summary sheets/Vocabulary support
- Breakdown presentation of material
- Assistive Technology

High Level Strategies

- Enrichment & Challenge Activities/HOT Problems
- Extended Assignments/Assessments
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Group projects
- Student Driven Activities
- Student Choice Activities

Instructional Materials/Teacher Resources:

Math Literature:

Place Value:

The King's Commissioners by Aileen Freidman

Sir Cumference and the All the King's Tens by Cindy Neuschwander

Earth Day--Hooray! by Stuart Murphy

How Much is a Million? by David Schwartz

If You Made a Million by David Schwartz

Addition and Subtraction:

The Mission of Addition by Brian P. Cleary

Addition Annie by David Gisler

The Hershey's Kisses Addition Book by Jerry Pallotta

Double Play: Monkeying Around with Addition by Betsy Franco

Subtraction:

The Action of Subtraction by Brian P. Cleary

Elevator Magic by Stuart J. Murphy

Subtraction Action by Loreen Leedy

Websites:

www.tenmarks.com

www.mathisfun.com

www.sumdog.com

www.multiplication.com

www.mathgametime.com

www.mrnussbaum.com

www.interactivesites.weebly.com

IPAD games:

Half Court Rounding

Maximum Capacity

Place Value Pirates

Optional Equipment:

Computers, overheads, interactive whiteboard, iPads

Teacher Notes:

**Ocean County MATHEMATICS CURRICULUM
Unit 2 Overview**

Content Area: Mathematics

Domain: Operations and Algebraic Thinking

Target Course / Grade Level: 3

Cluster:

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Cluster Summary:

Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

Primary Interdisciplinary Connections:

Science	measurement (distance, weight, and growth), data analysis and collection, experiments relating to Engineering and Design .
Social Studies	economics & money, weather patterns, geography & map skills, and graphing
Language Arts	math journals, word problem comprehension, math stories, open-ended math questions, multi-step problems, math literature (<i>see list under Teacher Resources</i>)
Technology	8.1- Educational Technology: use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. interactive whiteboard lessons, independent centers, classroom websites, online resources and apps (<i>see list under Teacher Resources</i>)

21st Century Life and Careers:

Number	NJ Core Curriculum Content Standard
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP6.	Demonstrate creativity and innovation.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.

Learning Targets

Content Standards: OA

Number	Common Core Standard for Mastery
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. 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 $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)
3.OA.6	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.7	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.8	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.
3.OA.9	Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.
<p>Unit Essential Questions:</p> <ul style="list-style-type: none"> • What do multiplication and division mean? • How are multiplication and division related? • Why do we use symbols to represent missing numbers? • What strategies can be used to learn multiplication and division facts? • How can multiplication and division facts with smaller numbers be applied to larger numbers? • How can we predict the next element in a pattern? 	<p>Unit Enduring Understandings: <i>Students will understand that...</i></p> <ul style="list-style-type: none"> • the four basic arithmetic operations are interrelated, and the properties of each may be used to understand the others. • mathematical concepts can be understood using a variety of models. • numbers are able to represent quantity, position, location, and relationships, and symbols may be used to express these relationships.
<p>Unit Objectives <i>Students will know...</i></p> <ul style="list-style-type: none"> • multiplication and division can be applied in real world situations. • problem solving in daily life may include unknown variables that impact outcomes. • patterns exist in the relationship of multiplication and division. 	<p>Unit Objectives <i>Students will be able to...</i></p> <ul style="list-style-type: none"> • interpret products of whole numbers. • interpret whole number quotients. • use multiplication and division to solve word problems. • determine the unknown whole number in an equation of three whole numbers. • apply properties of operations to multiply and divide • memorize all products of two single-digit numbers. • solve two step word problems using four operations and solving for the unknown. • identify patterns in arithmetic.

