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Created by:	Kim Guarascio, Berkeley; James McGettigan, Little Egg Harbor; Amy Ferrer, Long Beach Island
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OCEAN COUNTY MATHEMATICS CURRICULUM

Content Area: Mathematics

Course Title: Grade 5

Grade Level: 5

Unit Plan 1: Operations and Algebraic Thinking

Pacing Guide
8 Weeks

Unit Plan 2: Number and Operations in Base Ten

Pacing Guide
6 Weeks

Unit Plan 3: Number and Operations- Fractions

Pacing Guide
6 Weeks

Unit Plan 4: Measurement and Data

Pacing Guide
7 Weeks

Unit Plan 5: Geometry

Pacing Guide
6 Weeks

Standards for Mathematical Practice

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

<p>MP.1 Make sense of problems and persevere in solving them.</p>	<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?”
<p>MP.2 Reason abstractly and quantitatively.</p>	<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
<p>MP.3 Construct viable arguments and critique the reasoning of others.</p>	<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
<p>MP.4 Model with mathematics.</p>	<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
<p>MP.5 Use appropriate tools strategically.</p>	<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
<p>MP.6 Attend to precision.</p>	<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
<p>MP.7 Look for and make use of structure.</p>	<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
<p>MP.8 Look for and express regularity in repeated reasoning.</p>	<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 Overview

Content Area: Mathematics

Grade: 5

Domain: Operations and Algebraic Thinking

Cluster:

- **Write and interpret numerical expressions.**
- **Analyze patterns and relationships.**

Cluster Summary: Students will use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. They will write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. They will generate two numerical patterns using two given rules, identify apparent relationships between corresponding terms, form ordered pairs consisting of corresponding terms from, form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.

Primary Interdisciplinary Connections: Science, Social Studies, Language Arts, Technology, and 21st Century Life and Careers. For further clarification see NJ Core Curriculum Content Standards at www.njcccs.org

21st Century Themes: 21st Century Life & Careers; Personal Financial Literacy; Career Awareness, Exploration, & Preparation; Career & Technical Education

Learning Targets

Content Standards

Number	Common Core Standard for Mastery
5.OA.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.A.2	<i>Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</i>

5.OA.B.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</i>
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Number	Common Core Standard for Introduction
6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.
6.EE.A.2. A	Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation "Subtract y from 5" as $5 - y$.</i>

<p>Unit Essential Questions</p> <ul style="list-style-type: none"> • How are numerical expressions written and interpreted? • What are ways to analyze patterns to identify relationships? 	<p>Unit Enduring Understandings</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • any number, measure, numerical or algebraic expression, or equation can be represented in a variety of ways that have the same value. • the four operations are interrelated, and the properties of each may be used to understand the others.
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<p>Unit Objectives</p> <p>Students will know...</p> <ul style="list-style-type: none"> • how to write and interpret numerical expressions. • how to analyze patterns and relationships. 	<p>Unit Objectives</p> <p>Students will be able to...</p> <ul style="list-style-type: none"> • use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. • write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. • generate two numerical patterns using two given rules, identify apparent relationships between corresponding terms, form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.
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OCEAN COUNTY MATHEMATICS CURRICULUM

Evidence of Learning

Formative Assessments

- Oral Questioning
- Choral Response
- Partners
- Student Conference
- Self-Assessment
- Think-Pair-Share
- Hand Signals
- Peer Reflection

- Communicators
- Graphic Organizers
- Constructive Response
- Teacher Observation
- Exit Card
- Quiz
- Class work
- Math Journals

Summative Assessments / Benchmark Assessments

- Quizzes
- Chapter Tests
- Standards Tests
- Unit Tests

- Unit Projects
- Presentations
- Final Exams
- National/State/District Wide Assessments

Modifications (ELLs, Special Education, Gifted and Talented, SRSF)

- Differentiated Instruction
- Follow IEP Modifications and 504 Plans
- Teacher Tutoring
- Peer Tutoring
- Cooperative Learning Groups
- Modified Test and Assignments
- Native Language Texts and Native Language to English Dictionary
- Retesting
- Student-Driven / Choice Assessments
- Flexible Grouping
- Tiered Assignments

Curriculum development Resources/Instructional Materials/Equipment Needed /Teacher

Resources:

Math Literature:

The History of Counting by Denise Schmandt-Besserat- Patterns and Multiplication
Sea Squares by Joy N. Hulme-Counting, Multiplication and Patterns
Two of Everything by Lily Toy Hong-Counting, Multiplication and Patterns
The 12 Circus Rings by Seymour Chwast-Algebraic Patterns and Relationships