Ocean County Mathematics Curriculum

Formative Assessments

- Teacher Observation
- Exit Slips
- Games
- Anecdotal Records
- Oral Assessments/Conferencing
- Portfolio/Math Journal
- Daily Classwork
- Pre-Assessment

Summative Assessments

- Tests
- Quizzes
- Performance Tasks
- National/State/District Wide Assessments

Modifications (ELLs, Special Education, Gifted and Talented)

Low Level Strategies

- Small Group Instruction
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Visual Models
- Multi-sensory materials
- Manipulatives
- Supplemental Aids (addition table, multiplication table, number line, etc.)
- Tiered Activities
- Modified Assignments and Assessments
- Study sheets/Summary sheets/Vocabulary support
- Breakdown presentation of material
- Assistive Technology

High Level Strategies

- Enrichment & Challenge Activities/HOT Problems
- Extended Assignments/Assessments
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Group projects
- Student Driven Activities
- Student Choice Activities

Instructional Materials/Teacher Resources:

Math Literature:

Multiplication:

Hershey's Kisses by Jerry Pollatta

365 Penguins by Jean Luc Fromental

The Doorbell Rang by Pat Hutchings

Division:

Safari Park by Stuart Murphy
The Doorbell Rang by Pat Hutchings
The Best of Times by Greg Tang

Websites:

www.tenmarks.com
www.mathisfun.com
www.sumdog.com
www.multiplication.com
www.mathgametime.com
www.mrnussbaum.com
www.interactivesites.weebly.com

IPAD games:

Great American Multiplication Challenge
World Cup Math
Golden Path
Around the World

Optional Equipment:

Computers, overheads, interactive whiteboard, iPads

Teacher Notes:

**Ocean County MATHEMATICS CURRICULUM
Unit 3 Overview**

Content Area: Mathematics

Domain: Number and Operations-Fractions

Target Course / Grade Level: 3

Cluster:

- Develop understanding of fractions as numbers

Cluster Summary:

Students develop an understanding of fractions, beginning with the representation of parts compared to a whole. Students understand that the size of a fractional part is relative to the size of the whole. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

Primary Interdisciplinary Connections:

Science	measurement (distance, weight, and growth), data analysis and collection
Social Studies	economics & money, weather patterns, geography & map skills, and graphing
Language Arts	math journals, word problem comprehension, math stories, open-ended math questions, multi-step problems, math literature (<i>see list under Teacher Resources</i>)
Technology	8.1- Educational Technology: use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. interactive whiteboard lessons, independent centers, classroom websites, online resources and apps (<i>see list under Teacher Resources</i>)

21st Century Life and Careers:

Number	NJ Core Curriculum Content Standard
CRP1.	Act as a responsible and contributing citizen and employee.

CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP6.	Demonstrate creativity and innovation.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Learning Targets	
Content Standards: NF	
Number	Common Core Standard for Mastery
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.
	a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.
	b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
3.NF.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
	a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
	b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent using a visual fraction model.
	c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

	d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
Number	Common Core Standard for Introduction
4.NF.6	Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.
Unit Essential Questions: <ul style="list-style-type: none"> How many ways can a whole number be represented? How do we show part of a unit? How can a fraction be represented in different equivalent forms? 	Unit Enduring Understandings: <i>Students will understand that...</i> <ul style="list-style-type: none"> fractions represent equal parts of a whole unit fractions are represented on a number line fractions with different numerators and denominators can be compared by reasoning about their size
Unit Objectives <i>Students will know...</i> <ul style="list-style-type: none"> fractions represent equal parts of a whole unit. fractions are represented on a number line. fractions can still be equivalent even though they appear to be different. 	Unit Objectives <i>Students will be able to...</i> <ul style="list-style-type: none"> construct a fraction based on an object partitioned into equal parts. compare fractions by using visual fraction models and number lines to understand equivalent fractions. compare two fractions with the same numerator or the same denominator by reasoning about their size.

Ocean County Mathematics Curriculum	
Formative Assessments <ul style="list-style-type: none"> Teacher Observation Exit Slips Games Anecdotal Records Oral Assessments/Conferencing Portfolio/Math Journal 	<ul style="list-style-type: none"> Daily Classwork Pre-Assessment Summative Assessments <ul style="list-style-type: none"> Tests Quizzes Performance Tasks National/State/District Wide Assessments

Modifications (ELLs, Special Education, Gifted and Talented)

Low Level Strategies

- Small Group Instruction
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Visual Models
- Multi-sensory materials
- Manipulatives
- Supplemental Aids (addition table, multiplication table, number line, etc.)
- Tiered Activities
- Modified Assignments and Assessments
- Study sheets/Summary sheets/Vocabulary support
- Breakdown presentation of material
- Assistive Technology

High Level Strategies

- Enrichment & Challenge Activities/HOT Problems
- Extended Assignments/Assessments
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Group projects
- Student Driven Activities
- Student Choice Activities

Instructional Materials/Teacher Resources:**Math Literature:****Fractions:**

Fraction Fun by David Adler

Give Me Half! By Stuart Murphy

Clean Sweep Campers by Lucille Recht Penner

Hershey Fractions Book by Jerry Pollatta

Websites:

www.tenmarks.com

www.mathisfun.com

www.sumdog.com

www.multiplication.com

www.mathgametime.com

www.mrnussbaum.com

www.interactivsites.weebly.com

IPAD games:

Sand Dollar Exchange

Optional Equipment:

Computers, overheads, interactive whiteboard, iPads

Teacher Notes:

**Ocean County MATHEMATICS CURRICULUM
Unit 4 Overview**

Content Area: Mathematics**Domain: Measurement and Data****Target Course / Grade Level: 3****Cluster:**

- Solve problems involving measurement and estimation
- Represent and interpret data
- Geometric Measurement: Understand concepts of liquid volume, mass, perimeter, area and relate area to multiplication and to addition.

Cluster Summary:

A clock is a common instrument for measuring time. Learning to tell time has much to do with learning to read a dial-type instrument and little with time measurement. Building on previous understanding of measuring time, students will tell and write time to the nearest minute and measure time intervals in minutes.

Representation of a data set is extended from picture graphs and bar graphs with single-unit scales to scaled picture graphs and scaled bar graphs.

Students are to measure lengths using rulers marked with halves and fourths of an inch and record the data on a line plot.

Students will recognize perimeter and area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

Primary Interdisciplinary Connections:

Science	measurement (distance, weight, and growth), data analysis and collection, experiments relating to Motions and Stability, Heredity, Biological Evolution and Earth Systems.
Social Studies	economics & money, weather patterns, geography & map skills, and graphing

Language Arts	math journals, word problem comprehension, math stories, open-ended math questions, multi-step problems, math literature (<i>see list under Teacher Resources</i>)
Technology	8.1- Educational Technology: use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. interactive whiteboard lessons, independent centers, classroom websites, online resources and apps (<i>see list under Teacher Resources</i>)

21st Century Life and Careers:

Number	NJ Core Curriculum Content Standard
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP6.	Demonstrate creativity and innovation.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.

Learning Targets

Content Standards: MD

Number	Common Core Standard for Mastery
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.
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. 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.		
3.MD.5	a. Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.		
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. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectangular figures by decomposing them into non- overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.		
Number	Common Core Standard for Introduction		
4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:		
4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.		
4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.		
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<ul style="list-style-type: none"> • What is the purpose of measurement? • How can measurements be used to solve real world problems? 	<p>understanding of people and the world.</p> <ul style="list-style-type: none"> • measurements can be used to describe, compare, and make sense of phenomena. • everyday objects have a variety of attributes, each of which can be measured in many ways. • what we measure affects how we measure it.
<p>Unit Objectives <i>Students will know...</i></p> <ul style="list-style-type: none"> • time increments on analog and digital clocks. • data can be displayed using various types of graphs to organize and explain information. • lengths can be measured to describe countless objects. • how to measure and estimate liquid volumes and masses of objects. • how to measure area of given shapes and objects. • how to relate area to the operations of multiplication and addition. • how to identify the perimeter of a shape. • how to solve word problems using perimeter and area. 	<p>Unit Objectives <i>Students will be able to...</i></p> <ul style="list-style-type: none"> • tell and write time to the nearest minute and measure time intervals. Solve word problems involving addition and subtraction of time intervals in minutes. • interpret and represent data by solving 1 step and 2 step word problems based on information presented in graphs. • measure lengths indirectly and by repeating length units. • measure and estimate liquid volumes and masses using specific units such as grams, kilograms, and liters. • measure the area of a given shape by counting unit squares (square cm, square m, square in, etc.). • measure the area of a rectangle by multiplying side lengths or using repeated addition. • recognize that the perimeter is found along the outside of a given shape and can problem solve to find an unknown side length. • comprehend that perimeter and area are used to solve real world problems.