Websites:

www.khanacademy.org

www.funbrain.com

www.coolmath.com

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

<http://www.321know.com/alg.htm>

<https://www.ixl.com/math/grade-5>

**OCEAN COUNTY MATHEMATICS
CURRICULUM
Unit Overview**

Content Area: Mathematics

Grade: 5

Domain: Number and Operations in Base Ten

Cluster:

- **Understand the place value system.**
- **Perform operations with multi-digit whole numbers and with decimals to hundredths.**

Cluster Summary: Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals, fractions and percents, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

Primary interdisciplinary connections: Science, Social Studies, Language Arts, Technology, and 21st Century Life and Careers. For further clarification see NJ Core Curriculum Content Standards at www.njcccs.org

21st century themes: 21st Century Life & Careers; Personal Financial Literacy; Career Awareness, Exploration, & Preparation; Career & Technical Education

Learning Targets

Content Standards

Number	Common Core Standard for Mastery
5.NBT.A.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.A.3	Read, write, and compare decimals to thousandths.
5.NBT.A.3.A	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.

5.NBT.A.3.B	Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
5.NBT.A.4	Use place value understanding to round decimals to any place.
5.NBT.B.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NBT.B.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.
5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Number	Common Core Standard for Introduction
6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
Unit Essential Questions <ul style="list-style-type: none"> ● How can place value understanding help us compare, order and round whole numbers, decimals and percents? ● How can we apply and extend previous understandings of adding and subtracting decimals and fractions? ● What algorithms are used to easily multiply and divide whole numbers decimals and fractions? ● How can we decide what operation to use when presented with a problem? ● How do operations affect numbers? 	Unit Enduring Understandings <i>Students will understand that...</i> <ul style="list-style-type: none"> ● numeric fluency includes both the understanding of and the ability to appropriately use numbers ● computational fluency includes understanding not only the meaning, but also the appropriate use of numerical operations and place value. ● formulate, represent and use algorithms to add, subtract, multiply and divide whole numbers, decimals and percents with accuracy and efficiency. ● the magnitude of numbers affects the outcome of operations on them.

Unit Objectives

Students will know...

- and understand the place value system to the thousandths.
- how to perform operations with multi-digit whole numbers and with decimals to hundredths.

Unit Objectives

Students will be able to...

- build on experience with whole numbers and decimals within the base 10 system and have knowledge of exponents with powers of 10.
- read, write, and compare decimals to thousandths using base-ten numerals, number names and expanded form.
- use place value understanding to round decimals to any place.
- fluently multiply multi-digit whole numbers using the standard algorithm and find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
- illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- recognize that the product is not always larger than its factors and that the quotient is not always smaller than the dividend.
- add, subtract, multiply, and divide decimals to hundredths.

OCEAN COUNTY MATHEMATICS CURRICULUM
Evidence of Learning

Formative Assessments

- Oral Questioning
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- Peer Reflection
- Communicators
- Graphic Organizers
- Constructive Response
- Teacher Observation
- Exit Card
- Quiz
- Class work
- Math Journals

Summative Assessments / Benchmark Assessments

- Quizzes
- Chapter Tests
- Standards Tests
- Unit Tests
- Unit Projects
- Presentations
- Final Exams
- National/State/District Wide Assessments

Modifications (ELLs, Special Education, Gifted and Talented)

- Differentiated Instruction
- Follow IEP Modifications and 504 Plans
- Teacher Tutoring
- Peer Tutoring
- Cooperative Learning Groups
- Modified Tests and Assignments
- Native Language Texts and Native Language to English Dictionary
- Retesting
- Student-Driven / Choice Assessments
- Flexible Grouping
- Tiered Assignments

Curriculum development Resources/Instructional Materials/Equipment Needed /Teacher Resources:

Math Literature

- Anno's Mysterious Multiplying Jar by Misumasa and Masaichiro Anno-Addition, Subtraction, Multiplication and Division
- The 500 Hats of Bartholomew Cubbins by Dr. Seuss- Number Sense
- Millions of Cats by Wanda Ga'g- Number Sense
- How Much, How Many, How Far, How Heavy, How Long, How Tall Is?- Estimation 1000? by Helen Nolan- Patterns and Multiplication
- The History of Counting by Denise Schmandt-Besserat-Counting, Multiplication and Patterns
- Sea Squares by Joy N. Hulme- Division
- The Doorbell Rang by Pat Hutchins- Fractions and Place Value
- Alice in Numberland by Time-Life for Children- Multiplication
- Multiplying Menace: The Revenge of Rumpelstiltskin-A Math Adventure by Pam Calvert- Division
- A Remainder of One by Elinor J. Pinczes-Number Sense
- One Grain of Rice by Demi- Estimation
- Great Estimations by Bruce Goldstone- Estimation
- Greater Estimations by Bruce Goldstone- Place Value
- On Beyond a Million by David M. Schwartz