Ocean County Mathematics Curriculum

Formative Assessments

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- Pre-Assessment

Summative Assessments

- Tests
- Quizzes
- Performance Tasks
- National/State/District Wide Assessments

Modifications (ELLs, Special Education, Gifted and Talented)

Low Level Strategies

- Small Group Instruction
- Leveled and Heterogenous Grouping/Peer to Peer Interaction
- Visual Models
- Multi-sensory materials
- Manipulatives
- Supplemental Aids (addition table, multiplication table, number line, etc.)
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High Level Strategies

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- Group projects
- Student Driven Activities
- Student Choice Activities

Instructional Materials/Teacher Resources

Math Literature:

Spaghetti and Meatballs for All by Marilyn Burns

Time:

Clocks and More Clocks by Pat Hutchings

Telling Time with Big Mama Cat by Dan Harper

Get Up and Go! by Stuart Murphy

Graphing:

The Best Vacation Ever! By Stuart Murphy

Lemonade for Sale by Stuart Murphy

Tiger Math: Learning to Graph from a Baby Tiger by Ann Whitehead Nagda

Area and Perimeter:

Perimeter and Area at the Amusement Park by Diane Irving

Perimeter, Area and Volume by David Adler

Volume and Mass:

Mr. Archimedes Bath by Pamela Allen

Websites:

www.tenmarks.com

www.mathisfun.com

www.sumdog.com

www.multiplication.com

www.mathgametime.com

www.mrnussbaum.com

www.interactivesites.weebly.com

IPAD games:

Math splash games

Clock works

Bedtime bandits

Clockmaker

Hoodamath graphing gala

Hands - on math graph

Geoboard

Geometry bundle by Summit applications

Optional Equipment:

Computers, overheads, interactive whiteboard, iPads

Teacher Notes:

**Ocean County MATHEMATICS CURRICULUM
Unit 5 Overview**

Content Area: Mathematics

Domain: Geometry

Cluster:

- Reason with shapes and their attributes.

Cluster Summary:

Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Primary Interdisciplinary Connections:

Science	measurement (distance, weight, and growth), data analysis and collection.
Social Studies	economics & money, weather patterns, geography & map skills, and graphing
Language Arts	math journals, word problem comprehension, math stories, open-ended math questions, multi-step problems, math literature (<i>see list under Teacher Resources</i>)
Technology	8.1- Educational Technology: use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. interactive white board lessons, independent centers, classroom websites, online resources and apps (<i>see list under Teacher Resources</i>)

21st Century Life and Careers:

Number	NJ Core Curriculum Content Standard
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.

CRP6.	Demonstrate creativity and innovation.		
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.		
CRP11.	Use technology to enhance productivity.		
CRP12.	Work productively in teams while using cultural global competence.		
Target Course / Grade Level: 3			
Learning Targets			
Content Standards: G			
Number	Common Core Standard for Mastery		
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 $\frac{1}{4}$ of the area of the shape.		
Number	Common Core Standard for Introduction		
4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.		
4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.		
4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.		
4.G.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.		
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<p>Unit Objectives <i>Students will know...</i></p> <ul style="list-style-type: none"> • how spatial relationships can be described by careful use of geometric language. • how geometric relationships help to solve problems and/or make sense of phenomena. 	<p>Unit Objectives <i>Students will be able to...</i></p> <ul style="list-style-type: none"> • use properties of standard 2-D shapes to identify, classify, and describe (vertex, side, edge, face, and angle). • recognize rhombus, rectangles, and squares as examples of quadrilaterals and determine examples of quadrilaterals that do not belong. • partition shapes (unit fractions) into sections to determine parts of a whole.
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- Student Choice Activities

Instructional Materials/Teacher Resources

Math Literature:

Shapes:

When a Line Bends . . . A Shape Begins by Rhonda Gowler Greene

Shapes, Shapes, Shapes by Tanya Hoban

Cubes, Cones, Cylinders, & Spheres by Tanya Hoban (Introduction)

Lines, Segments, Rays, and Angles by Claire Piddick

The Greedy Triangle by Marilyn Burns

Websites:

www.tenmarks.com

www.mathisfun.com

www.sumdog.com

www.multiplication.com

www.mathgametime.com

www.mrnussbaum.com

www.interactivesites.weebly.com

IPAD games:

Shape Invaders

Optional Equipment:

Computers, overheads, interactive whiteboard

Teacher Notes