Websites:

www.khanacademy.com

www.funbrain.com

www.coolmath.com

<http://www.mathchimp.com/5th-grade-math-games>

<https://smart.wikispaces.hcpss.org/Grade+5+Number+and+Operations+in+Base+Ten>

<http://www.spellingcity.com/number-and-operations-in-base-ten.html>

Teacher Notes:

OCEAN COUNTY MATHEMATICS CURRICULUM

Unit Overview

Content Area: Mathematics

Domain: Number and Operations-Fractions

Cluster:

- **Use equivalent fractions as a strategy to add and subtract fractions.**
- **Apply and extend previous understandings of multiplication and division to multiply and divide fractions.**

Cluster Summary: Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

Primary Interdisciplinary Connections: Science, Social Studies, Language Arts, Technology, and 21st Century Life and Careers. For further clarification see NJ Core Curriculum Content Standards at www.njcccs.org

21st Century Themes: 21st Century Life & Careers; Personal Financial Literacy; Career Awareness, Exploration, & Preparation; Career & Technical Education

Learning Targets

Content Standards

Number	Common Core Standard for Mastery
5.NF.A.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. <i>For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)</i>
5.NF.A.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. <i>For example, recognize an incorrect result $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$.</i>
5.NF.B.3	Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <i>For example, interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$. If 9 people</i>

	<i>want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i>
5.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NF.B.4A	Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. <i>For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)</i>
5.NF.B.4B	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.B.5	Interpret multiplication as scaling (resizing), by:
5.NF.B.5.A	Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.given number in a specified set makes an equation or inequality true.
5.NF.B.5.B	Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
5.NF.B.5.B.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
5.NF.B.5.B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.1such inequalities on number line diagrams.
5.NF.B.5.B.7.A	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. <i>For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.</i>
5.NF.B.5.B.7.B	Interpret division of a whole number by a unit fraction, and compute such quotients. <i>For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.</i>

5.NF.B.5.B.7.C	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?</i>
Number	Common Core Standard for Introduction
6. RP	Students' prior knowledge of and skill with multiplication, division and fractions contribute to their study of ratios, proportional relationships and unit rates.
<p>Unit Essential Questions</p> <ul style="list-style-type: none"> ● How can fractions be modeled, compared, and ordered? ● How are common fractions, decimals and percentages alike and different? ● How is computation with rational numbers similar and different to whole number computation? 	<p>Unit Enduring Understandings</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> ● fractions, decimals, and percentages express the relationship between two numbers. ● fractions are a part of a whole, part of a set, part of an area, and locations on the number line. ● fractions can be read, written, ordered, compared, modeled, and computed in a variety of ways, including equivalents, improper, and mixed numbers.
<p>Unit Objectives</p> <p>Students will know how...</p> <ul style="list-style-type: none"> ● to use equivalent fractions as a strategy ● to add and subtract fractions. ● to apply and extend previous understandings of multiplication and division to multiply and divide fractions. 	<p>Unit Objectives</p> <p>Students will be able to...</p> <ul style="list-style-type: none"> ● add and subtract fractions with unlike denominators (including mixed numbers). ● solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. ● Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). ● Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. ● Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. ● Interpret multiplication as scaling (resizing) by comparing the size of a product to the size of one factor on the basis of the size of the other factor. ● Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number and multiplying a given number by a fraction less than 1 results in a product smaller than the given number. ● Solve real world problems involving multiplication of fractions and mixed numbers. ● Apply and extend previous understandings of division

to divide unit fractions by whole numbers and whole numbers by unit fractions.

OCEAN COUNTY MATHEMATICS CURRICULUM
Evidence of Learning

Formative Assessments

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Oral Questioning ● Choral Response ● Partners ● Student Conference ● Self Assessment ● Think-Pair-Share ● Hand Signals ● Peer Reflection | <ul style="list-style-type: none"> ● Communicators ● Graphic Organizers ● Constructive Response ● Teacher Observation ● Exit Card ● Quiz ● Class work ● Math Journals |
|---|---|

Summative Assessments / Benchmark Assessments

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Quizzes ● Chapter Tests ● Standards Tests ● Unit Tests | <ul style="list-style-type: none"> ● Unit Projects ● Presentations ● Final Exams ● National/State/District Wide Assessments |
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Modifications (ELLs, Special Education, Gifted and Talented)

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Differentiated Instruction
- Follow IEP Modifications and 504 Plans
- Teacher Tutoring
- Peer Tutoring
- Cooperative Learning Groups
- Modified Tests and Assignments
- Native Language Texts and Native Language to English Dictionary
- Retesting
- Student-Driven / Choice Assessments
- Flexible Grouping
- Tiered Assignments

Curriculum development Resources/Instructional Materials/Equipment Needed Teacher Resources:

Math Literature:

Fraction Action, Loreen Leedy

Fraction Fun, David A. Adler and Nancy Tobin

Wishing Club, A story about fractions by Anna Currey

Websites:

www.khanacademy.org

www.funbrain.com

www.coolmath.com

<http://www.321know.com/fra.htm>

<http://www.adaptedmind.com/gradelist.php?grade=5>

http://www.internet4classrooms.com/skill_builders/fractions_percent_math_fifth_5th_grade.htm

Teacher Notes:

OCEAN COUNTY MATHEMATICS CURRICULUM

Unit Overview

Content Area: Mathematics

Grade: 5

Domain: Measurement and Data

Cluster:

Convert like measurement units within a given measurement system.

Represent and interpret data.

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Cluster Summary: Students will apply their understanding of measurement to convert to like units. Students will be able to represent and interpret data through the use of surveys, plots, and graphs.

Primary Interdisciplinary Connections: Technology, Character Education, Language Arts

21st Century Themes: 21st Century Life & Careers; Personal Financial Literacy; Career Awareness, Exploration, & Preparation; Career & Technical Education

Content Standards

Number	Common Core Standard for Mastery
5.MD.A.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
5.MD.B.2	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i>
5.MD.C.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
5.MD.C.3.A	A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
5.MD.C.3.B	A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
5.MD.C.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5.MD.C.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
5.MD.C.5.A	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying

	the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
5.MD.C.5.B	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
5.MD.C.5.C	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Number	Common Core Standard for Introduction
6.G.A.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = b h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

<p>Unit Essential Questions</p> <ul style="list-style-type: none"> • What types of problems are solved with measurement? • What are tools of measurement and how are they used? • What is the purpose of standard units of measurement? • How do units within a system relate to each other? • When is an estimate more appropriate than an actual measurement? • What strategies help estimate measurements? 	<p>Unit Enduring Understandings Students will understand that...</p> <ul style="list-style-type: none"> • They will build on their prior knowledge of related measurement units to determine equivalent measurements. • prior to making actual conversions, they examine the units to be converted, determine if the converted amount will be more or less units than the original unit, and explain their reasoning. • They use several strategies to convert measurements. When converting metric measurement, students apply their understanding of place value and decimals.
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<p>Unit Objectives Students will know...</p> <ul style="list-style-type: none"> ● the difference between various standard units of measurement ● how to create visual displays of data ● how to recognize and apply concepts related to volume 	<p>Unit Objectives Students will be able to...</p> <ul style="list-style-type: none"> ● convert among different-sized standard measurement unit within a given measurement system. ● make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). ● recognize volume as an attribute of solid figures and understand concepts of volume measurement. ● measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. ● relate volume to the operations of multiplication and addition and solve real world and mathematical problems.
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<p>OCEAN COUNTY MATHEMATICS CURRICULUM Evidence of Learning</p>	
<p>Formative Assessments</p> <ul style="list-style-type: none"> ● Oral Questioning ● Choral Response ● Partners ● Student Conference ● Self Assessment ● Think-Pair-Share ● Hand Signals ● Peer Reflection ● Communicators ● Graphic Organizers ● Constructive Response ● Teacher Observation ● Exit Card ● Quiz ● Class work ● Math Journals 	
<p>Summative Assessments / Benchmark Assessments</p> <ul style="list-style-type: none"> ● Quizzes ● Chapter Tests ● Standards Tests ● Unit Tests ● Unit Projects ● Presentations ● Final Exams ● National/State/District Wide Assessments 	

Modifications (ELLs, Special Education, Gifted and Talented)

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Differentiated Instruction
- Follow IEP Modifications and 504 Plans
- Teacher Tutoring
- Peer Tutoring
- Cooperative Learning Groups
- Modified Tests and Assignments
- Native Language Texts and Native Language to English Dictionary
- Retesting
- Student-Driven / Choice Assessments
- Flexible Grouping
- Tiered Assignments

Curriculum development Resources/Instructional Materials/Equipment Needed 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.khanacademy.org

www.funbrain.com

www.coolmath.com

<http://www.aaamath.com/mea.htm>

<http://www.k-5mathteachingresources.com/5th-grade-measurement-and-data.html>

Mathwire.com Offers various activities, lessons and games for fraction concepts

<http://www.aaamath.com/fra.html> Offers various math games

Teacher Notes:

OCEAN COUNTY MATHEMATICS CURRICULUM

Unit Overview

Content Area: Mathematics

Grade: 5

Domain: Geometry

Cluster:

- **Graph points on the coordinate plane to solve real-world and mathematical problems.**
- **Classify two-dimensional figures into categories based on their properties.**

Cluster Summary: Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language with increasing precision (i.e. coordinate system, coordinate plane, first quadrant, points, lines, axis/axes, x-axis, y-axis, horizontal, vertical, intersection of lines, origin, ordered pairs, coordinates, x-coordinate, y-coordinate). They reference real-world and mathematical problems, including the traveling from one point to another and identifying the coordinates of missing points in geometric figures.

Mathematically proficient students also classify two-dimensional figures based on their properties.

Primary Interdisciplinary Connections:

Science, Social Studies, Language Arts, Technology, and 21st Century Life and Careers. For further clarification see NJ Core Curriculum Content Standards at www.njcccs.org

21st Century Themes: 21st Century Life & Careers; Personal Financial Literacy; Career Awareness, Exploration, & Preparation; Career & Technical Education

Learning Targets

Content Standard

Number	Common Core Standard for Mastery
5.G.A.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).
5.G.A.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
5.G.B.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
5.G.B.4	Classify two-dimensional figures in a hierarchy based on properties.
Number	Common Core Standard for Introduction

6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	
Unit Essential Questions <ul style="list-style-type: none"> How can geometric/algebraic relationships best be represented and verified? How do geometric relationships help us to solve problems and/or make sense of phenomena? 	Unit Enduring Understandings <i>Students will understand that...</i> <ul style="list-style-type: none"> coordinate geometry can be used to represent and verify geometric/algebraic relationships geometric properties can be used to construct geometric figures. 	
Unit Objectives <i>Students will know...</i> <ul style="list-style-type: none"> how to classify two-dimensional figures that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category 	Unit Objectives <i>Students will be able to...</i> <ul style="list-style-type: none"> understand the underlying structure of the coordinate system and see how axes make it possible to locate points anywhere on a coordinate plane. classify two-dimensional shapes in a hierarchy based on properties. 	

OCEAN COUNTY MATHEMATICS CURRICULUM Evidence of Learning	
Formative Assessments <ul style="list-style-type: none"> Oral Questioning Choral Response Partners Student Conference Self-Assessment Think-Pair-Share Hand Signals Peer Reflection 	<ul style="list-style-type: none"> Communicators Graphic Organizers Constructive Response Teacher Observation Exit Card Quiz Class work Math Journals
Summative Assessments <ul style="list-style-type: none"> Quizzes Chapter Tests Standards Tests Unit Tests Unit Projects Presentations Final Exams National/State/District Wide Assessments 	

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- Retesting
- Student-Driven / Choice Assessments
- Flexible Grouping
- Tiered Assignments

Curriculum development Resources/Instructional Materials/Equipment Needed Teacher Resources:**Math Literature**

Sir Cumference and the Great Knight of Angleland (A Math Adventure) By Cindy Neuschwander-This series explores geometric concepts in an adventurous way.

Sir Cumference and the Sword in the Cone: A Math Adventure By Cindy Neuschwander

Sir Cumference and the Dragon of Pi (Math Adventures)- Simple tangram story that can be used to review basic geometry terms.

Grandfather Tang's Story Ann Tompert- Geometry/tessellation story

A Cloak For The Dreamer Aileen Friedman- Shape story

The Greedy Triangle Marilyn Burns - Geometry story

Flatland Edwin Edwin Abbot

Mr. Archimedes' Bath Pamela Allen

Who Sank the Boat? Pamela Allen

Websites:

www.khanacademy.org

www.funbrain.com

www.coolmath.com

http://www.mathplayground.com/common_core_state_standards_for_mathematics_grade_5.html

<http://www.321know.com/geo.htm>

<http://www.k-5mathteachingresources.com/5th-grade-geometry.html>

Teacher Notes: